AN INVESTIGATION INTO ABNORMAL BID PREMIUM IN UK CORPORATE TAKEOVER MARKET

by

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ABSTRACT

This thesis investigates ‘abnormal bid premium’ according to Bates and Becher (2017) with firm’s governance characteristics in bid premium settlement, market reaction in the short term and long-term performance of the combined firm from both bidder and target sides to develop a comprehensive perspective on the variable of interest. Study is on sample of UK publicly listed firm merger announcements made from 1995 to 2012 with hand collected governance data.

Short term market reaction is proxied by (CAR) cumulative abnormal return computed around merger announcements utilising standard event methodology and long-term market reaction is proxied utilising (BHAR) buy and hold abnormal returns. Whereas, abnormal operational performance is computed by utilising firm-matching technique in extant literature.

Utilising abnormal bid premium proxy has evidenced that firm’s governance characteristics influences bid premium settlement. Furthermore, market reaction to abnormal bid premium provides an insight into the priorities of target and bidder shareholders during merger announcements. Finally, this thesis evidences that abnormal bid premium is a valid measure for abnormal bid premium quality for UK corporate takeover market.

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1 Chapter: Thesis Introduction

Merger and Acquisitions (M&A) is one the most important areas of corporate finance as it is considered an instrument for furthering corporate growth. According to Thomson ONE database the number of worldwide completed deals in 2016 is 36,589, out of which 12,171 firms listed are public. Level of M&A activity is almost at pre-subprime mortgage financial crisis level, as in 2008 there were 38,560 completed merger deals out of which 15,942 firms involved were public firms. Hence, more than one-third of M&A activity volume relates to publicly listed firms. According to Office for National Statistics, value of M&A involving UK based targets with foreign bidders is 189,968 million pounds, which has increased almost five times since post subprime mortgage crisis level in 2009. Similarly, value of M&A involving both UK based targets and bidders only, more than doubled in value during same time period to 24,688 million pounds, (Statistics, 2016). These statistics indicate the level of M&A activity worldwide and merger deal values involved in UK publicly listed firms.

In view of its importance, M&A has attracted considerable research interest from the academicians due to its implications for shareholder welfare. Market for corporate control according to Jensen and Ruback (1983) on page 2 is described "as the rights to determine the management of corporate resources" that is transferred to the bidder firm when it successfully acquires the target firm, which is usually accomplished by acquiring target's majority shares.

Ideally, in corporate finance literature, such acquisitions are undertaken by bidder management for securing financial or operational synergies, paving way for further growth and realization of shareholder wealth maximization goal. Presence of such synergistic gains have been proven by studies like Bradley (1980) and Devos et al. (2009). However, Jensen (1986) indicates, even though mergers are a means for firms to attain growth, there would be instances when management

in their desire to control resources would act in less than optimal way and merger may result in bidder shareholder's wealth destruction. Roll (1986) indicates that an overconfident bidder management in their hubris may overpay for target, which may not help attain potential post-merger synergies. In other words, management motivated by self-interest or hubris, rather than shareholder welfare may destroy shareholder wealth during merger. Extant research has investigated various aspect of merger deal to observe agency related issues. For example Walkling and Long (1984) investigated target resistance, Cotter et al. (1997) investigated role of board independence, Cosh et al. (2006) studied impact of internal held equity and Jenter and Lewellen (2015) explores impact of CEO characteristics like on age on merger. These researchers have computed raw bid premium offered by bidder, as difference of, target's stock price usually 30 to 14 days prior to merger announcement and bid offer to investigate impact of various agency related issues.

It should be noted that, target or bidder management's real motivation for merger may remain obscured due to presence of information asymmetry per Dierickx and Koza (1991) and hence, these researchers have relied on raw bid premium offered as measure of bid quality and positive market reaction as sign of approval for merger deal. Shareholder wealth destruction in mergers is accomplished usually by over or under payment of bid premium, as overpayment made by bidder or underpayment accepted by target management may ultimately result in less than optimal setting for their shareholders. Hence, investigating bid premium is of interest because over or under payment as compared to a bid of adequate quality can reveal management's real motivation for merger.

To summarise, bid offered includes both base valuation of target and premium for target shareholders for relinquishing control of firm. Bidder management motivated by shareholder

welfare offers bid premium for realising potential post-merger synergistic benefits, leading to increase in shareholder wealth. On other hand, bidder management acting in self-interest may offer bid premium for empire building purposes with no synergistic benefits, destroying shareholder wealth. Betton et al. (2008a) has advised that bid offer price should be utilised directly to compute bid premium effectively, as market price also incorporates effects of investor anticipation to proposed merger. However, raw bid premium utilised in extant research, computed as difference from ex-ante target market price still offers a noisy proxy for observing bid premium due to utilisation of market prices.

In this regard, Bates and Becher (2017) computed 'abnormal bid premium' as difference between 'offered' bid premium and 'expected' bid premium, which is predicted from bid, target and bidder characteristics. Utilising expected bid premium instead of direct market price, offers a less noisy proxy for measuring bid quality. It should be noted that Bates and Becher (2017) utilised this measure of abnormal bid premium to investigate bid resistance and they mention that there remains a possibility of unmodeled governance variables to systematically affect premiums. Bates and Becher (2017) opted to disregard governance characteristics in abnormal bid premium regression as it did not impact probability of bid. However, relationships investigated through bid premium in prior research should be reflected more clearly by utilising abnormal bid premium as it offers a less noisy proxy for bid quality.

Hence, this thesis has utilised 'abnormal bid premium' following Bates and Becher (2017) to investigate the influence of target and bidder related agency issues on bid premium paid for UK publicly listed firms. Currently I am not aware of any study which has utilised abnormal bid premium to investigate agency related issues in M&A. Furthermore, in this thesis, I have also investigated both short-term and long-term market reaction and post-merger operational

performance of merged firms for the sample of UK publicly listed firms involved in merger activity from 1995–2012. This thesis observed the aforementioned relationships to establish the abnormal bid premium as a reliable measure of 'bid quality'. In other words, observing the relationships of abnormal bid premium with firm's governance characteristics in bid premium settlement, market reaction in the short term, and long-term performance of the merged firm from both bidder and target sides has enabled us to develop a comprehensive perspective on the variable of interest. Furthermore, I have investigated UK corporate M&A as it has set of 'Corporate governance code by Council (2014)' and merger regulations in 'The takeover code (2013)', which are distinct as compared to North American markets in terms of independent board structure requirements and prevention of takeover defences. For further detail please refer to section 2.1.

The reminder of this thesis is structured in chapters four, five and six, with each chapter investigating different aspect of relationship with abnormal bid premium. In chapter four, influence of firm's agency related issues are investigated, on bid premium payment, by observing relationship between abnormal bid premium and firm's governance characteristics. The governance data for UK publicly listed targets and bidders is hand collected from annual reports. Results of first regression for computation of abnormal bid premium largely corroborates results of Bates and Becher (2017). However, relationships related to bid characteristics such as payment mix and toehold are stronger as compared to Bates and Becher (2017), possibly due to regulatory environment in UK. Result have also indicated that publicly listed bidders pay five percentage points more raw bid premium to UK publicly listed targets. Second regression result of abnormal bid premium with target governance characteristics indicate that board independence measures either are not statistically significant or are model specific, except for independent chairperson dummy. This outcome is contrary to conclusion of studies like Cotter et al. (1997), possibly as UK

corporate governance code compared to North American markets, obligate firm to have independent non-executive directors (NED), whereas firms are obligated for an independent chairperson at appointment only. For further detail please refer to section 2.1 of chapter 2 on comparison of UK and USA corporate governance code.

Furthermore, positive and significant relationship of target CEO wealth with abnormal bid premium corroborate conclusions of studies like Cotter and Zenner (1994), which relate decision to resist to top management's wealth change and ultimately increase in bid premium paid. On the other hand, positive and significant relationship with bidder CEO equity value and compensation indicates empire building motives. Overall results highlight importance of equity based incentives, inline with Harford (2003) for corporate governance structure to function for shareholder welfare. However, a positive abnormal bid premium relationship with bidder governance characteristics are interpreted as indication of management welfare motivated premium, which can also be paid for synergistic gains. Hence, in chapter five and six relationship of abnormal bid premium paid with bidder's post-merger market performance and operational is investigated to ascertain both short and long-term impact.

Effect of abnormal bid premium in chapter five is investigated on short term market reaction. In other words, abnormal part of bid premium offered may clearly signify relationship with surprise element in the market to merger announcement. Therefore, market's reaction to abnormal bid premium may help investigate and establish it as a relevant measure of bid quality with market's seal of approval. Shareholder short term market reaction is proxied by cumulative abnormal return (CAR) computed in line with Mackinlay (1997). No previous study has investigated such relationship between abnormal bid premium and market's reaction, except for Ang and Ismail (2015), who have computed and investigated abnormal bid premium paid purely from the

behavioural finance standpoint. Apart from abnormal bid premium, utilisation of other bid and governance characteristics as independent variables has also enabled all signals emanating from the merger deal to be modelled and reflected in short term target and bidder shareholder reaction. Overall results indicate that in short term, shareholders during merger announcements latch on to various aspects of deal due to presence of information asymmetry per Dodd and Ruback (1977) and Dierickx and Koza (1991). Results have demonstrated that market reacts to abnormal bid premium, especially target shareholders react positively to high abnormal bid premium offer, which corroborate results of Ang and Ismail (2015). Target shareholders also react favourably to initial bid offer in cash signal which supports conclusion of studies like Malmendier et al. (2016). However, target shareholders overall reaction to board independence measures are statistically insignificant, possibly due to aforementioned reasons regarding UK regulatory environment.

Regarding bidder shareholders, results although reveal an unfavourable reaction to high abnormal bid premium, are not as statistically strong as compared to target market reaction. Furthermore, bidder shareholders have also reacted negatively with statistical significance to proxies of management welfare and hubris as proxied by Harford et al. (2012) and Malmendier and Tate (2008) respectively. Results indicate that there is a negative bidder shareholder reaction to higher bidder CEO compensation, as such CEO may further benefit from increased post-merger compensation, suggesting empire building motives consistent with Firth (1991).

Overall results of chapter five show that target shareholder's primary concern is price improvement as indicated by abnormal bid premium and cash offer signals. However, bidder shareholders apart from abnormal bid premium also latch on effectively to other signals to decipher merger announcements motivated by management welfare or hubris. However, market's initial reaction

to merger announcements may not be reliable indicator of true merger motivation and hence combined firm's post-merger performance may ascertain presence of synergistic benefits.

Therefore, in Chapter six I investigate if abnormal bid premium paid is motivated by the shareholder or management welfare hypothesis by observing its relationship with ex-post performance of combined firm, both from market and operational perspective. If abnormal bid premium paid is motivated by shareholder welfare for potential synergies, then it will lead to increase in combined firm's abnormal performance and vice versa suffer in case motivated by bidder management's self-interest. Hence, investigating performance relationship with abnormal bid premium alongside bid and governance characteristics may validate management's real motivation for merger. This investigation also establishes if abnormal bid premium is relevant measure of bid quality to predict operational and market performance of combined firm in long term.

At present, I am not aware of a study which has considered the impact of bid premium utilising a reliable proxy of adequate bid quality according to Bates and Becher (2017) on combined firm's long-term performance. Hence, this investigation in chapter six may help establish a clear link between over or under paid bid premium and combined firm's post-merger performance. Firm's abnormal market performance is proxied by Buy and hold abnormal return (BHAR) following Barber and Lyon (1997). Operational performance variable is computed on operating profit before depreciation and amortisation scaled by total assets with firm matched abnormal performance difference as motivated from Lie (2005), for three consecutive post-merger years with pre-merger target bidder combined performance.

Results for chapter six, indicate a statistically significant relationship between abnormal bid premium and firm matched abnormal operational performance difference variable in first and third

post-merger year. Relationship shows that high abnormal bid premium paid leads to a temporary gain in performance for initial year, which ultimately reverses in third post-merger year. Hence, this result provides indirect support to studies like Ghosh (2001) and Dutta and Jog (2009). Furthermore, empirical evidence also indicates that the presence of bidder external block holders and founder members in leadership positions in mergers is beneficial in terms of ex-post operational performance, which provides support to results of Carline et al. (2009) and Fahlenbrach (2009) respectively. Results evidence presence of statistically insignificant long term relationship between BHAR and abnormal bid premium. Hence, bidder shareholders negative reaction to abnormal bid premium only in short run implies that UK M&A market may be deemed as efficient relating to abnormal bid premium according to Fama (1998). Measures for board independence overall present statistically insignificant relationship with both operation and market performance dependent variables, possibly due to regulatory environment of UK which requires UK based firms to have independent boards, as discussed is section 2.1.1.

1.1 Conclusions

The investigation of abnormal bid premiums has shown that the United Kingdom's publicly listed firms' governance characteristics influence the settlement of abnormal bid premiums, indicating relationships that may not have been evident in prior literature, especially regarding the level of the target management's equity ownership and bid premiums. Although, firm governance and M&A regulations in the United Kingdom have discouraged pre-emptive defensive measures, owing to the lack of compelling evidence on systematic agency related behaviour; however, results indicate the requirement of equity-based incentives for the independent board mechanism to work efficiently, especially in the case of target firms. Results also suggest that chief executive officer (CEO) options for both target and bidder firms may also help align CEOs' interest with their shareholders. Hence, the utilisation of the abnormal bid premium proxy has proven that firms' governance characteristics influence the bid premium settlement.

Empirical results in Chapter five have shown that the market reacts in the short term to the abnormal bid premium, and hence it considers this premium as an acceptable measure of bid quality. Furthermore, target shareholders react more strongly to high valuation signals when compared to any other signal. Conversely, bidder shareholders are not only receptive to the abnormal bid premium, but also to other agency related proxy signals. Viewed together, these results suggest that target shareholders are more concerned about the high bid premium paid compared to bidder shareholders, who are more apprehensive about the possibility of a merger motivated by the management's self-interest. These findings also provide an insight into the priorities of target shareholders, who may not get any other opportunity to redeem their losses in the event of a bad deal, and those of bidder shareholders who seek to decipher the management's true motivation for a merger.

Overall, the statistically insignificant relationship of long-term market reaction, taken together with short-term market reaction, strengthen the idea of Fama (1998) that the UK market is efficient with regards to abnormal bid premiums because the entire market reaction to the abnormal bid premium is reflected only in the short term. Empirical results confirm that the abnormal bid premium is a better indicator of post-merger abnormal operational performance, because a positive abnormal bid premium ultimately leads to a decline in the combined firm performance in the long term. While the result confirms a negative association between the abnormal bid premium paid and the post-merger operational performance, this relationship cannot be substantiated as evidence of the systematic presence of agency-motivated mergers; this is because the management's hubris or increased competition can contribute towards the erosion of operational performance over the long term. Nonetheless, this investigation has proven that the 'abnormal bid premium' is a valid measure of the bid quality in the United Kingdom corporate takeover market.

This thesis set out to investigate if 'abnormal bid premium' is a reliable measure for 'bid quality' of United Kingdom's publicly listed firms in a M&A transaction. In order to establish this, I investigated the relationship of abnormal bid premium with not only governance characteristics but also with market reaction and ex-post performance of combined firm. The evidence from this investigation establish 'abnormal bid premium' to be a reliable measure of bid quality, not only for market reaction, but also, more importantly for ex-post performance of combined firm. The results also indicate that abnormal bid premium is influenced by firms' governance characteristics. Hence, on the basis of evidence, it is suggested that 'abnormal bid premium' be utilised as a proxy for 'bid quality' instead of raw bid premiums for future research related to the field of United Kingdom's M&A area.

I have attempted to extend the United Kingdom's M&A literature by investigating both target and bidder perspectives, which are usually observed from a single standpoint in the extant literature. I have also extended the bid premium model by Bates and Becher (2017) in terms of relating the abnormal bid premium to a firm's governance characteristics and utilised the unique hand-collected data of the United Kingdom's publicly listed target and bidder firms on governance characteristics for the duration of the study period from 1995 to 2012. This additional consideration has also contributed to extending the United Kingdom's corporate governance literature related to M&A. Furthermore, it may be noted that both target and bidder sides negotiate with rather opposing bid premium settlement goals, and hence observing both perspectives offer valuable insights into the bid premium settlement. Findings related to the short-term market reaction enhance the understanding of target and bidder shareholders' priorities and concerns in merger announcements. Crucially, this study has highlighted the importance of the bid premium paid by relating it to the long-term operational performance of a firm. Hence, this work contributes to the extant literature on bid premiums by validating the abnormal bid premium as a measure of bid quality.

As indicated earlier, considering the data availability of the governance-related variables, only a subset of public-public target bidder firms is utilised for observing the relationship between the abnormal bid premium, governance characteristics, and short-term and long-term performance of a firm. However, it should be noted that, the abnormal bid premium is predicted on a much wider data set; this data set comprises all of the United Kingdom's publicly listed target firms with merger announcements from 1995 to 2012. Consequently, the scope of this study was limited in terms of the United Kingdom's publicly listed target and bidder merger cases, and further research is required to explore the relationship beyond the public-public pair relationship.

A future research may also consider collecting and analysing governance-based data with a wider sample size in terms of increased study period, as it could usefully explore these relationships well before publication of crucial governance-based reports like Cadbury (1992). Moreover, since only UK-based target and bidder firms were considered in the subsample, a wider cross-country data set can be considered in a future research in order to include sample from the US firms because the regulatory environment in the US market is different when compared to the United Kingdom. Please refer to Chapter 2 for details on the corporate governance history in the United Kingdom and its comparison to US corporate regulatory environment. Considering this, a study similar to this one may be carried out with a cross-country merger data to reveal whether results in this thesis are applicable to other markets with a different corporate governance structure.

2 Chapter: Corporate Governance structure: A comparison between the United Kingdom and the United States

2.1 Corporate Governance Structure

According to Zingales (2016), the term 'corporate governance' was introduced in the mid-1980s; in the extant literature, it has been defined as a practice implemented and encouraged by governing bodies to bring about greater transparency in firms. For instance, Cadbury (1992) defined corporate governance as a system by which firms are 'directed and controlled'. Similarly, Ehrhardt and Brigham (2012) state corporate governance as a 'set of laws, rules and procedures' which influence firm operations. These rules and best practices related to corporate governance have continued to evolve in response to various corporate scandals and financial crisis. Zingales (2000) has argued that public opinion and pressure in response to corporate scandals have played a galvanizing role in the development of corporate governance regulations.

As discussed in the introduction section, I have investigated the United Kingdom's corporate M&A, and hence a concise chronology of the United Kingdom's corporate governance development is presented in the following section, particularly from the research period of 1995 to 2012. Furthermore, I have also compared the United Kingdom's corporate governance code to that of the United States, as the corporate governance development process in the latter has taken a different route than in the United Kingdom. This difference in the regulatory environment regarding corporate governance is crucial to understand because it influences governance measures, which are different in the UK market when compared to the United States, where a majority of extant M&A research is based.

2.1.1 History of Development of Code in the United Kingdom

According to the history of the UK Corporate Governance Code by the Financial Reporting Council (2018), Sir Adrian Cadbury presented his committee's recommendations in Cadbury (1992) Report, especially in response to banking scandals of Bank of Commerce and Credit International and Maxwell. The report recommended that compliance may be voluntary in nature rather than statutory because statutory requirements may oblige firms to comply only with the minimum requirement and firms may not be encouraged to adopt recommendations in the true spirit. Hence, Cadbury (1992) introduced a policy of 'comply or explain' for the UK firms to follow when adhering to recommendations of the report. The report stressed the requirement of separating CEO and chairperson roles and presence of non-executive directors (NEDs) on boards and in audit committees.

Shareholders' concerns regarding excessive remuneration of senior executives have been addressed in a report by Sir Richard Greenbury (1995), which proposed that NEDs may determine the remuneration level of senior executives, and this level may be disclosed to shareholders. Furthermore, performance pay may be linked to pay, with the aim of aligning management and shareholders' interests.

In 1998, the Hampel Committee published The Combined Code Governance (1998), which assimilated recommendations of Cadbury (1992) and Greenbury (1995) reports. The London Stock Exchange (LSE) later made it mandatory for all UK publicly listed firms to adhere to provisions of the Combined Code. According to Boyd (1996), the Code recommends relegating the power of executive directors by increasing the role of NEDs, changing board operations, and enhancing the active role of auditors, which are primarily aimed to bring down incidences of business scandals in the United Kingdom.

Section A.3 in a report by Derek Higgs (2003) further highlighted the role of an independent board by outlining the criterion of an independent director. Higgs (2003) also recommended that at least half of the board, barring the chairperson, should comprise independent NEDs and a nominated senior independent director may be made reachable to shareholders. Section A.2 not only recommends separating the chief executive and chairperson roles but also states that the chairperson should meet the independence criterion at the time of appointment as described in section A.3 of the Higgs (2003) report. Mcknight and Weir (2009) mentioned that the duality of roles, according to the Combined Code, is not recommended because all corporate decision-making is delegated to a single, empowered person.

The Combined Code was later amended in 2006 to include main and supporting guiding principles, thereby further contributing towards the UK firms' report, according to the 'comply or explain' policy. Later, in 2008, the Combined Code was amended to reflect EU requirements regarding the audit committees, and, in 2011, the code was amended to include the provision on the annual re-election of Financial Times Stock Exchange (FTSE) 350 directors. The amendment of Combined Code in 2012 focused on enhancing the reporting by audits Committees. In 2014, the Combined Code was amended to improve the quality of information received by investors and to safeguard the long-term success of firms.

To summarise, 'the Combined Code's' recommendations regarding the independence and composition of boards have essentially remained the same since 2003, and subsequent amendments were made largely to encourage firms further to improve the reporting of the comply or explain policy mechanism.

2.1.1.1 Compliance to Board Independence

Several studies have investigated compliance to 'the code', especially with regards to the board independence, given the 'comply or explain' policy, which allows some flexibility in the compliance to publicly listed firms in the United Kingdom. For instance, the level of compliance to the Combined Code by publicly listed firms in the United Kingdom in 2004, according to Arcot et al. (2010), is almost 66 percent because there are firms that do not comply with at least one principle of the Combined Code. However, almost 90 percent of UK firms had complied to the key recommendations of the Combined Code like duality and the presence of independent NEDs on board. Furthermore, they also observed that the levels of compliance are still higher for FTSE 100 companies.

In a similar vein, Mcknight and Weir (2009) indicated that the United Kingdom's publicly listed firms gradually adopted recommendations of the Combined Code related to the presence of NEDs, duality, and board subcommittees. They reported that NEDs represent almost half of the board of UK publicly listed firms; additionally, they revealed that the duality of roles is becoming an exception, with a significant decline in the incidence of duality from 54 percentage points in 1988 to almost 12 percentage points in 1999. The tables 2-1 and 2-2, illustrating the annual descriptive statistics of the bidder and target firms' subsample, respectively, reveal that the incidence of duality in 1999 is almost 7 percentage points for bidder firms and almost 2 percentage points for target firms. Hence, duality values for both target and bidder firms are well within the range of duality incidence in UK publicly listed firms, as indicated by Mcknight and Weir (2009). Furthermore, the incidence of duality in the bidder sample after 2004 reflects a downward trend wherein values range from 14 percentage points to almost an absence of duality. The duality sample mean for both target and bidder firms is almost 12 percentage points, which is consistent

with the extant literature that duality of roles became an exception for UK publicly listed firms after recommendations of the Cadbury (1992) report.

Regarding the board independence, Mcknight and Weir (2009) reported that, in their sample of UK publicly listed firms in 1999, independent NEDs represent the board by 48 percentage points. Sample values in my thesis are within that range; as tables 2-1 and 2-1 indicate, in 1999, independent NEDs account for 45 percentage points of the boards of bidder and target firms. Moreover, the mean presence of independent NEDs on the board of bidder firms from 1995 to 2003 is 41 percentage points, while this mean presence is 45 percentage points from 2004 to 2012. Hence, in the post Higgs (2003) period, concerning my bidder sample, the mean presence of independent NEDs on boards has risen by almost 4 percentage points, which is in line with the recommendations regarding board independence.

Shrives and Brennan (2015) investigated the compliance level for FTSE index firms for 2003 and 2010. They described the changes in the code in 2003 as the 'most significant' and compared it to those in 2010. Shrives and Brennan (2015) reported that, in 2004, almost 67 percentage points of firms in the FTSE 100 index did not comply with at least one provision of 'the code' when compared to almost 45 percentage points of firms in 2011. These levels coincide with the results of Arcot et al. (2010), as discussed earlier. Furthermore, Shrives and Brennan (2015) mention that non-compliance associated with the presence of NEDs on board for FTSE 100 listed firms is 14 and 18 percentage points in 2004 and 2011, respectively. The incidence of duality amongst FTSE 100 firms is 5 and 4 percentage points in 2004 and 2011, respectively.

To summarize, according to the extant literature, almost 10 to 15 percentage points of the United Kingdom's publicly listed firms do not comply with the code's provision concerning independent NEDs, and almost 5 to 12 percentage points of firms may not comply with the duality principle.

In this thesis, the sample average of almost 42 percentage points regarding the total presence of independent NEDs on firm board indicates the compliance level for both target and bidder firms. Regarding the incidence of duality in the sample, in this thesis, the mean value of almost 12 percentage points for the presence of the dual CEO-chairperson role is also within a similar range in the extant literature. However, overall annual compliance in our sample increased towards the end of the sampling period' especially compliance on duality.

Table 2-1 Bidder firms' board independence characteristics on an annual basis

This table presents the board independence characteristics on an annual basis for the UK publicly listed bidder firms' sub-sample. Values indicated are annual frequency and mean percentage points of independent NEDs present on the board, the presence of an independent chairperson, and the duality of CEO-chairperson roles.

		Mean percentage points of the bidder firms' subsample		
YEAR	Sample	Independent NEDs on Bidder Firms' Board	Independent Chairperson	Duality
1995	12	38.007	33.33	25.00
1996	6	44.782	66.67	33.33
1997	13	43.819	46.15	15.38
1998	21	37.652	42.86	9.52
1999	42	45.426	57.14	7.14
2000	25	46.265	52.00	16.00
2001	10	39.544	50.00	30.00
2002	8	37.736	50.00	0.00
2003	14	43.019	50.00	21.43
2004	10	38.496	20.00	30.00
2005	18	45.465	61.11	0.00
2006	14	38.940	42.86	14.29
2007	14	34.085	35.71	14.29
2008	7	49.546	71.43	14.29
2009	7	47.837	28.57	0.00
2010	11	38.620	18.18	0.00
2011	7	49.019	42.86	0.00
2012	2	58.33	50.00	0.00
Total	241	42.495	46.89	12.45

Table 2-2 Target firms' board independence characteristics on an annual basis

This table presents the board independence characteristics on an annual basis for the UK publicly listed target firms' subsample. Values indicated are annual frequency and mean percentage points of independent NEDs present on the board, the presence of an independent chairperson, and the duality of CEO-chairperson roles.

		Mean percentage points of target firms' subsample		
YEAR	Sample	Independent NEDs on Target Firms' Board	Independent Chairperson	Duality
1995	12	46.023	66.67	16.67
1996	6	55.079	50.00	16.67
1997	13	36.777	53.85	23.08
1998	21	37.547	66.67	4.76
1999	42	45.055	78.57	2.38
2000	25	46.313	76.00	8.00
2001	10	41.929	70.00	20.00
2002	8	40.580	50.00	12.50
2003	14	36.552	50.00	14.29
2004	10	33.440	50.00	40.00
2005	18	47.712	72.22	5.56
2006	14	44.804	64.29	7.14
2007	14	34.821	42.86	35.71
2008	7	40.159	57.14	14.29
2009	7	39.762	28.57	28.57
2010	11	35.094	36.36	9.09
2011	7	41.202	57.14	0.00
2012	2	41.667	50.00	0.00
Total	241	41.82	62.24	12.44

As discussed earlier, the 'comply or explain' policy of the Combined Code may offer some manoeuvring space to UK publicly listed firms in terms of board independence, compared to US firms, wherein compliance is more regimental in nature. For further discussion on US corporate governance, please refer to the next section. Consequently, it can be observed in the extant

literature that the key parameters regarding board independence of UK publicly listed firms are related to the presence of independent NEDs on firm's board, the presence of an independent chairperson, and a division of CEO and chairperson roles. Hence, corporate governance variables regarding board independence in this thesis measure parameters like the 'presence of independent NEDs, the duality of roles, and the presence of an independent chairperson'. Please refer to sub section 4.2.5 for literature review on board independence.

2.1.2 Sarbanes-Oxley Act in the United States

Like in the United Kingdom, the corporate scandals of the WorldCom and Enron, wherein investors were misled by firms' management regarding their financial condition due to inappropriate accounting practices, also prompted legislation concerning corporate governance in the United States. However, unlike the United Kingdom, the amendments in the corporate governance in the United States were introduced as legislation and approved by the US congress in the form of the Sarbanes-Oxley-Act (2002) or the SOX Act. This federal law is mandatory for all publicly listed and audit service firms. According to this US federal law, the 'Public Company Accounting Oversight Board' should independently supervise audit service firms for compliance with standard accounting practices in accordance with the law. Furthermore, both the CEO and chief financial officer (CFO) are held responsible, in accordance with the federal law, to ensure the accuracy and completeness of financial statements. Zhang (2007) points out that the SOX Act deals with potential conflicts of interest from executive management by imposing financial penalties and 'exposes managers and directors to greater litigation risks and stiffer penalties'. Hence, in the United States, it is firm management's fiduciary and legal responsibility to comply with the SOX Act as a non-compliance may result in the firm's management facing civil penalties.

Dah et al. (2014) have indicated that the SOX Act made a regulatory requirement for the US firms to make up at least half of board of independent board members. Prior to the SOX Act, the US firms included independent directors according to their own requirements; however, after the SOX regulation, some of the US firms also decreased their level of board independence to comply with the minimum requirement of 50 percent board independence. Therefore, board independence requirements, according to the SOX Act in the United States, are more regimental in nature when compared to the Combined Code of 'comply or explain' in the United Kingdom.

In this thesis, the sample considers UK publicly listed firms with merger announcements made from 1995 to 2012, which is after the publication of Cadbury (1992). Therefore, sample firms already reflect recommendations of the Cadbury (1992) report. Furthermore, all models include controls for the year of merger announcement to ensure that the results are not influenced by events in corporate governance.

2.2 Takeover Regulation

The market for corporate control is also governed by rules; however, takeovers are also regulated due to difference in perspectives such as corporate governance in the United Kingdom and that in the United States, as mentioned in the previous section. In the United Kingdom, 'the City Code on Takeovers and Mergers (2013)' (the code) are statutes that are monitored by an independent body 'The Panel on Takeovers and Mergers' (the panel). In the United States, takeover disputes are governed by the Delaware law, which allows managers to utilize pre-emptive anti-takeover measures.

2.2.1 The City Code on Takeover and Mergers

'The City Code on Takeovers and Mergers (2013)' (the code) describes 'The Panel on Takeovers and Mergers' (the panel) as an independent regulatory body; this panel was established in 1968 to oversee M&A transactions for publicly listed firms in the United Kingdom, according to 'the code'. Moreover, it indicates the main purpose of 'the panel' to 'ensure fair treatment for all shareholders in takeover bids'. 'The code' was declared statutory, and hence binding on publicly listed firms in the United Kingdom by Companies Act 2006.

Since the essence of the code is to ensure a fair deal to shareholders in a takeover, for publicly listed firms in the United Kingdom, it essentially discourages any attempt by target firms' management to 'frustrate' the potential offer. For instance, the rule 21 of 'the code' (2013) regarding 'restrictions on frustrating action' distinctly prohibits the management from taking any action that may affect the potential bid, 'without the approval of the shareholders in general meeting'. Hence, 'the code' precludes the management of any publicly listed firm in the United Kingdom from utilizing any form of takeover defences, at least without the consent of its shareholders. 'The code' also mandates the control of information and that offer announcements

must be made according to regulations. Furthermore, in the case of any rumour influencing the target share price, the bidder should make an announcement. According to 'the code' (2013), information must also be disclosed; for instance, in rule 8, there is a 'disclosure of dealing and positions' in which an individual 'interested in 1% or more of any class of relevant securities' of the target firm must make an Opening Position Disclosure. Hence, 'the panel', by regulations mentioned in 'the code', supervises the takeover process and information release regarding the takeover to safeguard shareholders' interests in the takeover, without any individual or target management unduly influencing the potential takeover.

2.2.2 Delaware General Corporation Law

Daines (2001) considers the Delaware corporate law as the most important takeover regime in the United States; this is because more than half of the firms are incorporated in Delaware due to the presence of a specialized Chancery Court for resolving corporate law disputes. Unlike the United Kingdom's publicly listed firms, the regulatory environment in the United States under the Delaware General Corporation Law allows the utilisation of pre-emptive takeover defences. According to Kirchner and Painter (2002), the shareholders' rights plans (Poison Pill)[1] and staggered terms for directors (Classified Board) [2] are permissible under the Delaware law to be utilised by a firm's management as a takeover defence, without the shareholders' consent.

Bhojraj et al. (2017) explained that, prior to 1995, a firm's management had to demonstrate a hostile takeover threat to validate the utilisation of any takeover defence tool commensurate with the threat. However, after 1995, a change in the Delaware law allowed poison pills and staggered

[1] Poison Pill represents a series of possibilities to discourage a hostile bid, for example, attempting to dilute an acquirer's stake by offering discounted shares to current shareholders. F.T. *Financial Times Lexicon.*

[2] A staggered board is a governance practice in which only a fraction (typically a third) of the members of the board of directors is elected each year, rather than all at once. The objective of such an arrangement is to discourage a hostile bidder as it must wait several years to entirely replace the board with one of its own choosing. Ibid.

boards to utilise as deemed fit by the firm's management. Hence, the Delaware state law made it easier for a firm's management to adopt anti-takeover measures to discourage hostile takeovers. Bebchuk and Cohen (2005) highlighted that, by the 1990s, most US states had allowed firms to provision for the poison pill and evidenced that entrenched boards, as proxied by staggered boards, reduce a firm's value. In a similar vein, Cohen and Wang (2013) presented empirical evidence to conclude that staggered boards may lower firm value.

However, Bhojraj et al. (2017) reported that antitakeover provisions adopted by new innovative firms may stand to benefit because they allow the management to focus on the long-term growth of firm and without the threat of a takeover. Cremers et al. (2017) considered a sample of firms after an amendment in the Massachusetts corporate law in 1990, which allowed staggered boards, presented similar conclusion that staggered boards do not negatively impact a firm's long-term value. Furthermore, they reported a positive relationship between the long-term firm value of innovative firms and staggered boards. Armour and Skeel Jr (2007) also reported that almost every US state has enacted the anti-takeover legislation intended to impede hostile takeovers. Similarly, anti-takeover provisions, according to Daines (2001), are widespread amongst S&P 500 firms because more than 60% have staggered boards and poison pills in place.

Comparative studies on regulatory environments of the United Kingdom and the United States, for instance, by Armour and Skeel Jr (2007) argued that the two systems view takeover defences from different perspectives. Armour and Skeel Jr (2007) argued that 'the code' is relatively inclined towards protecting the interests of shareholders wherein institutional investors have led the evolution of rules when compared to the 'Delaware law', which favours the utilisation of anti-takeover measures by a firm's management. In this regard, it should be noted that, according to Faccio and Lasfer (1999), institutional investors account for the largest category of shareholders

in the United Kingdom when compared to the United States, where individual investors account for the largest category. Moreover, Faccio and Lasfer (1999) mentioned that there are more instances of 'informal coalitions' between institutional investors in the United Kingdom when compared to the United States. To summarize, institutional investors have led the evolution of rules in the United Kingdom where compliance is enforced by 'reputational sanctions' and the threat of delisting when compared to the United States, where any disputes in the takeover are settled in US corporate law courts.

Hence, regulatory disputes in the United States regarding takeovers are settled through the court system when compared to the United Kingdom, where it is monitored by an independent body 'the Panel'. Furthermore, the regulatory environment in the United States permits the management of target firms to thwart hostile takeovers when compared to the United Kingdom, where management is not permitted to utilise any takeover defences without shareholder approval.

3 Sample Data: An Examination

As discussed in the introductory chapter 1, this thesis investigates the influence of the United Kingdom's publicly listed target and bidder firms' agency related issues on the bid premium paid, by studying the relationship between the abnormal bid premium and governance characteristics. I also analyse the relationship between the abnormal bid premium and market and operational performance of the firm.

In other words, the computed abnormal bid premium variable is an important variable, and hence the annual distribution of the positive and negative values of the abnormal bid premium is presented in detail for the entire sampled period separately in Section 3.1. This detail is in addition to the descriptive statistics provided on the variable in Section 4.5 of the summary statistics. In chapter 5, the dependent variable cumulative abnormal return (CAR) is computed as a proxy for the short-term market performance of each target and bidder firm. I have also computed the 'mean daily abnormal returns' for both target and bidder firms; although these returns are not directly utilised as a variable in the regression model, they are presented in Section 3.2 for enabling the readers to observe the mean built-up of returns.

Furthermore, since this thesis investigates the relationship between abnormal bid premiums, governance characteristics, market, and operational performance of a firm, by utilising regression models, I have also computed correlation coefficients of independent variables utilised in regression models to ensure that results do not suffer from any multicollinearity issues. These correlation coefficients are presented in Section 3.3 of this chapter in the form of correlation matrices of independent variables as utilised in each regression model.

3.1 Distribution of Abnormal bid premium

The abnormal final bid premium is computed as residuals of the prediction model, according to Bates and Becher (2017). The main sample for the prediction model comprises of all single completed bids for the United Kingdom's publicly listed targets from 1995 to 2012. For further details on the sample filtration and abnormal bid premium computation, please refer to table 4-1 and Section 4.3.1, respectively.

As specified earlier, the abnormal bid premium is an important variable in this thesis and hence additional details are presented in Table 3-1. The table 3-1 comprises of panel A and B, which, respectively, presents descriptive statistics on positive and negative abnormal bid premiums on an annual basis according to the year of the merger announcement. The table indicates that, from a total sample of 825 cases, almost 43 percentage points of bids offered to UK publicly listed firms are positive and the remainder of 57 percentage points of bids offered have negative final abnormal bid premiums. Although the overall frequency of the negative abnormal bid premiums is higher when compared to the positive premiums, the computed overall mean values indicate that the mean positive abnormal bid premium offered is 27 percentage points when compared to the negative abnormal bid premium of −21 percentage points. Hence, the magnitude of the positive bid premium offered is higher in value when compared to the magnitude of the negative bid premium. The frequency of both positive and negative abnormal bid premiums offered peak in 1999, and a second peak in the merger activity is observed in 2006 and 2007. The first peak, with a total of 114 merger cases, occurs in 1999, which is a year prior to the dot-com bubble in 2000. Similarly, the second peak in the merger activity of 59 and 57 merger cases in 2006 and 2007, respectively, is a period before the subprime mortgage financial crisis in 2008. Hence, merger cases for this thesis sample peak before 2000 and 2008 financial crisis.

Both the highest and lowest abnormal bid premiums offered means according to the negative and positive values are observed in 2009. In order to accommodate such year specific effects, all regression models include year effects.

Hence, the comparison between the statistical summary of the positive and negative final abnormal bid premiums' samples, as presented in Table 3-1, indicate that both follow a similar pattern in terms of their annual frequencies and mean values.

Table 3-1 Annual Statistical Summary of Positive and Negative Final Abnormal Bid Premium

The following Table presents a statistical summary of the sample of the positive abnormal bid premium in Panel A and negative bid premium in Panel B on an annual basis. The positive abnormal bid premiums offered are almost 7 percentage points more when compared to the negative abnormal bid premiums. However, negative bid premiums are higher in frequency in the total sample.

Merger Announcement Year	Panel A: Summary of Positive Abnormal Bid Premiums				Panel B: Summary of Negative Abnormal Bid Premiums				Total
	Mean	Std. Dev.	Freq.	Freq. as % of Total	Mean	Std. Dev.	Freq.	Freq. as % of Total	Freq.
1995	0.517	0.522	7	38.89	-0.329	0.219	11	61.11	18
1996	0.252	0.240	7	50.00	-0.252	0.261	7	50.00	14
1997	0.213	0.216	18	46.15	-0.182	0.106	21	53.85	39
1998	0.207	0.142	31	47.69	-0.189	0.153	34	52.31	65
1999	0.176	0.191	59	51.75	-0.189	0.223	55	48.25	114
2000	0.252	0.221	36	43.90	-0.197	0.231	46	56.10	82
2001	0.273	0.186	13	39.39	-0.177	0.127	20	60.61	33
2002	0.275	0.191	19	42.22	-0.201	0.338	26	57.78	45
2003	0.325	0.394	21	40.38	-0.220	0.167	31	59.62	52
2004	0.177	0.163	14	43.75	-0.138	0.142	18	56.25	32
2005	0.239	0.332	20	35.71	-0.133	0.119	36	64.29	56
2006	0.249	0.270	22	37.29	-0.148	0.121	37	62.71	59
2007	0.231	0.274	26	45.61	-0.194	0.192	31	54.39	57
2008	0.382	0.257	16	43.24	-0.291	0.165	21	56.76	37
2009	0.645	0.280	12	37.50	-0.387	0.231	20	62.50	32
2010	0.331	0.377	15	40.54	-0.226	0.193	22	59.46	37
2011	0.431	0.377	12	40.00	-0.287	0.239	18	60.00	30
2012	0.300	0.400	10	43.48	-0.231	0.115	13	56.52	23
Total	0.269	0.279	358	43.39	-0.206	0.199	467	56.61	825

The table 3-2 presents a statistical summary of firm and bid characteristics that are utilised as independent variables in the regression model for predicting the abnormal bid premium. The target firm's size is computed as the log of total assets, and other accounting values are scaled with total assets. Please refer to Table 4-2 for variable definitions, and Table 4-4 for a detailed statistical summary.

The table number 3-3, however, presents the target firm and bid characteristics according to the values of the positive and negative abnormal bid premiums offered to compare characteristics between firms that are offered positive and negative abnormal bid premiums. The comparison indicates that target firms with positive abnormal bid premiums are relatively richer in free cash flow (FCF) and intangible asset base when compared to target firms that are offered negative abnormal premiums. The research and development (R&D) expense and capital expenditure (CAPEX) are relatively low for target firms that are offered positive abnormal bid premiums. A market price run-up and a 52-week high market price are higher for targets with positive abnormal bid premiums.

Regarding publicly listed bidders, almost 43 percentage points of bidders offered negative abnormal bid premiums when compared to 48 percentage points of bidders that offered positive abnormal premiums. The presence of tender and stock offers is relatively high in the case of positive bid premiums, and while these values are different, they are within a similar range.

Table 3-2 Firm and Bid Characteristics: Statistical Summary of the Positive and Negative Abnormal Bid Premium sample

A statistical summary of independent Variables in the first regression are presented separately for positive and negative abnormal bid premiums in Panel A and B, respectively.

	Panel A: Positive Abnormal Bid Premium				Panel B: Negative Abnormal Bid Premium			
Variable	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
Toehold Percentage	2.850	8.887	0	49.69	3.158	8.908	0	49.8
42 Days Target Price Run up	0.103	0.255	-0.99	1.23	0.066	0.297	-0.84	3.72
Target Size	4.779	0.694	2.55	6.82	4.822	0.718	3.15	7.22
Debt to Asset Ratio	0.190	0.185	0	1.08	0.174	0.174	0	1.67
R&D Expense	0.019	0.053	0	0.43	0.023	0.081	0	0.97
Intangible Assets	0.706	0.249	0.04	1	0.685	0.273	0.03	1
FCF	0.068	0.176	-0.98	0.92	0.048	0.285	-3.47	0.83
CAPX	0.056	0.059	0	0.45	0.063	0.071	0	0.59
52 Week High	0.281	0.220	0	1	0.249	0.235	0	1
Dummy Variables								
Tender Offer Dummy	0.879	0.326	0	1	0.846	0.362	0	1
Stock Offer Dummy	0.235	0.427	0	1	0.206	0.405	0	1
No Toehold Dummy	0.865	0.342	0	1	0.842	0.366	0	1
Bidder Public Dummy	0.478	0.500	0	1	0.428	0.495	0	1
Same Industry Dummy	0.209	0.407	0	1	0.193	0.395	0	1
Target M/B Ratio > Ind Med	0.483	0.500	0	1	0.495	0.501	0	1

A statistical summary of the final abnormal bid premium related to the United Kingdom's publicly listed target and bidder firms' subsample is presented in Table 3-3, in a format similar to that of separate positive-negative premiums. In the total subsample of the 241 public-public target and bidder cases, almost 41 percentage points of targets are offered positive abnormal premiums when compared to 59 percentage points that are offered negative premiums. These values are similar in range to values mentioned for the main sample in Table 3-1. Moreover, the overall mean values of positive and negative abnormal premiums are also within a similar range when compared to the Table 3-1.

Table 3-3 Annual Statistical Summary of the Positive and Negative Final Abnormal Bid Premium subsample

The following table presents a statistical summary of the positive abnormal bid premium in Panel A and the negative bid premium in Panel B on an annual basis for public target firms' and public bidder firms' subsample. The positive abnormal bid premium offered are almost 5 percentage points lower in magnitude when compared to negative abnormal bid premiums. However, negative bid premiums are higher in frequency for the total sample.

Merger Announcement Year	Panel A: Summary of Positive Abnormal Bid Premiums				Panel B: Summary of Negative Abnormal Bid Premiums				Total
	Mean	Std. Dev.	Freq.	Freq. as % of Total	Mean	Std. Dev.	Freq.	Freq. as % of Total	Freq.
1995	0.628	0.582	5	41.67	-0.272	0.148	7	58.33	12
1996	0.190	0.149	4	66.67	-0.179	0.129	2	33.33	6
1997	0.217	0.284	8	61.54	-0.150	0.039	5	38.46	13
1998	0.187	0.155	8	38.10	-0.227	0.198	13	61.90	21
1999	0.142	0.136	22	52.38	-0.271	0.335	20	47.62	42
2000	0.283	0.283	10	40.00	-0.217	0.275	15	60.00	25
2001	0.201	0.147	3	30.00	-0.185	0.138	7	70.00	10
2002	0.160	0.066	3	37.50	-0.133	0.082	5	62.50	8
2003	0.308	0.425	3	21.43	-0.220	0.182	11	78.57	14
2004	0.214	0.124	5	50.00	-0.215	0.150	5	50.00	10
2005	0.062	0.082	5	27.78	-0.127	0.091	13	72.22	18
2006	0.182	0.113	5	35.71	-0.241	0.162	9	64.29	14
2007	0.255	0.339	7	50.00	-0.231	0.286	7	50.00	14
2008	0.249	0.316	3	42.86	-0.248	0.135	4	57.14	7
2009	0.927	0.000	1	14.29	-0.415	0.264	6	85.71	7
2010	0.079	0.040	4	36.36	-0.286	0.186	7	63.64	11
2011	0.199	0.233	2	28.57	-0.283	0.241	5	71.43	7
2012	0.063	0.000	1	50.00	-0.244	0.000	1	50.00	2
Total	0.218	0.259	99	41.08	-0.230	0.216	142	58.92	241

The subsample frequency peaks for both positive and negative abnormal bid premiums in 1999 and subsequently in 2005–2007, which is almost similar in pattern to the main sample presented in Table 3-1. Hence, both the positive and negative abnormal bid premium data set of the subsample is similar to the main sample. Corporate governance characteristics related to bidder and target firms' board independence as utilised in Chapters 4, 5 and 6 are presented respectively in the Table 2-1 and 2-2, according to the positive and negative abnormal bid premiums.

The initial abnormal bid premiums computed in Chapter 5, for which a comparison in the Table 5-5 is presented, indicate that the computed initial abnormal bid premiums are almost similar to the final abnormal bid premiums. A comparison of statistical summary of initial abnormal bid premiums with final abnormal bid premiums presented in table 5-5 suggest that both have similar in nature. Having a similar effect, the annual summary statistics of the positive and negative initial bid premiums produce similar results as the final bid premiums, as mentioned in Tables 3-1 and 3-3, and hence they have not been explained separately.

3.2 Mean Daily Abnormal Return

Table 3-4 presents the target subsample mean for computed daily abnormal returns from 42 days before the merger announcement to 5 days after the announcement. In the next column, a single sample T-statistic is computed to test the significance of daily target means. Additionally, the target firm's CAR is the running sum of the target firm's mean daily abnormal return. A standard event methodology was utilised, according to Mackinlay (1997), for obtaining the daily interval data to compute the CAR for both target and bidder public-public sample as a measure of the short-term market performance. For details on computation, please refer to the methodology section 5.3.

Table 3-4 Sample of Target Firms' Mean Daily Abnormal Return

The following table presents the target firms' mean daily abnormal return with one sample T-statistic. T-Statistic values marked with an asterisk indicate statistically significant different mean from zero. Most of the statistically significant means are on or before the merger announcement day, which is represented by day zero.

Days	Target Mean Daily Abnormal Return	T-Statistic: H0=zero	Target CAR
-42	0.17%	0.818	0.17%
-41	-0.20%	-1.156	-0.04%
-40	-0.07%	-0.439	-0.11%
-39	0.25%	0.967	0.14%
-38	-0.38%	-1.207	-0.25%
-37	0.28%	1.121	0.03%
-36	-0.44%	-1.831	-0.41%
-35	0.30%	0.722	-0.11%
-34	0.10%	0.61	-0.01%
-33	0.35%	1.191	0.34%
-32	0.43%	1.976*	0.77%
-31	0.14%	0.351	0.91%
-30	-0.13%	-0.433	0.78%
-29	0.20%	0.723	0.99%
-28	-0.13%	-0.615	0.85%
-27	-0.22%	-1.427	0.63%

Days	Target Mean Daily Abnormal Return	T-Statistic: H0=zero	Target CAR
-26	0.35%	1.521	0.98%
-25	0.60%	1.971*	1.58%
-24	1.10%	2.393*	2.68%
-23	-0.01%	-0.073	2.66%
-22	-0.09%	-0.699	2.58%
-21	-0.05%	-0.206	2.53%
-20	0.49%	1.619	3.02%
-19	0.17%	0.845	3.19%
-18	0.00%	0.014	3.19%
-17	-0.29%	-1.108	2.91%
-16	0.31%	1.457	3.22%
-15	0.05%	0.2	3.27%
-14	0.68%	1.918	3.94%
-13	0.60%	2.525*	4.54%
-12	0.41%	1.68	4.96%
-11	0.01%	0.023	4.96%
-10	0.25%	0.761	5.21%
-9	0.11%	0.652	5.32%
-8	0.49%	1.573	5.81%
-7	-0.14%	-0.464	5.67%
-6	0.67%	2.581*	6.33%
-5	0.21%	1.06	6.54%
-4	1.27%	3.435*	7.81%
-3	0.42%	1.892	8.23%
-2	1.19%	3.008*	9.42%
-1	2.62%	5.534*	12.04%
0	14.60%	10.250*	26.64%
1	0.29%	0.867	26.93%
2	0.08%	0.482	27.01%
3	0.16%	1.282	27.17%
4	0.11%	0.668	27.27%
5	0.13%	1.238	27.41%

Overall, the values of the target firms' mean daily abnormal returns indicate mostly positive returns. Moreover, less than 1 week before the merger announcement, as specified by the day zero, the target firms' abnormal returns increase in magnitude and are statistically significant. In the sample of the target firms, the highest daily abnormal return mean jumps to 14.6 percentage points on the day zero, which suggests a strong positive market reaction to the merger announcement. Hence, a majority of the abnormal market return for the entire event window of -42 to +5 days originates from the announcement day.

Table 3-5 Sample of Bidder Firms' Mean Daily Abnormal Return

The following table shows the bidder firms' mean daily abnormal return with one sample T-statistic. Results indicate that the means are not statistically significant different from zero for all bidder daily abnormal return means. The merger announcement day is represented by day zero.

Days	Bidder Mean Daily Abnormal Return	T-Statistic: H0=zero	Bidder CAR
-42	0.21%	0.9774	0.21%
-41	-0.13%	-0.7725	0.08%
-40	0.24%	1.1565	0.32%
-39	0.33%	1.4332	0.65%
-38	0.02%	0.1172	0.67%
-37	-0.14%	-0.8418	0.54%
-36	-0.21%	-1.3649	0.32%
-35	0.13%	0.754	0.45%
-34	0.34%	1.9132	0.79%
-33	0.06%	0.3917	0.84%
-32	0.29%	1.6497	1.13%
-31	-0.12%	-0.927	1.01%
-30	0.03%	0.1522	1.04%
-29	-0.03%	-0.1577	1.02%
-28	-0.29%	-1.8381	0.73%
-27	-0.10%	-0.5197	0.64%
-26	0.02%	0.099	0.65%
-25	-0.10%	-0.5898	0.56%
-24	-0.10%	-0.5005	0.46%

Days	Bidder Mean Daily Abnormal Return	T-Statistic: H0=zero	Bidder CAR
-23	0.00%	0.0122	0.47%
-22	-0.02%	-0.124	0.45%
-21	0.25%	0.7797	0.70%
-20	-0.09%	-0.5616	0.61%
-19	-0.02%	-0.0835	0.59%
-18	0.28%	1.0707	0.87%
-17	0.13%	0.4568	1.00%
-16	-0.36%	-2.6464	0.64%
-15	-0.27%	-1.9371	0.36%
-14	0.12%	0.8692	0.48%
-13	0.04%	0.2902	0.53%
-12	-0.32%	-1.4526	0.21%
-11	0.03%	0.1621	0.24%
-10	0.32%	1.1065	0.56%
-9	0.06%	0.3498	0.61%
-8	-0.20%	-1.4215	0.42%
-7	-0.15%	-0.6505	0.26%
-6	0.24%	1.7074	0.50%
-5	-0.14%	-0.8468	0.36%
-4	0.38%	1.4545	0.75%
-3	-0.02%	-0.1274	0.73%
-2	-0.04%	-0.3132	0.69%
-1	-0.12%	-0.8395	0.56%
0	-0.37%	-1.0084	0.19%
1	-0.57%	-3.1941	-0.38%
2	-0.35%	-2.0753	-0.73%
3	-0.12%	-0.9359	-0.85%
4	-0.10%	-0.5536	-0.94%
5	-0.06%	-0.2846	-1.00%

A build-up of the United Kingdom's publicly listed bidder firms' CAR for a similar event-window duration is presented in Table 3-5, which mostly reflects the negative daily mean abnormal returns. The negative mean daily returns for the United Kingdom's publicly listed bidder firms are

especially observed within 1 week before the merger announcement and remain negative in the post-merger period. Bidder firms' CAR turns negative after the merger announcement date. However, unlike the target firms, the computed T-statistics indicate that means are not statistically significant for bidder firms. Hence, the market reaction to the United Kingdom's publicly listed bidder firms in terms of the abnormal return is negative around the merger announcement.

3.3 Independent variables Correlation Matrix

The correlation matrix tables are presented in the following section indicate correlations of independent variables that have been utilised in all three empirical chapters 4, 5, and 6. In order to check for potential multicollinearity issues, the correlations matrix is computed for all independent variables that are utilised in each regression model. It can be noted that, although, all correlation coefficients are computed between listed independent variables, not all of the independent variables combinations are utilised in various regression models, as utilisation of independent variables with high correlation coefficients in regression models are avoided. Additionally, the variance inflation factors (VIF) have also been computed for all independent variables to further help identify any multicollinearity related issues for all computed regressions.

3.3.1 Correlation Matrices for chapter 4

Table 3-6 presents a correlation matrix of independent variables, as utilised in the regression Table 4-7 of Chapter 4. These independent variables are utilised in the regression model for predicting the abnormal bid premium and are related to deal and target characteristics, specified according to Bates and Becher (2017). Please refer to Table 4-2 for the definition and computation of these independent variables utilised in the regression model. Overall, the values of the correlation matrix indicate that independent variables that are utilised in the regression model do not have a strong correlation because most of the correlation coefficients computed have values less than 0.5. The only strong correlation observed is -0.8, which is between the ‘toehold percentage points’ held and ‘no toehold dummy=1’, because both these variables are related to toehold presence. However, VIF scores computed for the ‘no toehold dummy’ and ‘toehold percentage’ indicate 3.22 and 3.23, respectively, which signifies no multicollinearity in regression because it is less than 10.

Table 3-6 Correlation Matrix of Independent Variables for Predicting the Abnormal Bid Premium.

*The following table presents the correlation matrix of independent variables as utilised in Chapter 4 and Table 7 regression for predicting the abnormal bid premium. The statistically significant correlation coefficients have been mentioned as * $p<0.05$. High correlation is only observed between the 'no toehold dummy' and 'toehold percentage' independent variables. However, VIF scores of 3.22 and 3.23, respectively, indicate the presence of no multicollinearity because values are less than 10. VIF scores of all the remainder independent variables are observed to be less than 10. Therefore, no multicollinearity is detected amongst independent variables utilised in this regression.*

	Tender Offer	Stock Offer	Toehold %	No Toehold Dummy	42 Days Target Price Run	Bidder Public	Same Industry Dummy	Target Size	Debt To Asset Ratio	Target MTB Ratio > Industry Median	R&D Expense	52 Week High
Tender Offer	1											
Stock Offer	-0.02	1										
Toehold %	0.01	-0.11*	1									
No Toehold Dummy	-0.04	0.1*	-0.82*	1								
42 Days Target Price Runup	0.09*	-0.02	-0.05	0.06	1							
Bidder Public	0.02	0.55*	-0.1*	0.06	-0.01	1						
Same Industry Dummy	0.03	0.14*	-0.06	0.05	0	0.16*	1					
Target Size	-0.14*	-0.01	-0.05	0.04	-0.02	0.06*	-0.03	1				
Debt To Asset Ratio	-0.02	-0.01	0.07*	-0.04	0.03	-0.02	-0.06*	0.25*	1			
Target MTB Ratio > Industry Median	-0.04	0.03	-0.06	0.06*	-0.02	0.03	-0.03	0.05	0.06	1		
R&D Expense	-0.03	0.03	-0.05	0	-0.03	0	0.07*	-0.13*	-0.03	0.08*	1	
52 Week High	-0.03	0.02	0.01	-0.01	-0.22*	0.03	0.09*	-0.16*	-0.06*	-0.2*	0.16*	1

A moderate level correlation of 0.5 is also observed between the 'stock offer dummy' and 'public bidder dummy'. A moderate level of positive correlation coefficient indicates that the publicly listed bidder firms may offer stock in the payment mix to the United Kingdom's publicly listed target firms. This relationship may point towards the 'risk sharing perspective' of a bidder firm's management, as indicated by studies like Franks and Harris (1989) and De La Bruslerie (2013) discussed further in the section 4.2.8.1. VIF scores of 'stock offer dummy' and 'public bidder dummy' at 1.53 and 1.52, respectively, suggest no multicollinearity issues.

The following correlation matrix in Table 3-7 presents correlation coefficients of independent variables that are utilised in the regression model related to the United Kingdom's publicly listed targets in Chapter 4. Please refer to Table 4-8 for further details on the regression model, which consists of five different regression models. Additionally, the correlation matrix presented, as follows in Table 3-7, is related to each of the five regression models.

Regarding the regression Model 1 of Table 4-8 for the United Kingdom's publicly listed targets, moderate level negative correlation is present between the 'duality of the chairperson and CEO roles dummy' and 'independent chairperson dummy'. However, VIF scores of 1.54 and 1.44, respectively, indicate that a multicollinearity issue is absent. A low-level positive correlation of 0.22 is present between the duality of role and RPI-adjusted log of the CEO's total wealth, which establishes a relationship between CEO's wealth and duality. The computed VIF values between the duality of roles and RPI-adjusted log of CEO's total wealth are 1.54 and 1.18, respectively. Another low level positive correlation of 0.27 is present between the CEO tenure and RPI-adjusted log of CEO total wealth, which links an increase in a CEO's tenure to a higher level of CEO's total wealth.

Table 3-7 Correlation matrix of independent variables for Target Firms' regression in Chapter 4

*Correlation Matrix for all Target independent variables, as utilised in chapter 4 regression model 1 - 5 in table 4-8. The statistically significant correlation coefficients have been mentioned as * $p<0.05$.*

	Block Holder Index	Block Holder Count>=5%	Block Holder Count>=20%	CEO age	CEO Tenure	CEO Equity %	Ind Dir Equity %	Board Ind Dir %	Log CEO Equity value	Log CEO Option value	Log CEO remuneration	Log CEO total wealth	CM & CEO same =1	Ind CM=1	CM or CEO Founder=1
Block Holder Index	1.00														
Block Holder Count>=5%	0.18*	1.00													
Block Holder Count>=20%	0.67*	0.10	1.00												
CEO age	-0.03	0.02	0.03	1.00											
CEO Tenure	-0.03	-0.01	-0.04	0.11	1.00										
CEO Equity %	-0.10	-0.10	-0.09	-0.11	0.26*	1.00									
Ind Dir Equity %	-0.05	-0.08	0.01	-0.14*	0.00	0.15*	1.00								
Board Ind Dir %	0.14*	0.00	0.09	0.16*	-0.07	-0.13*	0.09	1.00							
Log CEO Equity value	-0.10	-0.07	-0.07	0.07	0.27*	0.34*	0.05	-0.09	1.00						
Log CEO Option value	-0.03	0.01	0.00	0.17*	0.11	-0.24*	-0.01	0.23*	0.17*	1.00					
Log CEO remuneration	-0.08	0.03	-0.04	0.17*	0.00	-0.23*	-0.07	0.28*	0.06	0.35*	1.00				
Log CEO total wealth	-0.18*	-0.10	-0.09	0.02	0.27*	0.49*	0.13*	0.00	0.62*	0.26*	0.37*	1.00			
CM & CEO same =1	0.05	-0.11	0.06	0.14*	0.27*	0.44*	0.03	-0.16*	0.21*	-0.11	-0.19*	0.22*	1.00		
Ind CM=1	0.04	-0.02	0.05	0.10	-0.13*	-0.14*	-0.03	0.43*	-0.11	0.14*	0.13*	-0.08	-0.48*	1.00	
CM or CEO Founder=1	-0.11	-0.09	-0.11	-0.08	0.08	0.41*	0.05	-0.08	0.19*	-0.13*	-0.14*	0.22*	0.20*	-0.09	1.00

It can be observed from the overall level of correlation coefficients that a high correlation is absent among these independent variables, and VIF scores of less than 10 confirms that multicollinearity does not have an impact on the overall regression model.

In the regression Model 2 of Table 4-8, only a moderate to low level positive correlation is present between the 'independent chairperson dummy' and 'percentage of independent NEDs present in the total board'. Additionally, VIF scores of 1.74 and 1.1 for these dummies do not indicate the presence of multicollinearity issues in regression. However, the coefficient indicates that an independent board may have an independent chairperson or vice-versa because the presence of correlation may not indicate causation. Similarly, there is moderate- to low-level positive correlation of 0.4 between the 'duality of the chairperson and the CEO role dummy' and the percentage point of the CEO's equity level; this is because the dual role played by the CEO may enable the CEO to own a higher level of equity in a firm or vice-versa. However, the values of 1.96 and 8.37, respectively, for these dummies indicate that VIF scores are less than 10. VIF scores for the CEO's tenure and CEO's quadratic term are 5.92 and 5.8, respectively. Hence, multicollinearity does not pose an issue in the regression Model 2.

In accordance with the correlation matrix presented in Table 3-7, low level of correlation for linear independent variables is utilised in the regression Model 3 of Table 4-8. Computed VIF scores verify that multicollinearity does not have an impact on the overall regression model. Linear independent variables are utilised in the regression model 4 of Table 4-8. As indicated by correlation coefficients, none of the variables show high correlations. VIF scores of the block-holder count, with greater than 20% holding and quadratic term, are 6.18 and 6.13, respectively.

Table 3-8 Correlation matrix of Independent Variables for Bidder Firms' Regression in Chapter 4

*The following table presents the correlation Matrix for all bidder firms' independent variables, as utilised in regression models 1–4 in Table 4-9 presented in Chapter 4. The statistically significant correlation coefficients have been mentioned as * p<0.05.*

	Block Holder Index	Block Holder Count>=5%	Block Holder Count>=20%	CEO Age	CEO Tenure	CEO Equity %	Ind Dir Equity %	Board Ind Dir %	Log CEO Equity value	Log CEO Options value	Log CEO remuneration	Log CEO total wealth	CM & CEO same =1	Ind CM = 1	CM or CEO Founder=1
Block Holder Index	1.00														
Block Holder Count>=5%	0.26*	1.00													
Block Holder Count>=20%	0.71*	0.15*	1.00												
CEO Age	-0.09	-0.08	0.04	1.00											
CEO Tenure	-0.06	-0.03	-0.07	0.14*	1.00										
CEO Equity %	-0.11	-0.09	-0.07	-0.09	-0.04	1.00									
Ind Dir Equity %	-0.03	0.07	-0.05	0.09	-0.10	0.22*	1.00								
Board Ind Dir %	-0.04	0.03	0.04	0.04	0.02	-0.28*	0.05	1.00							
Log CEO Equity value	-0.15*	-0.03	-0.12	0.00	0.22*	0.26*	0.00	-0.06	1.00						
Log CEO Option value	0.01	-0.05	0.05	0.04	0.22*	-0.18*	-0.13*	0.09	0.28*	1.00					
Log CEO remuneration	-0.02	-0.22*	0.01	0.10	0.22*	-0.33*	-0.16*	0.20*	0.17*	0.31*	1.00				
Log CEO total wealth	-0.09	-0.08	-0.03	-0.05	0.26*	0.32*	-0.14*	0.01	0.64*	0.39*	0.40*	1.00			
CM & CEO same =1	0.01	0.01	0.04	0.17*	0.02	0.33*	0.15*	-0.20*	0.05	-0.13*	-0.24*	-0.03	1.00		
Ind CM=1	-0.09	-0.12	-0.02	0.07	0.01	-0.16*	-0.08	0.40*	0.02	0.17*	0.07	0.00	-0.36*	1.00	
CM or CEO Founder=1	0.04	0.11	0.04	-0.16*	0.05	0.27*	-0.01	-0.16*	0.09	-0.04	-0.11	0.16*	0.18*	-0.23*	1.00

Similarly, the CEO's tenure and its squared term VIF scores are 6.14 and 5.83; these scores imply the absence of multicollinearity in the regression because their values are less than 10. Similarly, VIF scores of all variables utilised in the regression model 5 have values less than 10.

Therefore, it can be observed from the correlation matrix presented in Table 3-7 and the VIF score analysis that all regression models utilised in Table 4-8 of Chapter 4 related to the United Kingdom's publicly listed target firms do not have a multicollinearity issue.

The correlation matrix illustrated in Table 3-8 presents correlation coefficients of independent variables, as utilised in regression models 1 through 4 in Table 4-9 related to the United Kingdom's publicly listed bidder firms presented in Chapter 4.

Model 1 indicates that there is a low level of negative correlation between the 'Founder CEO or Chairperson dummy' and 'independent chairperson dummy', which suggests that the incidence of independent chairperson is negatively correlated in bidder firms with founder presence at a higher management level. Overall, a VIF score of less than 10 for all variables confirms that the Model 1 is devoid of any multicollinearity issues.

The correlation coefficients of linear independent variables are utilised in regression Model 2 of Table 4-9. The computed correlation matrix indicates only a low level of correlation among linear independent variables. There is a moderate- to a low-level positive correlation of 0.4 between the proxy of independent chairperson dummy and the 'percentage presence of independent NEDs in bidder firms' board', with VIF scores of 1.46 and 1.39, respectively. A positive low-level correlation is observed between the duality of roles and the level of CEO's equity in the bidder firms; their VIF scores are 1.39 and 7.26, respectively. Similar levels of correlations among these variables are also observed in the case of sampled target firms, as indicated in Table 3-7. Overall,

values of VIF scores and correlation coefficients suggest that multicollinearity is not an issue in the Model 2.

Regarding regression models 3 and 4 pertaining to publicly listed bidder firms in the United Kingdom in Table 4-9 and to the correlation matrix of linear independent variables presented in Table 3-8, the computed correlation coefficients only indicate the presence of low-level correlations among linear independent variables. A positive low-level correlation of almost 0.3 is present between log-valued RPI-adjusted variables of 'CEO options held value' and 'CEO equity held value'. Computed VIF scores of these independent values are at 1.28, which are quite below 10. VIF scores of the block-holder count that is greater than 20 percentage points and the count's quadratic term are 8.6 and 8.5, respectively. Overall, the correlation coefficients and VIF scores indicate that multicollinearity may not affect the regression results of models related to publicly listed bidder firms in the United Kingdom.

3.3.2 Correlation Matrices for chapter 5

In chapter 5, all five regression models in each of the regression Tables 5-6 to 5-9 are identical in terms of independent variables utilised, and only the dependent variable of 'target CAR' varies in terms of event window durations. Hence, the correlation matrix illustrated in Table 3-9 relates to linear independent variables as utilised in the United Kingdom's publicly listed target CAR regression models 1 to 5 in Tables 5-6 to 5-9.

In chapter 4, the subsample of public-public merger cases is utilised in separate target and bidder regression models, which primarily comprise governance-related independent variables. Similarly, in Chapter 5, governance-related independent variables are also utilised in separate target and bidder regressions, along with the bid characteristics.

Table 3-9 Correlation Matrix for Target Firm's independent variables in Chapter 5

*Correlation Matrix for Target Firms' independent variables, as utilised in Tables 5-6 to 5-9 in regression models 1–5. The statistically significant correlation coefficients have been mentioned as * p<0.05.*

	Ab Bid Pr	Tender Offer =1	All Cash Offer =1	Stock Offer Mix	No Toehold=1	Toehold %	Block holder Index	Block holder Count >=5%	Block holder Count >=20%	Board Ind Dir %	T Board Equity/ T shares	Ind Dir Equity %	Ind CM=1	CM & CEO same =1	CEO Age	CEO Tenure	CEO Equity %	Log CEO Equity value	Log CEO Option value
Ab Bid Pr	1.00																		
Tender Offer=1	0.09	1.00																	
All Cash Offer=1	-0.10	0.06	1.00																
Stock offer mix	0.10	-0.07	-0.88*	1.00															
No toehold=1	0.03	-0.09	-0.06	0.05	1.00														
Toehold %	-0.12	0.01	0.08	-0.04	-0.79*	1.00													
Block holder Index	-0.06	-0.03	0.04	-0.02	-0.10	0.20*	1.00												
Block holder Count >=5%	0.10	-0.03	0.09	-0.09	-0.02	0.00	0.18*	1.00											
Block holder Count >=20%	-0.11	-0.09	0.03	0.01	-0.20*	0.31*	0.67*	0.10	1.00										
Board Ind Dir %	-0.05	0.13	-0.04	0.02	-0.16*	0.14*	0.14*	0.00	0.09	1.00									
T Board Equity/ T shares	0.01	0.12	0.04	-0.03	0.10	-0.10	-0.14*	-0.16*	-0.08	-0.29*	1.00								
Ind Dir Equity %	0.06	0.08	0.01	0.01	-0.03	0.03	-0.05	-0.08	0.01	0.09	0.39*	1.00							
Ind CM=1	-0.10	0.11	0.02	0.00	-0.11	0.09	0.04	-0.02	0.05	0.43*	-0.19*	-0.03	1.00						
CM & CEO same =1	0.00	0.06	-0.02	-0.02	-0.03	0.04	0.05	-0.11	0.06	-0.16*	0.26*	0.03	-0.48*	1.00					
CEO Age	0.00	-0.04	0.03	-0.06	-0.10	0.06	-0.03	0.02	0.03	0.16*	-0.22*	-0.14*	0.10	0.14*	1.00				
CEO Tenure	-0.01	0.00	0.00	-0.04	0.06	-0.01	-0.03	-0.01	-0.04	-0.07	0.16*	0.00	-0.13*	0.27*	0.11	1.00			
CEO Equity %	0.07	0.08	0.00	-0.01	0.07	-0.08	-0.10	-0.10	-0.09	-0.13*	0.72*	0.15*	-0.14*	0.44*	-0.11	0.26*	1.00		
Log CEO Equity value	0.16*	0.06	0.00	-0.03	-0.03	-0.01	-0.10	-0.07	-0.07	-0.09	0.24*	0.05	-0.11	0.21*	0.07	0.27*	0.34*	1.00	
Log CEO Option value	0.17*	0.03	-0.03	-0.03	-0.01	-0.03	-0.03	0.01	0.00	0.23*	-0.28*	-0.01	0.14*	-0.11	0.17*	0.11	-0.24*	0.17*	1.00
Log CEO Remuneration	0.03	-0.10	-0.05	-0.04	0.07	-0.09	-0.08	0.03	-0.04	0.28*	-0.29*	-0.07	0.13*	-0.19*	0.17*	0.00	-0.22*	0.06	0.35*
Log CEO Wealth	0.12	-0.02	0.00	-0.04	0.07	-0.11	-0.18*	-0.10	-0.09	0.00	0.32*	0.13*	-0.08	0.22*	0.02	0.27*	0.49*	0.62*	0.26*

Hence, similar correlation levels for governance-related independent variables are also observed in Chapter 5. Please refer to the methodology section of 4.3 and 5.3 for a detailed discussion on the model selection.

Regarding regression Model 1 for Tables 5–6 to 5–9 in Chapter 5, correlations among independent variables related to the United Kingdom's publicly listed target firms are at similar levels. For instance, a moderate-level negative correlation of -0.48 is found between the 'duality of the chairperson and CEO roles' dummy' and the 'independent chairperson dummy', and their VIF scores are 1.69 and 1.51, respectively. Low-level correlations between the CEO's tenure, the CEO's total wealth, and the duality of roles are also at similar levels, as in Table 4-2. Furthermore, correlations' coefficients for bid characteristics related to independent variables indicate very low statistically insignificant levels of correlations. Overall, the level of VIF scores for the regression Model 1 is less than 2, which is quite below the limit of 10. This indicates that the regression Model 1 regarding the United Kingdom's publicly listed target firms is devoid of multicollinearity issues. The VIF scores for the CEO's equity percentage and its quadratic term are 8.44 and 7.68, respectively, which is within the range. Low-level of correlations and overall VIF scores less than 10 indicate that multicollinearity is not an issue in the regression Model 2.

Regarding Model 3, the abnormal bid premium has a very low-level positive correlation with log- and RPI adjusted-values of CEO equity and options; their VIF scores are 1.14, 1.22, and 1.35; these scores indicate the absence of multicollinearity. Although the level relationship is weak, it may still indicate that target firms' CEOs may negotiate or resist, leading to better premiums, when their wealth is tied to their respective target firms. It can also be observed from the correlation of the board's total equity that there is a moderate- to low-level negative correlation with log- and RPI-adjusted values of CEO options and compensation. This may indicate that an increase in the

level of board equity may help align management goals with shareholders. VIF scores of the board's total equity and CEO compensation are 1.39 and 1.29, respectively. Hence, the overall levels of correlations and VIF scores less than 2 suggest that there is no presence of multicollinearity in Model 3.

In model 4, the computed VIF scores of the CEO's equity percentage points' level and its squared term are 8 and 7.6, respectively. The VIF score of the interaction term with the block-holder count is at 2.35, which also remains within the limit of 10. Similarly, in model 5, VIF scores of the block-holder interaction term with the abnormal bid premium and the CEO compensation interaction with the abnormal bid premium are 2.38 and 2.07, respectively. Overall, correlations indicate low- to moderate levels of relationship, and the VIF scores of all independent variables indicate values less than 10, which indicates that regression models 4 and 5 do not suffer from multicollinearity issues.

The correlation matrix 3-10 relates to linear independent variables, as utilised in the United Kingdom's publicly listed bidder firms' CAR regressions from Tables 5-14 to 5-17. Regression models 1 through 5 for bidder firms, like target firms in chapter 5, comprise independent variables related to bid characteristics and governance-related characteristics for bidder firms.

However, there are differences between target and bidder firms in terms of correlation coefficients between independent variables related to bid and governance characteristics. For instance, in the Table 3-10, there is a positive low-level correlation of 0.11 between the abnormal bid premium and the duality of roles for bidder firms. The correlation coefficient between the abnormal bid premium and duality of roles for target firms is zero, as indicated in the correlation Table 3-9. This comparison between target and bidder firms reveals that there is a weak link between the abnormal bid premium offered and the duality of CEO.

Table 3-10 Correlation Matrix for Bidder Firms' Independent Variables in Chapter 5
*Correlation Matrix for Bidder Firms' Independent Variables as utilised in Tables 5-14 to 5-17 in regression models 1–5. The statistically significant correlation coefficients have been mentioned as * p<0.05.*

	Ab Bid Pr	Tender Offer=1	All Cash Offer=1	StockOff er1	No Toehold =1	Toehold %	Block holder Index	Block holder	Block holder count=1	Board Ind Dir %	T Board Equity/ T shares	Ind Dir Equity %	INDCM1	CM CEO same=1	CEO age	CEO Tenure	CEO Influenc	Founder = 1	Entrench ment=1	CEO Equity %	Log CEO Equity	Log CEO Options Value
Tender Offer=1	0.09	1.00																				
All Cash Offer=1	-0.10	0.06	1.00																			
StockOffer1	0.10	-0.07	-0.88*	1.00																		
No Toehold=1	0.03	-0.09	-0.06	0.05	1.00																	
Toehold %	-0.12	0.01	0.08	-0.04	-0.79*	1.00																
Block holder Index	-0.03	0.04	0.06	-0.03	-0.18*	0.24*	1.00															
Block holder count>=5	-0.11	-0.05	-0.09	0.1	0.08	-0.01	0.26	1.00														
Block holder count>=10	-0.06	0.03	-0.05	0.06	-0.04	0.09	0.51*	0.61	1.00													
Board Ind Dir %	0.01	0.10	0.09	-0.10	-0.08	0.07	-0.04	0.03	-0.03	1.00												
T Board Equity/ T shares	0.07	0.06	-0.09	0.10	0.01	-0.01	-0.09	-0.06	-0.10	-0.30*	1.00											
Ind Dir Equity %	0.01	0.05	-0.10	0.11	0.03	-0.03	-0.03	0.07	0.02	0.05	0.43*	1.00										
INDCM1	-0.04	0.09	0.02	-0.01	-0.06	0.09	-0.09	-0.12	-0.08	0.40*	-0.23*	-0.08	1.00									
CM CEO same=1	0.11	-0.01	-0.16*	0.16*	-0.14*	0.13*	0.01	0.01	0.09	-0.20*	0.17*	0.15*	-0.36*	1.00								
CEO Age	-0.13*	-0.04	0.01	-0.01	-0.05	0.08	-0.09	-0.08	-0.02	0.04	-0.09	0.09	0.07	0.17*	1.00							
CEO Tenure	0.01	-0.05	0.12	-0.14*	0.04	-0.01	-0.06	-0.03	-0.17*	0.02	-0.07	-0.10	0.01	0.02	0.14*	1.00						
CEO Influence	0.03	-0.12	-0.01	-0.02	0.01	-0.04	-0.04	0.04	0.12	-0.01	-0.02	-0.11	0.14*	0.25*	0.00	0.14*	1.00					
Founder=1	0.14	0.01	-0.05	0.07	0.05	-0.01	0.04	0.11	0.09	-0.16	0.21	-0.01	-0.23	0.18	-0.16	0.05	0.12	1.00				
Entrenchment=1	-0.10	-0.01	0.58*	-0.51*	-0.02	0.07	0.04	0.02	0.04	0.07	-0.01	-0.05	0.07	-0.07	0.00	0.03	0.08	-0.02	1.00			
CEO Equity %	0.05	0.00	-0.04	0.04	-0.03	0.01	-0.11	-0.09	-0.08	-0.28*	0.77*	0.22*	-0.17*	0.33*	-0.09	-0.04	0.35*	0.27	0.07	1.00		
Log CEO Equity value	0.11	-0.12	0.02	-0.05	0.09	-0.10	-0.15*	-0.03	-0.03	-0.06	0.19*	0.00	0.02	0.05	0.00	0.23*	0.42*	0.09	0.06	0.26*	1.00	
Log CEO Options value	-0.05	0.05	0.01	-0.07	-0.10	0.09	0.01	-0.05	-0.02	0.09	-0.19*	-0.13*	0.17*	-0.13*	0.04	0.22*	0.02	-0.04	-0.07	-0.18*	0.28*	1.00
Log CEO Remuneration	0.07	-0.05	0.21*	-0.28*	0.09	-0.07	-0.02	-0.22	-0.12	0.21*	-0.38*	-0.16*	0.07	-0.24*	0.10	0.22*	-0.07	-0.11	0.17*	-0.33*	0.17*	0.31*
Log CEO Wealth	0.08	-0.03	0.03	-0.07	-0.02	0.00	-0.09	-0.08	-0.08	0.01	0.15*	-0.14*	0.00	-0.03	-0.05	0.26*	0.40*	0.16	0.06	0.32*	0.64*	0.39*

Similarly, the correlation matrix presented in Table 3-10 regarding the bidder firms presents a low-level correlation of -0.13 between the abnormal bid premium and a bidder firm's CEO's age. However, such relationship is not indicated in Table 3-9 pertaining to the target firms' correlation matrix. An increase in the age of the United Kingdom's publicly listed bidder firm's CEO is negatively linked to the abnormal bid premium. In other words, the abnormal bid premium has a weak relationship with the bidder firm's CEO's duality and age. However, this relationship does not exist in the case of the United Kingdom's publicly listed target firms. Furthermore, some relationships among the governance data's independent variables are similar for both target and bidder firms, as indicated by correlation matrices. For instance, the correlation coefficient of 0.26 between the CEO's tenure and wealth is almost similar for both target and bidder firms in Tables 3-9 and 3-10, respectively. VIF scores of all independent variables that are utilised in regression Model 1 of Tables 5-14 through 5-17 are less than 2, which is well below the limit of 10. Moreover, the low-level of correlation coefficients suggests that model 1 for bidder regression model is not affected by multicollinearity.

Regarding regression Model 2 in Tables 5-14 through 5-17, the entrenchment proxy dummy is utilised for bidders only, which awards a value of one to bidder firms that make a cash-only offer to target firms with greater than 25% block-holders to avoid a block formation after a merger. This entrenchment proxy has a medium-level correlation of -0.5 with the stock offer in payment mix, with respective VIF scores of 1.81 and 1.54. VIF scores for CEO tenure and its quadratic term are 6.6 and 6.45, respectively. Similarly, the computed VIF score for the CEO's equity level and its quadratic term are 5.95 and 5.55, respectively. Hence, VIF scores of all independent variables are less than 10, which indicate no multicollinearity in regression Model 2 for bidder firms.

Regarding Model 3, the entrenchment proxy is positively correlated at 0.58 to all cash dummy variables, whose VIF scores are 2.04 and 1.77, respectively. Computed VIF scores of all independent variables that are utilised in bidder regression Model 3 for Tables 5-14 through 5-17 are less than 3, which suggests that multicollinearity does not affect regression Model 3 for the United Kingdom's publicly listed bidder firms.

Regarding the bidder regression models 4 and 5, respectively, in Tables 5-14 to 5-17, the only difference between models 4 and 5 is the interaction variables and utilisation of the no toehold dummy as the independent variable in model 5. VIF scores in models 4 and 5 for the CEO's tenure and its quadratic term are almost 6.5 and 6.3, respectively. The interaction of the abnormal bid premium with block-holders and the CEO's compensation leads to VIF scores of 2.66 and 3, respectively, in model 4. Similarly, interaction terms with the abnormal bid premium, utilised in model 5 for the CEO compensation and options, indicate a computed value of 3 and 3.1 respectively. Overall, VIF values of less than 10 and low-level correlations for all linear independent variables utilised in the regression models 4 and 5 suggest no multicollinearity issues.

The differences in the initial and final abnormal bid premium for target regressions are minimal due to a low number of upward bid revisions in our sample of completed or unconditional status deals. For sample statistics comparison of initial and final abnormal bid premiums, please refer to table 5-5, which confirms that values are almost similar for both. Hence correlations related to initial abnormal bid premiums in regression tables 5-10 to 5-13 and 5-18 to 5-20 are not indicated separately as correlations are almost similar in nature and values to final abnormal bid premium in order to keep correlation tables manageable.

3.3.3 Correlation Matrices for chapter 6

Independent variables utilised in the regression model for Tables 6-6 and 6-7, in Chapter 6, are similar. This is because only the dependent variable is changed in each of the three regression models for both tables. Table 6-6 utilises the change in the firm-matched operational performance of the combined firm after the first, second, and third year of the merger, as the dependent variable in three different regression models. Similarly, Table 6-7 utilises the buy and hold abnormal return (BHAR) for 12, 24, and 36 months in the post-merger period, as dependent variables in three different regression models. However, independent variables utilised across all regression models are all similar and relate to the bid and bidder governance characteristics, as per regression Model 2 in Chapter 5. Please refer to Section 6-6 for further details on regression models and section 6-3 for methodology.

Table 3-11 Correlation Matrix for Independent Variables in Chapter 6

*Correlation Matrix for Independent Variables for all models of Table 6-6 and 6-7 (BHAR). VIF score of all independent variables are less than 10, which indicates no multicollinearity in the regression. The statistically significant correlation coefficients have been mentioned as * $p<0.05$.*

	Abnormal Bid Premium	Tender Offer	Stock Offer % in Payment Mix	Toehold %	Board Independent Director %	Ind Dir Equity %	Count of Block-holder >= 5%	CEO Tenure	CEO Equity %	Chairman or CEO Founder =1
Abnormal Bid Premium	1									
Tender Offer	0.09	1								
Stock Offer % in Payment Mix	0.1	-0.07	1							
Toehold %	-0.12	0.01	-0.04	1						
Board Independent Director %	0.01	0.1	-0.1	0.07	1					
Ind Dir Equity %	0.01	0.05	0.11	-0.03	0.05	1				
Count of Block-holder >= 5%	-0.11	-0.05	0.1	-0.01	0.03	0.07	1			
CEO Tenure	0.01	-0.05	-0.14*	-0.01	0.02	-0.1	-0.03	1		
CEO Equity %	0.05	0	0.04	0.01	-0.28*	0.22*	-0.09	-0.04	1	
Chairman or CEO Founder =1	0.14*	0.01	0.07	-0.01	-0.16*	-0.01	0.11	0.05	0.27*	1

Hence, Table 3-11 presents the correlation matrix for linear independent variables for all three regression models in Tables 6-6 and 6-7. Overall, the correlation coefficients of linear independent variables indicate low-level correlations. Please refer to the discussion on Tables 5-14 to 5-17 in Table 3-10 on the bidder regression model for collecting further details on correlation coefficients in chapter 6. The VIF analysis for all regression models indicates that the overall scores remain within the limit of 10. The VIF scores for the CEO's tenure and its quadratic term are 6.4 and 6.3, respectively, and, VIF scores for the CEO's equity level and its quadratic term are 8.5 and 7.9, respectively. Hence, it can be concluded from the correlation matrix and VIF scores that regression models in chapter 6 are not affected by multicollinearity.

Therefore, considering all the correlation matrices for independent variables and their respective VIF scores, it is confirmed that regression models presented in this thesis do not suffer from multicollinearity.

4 Chapter: Agency Conflict - Abnormal Bid Premium Determinants from Target and Bidder Perspective.

4.1 Introduction

The role of agency conflict in mergers and acquisitions (M&A) has attracted considerable research interest within academia due to its implications for target and bidder shareholder wealth. This chapter intendeds to determine the extent to which publicly listed target and bidder firm's governance in the UK impacts shareholder welfare in terms of its effect on the bid premium settlement. From the shareholder perspective, firm governance influence on bid premium settlements has essentially been non-valuation-based considerations incorporated in merger and acquisition (M&A) transactions, which may prove to be counter beneficial to the target's or bidder's shareholders. Hence, a predicted 'abnormal bid premium' measure is utilised in this study to distinctly reveal how target and bidder governance-related parameters shape and influence bid premiums in relation to what would be considered a bid of adequate quality.

This is accomplished by first computing a measure of bid quality based on the offer's characteristics and the target's financials available ex-ante to the bidder's management in line with Bates and Becher (2017). The sample includes all UK publicly listed targets with completed bids from 1995 to 2012. Abnormal bid premiums are computed as residuals of the prediction model, and then utilised along with target and bidder governance variables in a second regression model. The unique UK sample enables the results to be interpreted more intuitively as both target and bidder firms adhere to similar governance codes, and thereby contributes to the M&A literature, which has been predominantly based on North American data. Hence, by having observed the

influence of agency-related parameters on abnormal bid premiums, the true impact or cost of agency conflict on shareholder wealth is highlighted in terms of the settled abnormal bid premiums.

Previous academic literature has put forth various determinants that influence the level of bid premiums in acquisitions, either from the bidder or target perspective. For instance, Eckbo (2009), in his literature survey, reviewed takeover activity and process from initial bid to merger completion. The literature review primarily addressed the bidder's perspective with greater focus on characteristics of the initial bid meant to pre-empt the competition. Moreover, although the bid premium determinants investigated include target or bidder characteristics, none have been motivated by the agency conflict stance, which, according to classical literature on M&A, has impacted shareholders Walkling and Long (1984) Roll (1986), Jensen (1986).

However, the impact of agency conflict on the merger process has been extensively studied in the literature from the target or bidder executive management perspective and their respective boards. For instance, the target and bidder chief executive officer's (CEO's) personal traits have been pointed to in the prior literature as impacting the merger process by influencing the bid premium. Research studies have either focused on the target CEO's perspective Jenter and Lewellen (2015), Qiu et al. (2014), or on the bidder CEO's perspective Zhao (2013), Custodio and Metzger (2013), Yim (2013). Similarly, the quality of the board, per the existing literature, has influenced merger outcomes as the board of directors can be motivated by agency related behaviour.

To illustrate, Bebchuk and Cohen (2005) provided evidence of M&A cost to the target's shareholders in case of an entrenched board. Target firms with more independent boards have been linked to increased shareholder wealth Cotter et al. (1997). However, Bange and Mazzeo (2004) offered evidence of a lower bid premium in the case of a target with an independent board.

Evidence of bidders with independent boards resulted in lower offered bid premiums Byrd and Hickman (1992). However, I am not aware of any previous research that gauges the impact of target and bidder governance traits on the bid premium. However, the literature to date does not clearly highlight the effect of target or bidder based governance determinants that come together to settle the bid premium in relation to a bid of sufficient quality.

Hence, research objective here is to observe the impact of governance on under or overpayment of a bid premium as offered by the bidder's management and accepted by the target's management. In other words, the target and bidder based determinants of an abnormal bid premium are studied through management governance based proxies to develop a comprehensive perspective with regards to the interactions between the bidders and the targets; ultimately, to see how potential agency conflict issues on either side of the deal impact the settling of bid premium.

I have attempted to contribute to the M&A literature in three distinct ways. First, the majority of the extant research that considers agency or governance issues in the context of M&A is focused on market based cumulative abnormal returns (CARs) or raw bid premiums rather than abnormal bid premiums. In this regard, Bates and Becher (2017) mentioned this as a limitation that some firm based characteristics may remain un-modelled as the focus of their research is predominantly on bid resistance. Hence, here the bid premium model is extended to include governance considerations that may influence an abnormal bid premium.

Second, the 'abnormal bid premium' has not been utilised widely in extant literature as a proxy to measure the underlying 'quality of the bid', which is not as obvious in prior research as the 'raw bid premium' proxy. For example, Datta et al. (2001), Cai and Vijh (2007), and Jenter and Lewellen (2015) only consider the relationship utilising raw bid premiums. Only Ang and Ismail (2015), and Bates and Becher (2017) adopt 'abnormal bid premiums' as proxies for bid quality,

although not in the context of governance. Hence, it is possible that some relationships are not as evident in the prior literature, which utilises noisy raw proxies for measuring bid quality.

Third, I separately investigate the impact of target and bidder based governance characteristics with an abnormal bid premium, as both compete against each other to a certain degree in real life to settle the bid premium. I have not come across any study that has investigated both perspectives separately to offer further important insights into the bid premium settlement. The data set of governance characteristics has been manually collected from publicly listed target and bidding companies in the UK for the period 1995-2012. Hence, the unique dataset also extends UK corporate governance literature related to M&A, as the UK has a distinct set of corporate code regulations, governing merger process as compared to the North American M&A markets.

To summarise, this research proposes to extend the corporate governance literature in the M&A field by utilising abnormal bid premiums as bids of adequate quality to provide a clearer perspective and thereby highlight the impact of agency issues in bid premium settlements at publicly listed companies in the UK.

The results establish the effects of agency issues on bid premium settlements at UK publicly listed companies from an abnormal bid premium perspective. The evidence indicates that having only about a 40 per cent independent board may lead to merger transactions without optimal bid premiums for both the target's and bidder's shareholders, possibly due to oversight following Byrd and Hickman (1992). However, results suggest equity at adequate levels among the independent non-executive directors (NEDs) has motivated NEDs to perform duties that protect shareholder interests in studies like Cosh et al. (2006) and Kumar and Sivaramakrishnan (2008). In addition, there is evidence in regression results regarding the role of external block-holders as management monitors according to Denis et al. (1997). External block-holders at the target company with

greater than five per cent equity stakes have a positive impact on abnormal bid premiums and vice versa at the bidder company.

However, this phenomenon is reversed and found to be statistically significant with block-holders for more than 20 per cent equity each, which suggests that bigger block-holders possibly extract private benefits by influencing abnormal bid premiums at a cost to smaller block-holders as indicated by Barclay and Holderness (1989). Some evidence has been presented that bidder CEO age and target CEO tenure are important determinants of abnormal bid premiums. Results indicate a curvilinear relationship between the target's CEO tenure and abnormal bid premium, revealing an increase in the abnormal bid premium. However, after almost 9.7 years of tenure, the relationship turns negative, thus supporting the suggestion in prior literature that a target CEO near retirement age has a greater willingness for an early exit via a merger, which supports conclusions of studies like Jenter and Lewellen (2015). However, the results show a negative linear relationship between the bidder's CEO age and the abnormal bid premium, thereby supporting the results in prior literature regarding the propensity of younger CEOs to pursue acquisitions according toYim (2013).

Regarding CEO wealth level, including CEO remuneration and equity percentage at both the target and bidder firms, the results indicate that the wealth of the target's CEO helps align with the target's shareholder interests, confirming conclusions of studies like Buchholtz and Ribbens (1994). Whereas the same considerations for the bidder's CEO seem to induce empire-building related behavior. However, the result indicate that 'CEO held option value' relationship with the 'abnormal bid premium' suggests that performance based incentives can mitigate such concerns, in studies like Datta et al. (2001) and Minnick et al. (2011). According to the results, the bidder

CEO founder and the target CEO duality also indicate the presence of agency tendencies as they are positively and negatively related to the abnormal bid premium respectively.

The remainder of the paper is structured as follows. Section 2 examines key literature regarding agency conflict theory in the context of M&A. The literature review is broadly sub-sectioned according to 'governance characteristics' and 'bid characteristics'. Section 3 deals with the methodology used in this study and Section 4 covers the sampling. The summary statistics of the sample are discussed in Section 5, which are arranged according to bid premium, and target and bidder characteristics. Section 6 presents and discusses the empirical results and Section 7 deals with the conclusions.

4.2 Literature Review

As discussed in introduction chapter one, M&A has been one the most important areas of corporate finance, and thus, has extensive research interest. Jensen and Meckling (1976) have concluded that 'agency costs' are a reality in a publicly listed firm due to separation of ownership and control and hence firm management's true motivation for merger is observed in extant literature in two opposing hypotheses. These according to Walkling and Long (1984) are specified as shareholder welfare and management welfare hypothesis. The following reviews the hypotheses in prior literature regarding management M&A motivations.

4.2.1 Shareholder welfare hypothesis

In an endeavour to create wealth for their shareholders, corporations target and acquire other firms. The shareholder welfare hypothesis according to Walkling and Long (1984) propose that, ideally such acquisitions are undertaken by the bidder's management or agents to secure financial or operational synergies, paving the way for further growth, and realize shareholder wealth maximization goal. Similarly, the target's management should ideally consider their reaction to the bid in line with their fiduciary duty of shareholder welfare. If the target's management considers the bid offer in the best interest of their shareholders' wealth, then it should be proposed to their shareholders. Under the 'shareholder welfare' hypothesis, the target's management would only resist the bid offer if they perceived the bid as inadequate or sought a better offer for their shareholders. Jensen and Ruback (1983) published a review paper encapsulating the work of more than 40 research papers and acknowledged that a merger is not a zero-sum game, that both parties stand to gain from the merger transaction. Hence, they suggested that main motivation for M&A activity is shareholder welfare.

However, considering the classical literature on the principal agent problem, management may be motivated by self-interest in initiating or responding to a merger offer, rather than by shareholder interest. Management's pursuit of personal gains may lead to a conflict of interest with shareholders, which, in the literature, is referenced by Mitnick (1973) as 'agency conflict'. Ross (1973) further highlighted the dilemma and consequences of the principal agent problem. In the context of the corporation, Jensen and Meckling (1976) proved that 'agency costs' arising from agency conflict are real. Fama and Jensen (1983a) reasoned that such agency related costs can be mitigated by ensuring the 'separation of management and control' of the 'important decisions' in a corporation, through decision hierarchies, boards of directors, and incentive structures. The M&A is one of the most crucial corporate decisions due to the immense strategic and financial consequences for the respective shareholders. Therefore, it is important to consider the possible impact of agency related issues on target and bidder shareholder welfare in situations involving conflict of interest between the agent and the principal.

4.2.2 Management welfare hypothesis

According to the classical literature on the agency conflict mentioned in the previous section, there may be instances in which the bidder's management decision to offer a bid or the target's management decision to resist a bid are motivated by management's personal welfare. In contrast to the shareholder welfare hypothesis, the target's management may choose to resist a bid to remain in control of the company for personal wealth gains. This has been referred to as the 'management welfare' hypothesis by Walkling and Long (1984). Per Walkling and Long (1984), a merger via tender offer provides an 'ideal setting' to investigate agency conflict as the target's management may face potential unemployment in the event of a successful tender offer. They demonstrated that the decision to resist a tender offer is influenced by the management wealth effect rather than by

the bid premium, indicating that the real motive behind the resistance is management's own welfare. Hence, they found evidence in support of the 'management welfare hypothesis', according to which the target's management decision to resist an offer is influenced by personal wealth effects rather than the target's shareholder welfare. Later researchers continued to provide further evidence in a similar vein; for example, Hartzell et al. (2004) associated relatively lower premiums received by the target's shareholders with CEOs who negotiated extravagant personal benefits in the form of golden parachutes or bonuses. Their study essentially points towards agency conflict issues on the target management side where shareholder wellbeing is compromised as a direct result of the target management's self-interest.

To mitigate this tendency, prior literature on the issue of target management resistance recommends management passivity. For example, Easterbrook and Fischel (1981) recommended 'managerial passivity' for a target's management in the event of an offer and proscribe resistance as it would ultimately reduce shareholder value. Similarly, Baron (1983) simulated bid results under 'Management Resistance', 'Value-Maximizing Resistance', and 'Passivity Rule', and concludes that the passivity rule results in the 'first-best market value'[3]. Hence, according to Baron (1983), the first-best market value for shareholders can only be guaranteed when management strictly maintains a neutral position and acts only as a messenger to convey bids to the shareholders. Cotter and Zenner (1994) study corroborates the results of Baron (1983) and provides evidence that a change in the target's managerial wealth in terms of equity ownership is

[3] Easterbrook, F. H. & Fischel, D. R. 1981. The Proper Role of a Target's Management in Responding to a Tender Offer. *Harvard Law Review,* 94**,** 1161-1204. described 'managerial passivity' as a neutral standpoint taken by a target firm's management if there is a tender offer. This is referred to as the 'passivity rule' by Baron, D. P. 1983. Tender Offers and Management Resistance. *The journal of Finance,* 38**,** 331-343. which may prevent the target firm's 'management resistance' to remain in control of the firm. Contrary to the 'management's resistance', the target firm's management may also show resistance towards increasing the offer value; this is referred to as 'value-maximizing resistance'.

the real determinant of bid resistance. An offer resulting in greater personal gains for management is unlikely to be resisted, while a completed offer that was resisted increases the premium. Hence, in keeping with Baron (1983) the ideal response to the bid offer should be motivated by 'shareholder welfare' and not by 'management welfare'.

In the following section, various hypotheses in extant literature are referred to concerning managerial motivations behind the pursuit of self-interest in M&As.

4.2.2.1 Management hubris

As mentioned, a merger or acquisition has been a means for corporations to achieve growth. However, according to Roll (1986), an over confident bidder's management may bid excessively for a target at obvious cost to its shareholders, referred to as the 'management hubris' hypothesis. He theorised that in the presence of a hubris-inspired merger, the combined value would slightly decrease, with an increase in the value of the target company and a decrease in the value of the bidder company. However, the results were statistically insignificant, lending no support for or against the hubris hypothesis. Roll (1986) differentiated between 'management hubris' and 'agency conflict': hubris may lead to valuation errors, while agency conflict means that management is pursuing its own self-interest at shareholder expense.

However, Morck et al. (1990) provided evidence for Roll (1986) hubris hypothesis by relating lower bidder returns in the event of conglomerate mergers, high growth targets, and underperforming bidder management. In a similar vein, Moeller et al. (2004), in their discussion, also argued that a positive market reaction to merger announcements in the case of smaller bidder firms may indicate that CEOs of smaller firms are relatively less influenced by hubris when compared to CEOs of much larger corporations. Malmendier and Tate (2008) and Croci et al. (2010) proxied for CEOs' hubris utilising options and presented evidence for hubris. They also

indicated that hubris ridden CEOs may conduct value-reducing acquisitions. The subject of CEO hubris is further covered in the literature review of chapter 5 under the sub-head 5.2.9.

4.2.3 Empire building

Jensen (1986) offered evidence that the bidder's management may be motivated by self-interest and their desire to retain resources, like free cash flow, and thus would act sub-optimally by investing in inefficient internal projects or mergers, resulting in the destruction of the bidder's shareholder wealth. An acquiring CEO is also less likely to be terminated Yim (2013). Acquisitions under such circumstances realise lowest announcement-day returns, that according to Yim (2013) signifies agency conflict issue due to shareholder wealth destruction. Hence, empire building at a cost to shareholders may benefit the bidder's management.

In the literature, evidence of the bidder's management agency conflict is also presented from the conglomerate merger perspective. In developing a theory on conglomerate mergers, Mueller (1969) reasoned that diversification and subsequent lower default risk and capital cost benefits could be attained by investors through portfolio management. Hence, the motivation for conglomerate mergers could best be explained through synergistic gains. Maquieira et al. (1998) found no evidence of synergistic gains present in their sample of stock mergers among US publicly listed companies. However, non-conglomerate mergers were reported to have significant net synergistic gains, which led Maquieira et al. (1998) to conclude that the bidding management teams involved in conglomerate mergers were not motivated by shareholder welfare. In such cases, the bidder's management may be motivated by 'empire building' purposes. The diversification benefit of conglomerate mergers was found to be inconclusive by Denis et al. (1997). According to them, conglomerate mergers were side effects of agency related behaviour in which management derived 'prestige and power' from the merger and any apparent attempts at corporate

refocusing by management were due to market disciplinary forces. One source of such market disciplinary forces in the literature is large block-holders, for which various hypotheses are discussed in later section.

To summarise, M&A activity by targets and bidders may be motivated by either the 'shareholder welfare hypothesis' or the 'management welfare hypothesis' (Walkling and Long, 1984). Under the shareholder welfare hypothesis, the bidder's management offers to acquire the target for synergistic reasons, and the target's management only resists to seek a better offer. Under the opposing management welfare hypothesis, the bidder's management may be motivated by empire building or hubris, and the target may resist or accept the bid to safeguard personal wealth or position.

4.2.4 Abnormal bid premium and agency conflict

In the literature, the bid premium has been employed as a proxy to observe a merger's wealth impact on shareholders, as it captures the wealth transfer from the bidder to the target shareholders for a positive bid premium and vice versa for a negative bid premium. Ideally, bid offer consists of 'offer price' based on the core target company value, plus a premium to entice the target's shareholders into surrendering control. The bidder's management pays a premium as a price for possible synergy gains from the proposed merger. However, if the bidder's merger transaction is motivated by the management welfare hypothesis, it may over bid for the target without any synergistic gains. As discussed in the introduction, abnormal bid premiums measure the bid offers made over and above a bid of adequate quality. Per Bates and Becher (2017), an abnormal bid premium is computed as the difference of the predicted bid premium based on the target's financial characteristics available plus the offer characteristics, and the actual completed bid. Hence, if the merger is motivated by the management welfare hypothesis, a positive relationship is expected

between the abnormal bid premium offered and a proxy for observing agency related behaviour. Similarly, if the target's management accepts a bid for personal gain, or based on the management welfare hypothesis, the target company may accept a bid offer with a negative abnormal bid premium. Hence, a negative relationship is expected between the abnormal bid premium and the proxy for the target's management agency conflict.

Since the aim of this study is to investigate the impact of agency conflict on target and bidder shareholder welfare in UK publicly listed mergers, investigating the presence of relationship between the 'bid premium paid' and 'firm governance' should provide support for the hypotheses. The next section covers governance-based proxies for agency related management behaviour during mergers.

4.2.5 Board independence

Fama and Jensen (1983b) highlighted the importance of an outside board of directors as mitigator of agency conflict and describe members as 'non-internal managers'. Baysinger and Butler (1985) further refined the concept of an independent outside director as a director who, in addition to not working for the firm, is not 'psychologically or economically' dependent on the firm. In other words, an independent non-executive board member should not be reliant on the corporation. This serves as an effective tool to separate the management and control of important decisions, which, per Fama and Jensen (1983a), is crucial to mitigating agency conflict issues. Evidence in the literature supports Fama and Jensen (1983a) hypotheses. According to Brickley and James (1987), outside directors serve as 'influential devices for control' who aid in appraising merger offers. Rosenstein and Wyatt (1990) report a positive relationship between the appointment of outside boards of directors and market reaction in terms of share price, thus attributing this creation of shareholder wealth to outside directors.

In the context of the M&A role of an independent board, the study by Byrd and Hickman (1992) links the presence of at least 50 per cent 'independent non-executive directors (NED) on the bidder's board with significantly higher announcement-date abnormal returns compared to bidders with only NEDs. However, the benefits disappear when the independent directors make up over 60 per cent of the board. Thus, Byrd and Hickman (1992) indicate the presence of the optimal concentration of independent outside directors, after which the benefits diminish. Similar evidence is presented by Schmidt (2015), who suggests that 'friendly boards' with social connections to the CEO exhibit higher bidder company announcement returns but only when the need for board advice is crucial rather than the need for discipline. Friendliness, proxied by social ties, negatively effects the bidder's announcement returns when need for discipline is higher. Baysinger and Hoskisson (1990) argue that too many independent NEDs might result in oversights as such directors usually have other CEO related responsibilities. Ahn et al. (2010) report a non-linear relationship between multiple board seats leading to negative announcement returns for the bidder, indicating that managerial oversight by busy outside directors result in agency conflict.

Cotter et al. (1997) investigated the role played by the target's independent board of directors in the reduction of agency conflict during tender offers and showed that an independent board resulted in higher initial and final bid premiums. Cotter et al. (1997) reported that target companies with at least 50 per cent independent board members witnessed a 20 per cent more market return in the event of a tender offer, after controlling for target and offer characteristics. The presence of the poison pill in addition to independent boards leads to further increments in bid premiums, suggesting that such defensive mechanisms in the presence of independent boards are used for shareholder welfare rather than for entrenchment. Cotter et al. (1997) suggest that gains for the target's shareholders come at a cost to the bidder's shareholders. In contrast, Bange and Mazzeo

(2004) linked the presence of a target's independent board to a lesser likelihood of bid completion and lower bid premiums. Bange and Mazzeo (2004) reasoned that independent NEDs were driven by self-interest such as maintaining their positions on the board.

However, such evidence has been based predominantly on the North American M&A market, which is markedly different from the UK's due to the presence of the UK Corporate Governance Code. Please refer to section 2.1 of chapter 2 for further detail on corporate governance development and structure of UK as compared to USA.

Since the scope of this research deals with publicly listed UK target and bidder companies, the implications of UK regulations have also been considered in terms of board structure in the research. First, under the City Code on Takeovers and Mergers, shareholder rights plans or poison pills have been deemed unlawful, at least prior to shareholder consent. Therefore, any variables on anti-takeover measures have not been included as these are not relevant in the UK M&A market. For further detail on the comparison of takeover environment of UK and USA, please refer to section 2.2 on takeover regulation in chapter 2.

Second, as discussed in section 2.1, the UK Corporate Governance Code, set out by the Financial Reporting Council (FRA), also emphasises the importance of good representation of non-executive or outside directors. According to the Council (2014) standard B.1.2 'at least half the board, excluding the chairman, should comprise non-executive directors determined by the board to be independent'. Moreover, per code B.1.1, independent NEDs should be mentioned in the annual report. UK Corporate Governance Code sets out 'standards for good practice' and firms have been strongly encouraged adhere to and disclose information on compliance to the public in their annual reports. In 1989, the London Stock Exchange made it mandatory for listed companies to report independent directors in their annual reports. The comply or explain policies regarding the

Corporate Governance Code encourage most listed companies to have a good representation of independent NEDs on their boards. Summary statistics on board independence confirm the average presence of NEDs as 43 per cent for both target and bidder companies in the sample. However, this high level of NEDs due to the regulatory requirement may not reflect a firm's commitment to better governance. Moreover, UK corporate governance code as discussed in section 2.1.1 also discourages duality of roles and requires chairperson to pass independence criterion on appointment only. Therefore, a statistically significant relationship is not expected between the abnormal bid premium and board independence proxies like level of NED board participation at both the target and bidder companies. The first hypothesis is presented as follows.

1aH $_{Null}$: There is no relationship between target/ bidder board independence and abnormal bid premium.

1aH $_{Alt}$: There is relationship present between target/ bidder board independence and abnormal bid premium.

However, according to UK corporate governance rules as discussed in chapter 2, since chairperson is required to meet independence criterion at appointment instance only. As chairperson independence is also associated to overall board independence, its relationship to abnormal bid premium may also be similar in vein to board independence, as discussed. Hence, second part to the first hypothesis regarding chairperson independence is indicated as follows.

1bH $_{Null}$: There is no relationship between target/ bidder chairperson independence and abnormal bid premium.

1bH $_{Alt}$: There is relationship present between target/ bidder chairperson independence and abnormal bid premium.

4.2.5.1 Independent NED motivation:

The motivation for board members to act as an independent 'decision control expert' per Fama and Jensen (1983b), comes from 'incentives to develop their reputation' in such a role. Observing the independent director motivation purely from a financial incentive perspective, Harford (2003) highlights that the directors' remuneration does not necessarily align their interests with shareholders but the threat of losing their reputations in the job market compels independent directors to act in the interest of shareholders. However, Harford (2003) favours an increase in equity holding for outside directors to align their interests even more closely with that of general shareholders. However, Walkling and Long (1984) provide evidence that an increase in the personal wealth of officers and directors is a determinant for the decision to resist a takeover. Bange and Mazzeo (2004) suggest that independent NEDs also have an incentive to protect their positions on the board. Similarly, Kumar and Sivaramakrishnan (2008), in their numerical model, conclude that more independent boards require greater equity compensation to incentivise independent directors in the effort to collect impartial information on the economic outlook of the corporation, otherwise their performance degrades. In a similar vein, Cosh et al. (2006) utilise UK merger market data and suggest that board equity participation levels have an implication for shareholder welfare, as little or no participation levels may lead to 'empire building', and although optimal levels of equity participation serve to alleviate agency related concerns, overly high levels of equity participation may lead to 'management entrenchment'. To conclude, in prior literature, levels of equity participation from independent NEDs may help further align their interests with respective shareholders; during mergers, this should then influence offer and acceptance of abnormal bid premiums.

Hence, it is hypothesised that if independent NED actions around shareholder welfare are motivated by 'equity holding', then a significant positive relationship would be observed between independent NED equity levels on the target's board and the bid premium offered and vice versa for the bidder's board. Thus, the second hypothesis is as follows.

$2H_{Null}$: There is no relationship between independent NEDs equity level in target/ bidder board and abnormal bid premium.

$2H_{Alt}$: There is positive relationship present between independent NEDs equity level in target board and abnormal bid premium. Vice versa, there is a negative relationship between independent NEDs equity level in bidder board and abnormal bid premium.

4.2.6 CEO characteristics

The following literature review addresses the personal characteristics, compensation, and incentive-based plans of CEOs that have been extensively researched in terms of personal gains according to management preference theory influence in M&A activity.

4.2.6.1 CEO equity level

According to classical financial literature, for example, per Brealey et al. (2001), equity ownership by management reduces firm agency conflict issues by aligning the goals of management with that of their respective shareholders. Hence, CEO stock ownership percentage on the initial announcement date should serve as a good proxy of how target or bidder management wealth goals align with the shareholders.

However, Heitzman (2011) reported no significant relationship between equity grants to target CEOs during the deal negotiation period and the realised premiums for the target's stockholders calculated by stock return. Furthermore, Heitzman (2011) provided evidence that target CEOs who

are better positioned and permitted to negotiate with the bidders are more likely to be awarded equity grants during private negotiations, possibly to better incentivise CEOs in the negotiation. Heitzman (2011) highlighted that CEOs negotiated privately in only half the cases in the entire sample, hence any reduction in the bid premium could not be attributed to target CEO negotiation only. According to Buchholtz and Ribbens (1994), the level of target CEO equity has been linked to lower management resistance and entrenchment but no meaningful relationship has been reported with the bid premium offered. Hence, Buchholtz and Ribbens (1994) concluded that equity based incentives align management with shareholder interests. In a similar vein, Datta et al. (2001) reported a more than eight percentage point lower bid premium among bidders with CEOs with high equity-based compensation. Bliss and Rosen (2001) presented evidence from the US banking sector and reported that CEOs with stock ownership as compensation were 'less likely to make an acquisition'. This reduced probability has been interpreted as CEOs refraining from making less than optimal acquisitions, thus implying an alignment of CEO and shareholder wealth goals.

However, Cai and Vijh (2007) concluded that CEOs with 'higher illiquid holdings' from overvalued firms are likely to negotiate less and hence bid relatively more for target firms in a diversifying merger utilising stock payment. Similarly, target companies' CEOs with higher illiquid holdings, per Cai and Vijh (2007), may settle for lower bid premiums as the merger may act as a catalyst to remove their illiquid positions, however, their behaviour may not be explained by the entrenchment theory.

In summary, considering Cai and Vijh (2007), there should be a positive relationship between the abnormal bid premium and bidder CEO equity ownership. However, the level of CEO equity has been shown in the literature to reduce the incidence of agency conflict. Therefore, there should be

an inverse relationship between an abnormal bid premium offered and the level of bidder CEO equity participation. Similarly, no significant relationship between an abnormal bid premium and target CEO equity participation is expected, as the level of target CEO equity reduces management resistance to takeover and entrenchment but may not necessarily translate into a higher bid premium. Therefore, third hypothesis regarding CEO equity level is posit as follows.

3aH $_{Null}$: There is no relationship between target/ bidder CEO equity level and abnormal bid premium.

3aH $_{All}$: There is relationship present between target/ bidder CEO equity level and abnormal bid premium.

Considering studies like Cotter and Zenner (1994) which indicate managerial wealth or value of equity as real determinant, CEO equity is also proxied by the value of CEO equity. Hence, second part of third hypothesis 3b is presented as follows, in which expected relationship is identical to hypothesis 3a.

3bH $_{Null}$: There is no relationship between target/ bidder CEO equity value and abnormal bid premium.

3bH $_{All}$: There is relationship present between target/ bidder CEO equity value and abnormal bid premium.

4.2.6.2 Options and CEO wealth

Fich et al. (2011) report a deal discount of almost '$62 for every dollar target the CEO receive from unscheduled stock options', which indicates a transfer of wealth from the target to the bidder shareholders in a sample of more than 4000 mergers in the period 1999-2007. Cotter and Zenner (1994) provide evidence that the real determinant of bid resistance is a change in the

target's managerial wealth in equity. An offer that results in greater CEO personal gains is unlikely to be resisted, however, a resisted and yet completed offer increases the premium.

Datta et al. (2001), per their evidence, conclude that stock option grants persuade CEOs to pursue better performing acquisitions. Short and long-term market reaction has been utilised by Minnick et al. (2011) as proxies for the measurement of merger success, computing pay-for-performance sensitivity examining CEO stock and option holdings. Minnick et al. (2011) present evidence that bidders' CEO performance incentives and their effects on CEO wealth not only discourage CEOs from making inefficient acquisitions, but also encourage them to make acquisitions that are beneficial to their shareholders. Hence, bidder CEO wealth, especially stock options may discourage overpayment for a target firm.

In view of extant literature on CEO equity for target and bidder in previous section 4.2.6.1, CEO wealth may also indicate relationships in similar vein to abnormal bid premium, as apart from CEO options value, it also includes value of CEO equity and remuneration. Thus, I posit the following fourth hypothesis regarding CEO wealth.

4aH $_{Null}$: There is no relationship between target/ bidder CEO wealth and abnormal bid premium

4aH $_{Alt}$: There is relationship present between target/ bidder CEO wealth and abnormal bid premium.

However, considering evidence of studies like Datta et al. (2001) and Minnick et al. (2011), bidder CEO with options may avoid overpayment for target to make an efficient acquisition. Therefore, a negative relationship between bidder CEO options and abnormal bid premium is expected. In similar vein, stock options for target CEO may help with shareholder goal alignment and target

CEO may negotiate for a higher bid premium. Hence, a positive relationship is expected with target CEO options. Thus:

4bH $_{Null}$: There is no relationship between target/ bidder CEO stock options and abnormal bid premium

4bH $_{Alt}$: There is positive relationship between target CEO stock options and abnormal bid premium. There is negative relationship between bidder CEO stock options and abnormal bid premium.

4.2.6.3 CEO age and tenure

In the upper echelon theory by Hambrick (2007), personal experiences and traits of managers can influence their choices, hence the age and experience of the target or bidder CEO may have some impact on merger decision making as well. Buchholtz and Ribbens (1994) report a curvilinear relationship between target CEO age and management resistance to takeovers, as older target CEOs resist bids to protect their positions in their companies; however, CEOs near retirement age might see takeovers as an opportunity to exit the business. In similar evidence, according to Jenter and Lewellen (2015), CEOs preference to retire at 65 has a positive impact on merger success without any adverse effect on premiums. To gauge the impact of retirement age on various merger related issues, including bid premiums, Jenter and Lewellen (2015) utilised a dummy variable set to one if the target's CEO age ranged between 64 to 66 in the announcement year, and reported an increased frequency of completed bids as the CEO neared retirement. However, they reported no significant change in takeover premiums when compared to younger CEOs. Yim (2013) investigated the propensity of the bidder's CEO to seek acquisitions in relation to the CEO's age and predicted that younger CEOs had greater incentives to make acquisitions to

achieve permanent upward revisions in their compensation levels for the remainder of their long careers.

Therefore, a negative relationship is expected between an abnormal bid premium and the bidder CEO age, as younger bidder CEOs have greater incentives to make acquisitions. It is also expected that there will be a nonlinear relationship between the abnormal bid premium and the target CEO age, as CEOs near retirement age may accept lower bid premiums to achieve an opportunity for an early retirement. Hence, fifth hypothesis is posit as follows.

$5H_{Null}$: There is no relationship between target/ bidder CEO age for and abnormal bid premium.

$5H_{Alt}$: There is nonlinear relationship present between and target CEO age and abnormal bid premium. There is negative relationship present between and bidder CEO age and abnormal bid premium.

Per anecdotal evidence, experienced CEOs are positioned to handle negotiations prudently during merger bids. According to the literature on strategic management, CEOs are involved in value creation by directing company resources and negotiating on their company's behalf. Custodio and Metzger (2013) provide evidence that experienced CEOs in a target industry have been better able to create value during merger negotiations. Hence, a target CEO with more tenure may negotiate a higher abnormal bid premium. However, a target CEO with a long tenure may also settle for lower for an exit.

However, 'experience' is a fluid concept compared to age and proxies for it must be considered carefully. In this regard, Jacobsen (2014) described CEOs as 'new' if they had been with bidder firms for less than two years. New CEOs have further been categorised by Jacobsen (2014) as internally versus externally promoted, as externally hired CEOs would appear riskier. Jacobsen

(2014) provided evidence that uncertain or inexperienced CEOs were more likely to withdraw a bid for price reasons. Analysing results presented by Jacobsen (2014) in the context of offered bid premiums, inexperienced CEOs being more cautious would offer lower bid premiums. Hence, a positive relationship is expected between an abnormal bid premium and bidder CEO tenure and hence sixth hypothesis is indicated as follows.

$6H_{Null}$: There is no relationship between target/ bidder CEO tenure and abnormal bid premium.

$6H_{Alt}$: There is relationship between target CEO tenure and abnormal bid premium. There is positive relationship between bidder CEO tenure and abnormal bid premium.

4.2.7 Block-holder presence

The influence of large block-holders with regard to corporate governance has been investigated in many empirical studies. In the UK, according to the FCA's disclosure and transparency rules, investors acquiring three per cent or more of total voting rights are obligated to notify. Hence, investors in possession of three per cent or more shares are considered significant block-holders. An investor may acquire a large block of equity to extract benefit, which other investors may not be able to extract with lesser holdings. Due to their potential to extract private benefits of control, Barclay and Holderness (1989) provided evidence that larger blocks trade at an average of a 20 per cent premium. Barclay and Holderness (1989) have reasoned that the presence of this premium linked only to well-performing companies offered evidence of the extraction of private benefits by majority shareholders over minority shareholders. Furthermore, in the same vein, they argued that poor performing firms' blocks would be sold at a discount.

The presence of larger block-holders has been associated in the literature with improved corporate governance by way of management monitoring. This increased monitoring contributes to the

welfare of all shareholders, as indicated by Mueller (1969). Denis et al. (1997) report a negative relationship between the presence of a conglomerate led diversification movement of the 1980s and equity held by outside block-holders. In the majority of research studies, external bulk holdings of at least five per cent or more are viewed as a market disciplinary force, which counters agency related conflicts in bidders and targets. A large block of shareholders in the target company, per Gomes (2001), can also compel bidder's management to offer a high pre-emptive bid to eliminate a holdout by these larger equity shareholders. Similarly, Gaspar et al. (2005) offered evidence that weaker monitoring by relatively short-term shareholders leads the bidder management to indulge in value reducing acquisitions with empire building motives. They based their findings on the assumption that short-term investors would be uninterested in monitoring management compared to shareholders with long-term investment horizons.

Considering this evidence on block-holders from an M&A perspective, the presence of many large shareholders may result in increased monitoring by them. In this case, I expect a positive relationship between the number of block-holders at the target company and abnormal bid premiums. However, considering Barclay and Holderness (1989) I also expect a negative relationship between target block-holders and abnormal bid premium. In the case of the bidders, increased monitoring may restrain management from paying higher bid premiums, resulting in a negative relationship. Hence, seventh hypothesis is indicated as follows.

$7H_{Null}$: There is no relationship between target/ bidder block-holder presence and abnormal bid premium.

$7H_{Alt}$: There is relationship present between target block-holder presence and abnormal bid premium. There is a negative relationship between bidder block-holder presence and abnormal bid premium.

4.2.8 Bid characteristics

Bid characteristics chosen by bidder such as payment, tender offer and toe hold, in the extant literature also relate to bid premiums; these are discussed as follows.

4.2.8.1 Choice of payment

The choice of payment has been investigated by various researchers from the perspective of taxes and asymmetric information. The target's shareholders, in return for relinquishing their share rights, have been compensated with cash, bidder's securities, or a mix of both. The target's shareholders are generally asymmetrically informed about the true synergistic value of their shares. Hence, under such circumstances, per Myers and Majluf (1984), the target's shareholders may see the payment choice mix as a signal. According to Myers and Majluf (1984) the issuance of equity is interpreted as a negative signal, whether to raise direct capital or indirectly as payment in the merger.

From a tax perspective, if the target's shareholders are compensated in all cash, then shareholders would be subject to capital gains tax according to the UK HM Revenue and Customs rules. Hence, bidders may be required to increase the premiums to compensate for the tax payment required by the target's shareholders. However, the valuation in the eyes of the target's shareholders in an all cash transaction is straightforward.

The free cash flow theory of Jensen (1986) suggest mergers that involve cash pay-outs 'create net benefits' even in the case of unrelated conglomerate mergers as they tend to be inefficient, as previously mentioned. Based on Jensen (1986), from the perspective of market signals under asymmetric information conditions, an all-stock payment may be deemed as an inefficient merger by investors, which should be reflected in a significant discount in the bidder's stock.

However, the study conducted by Travlos (1987) from the bidder perspective on the phenomenon, confirms the presence of the signalling hypothesis in a sample of merger announcements consisting of 167 bidders from 1972 to 1981. Travlos (1987) categorised the sample on the basis of all stock, all cash, and a combination payment with event-based methodology utilised for computing cumulative abnormal returns for the bidder. Results showed that the bidding firm's shareholders experienced 'significant losses' on a pure stock merger or tender offer, revealing the presence of the signalling hypothesis. Travlos (1987) interpreted this as the bidders attempt to unload their overvalued stock. Hence, the bidder with a high market-to-book ratio, taken as a proxy for stock overvaluation, should offer an all stock payment for the merger per Betton et al. (2008a).

A study on French data of 306 tender offers over a period of 16 years starting in 1962 by Eckbo and Langohr (1989) revealed that an all cash payment rather than stock resulted in higher premiums. Premiums for all cash transactions were reported at 73 per cent versus 17 per cent for all stock payments, as all cash payment premium did not encompass a compensation to the target's shareholders for any ensuing tax liability (Eckbo and Langohr, 1989). A study done using UK data by Franks and Harris (1989) included evidence of a positive relationship between offer premium and cash payment due to the tax effect. Another alternate explanation is offered by De La Bruslerie (2013) from a 'risk sharing' perspective, which suggested that payment in the bidder's stock transfers some risk sharing to the target's shareholders. Furthermore, De La Bruslerie (2013) referenced the payment mix as a corner solution as a trade-off between the benefits of an all cash payment and stock payments. Hence, stock in the payment mix should be offered by bidder firms that require 'risk sharing' in the event of information asymmetry.

According to the observations of Rossi and Volpin (2004) in a cross-country study of bid premium determinants, the UK mandatory bid rule dictates that bidders make a cash offer or an alternative

cash offer in the case of other payment modes. Hence, regulations also impact bidder decisions regarding modes of bid offer payments. Furthermore, Rossi and Volpin (2004) reported a positive and statistically significant relationship between the takeover premium and the tender offer.

In short, payment mode decision taken by the bidder considers the available funding, its own capital structure requirements, information asymmetries present in the market, and tax considerations. Hence, I posit a negative relationship between stock payment and bid premium paid considering studies like Franks and Harris (1989) and De La Bruslerie (2013) considering 'risk sharing perspective of bidder management in case of stock offer. Following eighth hypothesis is mentioned regarding payment option.

$8H_{Null}$: There is no relationship between stock offer and bid premium.

$8H_{Alt}$: There is negative relationship present between stock offer and bid premium.

4.2.8.2 Tender offer

Regarding tender offers, Offenberg and Pirinsky (2015) argued that due to their relative speed of execution compared to ordinary mergers, a sense of demand urgency is conveyed to the target's shareholders, and hence, reflected in the premium offered. Similarly, as mentioned, Rossi and Volpin (2004) also reported a positive and significant relationship between takeover premium and tender offer as the bidder's offer has to be of more than adequate quality to convince the target's shareholders to tender their shares. According to Eckbo and Langohr (1989), disclosure requirements, such as mentioned in the UK takeover code (2013) and the Williams Act in the US, serve to increase bid premiums, and thus, bidders may be tempted to make private tender offers. Hence, considering prior literature, I posit a positive relationship between the tender offer and the raw bid premium, as the bidder's management has to present a convincing offer to a sufficient

number of the target's shareholders, for them to tender their shares to pave the way for the merger. Hence:

9H $_{Null}$: There is no relationship between tender offer and bid premium.

9H $_{Alt}$: There is positive relationship between tender offer and bid premium.

4.2.8.3 Toehold

Toehold has been described as the percentage of the target's stock held by the bidder prior to the merger announcement, which is essentially non-controlling in nature per Povel and Sertsios (2014). In the literature, it has been considered a leverage mechanism for bidders along with the termination agreement. According to Betton et al. (2009), the termination agreement shields a bidder firm from the rejection cost in the form of compensation payment from the target firms, in the event that the target firm withdraws from merger negotiations. Hence, a bidder firm's management may utilise them as leverage against target firms during merger negotiations in the case wherein the target firm's management withdraws during the negotiation period. Furthermore, in the case of failed negotiations, the potential increase in the toehold value along with the termination agreement might be able to offset some of the bidder's sunk takeover costs. Officer (2003) reported higher bid premiums and merger success in merger deals without any termination agreements, although they are favoured in two-thirds of merger agreements in the period 1997-1999.

Prior research indicates that toeholds in publicly listed target companies are held by potential bidders to remove information asymmetry. Regarding toeholds, Betton et al. (2009) reported that the presence of toeholds has declined since the 1980s, and the average toehold size was 20 per cent. Povel and Sertsios (2014) reported the average toehold as 27 per cent held for about eight

months prior to any bid offer and concluded that toeholds were only beneficial when there were substantial barriers to information in the target firm. These toehold benefits have contributed to the incremental increase in the likelihood of a successful bid, as shown by Betton and Eckbo (2000). Hence, toeholds have contributed to reducing bid premiums, as shown by Eckbo and Langohr (1989) and Betton and Eckbo (2000).

Betton et al. (2009) attempted to solve the declining yet large toehold puzzle by developing a two-stage takeover model. The model deals with a time-frame in which the board considers other competing offers, and both the bidder and the target company seek approval from their shareholders. It also aimed to capture the reaction of the target's aggressiveness to an invitation to negotiate with the bidder under the equilibrium toehold strategy explored by Betton et al. (2009). The duration of the study was 30 years, starting in 1973, involving 10,806 control bids in the US merger market. The Betton et al. (2009)model concluded that a toehold presence prior to negotiations is deemed an 'aggressive' gesture. As such, the target's management refuse to negotiate, thereby paving the way for an open auction and leaving the toehold bidder with rejection costs. According to Betton et al. (2009)optimal toehold strategy requires that rejection costs be more than balanced by perceived toehold benefits. They suggested a threshold of nine per cent for a toehold and showed that a typical bidder may prefer to use a zero-toehold considering the toehold acquisition costs and thereby avoid rejection by the target's management. In other words, toeholds smaller than nine per cent would do more harm than good, which explains the reluctance to acquire a toehold and the preference for a larger toehold when it is utilised as leverage. In light of the prior literature, bid premiums for smaller toeholds must be larger, while bigger toeholds should serve to reduce bid premiums.

From a regulatory standpoint, according to the UK company disclosure rules, a stake of three per cent or more by a single investor demands disclosure to the target company. Hence, acquiring a large initial toehold may not only start a matching war with rival bidders but may also be viewed as a hostile gesture if the target's management has not been taken into confidence, per Bulow et al. (1999).

Hence, considering the results in prior literature that smaller toeholds increase the target's resistance, there can be a negative relationship with raw bid premium when there is no toehold, as a lower bid premium would be required for a relatively less resistant target company. However, since larger toeholds serve to reduce information asymmetry, hence presence of no toehold may increase the raw bid premium. Therefore, tenth hypothesis is indicated as follows:

10aH $_{Null}$: There is no relationship between no toehold and bid premium.

10aH $_{Alt}$: There is relationship between no toehold and bid premium.

Furthermore, considering that presence of toehold reduces information asymmetry, which may help reduce bid overpayment, I again posit a negative relationship between the percentage of the toehold held by the bidder and the raw bid premium paid to the target company. Hence, second part to the toehold hypothesis is indicated as follows:

10bH $_{Null}$: There is no relationship between toehold presence and bid premium.

10bH $_{Alt}$: There is negative relationship between toehold presence and bid premium.

4.2.8.4 Target stock run-up

The target's stock run up has been calculated as the stock return prior to the merger rumours in the market up to the merger announcement. The target's stock may change due to fundamental

changes in the market's valuation or due to merger anticipation, which, according to Schwert (1996), the bidder may build into its bid offer. Schwert (1996) showed a significant relation between the bid premium and the run up. Bhagat et al. (1987), using a sample of 295 cash tender offers over a period of almost 18 years, modelled the target's stock price as a put option and reported an average increase of 11 per cent in the post announcement period compared to the pre-announcement period.

The role of arbitrageurs in mergers has also been studied by various researchers such as Hsieh and Walkling (2005), who examined a sample of 608 merger bids for a period of seven years starting in 1992. Hsieh and Walkling (2005) identified two types of arbitrageurs, namely, active and passive investors who seek to benefit from potential mergers by holding on to large blocks of the target's securities in anticipation that its stock price will experience a run-up leading up to the merger announcement. They provide evidence not only on the merger forecasting capability of arbitrageurs but also on how they influence the probability of merger realization and bid premium through their holding patterns. Research findings considering the bid premium perspective have implied that external market forces also influence merger outcomes and associated offer premiums. Hence, bid premiums should also be considered from an external market perspective as shown in prior literature on mergers.

Examining a sample of 2381 merger attempts for a period of 20 years starting in 1984 for US publicly listed targets, Chatterjee et al. (2012) showed that the target's stock run-up and the premium paid was greater when there was a divergence of opinion in the market regarding the target's value as reflected in the dispersion in the analysts' earnings forecasts. Other proxies for investor opinion divergence utilised by Chatterjee et al. (2012), such as 'change in the breadth of

mutual fund ownership' and 'idiosyncratic volatility' in the target's stock price, have resulted in the same evidence.

The presence of a market feedback loop has not been supported by Betton et al. (2014) per the model based analysis conducted with stock market run-up feeding back into offer premium. Betton et al. (2014) reported evidence of a 1:1 change in the bid premium with the market return during the run up period, with block trades further contributing to the run-up. However, they vehemently rejected the idea of increased bidder takeover costs led by market run ups. Hence, block trades or toeholds, although they may increase the target's stock run-up, do not increase the bid premium. Betton et al. (2014) have also provide evidence that the 'run ups revert to zero' for failed bids, supporting the view that runs on the target's stock are in anticipation of potential merger synergies. However, run-ups have not been witnessed as a result of issues related to the targets being undervalued. These findings concurred with the previous findings in an earlier study by Betton et al. (2009). Together, these studies indicate that there is a positive relationship between the pre-merger announcement market price run up of the target's stock and the bid premium. Therefore, eleventh hypothesis is presented as follows:

$11H_{Null}$: There is no relationship between target price runup and bid premium.

$11H_{Alt}$: There is positive relationship between target price runup and bid premium.

Overall, this literature review suggests abnormal bid premium according to Bates and Becher (2017) is a better proxy for bid premium quality. Moreover, the studies in the literature review clearly indicate that there can be a relationship between abnormal bid premium and governance characteristics of target and bidder firms. Therefore, hypotheses regarding abnormal bid premium

in this literature review determine if governance considerations like board independence, internal and external equity holding, and CEO characteristics influence abnormal bid premium, as indicated in discussed extant literature.

A summary related to hypotheses presented in chapter 4 is present in an appendix, which provides an overview of the relationships that are discussed in this literature review section. In the next section 4.3 mythology related to computation of abnormal bid premium and regression models is presented.

4.3 Methodology

The main objective of this research is to investigate the determinants of abnormal bid premiums in the context of agency related issues at both the target and bidder firms that may affect bid premiums. Several methods are discussed that currently exist to measure the raw bid premium before addressing the methodology adopted here.

It should be noted that the bid premium is not directly identifiable as only the bid offer is made public, and the bidder's considerations behind the offer are not part of publicly available information. Hence, many researchers have computed the bid premium based on the open market and valuation perspectives utilising various approaches. In extant literature, the first approach has been to calculate the premium indirectly through secondary market stock prices. Abnormal returns have been computed around merger announcement dates witnessed in the market using the process highlighted in event-based literature such as by Mackinlay (1997). One of most frequent approaches in the literature is the measurement of 'cumulative abnormal stock return or CAR' per Dodd and Ruback (1977) and Huang and Walkling (1987). Dodd and Ruback (1977) examined the first public announcement date as the event date and separated out the performance of the target's returns, showing that the target's shareholders enjoyed more than a 20 per cent CAR for successful offers compared to about a three per cent CAR for the bidders in the announcement month. This approach has been widely used in literature, such as by Betton and Eckbo (2000), as quoted market prices are readily available with the advent of electronic data bases.

However, one of the significant caveats of this approach is that it offers the noisiest proxy for the bid premium, which according to Betton et al. (2008a) also includes "probability of bid failure and probability of competition at initial offer date". In a cross-country study, Rossi and Volpin (2004)

defined the bid premium as bid price as a percentage of the target's closing price four weeks prior to the merger announcement.

The second approach per prior literature is to observe the premium directly through the offer data per Jacobsen (2014). The bid premium is calculated as the difference between the market price of the target's stock well before the merger announcement and the bid offer (Sudarsanam and Sorwar, 2010, Betton et al., 2008a). I utilise the later approach to compute the bid premium as it is a more accurate measure of identifying the bid premium.

As discussed in the literature review, the real world offers based on real valuation considerations may be influenced by bidder and target management's agency related issues as well. Hence, I begin by computing a measure of bid quality or 'abnormal bid premium' per Bates and Becher (2017), based on ex-ante target and bidder company characteristics. The determinants considered in measuring the quality of the bid relating to 'non-choice' parameters pertain to the valuation and 'choice' variables of the deal characteristics. It should be noted that these variables are either available or decided ex-ante by a bidder, and relate to the target, bidder, and market characteristics. Hence, the bid quality measure is devoid of any non-valuation considerations so that any relationship between the abnormal bid premium and agency related non-valuation based considerations can be clearly observed in a second regression.

Considering Bates and Becher (2017) only 'single completed final raw bid premiums' are utilised as the dependent variable in the first regression aimed at computing the quality of bids from regression residuals. The sample used in the first regression comprised single-bid completed offers to reflect the correct market price, which is devoid of any competing bids' effect. In the first regression, since other governance-related choice variables have not been considered, there may be a possibility of encountering the omitted variable bias. To avoid this possibility of a bias, the

thesis has included governance-related choice variables in the second regression. It should be noted that the complete data set of all publicly listed target firms is utilised first to predict the abnormal bid premium, and by considering data availability of governance variables, a subsample of public-public merger cases is considered in the second regression. Hence, the omitted variable bias should be eliminated in the second regression because variables motivated by other non-valuation agency related issues were considered for the targets and bidders.

4.3.1 First single final bid premium regression

As mentioned, I first utilise the following regression model mentioned in equation 4-1 for estimating normal bid premium. In line with Bates and Becher (2017) raw bid premium is the dependent variable and the target's characteristics along with bid characteristics are utilised as independent variables.

Equation 4-1

$$Y_{FBR} = \alpha + \beta_1 Tender\ Offer + \beta_2 Stock\ Offer + \beta_3 Toehold\% + \beta_4 No\ Toehold + \beta_5 42\ days\ Runup + \beta_6 Bidder\ Public + \beta_7 Same\ Industry + \beta_8 Target\ Size + \beta_9\ Debt/Asset + \beta_{10} MTB\ Ratio\ Ind\ Median + \beta_{11} R\&D\ Expense + \beta_{12} Intangible\ Assets + \beta_{13} Free\ Cash\ Flow + \beta_{14} CAPEX + \beta_{15} 52\ Week\ high\ Price + \varepsilon_j$$

I also included controls for year of announcement and single digit target industry SIC codes, in the above-mentioned regression equation. Next, I compute the measure for bid quality as the difference of forecasted values and actual bid premiums for all the single final bids for publicly listed target and bidder companies. Normal bid premium is predicted from the regression results, indicated in following regression table 4-A, results of which are further discussed in section 4.5.1. In other words, the predicted abnormal bid premiums are computed as residuals of Equation 4-1.

Table 4-A indicates the regression model that is utilized for predicting abnormal bid premiums.

VARIABLES	Final Bid Premium Winsor .05
Tender Offer	0.0401
	(0.342)
Stock Offer	-0.121***
	(0.000783)
Toehold %	-0.00500**
	(0.0241)
No Toehold Dummy	-0.0959*
	(0.0755)
42 Days Target Price Run up	0.783***
	(0.000)
Bidder Public	0.0758***
	(0.00897)
Same Industry Dummy	0.0262
	(0.380)
Target Size	0.0284
	(0.105)
Debt to Asset Ratio	-0.106
	(0.115)
Target M/B Ratio > Ind Med	-0.0379
	(0.109)
R&D Expense	0.0168
	(0.938)
52 Week High	0.157**
	(0.0385)
Constant	0.417**
	(0.0179)
Year and Target industry indicators	Yes
Observations	825
R-squared	0.346
F test	0

Regression results and compression with results of Bates and Becher (2017) are discussed in Empirical results section 4.6. The dependent variable, Predicted Abnormal Bid Premium, in the second regression is calculated as follows in equation 4-2:

Equation 4-2

$$Y_{Predicted\ Abnormal\ Bid\ Premium} = Actual\ Bid\ Premium - Y_{FBR\ Predicted}$$

Any difference in the predicted and real bid premiums deviating from zero should indicate other considerations (i.e. other than the target's valuation and bid characteristics) influencing the final offered bid premium. Hence, the difference between the forecasted first completed bids and real final bids would include the effects of pre-emption and agency related behavior.

4.3.2 Second governance regression for targets and bidders

The second regression with UK publicly listed bidders considered in the sample highlights the agency conflict impact on the bid premium. The computed parameter for the *Abnormal Bid Premium* is used as the dependent variable to explain any relationship with target or bidder agency conflict issues. If the agency conflict issues are materially impacting the target's shareholder welfare, then it should be reflected in the Abnormal Bid Premium more clearly than in prior research. I utilise only a subsample of the UK publicly listed bidders for the second regression for two reasons. First, the targets and bidders in the sample follow the same applicable governance codes, which allows the use of a similar governance proxy to measure agency related conflicts. Second, considerations regarding access to governance based data and research time meant that the focus is on the sample on UK based publicly listed firms only. The independent variables in the second regression according to equation 4-3 and 4-4 respectively pertain to target and bidder management agency conflict issues with controls for choice variables such as year and industry.

Equation 4-3 for Target Sample

$$Y_{AbnormalBidPr} = \alpha + \beta_1 Target\ Board\ Independence + \beta_2 Target\ CEO\ Characterisitcs + \beta_3 Target\ CEO\ Equity\ Options\ Remuneration + \beta_4 Target\ Blockholders + \beta_5 Target\ Leardership\ Structure + \varepsilon_j$$

Abovementioned regression model is utilised separately for both target and bidder hand collected data sets in several permutations. This has been done to separately observe impact of their respective governance-based characteristics on abnormal bid premium.

Equation 4-4 for Bidder Sample

$$Y_{AbnormalBidPr} = \alpha + \beta_1 Bidder\ Board\ Independence + \beta_2 Bidder\ CEO\ Characterisitcs + \beta_3 Bidder\ CEO\ Equity\ Options\ Remuneration + \beta_4\ Bidder\ Blockholders + \beta_5 Bidder\ Leardership\ Structure + \mathcal{E}_j$$

As evident in literature review, both target and bidder have opposite goals to achieve in settlement of the bid premium. Hence, analysis of both target and bidder sides independently has offered some important insights into bid premium settlement. All abovementioned regression model results are presented and analyzed in empirical results section.

4.4 Sampling

The sample for the research was filtered from the Thomson ONE banker's database deals analysis module. This provided UK publicly listed target firm merger announcements from 1994 to 2013, with deal status indicated as completed including unconditional or withdrawn. The sample horizon was extended to one-year prior and one-year later to exclude cases related to previous year auctions. Industries pertaining to regulated sectors, such as utilities, banking, and finance, were excluded from the sample, which initially resulted in 3085 cases. The targets, acquirers, and deal specific information were queried for the filtered cases for the date announced, the date effective, unconditional, or withdrawn company names, SEDOL codes (Stock Exchange Daily Official List), DataStream codes, primary SIC codes, nation, ultimate parent (with SEDOL), and further matched with parent firms to exclude repurchase cases. Deal specific information included percentage of share acquired, sought, and ultimately owned after the transaction, tender offer, price-per-share paid, and mode of payment as a percentage of cash and stock in the payment proceeds. In order to keep track of individual merger cases, deal numbers, including any competing bid codes, with acquisition techniques, were also part of the custom query.

Targets with missing SEDOL or DataStream codes in the ThomsonONE database were filtered out as these could not be traced reliably in DataStream for further data queries on filtered bidder and target cases. As a result, 244 cases were excluded after SEDOL codes were utilised to reliably trace 'Target DataStream Codes' in the DataStream. Target and bidder based accounting data were queried one fiscal year prior to the merger announcement date to eliminate window dressing effects. Bids happening in less than 365 days prior to the announcements were labelled as competing bids and any bid more than 365 days were treated as completely new bids.

Since the study period is 1995-2012 for 'single completed' bids, 149 cases pertaining to single bids and 833 cases relating to sequential bids before 01/01/1995 and after 31/12/2012 were excluded. Another 125 cases as indicated by 'withdrawn' in the Thomson ONE database were excluded and the resulting sample size was 1,498 cases. A total of 26 cases that had calculated toeholds exceeding 50 per cent were purged as such cases are associated with completing the transaction. Furthermore, 400 cases with no final offer price in the Thomson ONE database and 130 cases without total assets listed in the DataStream were excluded. A final check was made to exclude 113 cases with less than 50 per cent total controlling shares after the merger. The final sample size was 825 cases filtered for the analysis in the raw bid premium regression.

As mentioned, the second regression on the *Predicted Abnormal Bid Premium* only required UK public bidders. Hence, 121 cases were excluded as non-UK based bidders and another 454 cases where Thomson ONE database indicated a bidder status other than publicly listed. A final sample of 254 cases was used in the second *Predicted Abnormal Bid Premium* regression. The sample construction steps are summarised in Table 4-1 for the first and second regressions. This study's sample, compared to US studies, is relatively small. For instance, Bates and Becher (2017) final sample size is 2,892, and it comprises a period of 28 years. Similarly, Ang and Ismail (2015) mentioned that their minimum sample size is 2,874, and it comprises a period of 23 years; their sample is based on the US data. However, Cosh et al. (2006)), with the UK-based data, state 178 cases as the sample covering a 11-year period. Similarly, Hodgkinson and Partington (2008) report a final, filtered sample of public-public 208 bids in the United Kingdom spanning almost a 14-year period. Hence, the filtered sample's size in Table 4-1 for the United Kingdom's publicly listed targets and public-public cases are in line with the existing literature.

Table 4-1 Sample Filtration table for first and second regressions.

Following table has detailed stepwise filtration in Panel A for 'Single completed final bid premium Regression'. Panel B has sample filtration plan for 'Abnormal bid premium Regression' for which governance data has been hand collected.

Sr.	Panel A: Filtration Criterion for Final Sample for M&A Cases	M&A Cases Filtered out	Remainder M&A Cases
1	Total Population of Cases involving UK Target Companies in Thomson ONE database	-	80,560
2	UK Target companies with Public Status, Excluded 71,590 UK Targets with Non-Public Status	71,590	8,970
3	UK publicly listed targets with announcement Dates between 01/01/1994 to 12/31/2013, Excluded 3,263 cases with announcement dates outside our period of study	3,263	5,707
4	Deal Status: Completed, Unconditional, Withdrawn cases only. Excluded 1451 cases for which the deal status is described as rumours because no formal statement is made by target or bidder firms, following the media speculation regarding a potential merger.	1,451	4,256
5	Excluded 1, 171 cases with Target SIC codes belonging to following regulated sectors as indicated by ThomsonONE database: Banks, non-US chartered, National commercial banks, State banks, member fed reserve, Commercial banks, nec, Branches and agencies of foreign banks, Foreign trade & international banking institutions, Offices of bank holding companies, Savings institutions, federally chartered, Savings institutions, not federally chartered, Credit unions, federally chartered, Credit unions, not federally chartered, Federal and federally-sponsored credit agencies, Personal credit institutions, Short-term business credit institutions, Misc business credit, Mortgage bankers and loan correspondents, Loan brokers, Mortgage securities finance company, Operators of nonresidential buildings, Operators of apartment buildings, Dwelling operators, except apartments, Operators of residential mobile home sites, Lessors of railroad property, Lessors of real property, nec, Real estate agents and managers, Title abstract offices, Land subdividers and developers, except cemeteries, Cemetery subdividers and developers, Special purpose finance company, Security brokers, dealers, and flotation companies, Commodity contracts brokers and dealers, Security and commodity exchanges, Investment advice, Security and commodity services, nec, Management investment offices, open-end Investment offices, nec, Educational, religious, and charitable trusts, Trusts, exc. educational, religious, & charitable, Oil royalty traders, Patent owners and lessors, Real estate investment trusts, Investors, nec, Life insurance, Accidental and health insurance, Hospital and medical service plans, Fire, marine, and casualty insurance, Surety insurance, Title insurance, Pension, health, and welfare funds, Insurance carriers, nec, Insurance agents, brokers, and service, Federal Reserve banks, Central reserve depository institutions, nec, Nondeposit trust facilities, Functions related to depository banking, nec, Natural gas transmission and distribution, Natural gas distribution, Gas production and/or distribution, Water, sewer, pipeline & utility line construction, Water supply, Air and water resource and solid waste management	1,171	3,085
6	Excluded 244 cases with missing target SEDOL in ThomsonONE and 7 cases with unidentified SEDOL codes in DataStream	251	2,834
7	Excluded Repurchase cases with 144 cases target company names same as bidder and 85 cases Target ultimate parent same as acquirer ultimate parent	229	2,605
8	Excluded 149 cases related to bids prior to 01/01/1995 and after 31/12/2012	149	2,456
9	Excluded 833 cases pertaining to auction, defined as sequence of competing bids received for a target within a period of one year. Remainder 1,624 single completed or withdrawn cases.	833	1,624
10	Excluded 125 cases indicated as withdrawn by ThomsonONE database	125	1,498
11	Excluded 26 cases where Percent of Shares Held at Announcement is greater than 50%	26	1,472

Sr.	Panel A: Filtration Criterion for Final Sample for M&A Cases	M&A Cases Filtered out	Remainder M&A Cases
12	Excluded 400 cases where offer price is unavailable by ThomsonONE database	400	1,072
13	Excluded 130 cases where Target Total Assets in financial statement prior to announcement date is unavailable in DataStream. Final sample size of First regression for 'Single Completed bids' for UK publicly listed targets.	130	942
14	Excluded 113 cases with less than 50% controlling share demanded in bid and 4 cases from regression due to incomplete target data.	117	825

Panel B: Sample filtration plan for 'Abnormal bid premium Regression'

Sr.	Panel B: Filtration Criterion for Final Sample for Abnormal bid premium Regression	M&A Cases Filtered out	Remainder M&A Cases
9	Excluded 832 cases pertaining to auction, defined as sequence of competing bids received for a target within a period of one year. Remainder 1,624 single completed or withdrawn cases.	833	1,624
10	Excluded 26 cases where Percent of Shares Held at Announcement is greater than 50%	25	1,599
11	Excluded 390 cases with less than 50% controlling share demanded in bid	390	1,209
12	Excluded 209 cases for Non- UK based bidders with status other than public	209	1,000
13	Excluded 467 cases for UK based Bidders with status other than public	467	533
14	Excluded 185 cases for Non- UK based Public bidders	185	384
15	Excluded 54 cases where Target Total Assets in financial statement prior to announcement date is unavailable in DataStream.	54	294
16	Excluded 36 cases where offer price is unavailable by ThomsonONE database	36	258
17	Out of these 17 cases pertain to withdrawn cases	17	241

The governance data were manually collected for 241 target and bidder pairs with announcement dates between 1998-2012 by accessing relevant financial statements from the Perfect Information database. Data were collected from the target and bidder's last available financial statements prior to the first mention of the merger news in Perfect Information by scanning for target merger specific regulatory news one-year prior to the announcement date. Thus, this ensured that the corporate governance information on bidders and targets remained unaffected by any merger news. The information on target and bidder board structure, independence, CEO age, tenure, and remuneration were collected, and the variables computed as shown in Table 4-2.

Table 4-2 Variable definitions and computation table.

This table defines and highlights computation of dependent variable in Panel A for 'Single completed final bid premium Regression' and Panel B for computation and definitions for Predicted abnormal bid premium Regression.

Variable Name	Variable Definition	Variable Computation
Final Bid Premium	Calculated Final Single Bid premium	[(Price paid per share in £ *100)/Unadjusted Quote per day 42 days prior to merger announcement in pence]-1
Tender offer	Tender offer indicator	Flagged Tender offer values allocated =1; 0 otherwise
Stock offer	Stock offer indicator	Any mix of stock offered by bidder allocated =1; 0 otherwise
% toehold	Toehold percentage	Calculated as difference of percentage Owned After Transaction and percentage of Shares Acquired
No toehold	No Toehold indicator	Zero toehold allocated = 1; 0 otherwise
Target Run-up	Target Stock Price Run up -42 to -6 days prior to merger announcement	(Unadjusted Quote per day 42 days prior to merger announcement - Unadjusted Quote per day 06 days prior to merger announcement)/ Unadjusted Quote per day 06 days prior to merger announcement
Public Bidder	Public Bidder Indicator	Acquired status public flag = 1; 0 otherwise
Same Industry	Bidder and Target same industry indicator	Bidder and Target 4 digit SIC code match allocated = 1; 0 otherwise
Firm Size	Target Firm Size	Log (Total Assets)
Target Leverage	Debt/assets Ratio	Total Debt/ Total Assets
Market-to-book Ratio	Target Market to Book Ratio	(Target Total Assets – Book Equity + Market Equity)/ Target Total Assets
Market-to-book > industry Median	Target Greater than Industry Median Market-to-book Indicator	Target Market-to-book value greater than Industry Median Market-to-book as calculated as = 1; 0 otherwise
Target R&D intensity	R&D intensity Ratio	Research and Development Expense/ Total Assets
Target Intangible assets	Intangible assets Ratio	1 – (Plant Property & Equipment Net/ Total Assets)
Target Free cash flow	Target Free cash flow ratio	(Earnings before interest Tax & Deprecation – Cash dividend Paid total) / Total Assets
Target Capital expenditures	Target Capital expenditures Ratio	Capital Expenditures/ Total Assets
52 Week high	52 Week High Target Price in last 52 trading weeks	(52-week target high price – Target market price 5 days prior to announcement date) / 52-week target high price

Panel B: Predicted abnormal bid premium Regression

Variable Name	Definition	Variable Computation
Abnormal Bid Premium	Calculated Abnormal Bid Premium for UK Publicly listed Bidders	Actual Final Premium offered – Predicted premium from first regression
Block holder	Bidder or Target Count of outside Block holders greater than 3%	Herfindel Index of Number of those holders of at least 3 percent of the firm's shares that are not related to the top management team

Block holder percentage	Bidder or Target Percentage Ownership of outside Block holders greater than 3%	Total Percentage Ownership of outside Block holders greater than 3%
CEO Stockownership%	Bidder or Target CEO Stockownership percentage prior to announcement	CEO shareholding % of Total shareholding before merger announcement
Independent Director Stockownership	Bidder or Target Independent Director Total Stockownership percentage prior to announcement	Independent Director shareholding % of Total shareholding before merger announcement
Total Board Stockownership	Bidder or Target Total Board Stockownership percentage prior to announcement	Board shareholding % of Total shareholding before merger announcement
CEO age	CEO Age at announcement date	Square of CEO age as noted from Financial statement or web search with CEO name
Independent Board %	Total percentage of independent board members	(Independent board members/ Total Board Members) X 100
Chairman Independent	Bidder or Target Chairman Independent indicator	Bidder or Target Chairman Independent = 1; 0 otherwise
CEO Compensation	Bidder or Target CEO Compensation prior to announcement	Log of Annual CEO compensation from as reported from Annual Report RPI adjusted to 2014
CEO Option Value	Target CEO Option Value	Calculated as log of monetary gain to target CEO on exercising options awarded, considering offer price in case of target and market price one day before announcement for bidder
CEO Tenure	Bidder or Target CEO tenure at announcement date	As reported in Financial statements prior to announcement or web search on CEO career
CEO Wealth	Target CEO total wealth as result of completed merger	Calculated as log of (Annual CEO compensation RPI adjusted + monetary gain to target CEO on exercising options awarded RPI adjusted + Value of CEO stock ownership RPI adjusted)

Unadjusted prices are utilised to compute the raw bid premium because the market-quoted prices relate to the bid offer.

4.5 Summary Statistics

In this section, I present the statistical summary in Table 4-3 for calculated final, predicted, and abnormal bid premiums.

Table 4-3 Bid Premium Statistical Summary.

Following tables presents total sample, mean, standard deviation, range, skewness, kurtosis, sum and Median of all bid premiums. Raw Bid premium data has been winsoized at 5 per cent to remove effect of outliers in our first regression. Other Predicted and abnormal bid premiums have not been winsoirsed as they already carry with them effect of first winsorization.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	N	mean	sd	min	max	skew	kurt	sum	p50
Bid Premium									
Final Bid Premium	825	0.406	0.413	-0.946	1.443	0.552	4.106	334.8	0.344
Predicted Bid Premium	825	0.406	0.243	-0.316	3.182	2.624	24.79	334.8	0.368
Abnormal Bid Premium	825	0.000	0.334	-1.739	1.274	0.524	6.274	0.000	-0.039

The raw bid premium calculated on the basis of 42 trading days has a mean (median) value of 40 per cent (34 per cent) with standard deviation of 41 per cent after the data are five per cent winsorized. Summary statistics for the bid premium are comparable to Bates and Becher (2017) at 51 per cent (39 per cent) and Betton et al. (2008b) at the mean (median) value at 48 per cent (39 per cent). Hence, on average, bid premiums offered to public targets were less but within the same range as in North American markets. The sample size was relatively small compared to Bates and Becher (2017) where the final sample size was 2,892 for US publicly listed targets with merger announcements between 1990-2008. This variance in sample size can be attributed to the size of the US market as the same query on Thomson ONE database with US publicly listed targets yielded over 18,000 cases as compared to the 3,000 plus cases in the UK market. This initial larger number of cases translated into a much larger final sample size for Bates and Becher (2017) study due to the larger size of the North American M&A market.

The sum and mean of the computed abnormal bid premium are zero as the abnormal bid premium was computed as the residual of the first regression. For detail on the annual statistical summary of positive and negative final abnormal bid premiums please refer to table 3-1. However, the UK publicly listed bidder subsample mean (median) values indicate that the targets, on average, received -4.6 per cent (-4.9 per cent) abnormal bid premiums. Please refer to table 3-3 for annual statistical summary of abnormal bid premium subsample.

Therefore, the statistical summary for bid premiums indicates that, on average, bid premiums offered to UK publicly listed targets are comparable to North American markets. Furthermore, UK publicly listed bidders did not overpay for UK publicly listed targets per the mean values of the computed abnormal bid premiums measure. Hence, the summary statistics for the bid premiums indicate no systematic over or severe under payment for UK publicly listed target companies.

4.5.1 First Model: Target and bid characteristics statistical summary

The target and bid characteristics statistics are presented in the following table 4-4 per the first regression. The targets' accounting based variables are scaled by total assets and considered one fiscal year before the merger announcements. On average, UK publicly listed target companies have a mean (median) debt to asset ratio of 18 per cent (15.6 per cent), which is almost 25 per cent less than (17 per cent) that reported by Bates and Becher (2017). The mean of the free cash flow total asset ratio in the sample is 5.6 per cent compared to -2 per cent in Bates and Becher (2017).

This indicates that, on average, UK publicly listed target companies in the sample are less leveraged and more cash flow positive.

Table 4-4 Table for First regression variable statistical summary.

Following table presents total sample, mean, standard deviation, range, skewness, kurtosis, sum and Median of all bid premiums in Panel A for continuous variable. Panel B for dummy variables provides ratio of variable=1 to total sample or percentage included in mean statistic column.

First Regression

Panel A: Continuous Variables	N	mean	sd	min	max	skew	kurt	sum	p50
Toehold %	825	3.017	8.896	0	49.80	3.169	12.62	2,489	0
42 Days Target Price Run up	825	0.082	0.280	-0.992	3.717	3.578	40.58	67.73	0.028
Target Size	825	4.805	0.709	2.558	7.225	0.511	3.387	3,965	4.720
Debt to Asset Ratio	825	0.181	0.179	0	1.674	1.851	10.70	149.6	0.156
R&D Expense	825	0.021	0.070	0	0.970	6.475	62.92	17.64	0
Intangible Assets	818	0.693	0.263	0.025	1	-0.811	2.628	567.2	0.765
FCF	799	0.057	0.245	-3.475	0.927	-6.315	74.22	45.41	0.094
CAPX	798	0.060	0.066	0	0.595	2.885	15.30	47.88	0.041
52 Week High	825	0.263	0.229	0	1	1.112	3.534	217.3	0.202
Target Market To Book Ratio	825	5.329	104.4	0.176	2,999	28.65	822.3	4,397	1.261
Fitted values	825	0.406	0.243	-0.316	3.182	2.624	24.79	334.8	0.368
Abnormal Bid Premium	825	0.000	0.334	-1.739	1.274	0.524	6.274	0.00	-0.039

Panel B: Dummy Variables	N	mean	sd	min	max	skew	kurt	sum	p50
Tender Offer Dummy	825	0.859	0.348	0	1	-	-	709	-
Stock Offer Dummy	825	0.218	0.413	0	1	-	-	180	-
No Toehold Dummy	825	0.853	0.354	0	1	-	-	704	-
Bidder Public Dummy	825	0.448	0.498	0	1	-	-	370	-
Same Industry Dummy	825	0.200	0.400	0	1	-	-	165	-
Target Market/Book Ratio > Ind Med	825	0.491	0.500	0	1	-	-	405	-

Average (median) capital expenditures as a percentage of total assets among the targets are around six per cent (four per cent), which is similar to the results of Bates and Becher (2017) of around seven per cent (four per cent). Average (median) market to book ratio is 5.3 (1.26) in the target sample, compared to their higher reported value of 2.04 (1.43). Hence, in comparison with Bates and Becher (2017), UK publicly listed targets, per the sample, have less financial leverage, similar

levels of capital expenditures, but more cash flow earning capacity, and hence, appear to be valued more by the market as indicated by the higher market-to-book ratio due to their less risky nature.

Bid characteristics summary statistics indicate the tender offer as the preferred choice of medium for acquiring target firms. In almost 86 per cent of the cases, UK publicly listed targets have been acquired via tender offer per the sample, compared to only 20 per cent per the Bates and Becher (2017) sample. This marked difference in takeover method preference may be due to the difference in the regulatory environment in the UK and North American market. For further detail please refer to section 2.2 in chapter 2 regarding difference in takeover regulations. The UK takeover code requires the panel's consent for 'any tender offer'. Furthermore, the takeover code states that the 'tender offer must be for cash only but may be at a fixed price or a maximum price' (Mergers (2017). Hence, the preferred mode of payment in the sample was predominantly cash as only 22 per cent of the bid offers included stock considerations, which was almost 39 per cent in Bates and Becher (2017). The average (median) toehold percentage is relatively high in the sample at three per cent (zero per cent), which in the Bates and Becher (2017) sample is about one per cent (zero per cent). However, only 11.7 per cent of the bidder sample holds a mean toehold of about 16 per cent in UK public target companies. Furthermore, the incidence of the toehold by bidders in the sample is on the decline from a peak in 1999 to almost zero after 2007. However, this decline may also be due to the sample peak during years 1999-2000, as 28.28 per cent of the M&A cases relate to that period. For further detail on the statistical summary of target and bid characteristics in first regression model, according to positive and negative bid premiums please refer to table 3-2.

Hence, due to the regulatory environment of the UK merger market, tender offers are utilised in the majority of merger transactions. Furthermore, tender offers are not perceived as hostile in the UK as they require prior permission from the panel. The almost mandatory cash offer in the case

of a tender offer has made the bid valuation relatively easy for the target's shareholders compared to a stock offer. Another variable in which a significant difference in mean was found is within industry mergers. In the Bates and Becher (2017) sample, almost 40 per cent take place within the same industry compared to only 20 per cent in the UK based sample. Hence, the UK may have a greater incidence of conglomerate mergers when compared to the North American markets.

4.5.2 Second model target

Table 4-5 presents a statistical summary of manually collected governance data for UK public target companies. Average values on board independence indicate that independent NEDs comprise about 42 per cent (40 per cent) of the boards, with 62 per cent of the target boards having an independent chairperson. An average of 12 per cent of the target boards have a combined chairperson/CEO position. For further detail on the annual descriptive statistics regarding board independence of the target firms' subsample, please refer to table 2-2.

Almost eight per cent of the target boards are headed by founders who have either a chairperson or CEO title. Independent boards, on average (median), hold 1.2 per cent (0.06 per cent) of total equity and only 18 per cent of the target sample firms offer no equity participation to independent NEDs. Hence, UK publicly listed target firms in the sample have independent boards where equity participation is prevalent. Furthermore, the summary statistics seem to reflect the UK requirements for independent boards as discussed in the literature review.

External block holders in possession of five or more per cent of total shareholdings are present in almost 88 per cent of the target sample. The average value of 2.76 indicates an average presence of more than two individual block-holders with five per cent or more equity. Furthermore, 23 per cent of the target sample has external block holdings of more than 20 per cent. Hence, external block holdings are prevalent and substantial in the target sample.

Table 4-5 Table for Target governance Data.

Abnormal bid premium value in Panel A represents summary from our selected subsample for our second regression. Following tables presents total sample, mean, standard deviation, range, skewness, kurtosis, sum and Median of all bid premiums. Panel B for dummy variables provides ratio of variable=1 to total sample or percentage included in mean statistic column.

2nd Regression Target

Panel A: Continuous Variables	N	mean	sd	min	max	skew	kurt	sum	p50
Abnormal Bid Premium	241	-0.046	0.322	-1.532	1.274	0.340	6.974	-11.04	-0.049
Block-holder herfindal index	241	561.2	738.2	0	6,773	3.932	26.81	135,256	379.0
CEO Equity %	241	4.683	9.687	0	58.27	2.959	12.20	1,129	0.438
Ind Dir Equity %	241	1.215	4.114	0	33.91	5.192	32.69	292.9	0.065
Log CEO Compensation	241	12.53	0.758	9.825	14.90	-0.117	4.229	3,020	12.50
Log CEO Equity Value	241	16.32	5.556	0.454	22.97	-2.035	6.295	3,932	17.72
Log CEO Options held value	241	9.711	8.305	0.365	22.27	-0.135	1.127	2,340	14.27
Log CEO Total Wealth	241	14.09	1.451	10.01	18.24	0.323	3.204	3,395	13.97
CEO Age	241	49.85	7.482	32	70	-0.161	2.655	12,013	50
CEO Age Squared	241	2,540	740.3	1,024	4,900	0.213	2.815	612,241	2,500
CEO Tenure	241	6.328	5.279	0	36	1.868	8.631	1,525	5
CEO Tenure Squared	241	67.80	131.6	0	1,296	5.549	44.90	16,339	25
Board Ind Director %	241	41.83	14.01	0	80	-0.434	3.810	10,080	40
Count of Block-holder >= 5%	241	2.768	1.774	0	8	0.282	2.551	667	3
Count of Block-holder >= 20%	241	0.290	0.546	0	3	1.884	6.402	70	0
CEO Equity % Squared	241	115.4	396.0	0	3,395	5.027	31.82	27,807	0.192
Block-holder Count >= 20% Sq	241	0.382	0.968	0	9	4.700	32.88	92	0

Panel B: Dummy Variables	N	mean	sd	min	max	skew	kurt	sum	p50
Independent Chairman =1	241	0.622	0.486	0	1	-	-	150	-
CM & CEO same position =1	241	0.124	0.331	0	1	-	-	30	-
Chairman or CEO Founder =1	241	0.087	0.283	0	1	-	-	21	-

Summary statistics pertaining to CEO characteristics indicate an average (median) age of about 50 (50) years old with 6.3 (5) years of tenure in the target firms. Almost 90 per cent of the CEOs in the target sample have equity with an average (median) value of 4.7 per cent (0.44 per cent) of total equity.

4.5.3 Second model bidder

The following table 4-6 presents the statistical summary for UK publicly listed bidder firms.

Table 4-6 Table for Bidder Governance Data.

Abnormal bid premium value in Panel A represents summary from our selected subsample for our second regression. Following tables presents total sample, mean, standard deviation, range, skewness, kurtosis, sum and Median of all bid premiums. Panel B for dummy variables provides ratio of variable=1 to total sample or percentage included in mean statistic column.

2nd Regression Bidder

Panel A: Continuous Variables	N	mean	sd	min	max	skew	kurt	sum	p50
Abnormal Bid Premium	241	-0.046	0.322	-1.532	1.274	0.340	6.974	-11.04	-0.049
Block-holder herfindal index	241	429.5	680.6	0	4,914	3.992	22.88	103,502	233.6
CEO Equity %	241	3.063	7.174	0	49.46	3.611	17.59	738.3	0.231
Ind Dir Equity %	241	0.765	2.341	0	16.90	4.434	24.93	184.3	0.018
Log CEO Compensation	241	13.00	0.912	9.679	15.78	0.033	3.776	3,133	13.01
Log CEO Equity Value	240	17.45	4.992	0.399	23.82	-2.475	9.010	4,187	18.56
Log CEO Options held value	240	11.49	8.220	0.399	23.63	-0.479	1.405	2,757	15.96
Log CEO Total Wealth	240	14.67	1.524	10.79	19.18	0.311	3.011	3,521	14.56
CEO Age	241	50.30	7.482	29	73	-0.231	2.990	12,122	51
CEO Age Squared	241	2,586	743.8	841	5,329	0.212	3.174	623,156	2,601
CEO Tenure	241	6.133	5.286	0	35	1.891	8.471	1,478	5
CEO Tenure Squared	241	65.44	129.8	0	1,225	5.216	38.75	15,770	25
Board Ind Director %	241	42.49	15.33	0	77.78	-0.879	4.210	10,241	42.86
Count of Block-holder >= 5%	241	2.203	1.881	0	11	0.898	4.140	531	2
Count of Block-holder >= 20%	241	0.207	0.464	0	2	2.164	6.990	50	0
CEO Equity % Squared	241	60.63	249.0	0	2,446	6.251	48.23	14,613	0.053
Block-holder Count >= 20% Sq	241	0.257	0.701	0	4	3.955	20.58	62	0

Panel B: Dummy Variables	N	mean	sd	min	max	skew	kurt	sum	p50
Independent Chairman =1	241	0.469	0.500	0	1	-	-	113	-
CM & CEO Same position =1	241	0.124	0.331	0	1	-	-	30	-
Chairman or CEO Founder =1	241	0.071	0.257	0	1	-	-	17	-

The average values on board independence indicate that independent NEDs comprise almost 43 per cent (43 per cent) of the bidder board composition, with 47 per cent of bidder boards having

an independent chairperson. Bidder board independence percentage figures in the sample have a similar level as the target firms; however, the incidence of an independent chairperson is lower compared to the target firms, although the bidder firms, on average, are bigger.

An average of 12 per cent of the bidder boards have a combined chairperson/CEO position. Almost seven per cent of the bidder boards in the sample are headed by founders who either have chairperson or CEO title, which, again, is comparable to the target firm sample statistics. Independent boards, on average (median), hold 0.8 per cent (0.02 per cent) of total equity and only 18 per cent of the bidder sample firms offer no equity participation to independent NEDs. Hence, UK publicly listed bidder summary statistics reflect similar statistics to their target firm counterparts as they both are governed by similar regulatory authorities and codes. For further detail on the annual descriptive statistics regarding board independence of the bidder firms' subsample, please refer to table 2-1.

External block-holders with five per cent or more of the total shareholdings are present in almost 78 per cent of the bidder sample. The average value of 2.2 indicates an average presence of more than two individual block-holders with holdings of five per cent or more. Furthermore, 19 per cent of the bidder sample has external block holdings of more than 20 per cent. Hence, external block holdings are also prevalent and substantial in the bidder sample but relatively less so compared to the target sample.

CEO characteristics summary statistics indicate an average (median) age of almost 50 (51) years old with 6.1 (5) years of tenure among the bidder firms. Almost 95 per cent of the CEOs in the bidder sample have equity, with an average (median) value of three per cent (0.23 per cent) total equity. Hence, although more bidder CEOs have equity in their firms their proportion is lower compared to the CEOs of target firms.

4.6 Empirical Results

Regression results for the first model with single bid raw bid premium as the dependent variable are summarised and compared with Bates and Becher (2017) results as shown in Table 4-7. Independent variables are included in the regression model number two per the specifications in Bates and Becher (2017). The first regression model was utilised to predict the bid premium, with a bigger sample size and a similar R-square score of almost 0.35 in comparison to the second regression model.

I computed the regression results with robust regression, which, per the advice of Holland and Welsch (1977), is utilised instead of ordinary least squares (OLS) to offset effects of any potential outliers. All variables are computed consistent with Bates and Becher (2017) with the announcement year and target industry code fixed effects included in the regression model; hence, the results are comparable with Bates and Becher (2017). Overall, the regression outcomes are corroborated by the Bates and Becher (2017) results, which are presented for comparative purposes in the last column of Table 7. In current chapter only, p-values have been mentioned in parentheses below their coefficients to directly compare statistical significance of results with Bates and Becher (2017).

The tender offer indicator has a positive yet statistically insignificant relationship with the bid premium, which suggest that null hypothesis 9 for tender offer cannot be rejected. This result also supports the findings of Bates and Becher (2017). However, the reported tender offer coefficient is greater at a four percentage point increase in the offered bid premium compared to Bates and Becher (2017) at 0.9. Rossi and Volpin (2004) report a statistically significant minimum increase of four percentage points in the bid premium calculated on a four-week target price and bid offer using cross-country data.

Table 4-7 First Regression model results regarding bid premium.

*First model represents model which has been utilized for predicting abnormal bid premium. Second model in table is according to specifications of Bates and Becher and results can be compared with last presented regression results of Bates and Becher (2017). P-values have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1. We have utilized robust regressions and P value of F-statistic for regression has been mentioned in last row of each regression.*

VARIABLES	(1) Final Bid Premium Winsor .05	(2) Final Bid Premium Winsor .05	Comparison Final Bid Premium Winsor .05 Bates and Becher (2017)
Tender Offer	0.0401	0.0377	0.009
	(0.342)	(0.382)	(0.696)
Stock Offer	-0.121***	-0.0922**	-0.001
	(0.000783)	(0.0107)	(0.979)
Toehold %	-0.00500**	-0.00449**	-0.001
	(0.0241)	(0.0476)	(0.672)
No Toehold Dummy	-0.0959*	-0.0911	0.024
	(0.0755)	(0.105)	(0.529)
42 Days Target Price Run up	0.783***	0.788***	1.452***
	(0.000)	(0.000)	(0.000)
Bidder Public	0.0758***	0.0549*	-0.012
	(0.00897)	(0.0537)	(0.632)
Same Industry Dummy	0.0262	0.0238	0.015
	(0.380)	(0.436)	(0.570)
Target Size	0.0284	0.0280	-0.024***
	(0.105)	(0.114)	(0.002)
Debt to Asset Ratio	-0.106	-0.0816	0.093
	(0.115)	(0.240)	(0.180)
Target M/B Ratio > Ind Med	-0.0379	-0.0430*	-0.07***
	(0.109)	(0.0779)	(0.004)
R&D Expense	0.0168	0.0788	0.478***
	(0.938)	(0.758)	(0.001)
Intangible Assets		0.0555	-0.089
		(0.284)	(0.134)
Free Cash Flow		0.0342	0.156*
		(0.596)	(0.052)
Capital Expenditures		0.0739	-0.232
		(0.732)	(0.148)
52 Week High	0.157**	0.123	0.473***
	(0.0385)	(0.124)	(0.000)
Constant	0.417**	0.394**	0.337***
	(0.0179)	(0.0307)	(0.000)
Year and Target industry indicators	Yes	Yes	Yes
Observations	825	794	2892
R-squared	0.346	0.355	0.352
F test	0	0	-

The stock offer payment mode indicator has a negative and statistically significant relationship with the bid premium, and hence null hypothesis 8 is rejected. Per model one, the inclusion of stock in the payment mix reduces the bid premium by almost 12 percentage points, which is economically significant. Although the results of Bates and Becher (2017) also showed a negative relationship, the value of the coefficient was economically statistically insignificant.

As mentioned in the literature review, De La Bruslerie (2013) mentioned the payment mix as a corner solution of a trade-off between benefits of all cash and stock payments. All cash offers have been linked to higher bid premiums in previous literature, for example, Myers and Majluf (1984) and Travlos (1987). Hence, considering De La Bruslerie (2013) 'information asymmetry induced risk sharing preference' theory, there should be a negative relationship between the bid premium and the presence of stock in the payment mix. The results provide support for De La Bruslerie (2013). As the cash offer alternative is a requirement in UK mergers under the takeover code, those bidders who offered stock in the payment mix possibly sought risk sharing. Consequently, this may also explain the reason for the strong statistically significant stock offer relationship as compared to Bates and Becher (2017).

The toehold percentage also has a statistically significant negative relationship with the abnormal bid premium, which implies that null hypothesis 10b regarding toehold presence is rejected. According to coefficient, a one per cent increase in the toehold percentage decreases the bid premium by 0.5 per cent. The sample toehold standard deviation change of 8.9 percentage points caused a 4.45 percentage point reduction in the bid premium per the regression results. Therefore, the results provide support for the results of Betton et al. (2009), where a minimum toehold of nine per cent is recommended, as, at this level, the advantage gained from the reduction of information asymmetry outweighs the risk associated with the target perceiving the toehold as a hostile act.

Interestingly, negative and statistically significant relationship was observed between the *No toehold* variable, as *No toehold* held reduced the bid premium by nine per cent. Hence, hypothesis 10a regarding no toehold is also rejected. Bates and Becher (2017) report that the no toehold variable coefficient is not significantly different from zero.

As indicated in the literature review, toeholds are held by bidders to reduce information asymmetry in the target's valuation. However, Betton et al. (2009) also indicated the no toehold position as advantageous for bidders as a way to avoid rejection costs. Povel and Sertsios (2014) also suggested that the advantages of the toehold decline in the face of competition. Hence, the results indicate that the bidders in the sample only hold toeholds when it is beneficial, as unnecessary toeholds may increase hostility from the target, in which case, the bidder may have to increase the bid premium to overcome that hostility.

The *Target 42 trading day price run up* has a statistically significant positive relationship with the bid premium, which indicates that hypothesis 11 regarding target run up is rejected. This supports the results of Hsieh and Walkling (2005), and Bates and Becher (2017). A percentage increase in the target's price run up leads to about an 0.8 per cent increase in the bid premium, which is comparable to the 1:1 relationship reported by Betton et al. (2014). One standard deviation increases in the sample runup of 27.9 percentage points increased the offered bid premium by 21.8 percentage points.

Unlike Bates and Becher (2017), it was found that the presence of a public bidder increased the bid premium by almost seven per cent, a relationship that is both statistically and economically significant. Mergers in similar industries, per the regression results, increased the premium by more than two per cent compared to 1.5 per cent as reported by Bates and Becher (2017) however, the results were statistically and economically insignificant in both studies. The increase in the

target's size by one standard deviation increased bid premiums by almost 20 percentage points. Hence, the relationship is opposite but statistically insignificant compared to Bates and Becher (2017). The target's leverage level resulted in bid premium reductions according to the regression results, which is also contrary to the results of Bates and Becher (2017). Per the results, one standard deviation change of 0.18 in the target's leverage level resulted in a bid discount of about 1.8 per cent; thus, the relationship was statistically and economically insignificant.

The target market to book ratio greater than the industry median indicator had a statistically significant and positive relationship with the bid premium, which concurred with the results of Bates and Becher (2017). Target firms with ratios greater than the industry median received an increment of almost four percentage points in bid premiums, which was slightly lower than the seven reported by Bates and Becher (2017). The *Target R&D* activity and *free cash flow*, although having a similar positive relationship as in Bates and Becher (2017), showed results that were highly statistically insignificant. The relationship between the *52-week high* variable was positive and statistically significant per the regression results, which supports the results of Bates and Becher (2017). A one standard deviation increase in the *52-week high* variable led to a 3.4 percentage point increase in the bid premium, which, in Bates and Becher (2017), is economically insignificant.

4.6.1 Second regression target results

Table 4-8 reports the target firms' governance based independent variable regression results by regressing the abnormal bid premium as the dependent variable. The first regression model is comprised of only linear variables. The second regression model includes the squared variables of CEO age, tenure, and equity percentage to distinctly observe any curvilinear relationships among these variables.

Table 4-8 Represents second Regression results with Target governance variables.

*P-values have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1. First regression models relate to linear variables, while second regression models have been included with their quadratic form. Third model includes de- constructed variables of CEO wealth. Last models have been presented as best fit model as indicated by high r-squared score and statistically significant P-values. We have utilized robust regressions and P value of F-statistic for regression has been mentioned in last row of each regression. All models include announcement year fixed effects.*

Target - Final Regression VARIABLES	(1) Ab Bid Premium	(2) Ab Bid Premium	(3) Ab Bid Premium	(4) Ab Bid Premium	(5) Ab Bid Premium
Board Ind Dir %		-0.00003	-0.00180	-0.00185	
		(0.988)	(0.287)	(0.277)	
Ind Dir Equity %	0.00337	0.00393	0.00449*	0.00491*	0.00377
	(0.220)	(0.159)	(0.0972)	(0.0577)	(0.125)
Independent Chairman =1	-0.120**	-0.128**			-0.0986**
	(0.0307)	(0.0207)			(0.0343)
Block-holder herfindal index	0.0000				
	(0.923)				
Count of Block-holder >= 5%		0.0165			
		(0.208)			
Count of Block-holder >= 20%			-0.0475	0.000743	-0.0515*
			(0.123)	(0.993)	(0.0995)
Block-holder Count >= 20% Squared				-0.0329	
				(0.387)	
CEO Age	0.00129	-0.0215	-0.0201		
	(0.678)	(0.567)	(0.627)		
CEO Age Squared		0.000229	0.000193		
		(0.550)	(0.648)		
CEO Tenure	-0.00332	0.0131		0.00586	0.00707
	(0.467)	(0.123)		(0.486)	(0.412)
CEO Tenure Squared		-0.000673**		-0.000450	-0.000547
		(0.0415)		(0.207)	(0.140)
CEO Equity %		0.00111			
		(0.836)			
CEO Equity % Squared		0.0001			
		(0.571)			
Log CEO Total Wealth	0.0311**				
	(0.0448)				
Log CEO Equity Value			0.00604*	0.00641*	0.00609*
			(0.0897)	(0.0692)	(0.0731)
Log CEO Options held value			0.00654**	0.00587**	0.00608**
			(0.0231)	(0.0389)	(0.0327)
Log CEO Compensation			0.00437	0.00348	-0.00127
			(0.883)	(0.906)	(0.964)

Target - Final Regression VARIABLES	(1) Ab Bid Premium	(2) Ab Bid Premium	(3) Ab Bid Premium	(4) Ab Bid Premium	(5) Ab Bid Premium
CM & CEO same position =1	-0.110	-0.116		0.00327	
	(0.128)	(0.103)		(0.959)	
Chairman or CEO Founder =1			0.00904		0.0159
			(0.907)		(0.845)
Constant	-0.377	0.516	0.398	-0.106	-0.0585
	(0.184)	(0.567)	(0.678)	(0.767)	(0.867)
Year Fixed Effects	YES	YES	YES	YES	YES
Observations	241	241	241	241	241
R-squared	0.070	0.089	0.088	0.098	0.110
F test	0.0381	0.150	0.0109	0.00261	0.00375

In the third regression model, the block-holder index was replaced with an alternate measure counting individual block-holders with greater than five per cent or 20 per cent equity blocks. The quadratic form was included in the fourth regression model to observe any curvilinear relationship.

Furthermore, the CEO total wealth variables in the first and second models were replaced with CEO wealth variables deconstructed in terms of options, equity, and annual remuneration log values. In the last regression model, the best fit model is presented as indicated by a high R-squared score and statistically significant p-values in the F-test of overall model significance, shown in Table 8 in the last two rows, respectively. In the next section, the regression results for the bidder governance variables are also presented in similar regression models. The merger announcement years for all the target and bidder second regressions were controlled for.

The regression models indicate the target board independence measures to be generally negatively related to the abnormal bid premium. Per the reported results in models three and four, one standard deviation change in the board composition of independent NEDs discounts the abnormal bid premium by 2.5 percentage points. Hence, the relationship is statistically and economically insignificant, which indicates that hypothesis 1a regarding target board independence cannot be

rejected. This result partially supports the conclusions of Bange and Mazzeo (2004), where targets with independent boards are less likely to receive high bid premiums and bid completion. This outcome is contrary to that in Cotter et al. (1997) who conclude that independent NEDs increase the target's shareholders wealth through greater bid resistance. This may be explained by the UK regulatory environment, which has a higher requirement for independent NEDs on the board. Hence, I do not observe a consistent relationship as in Cotter et al. (1997) who report these results on the basis of North American data, for detail please refer to section 2.1 in chapter 2. In a similar vein, the target independent chairperson indicator also shows a statistically and economically significant negative relationship. Hence, null hypothesis 1b regarding target chairperson independence is rejected. According to models one, two, and five, the presence of an independent chairperson in the sample led to a 10 to 12 percentage point reduction in the abnormal bid premium.

The percentage of equity ownership of the independent NEDs has a positive and statistically significant relationship with the abnormal bid premium, which suggests that null hypothesis 2 regarding target independent NED equity can be rejected. One standard deviation change in independent NED equity according to models three and four shows an increase in the abnormal bid premium of two percentage points. Hence, per the regression results here, unlike in Cotter et al. (1997), the decision to resist bid appears to be somewhat dependent on the level of NED equity ownership. This aligns with Bange and Mazzeo (2004), who suggest that NEDs have incentive to protect their positions on the board. The results are consistent with Kumar and Sivaramakrishnan (2008) and Cosh et al. (2006). These results also confirm Harford (2003) recommendation for NED equity incentives and interest alignment with shareholder welfare. However, the magnitude of the coefficient indicates that a recommended level of independent NED equity must be higher than the current level of 1.5 per cent for any serious positive impact on the abnormal bid premium.

The conclusion regarding an increased equity level has also been recommended by Kumar and Sivaramakrishnan (2008), as increased equity levels may incentivise NEDs to collect impartial information.

In the overall results regarding board independence, it should be noted that UK law, due to the requirement of the comply or explain policy, may have forced UK publicly listed firms into having a certain number of independent NEDs; hence, I do not observe any variation in the NED percentage among the boards. On the other hand, the rules do not obligate the boards to have an independent chairperson, as chairperson is required to meet independence criterion only for appointment. Please refer to section 2.1.1 on UK corporate governance for further detail. Therefore, the variation observed indicates a statistically significant relationship between the abnormal bid premium and an independent chairperson dummy.

Furthermore, to obtain a higher abnormal bid premium, target management must resist or bargain relatively harder. However, the regression results indicate that the independent chairpersons may not have made the extra effort or resisted the bid on behalf of the target shareholders for more abnormal bid premiums. Conversely, the target CEOs have the impetus to put up more resistance as they may be confronted with the prospect of employment loss and the resultant compensation after a successful merger. Consequently, in cases with more bid resistance, the target's shareholders may have been at a greater risk of the deal collapsing. Here, the target's chairperson has a balancing act to perform, having to reign in the target's CEO from exerting too much resistance to reduce the risk of the deal collapsing. An independent chairperson on the target's board must ensure that the deal goes through at a reasonable premium and that the target's shareholder interests are protected. It should also be noted that the zero-abnormal premium modelled signified a fair price without any 'abnormal' premium. Hence, an independent

chairperson may have ensured the target's shareholders a fair price with a successful bid completion as compared to the CEO who may have resisted receiving a higher abnormal bid premium at a greater risk of deal failure.

With respect to the target's external block-holder presence, at low levels, there was a positive and statistically insignificant relationship with the abnormal bid premium. Per the sample, one standard deviation change in the count of external block-holders with a five per cent or more equity block resulted in a three percentage point increase in the abnormal bid premium. This result, although statistically insignificant, supports the monitoring role hypothesis in which the monitoring role of the external block holders ensures a positive abnormal bid premium for the target's shareholders. The abovementioned result also supports the findings of Mueller (1969), Andrei Shleifer (1986), and Denis et al. (1997) who mention external block-holder monitoring as contributing to the welfare of all shareholders. This result is also in line with Gomes (2001), who indicates that large block-holders in target firms may compel the bidder management to offer high pre-emptive bids to eliminate hold outs by other larger block-holders.

However, a statistically significant negative relationship is shown between the bid premium and larger block-holders with more than 20 per cent equity. Hence, null hypothesis 7 can be rejected for large target block-holder presence. Per the result in model five, one standard deviation change in one such block-holder leads to a discount of almost 2.7 percentage points in the abnormal bid premium. Such block holders, each holding more than 20 per cent of total equity, are present in almost 25 per cent of the target sample firms. Although such majority block-holders are not prevalent in the sample, this result provides support to the argument of Barclay and Holderness (1989) regarding the possible extraction of private benefits.

The *Target CEO age* has a statically insignificant curvilinear relationship with the abnormal bid premium, providing support for the conclusions of Buchholtz and Ribbens (1994). According to the linear relationship in model two, one standard deviation change in the target CEO age leads to an almost 15 per cent reduction in the abnormal bid premium. However, considering the statistically insignificant relationship, null hypothesis 5 regarding target CEO age cannot be rejected.

The *target CEO tenure* has a statistically significant curvilinear relationship with the abnormal bid premium, which suggests that null hypothesis 6 regarding target CEO tenure can be rejected. The results in model two indicate that the target CEO tenure leads to an increase in the abnormal bid premium, but after about 9.7 years, the relationship turns negative. Hence, target CEOs with almost 10 years of tenure settle for lower abnormal bid premiums compared to new CEOs. Although variable definitions of the CEO's age and tenure are distinct variables, my result of the abnormal bid premium sacrifice after 10 years may point at an attempt made by the target firm's CEO for an early exit, indirectly supporting results of Jenter and Lewellen (2015). However, distinct from Jenter and Lewellen (2015), the real determinant for the abnormal bid premium is the CEO's tenure rather than the CEO's age, as per my target firms' regression's results'..

The level of the target CEO equity percentage has a positive but statistically economically insignificant relationship with the abnormal bid premium as one standard deviation change increased the abnormal bid premium by only one percentage point. The relationship appears to be linear in nature as the squared variable utilised with the target CEO equity level did not register any sign change with the inclusion of the quadratic term. Statistically insignificant result indicates that null hypothesis 3a regarding target CEO level equity cannot be rejected. Hence, the results are

in agreement with Buchholtz and Ribbens (1994) and Heitzman (2011) who, although they agreed with the role of equity in the incentive alignment, found no relationship with the bid premiums.

However, the relationship between the log of the target CEO equity value and the abnormal bid premium has a positive and statistically significant relationship with the abnormal bid premium, which suggests that null hypothesis 3b is rejected. Per the results, one standard deviation change in the target CEO equity value leads to about a 3.5 percentage point increase in the abnormal bid premium. Interestingly, another statistically significant relationship of similar magnitude and direction appears between the log of the target CEO options value and the abnormal bid premium. Similarly, one standard deviation change in the target CEO options value increased the abnormal bid premium by almost five percentage points. These results seem to be consistent with Cotter and Zenner (1994) who conclude that the real determinant of the target's bid resistance is indicated by managerial wealth. In other words, target CEO wealth at stake has been the real determinant of CEO reaction, which, per the result, is the value of the CEO equity and options, and not the percentage level of equity. This finding has been further supported by the positive and statistically significant relationship between the log of CEO wealth and the abnormal bid premium, where a percentage increase in the target CEO wealth increased the abnormal bid premium by more than three per cent. Hence, considering the statistically significant wealth effects of target CEO total wealth and option value indicate that null hypothesis 4a and 4b respectively can be rejected. No support is found for the hypothesis 3a where insignificant relationship is observed between the level of CEO equity percentage and the abnormal bid premium, as the real determinant is found to be the value of equity, options and personal wealth of the target CEO.

On basis of the results, it appears that the target CEO's level of personal wealth motivates the CEO to act in the shareholders' interest by negotiating a higher abnormal bid premium. However, the

tendency of the target to resist the bid or of the CEOs to negotiate hard at the end of their tenure may decline as indicated by lower abnormal bid premiums. Furthermore, a strong independent board at the target depresses abnormal bid premiums for the target's shareholders.

4.6.2 Second regression bidder results

The regression results for the bidder governance variables also are presented in a similar configuration as the target regression models mentioned in the previous section. Table 4-9 reports the regression results, which are obtained from regressing the abnormal bid premium and the bidder governance-based variables.

Our regression models indicate that the abnormal bid premium has a statically insignificant positive relationship with the bidder board composition of independent NEDs. One standard deviation change in independent NEDs leads to about a 1.7 percentage point increase in the abnormal bid premium offered. These positive relationships with the abnormal bid premium are consistent with the explanation by Byrd and Hickman (1992), suggesting 'managerial oversight'. However, the presence of the independent chairperson, per the sample, reduces the offered bid premium by about 0.3 per cent.

A one standard deviation change in equity level percentage of the independent board leads to 0.73 percentage point discount in the abnormal bid premium, which is economically and statistically insignificant. Hence, there is weak evidence of shareholder goal alignment per Jensen and Meckling (1976). The bidder results, although statistically insignificant, show mirrored conclusions for increased equity levels per Kumar and Sivaramakrishnan (2008). However, considering statistically insignificant results of bidder board independence for all three proxies, suggest that null hypothesis 1a and 1b regarding bidder board independence cannot be rejected.

Table 4-9 Represents second Regression results with Bidder governance variables.

*P-values have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1. First regression models relate to linear variables, while second regression models have been included with their quadratic form. Third model includes de- constructed variables of CEO wealth. Fourth model has been presented as best fit model and has high r-squared score with statistically significant P-values. We have utilized robust regressions and P value of F-statistic for regression has been mentioned in last row of each regression. All models include announcement year fixed effects.*

Bidder - Final Regression Results	(1)	(2)	(3)	(4)
VARIABLES	Ab Bid Premium	Ab Bid Premium	Ab Bid Premium	Ab Bid Premium
Board Independent Director %		0.00148	0.00108	0.00114
		(0.366)	(0.452)	(0.424)
Ind Dir Equity %	-0.000362	-0.00142	-0.00153	-0.00137
	(0.943)	(0.793)	(0.755)	(0.787)
Independent Chairman =1	-0.00334	-0.0270		
	(0.941)	(0.563)		
Block-holder Herfindal index	0.0001			
	(0.717)			
Count of Block-holder >= 5%		-0.0199		
		(0.140)		
Count of Block-holder >= 20%			-0.000210	-0.212
			(0.997)	(0.152)
Block-holder Count >= 20% Squared				0.149
				(0.121)
CEO Age	-0.00668**	0.00271	0.000362	-0.00525*
	(0.0429)	(0.919)	(0.989)	(0.0587)
CEO Age Squared		0.0001	0.0001	
		(0.709)	(0.816)	
CEO Tenure	0.00117	0.00272		
	(0.736)	(0.769)		
CEO Tenure Squared		0.0000		
		(0.963)		
CEO Equity %		0.00823		
		(0.306)		
CEO Equity % Squared		-0.0002		
		(0.252)		
Log CEO Total Wealth	0.0193			
	(0.237)			
Log CEO Equity Value			0.0104**	0.00928*
			(0.0325)	(0.0590)
Log CEO Options held value			-0.00582*	-0.00579*
			(0.0618)	(0.0632)
Log CEO Compensation			0.0476**	0.0456**
			(0.0377)	(0.0387)
CM & CEO same position =1	0.108	0.124		
	(0.248)	(0.230)		

Bidder - Final Regression Results VARIABLES	(1) Ab Bid Premium	(2) Ab Bid Premium	(3) Ab Bid Premium	(4) Ab Bid Premium
Chairman or CEO Founder =1			0.173	0.162
			(0.115)	(0.119)
Constant	0.0652	0.0881	-0.613	-0.435
	(0.822)	(0.894)	(0.334)	(0.152)
Year Effects	YES	YES	YES	YES
Observations	240	241	240	240
R-squared	0.069	0.081	0.110	0.123
F test	0.239	0.336	0.0317	0.00684

Cosh et al. (2006) indicate that there was no relationship between NED shareholdings and takeover performance. Hence, the results provide weak support for the hypothesis that independent NEDs may be motivated by equity participation to act on behalf of shareholder interests. The relationship between the NED board equity ownership and the abnormal bid premium is negative but statistically and economically insignificant. Therefore, null hypothesis 2 regarding bidder NED equity level cannot be rejected.

The relationship between the bidder external block-holder presence and the abnormal bid premium is found to be negative and statistically insignificant, which suggests that null hypothesis 7 regarding bidder block-holder level cannot be rejected. Per the sample, one standard deviation change in block-holders having greater than five per cent equity resulted in a 3.75 percentage point discount in the abnormal bid premium. This result, although statistically insignificant, supports the monitoring role hypothesis, as external block-holders ensure a low abnormal bid premium from management for the benefit of all the bidder shareholders. This result also supports the findings of Mueller (1969), Andrei Shleifer (1986), and Denis et al. (1997) who mentioned external block-holder monitoring as contributing to the welfare of all shareholders. One unanticipated finding regarding the number of bidder external block-holders with more than 20 per cent equity is the evidence of a curvilinear relationship with the abnormal bid premium.

The results indicate a statically significant linear negative relationship between the bidder CEO age and the abnormal bid premium, which supports the conclusions of Yim (2013) regarding a decreasing propensity of older bidder CEOs to pursue acquisitions. One standard deviation change in the sample of bidder CEO age leads to almost a four percentage point discount in the abnormal bid premium offered, which is also economically significant. The evidence of the presence of any curvilinear relationship with the bidder CEO age in models three and four is highly statistically insignificant. These results provide support for the hypothesis regarding a negative relationship between the bidder CEO age and the abnormal bid premium. Hence, null hypothesis 5 regarding bidder CEO age can be rejected.

Similarly, the presence of any curvilinear relationship between the bidder CEO tenure and the abnormal bid premium is also highly statistically insignificant. Per the result in model two, one standard deviation change in the bidder CEO tenure leads to a one percentage point discount in the abnormal bid premium. The CEO tenure relationship results support the conclusions of Jacobsen (2014) regarding cautious lower bid premiums offered by inexperienced bidder CEOs. However, with a highly statistically insignificant relationship with the bidder CEO tenure, caution must be used in the interpretation, and hence, only partial support is found for the hypothesis regarding a positive relationship in the results. Thus, null hypothesis 6 regarding bidder CEO tenure cannot be rejected. In short, the results regarding the bidder CEO suggest that the CEO age is a more important determinant of the abnormal bid premium than the CEO tenure.

The level of the bidder CEO equity percentage has a positive statistically insignificant relationship with the abnormal bid premium in the regression results. The relationship, per the second model, appears to be curvilinear in nature, where the optimal point is 15.76 percentage points, after which the relationship turns negative. However, the presence of a nonlinear relationship between the level

of the bidder CEO equity and the abnormal bid premium is taken as a sign of empire building motives at low levels of equity ownership for the bidder CEO. Hence, only weak support was found for the bidder CEO empire building hypothesis where an increased level of bidder CEO equity up to 15.76 per cent leads to a more abnormal bid premium offered to the target's shareholders. Comparing the bidder CEO equity level percentage result with the target, it was observed that a higher equity percentage leads to agency-related behaviour in the bidder CEO rather than the target CEO, as the relationship is positive for both the target and the bidder. A statistically weak relationship result regarding bidder CEO equity level suggests that null hypothesis 3a cannot be rejected.

However, a positive statistically significant relationship with CEO equity value indicates that null hypothesis 3b can be rejected. One standard deviation change in the log of the bidder CEO equity value increased the abnormal bid premium by about five percentage points. Considering the bidder CEO annual remuneration, one standard deviation change in the annual remuneration increased the abnormal bid premium by more than 4.4 percentage points. Hence, the increment in the bidder CEO equity compensation, per the regression results, led to bidder CEOs offering higher abnormal bid premiums to target firms at a potential cost to their shareholders. A possible explanation for this might be the empire building motive under the managerial welfare hypothesis, as acquisitions have led to an increase in compensation for CEOs per the extant literature.

A positive and statistically insignificant relationship was found between the log of the CEO bidder wealth and the abnormal bid premium, which suggests that null hypothesis 4a for bidder CEO cannot be rejected. One standard deviation change in the bidder CEO wealth increased the abnormal bid premium offered by about three percentage points.

However, this variable provided some interesting results when I utilised the log CEO wealth deconstructed into separate variables of log of equity, option, and remuneration values in models three and four. The relationship between all three deconstructed variables and the abnormal bid premium is positively statistically significant, except for the negative relationship reported for the log of the bidder CEO option value. Hence, null hypothesis 4b regarding bidder CEO options value can be rejected. Per the regression results, one standard deviation change in the bidder CEO option value discounted the abnormal bid premium by 4.8 percentage points. This result supported the evidence by Minnick et al. (2010) stating that pay for performance based incentives leads to value enhancing acquisitions.

In view of above results, no support was found for a negative relationship between the abnormal bid premium offered and the level or value of the bidder CEO equity. Hence, due to the presence of a positive relationship with the abnormal bid premium, this finding does not support the previous studies such as Datta et al. (2001) or Bliss and Rosen (2001), which consider bidder CEOs with stock ownership, not make sub-optimal acquisitions. Similarly bidder CEO equity related results do not support Cosh et al. (2006), which conclude that the UK bidder CEOs have been superior acquirers due to increased levels of stock ownership.

However, results regarding bidder CEO ownership support the evidence of Cai and Vijh (2007), who also report a positive relationship of bidder CEO equity holding with increased bid premium, attributed to CEO's holdings illiquidity.

4.7 Conclusions

The present study is designed to determine the effects of governance on bid premiums in UK publicly listed firms, utilising the abnormal bid premium as the quality measure.

The results of this study do not confirm the results in existing studies, such as Cotter et al. (1997), which specify a relationship between independent boards and wealth creation. The target's board independence measured by the percentage of independent NEDs on the board did not show any variation; instead, some variation was observed in the independent chairperson as a proxy for the independent NEDs imposed externally by the UK Corporate Governance Code as an independent chairperson was more voluntarily chosen by the firm. For details please refer to section 2.1 in chapter 2, regarding UK corporate governance code. The presence of an independent chairperson at the target firm led to negative abnormal bid premiums; therefore, the explanation may be that the target's chairperson did not resist enough to receive a higher abnormal bid premium and ensure bid completion at a reasonable premium. However, the presence of a bidder independent chairperson also led to negative abnormal bid premiums. The board equity percentage relationship with abnormal bid premiums suggests that the effect of board oversight can counterbalance both the target and the bidder by equity holding independent NEDs.

Hence, it can be concluded that, generally, for the UK target firms, governance related parameters dampen abnormal bid premiums for the target shareholders. As indicated earlier, a low abnormal bid premium does not mean a bad deal for target shareholders, as zero-premium in the model means a fair price without any 'abnormal' premium. To summarise, a target's independent chairperson may ensure a fair deal for the target's shareholders while effectively managing the risk of deal failure. Hence, independent chairpersons may be more concerned about their reputation per Fama and Jensen (1983b) and Harford (2003), as they are motivated to build reputation as diligent monitors, and the threat of losing their reputations in the job market may induce them to act in the shareholders' interest. Furthermore, per the results, a powerful bidder founder and CEO

duality seem to show agency related behaviour, as indicated by the positive abnormal bid premium relationships.

The results are statistically strong and positively related to the abnormal bid premium for the level of the target firm's independent board equity ownership compared to the percentage of independent NEDs on the board. The increased equity ownership may motivate independent NEDs to put up more bid resistance. For the target's independent NEDs to be genuinely motivated to achieve higher abnormal bid premiums, higher than the current levels of 1.5 per cent equity holdings need to be recommended. My recommendations are also consistent with Harford (2003) and Cosh et al. (2006). Hence, independent NEDs may be motivated by equity ownership rather than reputation to act on behalf of shareholder interests at UK public target firms.

Our investigation into the effects of external block-holders on the abnormal bid premium confirmed the external block-holder monitoring role as indicated in extant literature. External block holders with five per cent or more holdings had a positive and negative relationship in the target and bidder firm regressions, respectively. However, these relationships were reversed and significant at more than 20 per cent blocking holdings, which suggests that bigger block-holders possibly extract some other private benefits out of the bidders by influencing the abnormal bid premiums at a cost to smaller block-holders per Barclay and Holderness (1989). Hence, the overall study results strengthened the idea of the management monitoring role of external block-holders with many individuals holding around a five per cent block each, as recognised in the conclusions of studies such as Denis et al. (1997).

This study also identified that the target CEO looking for an exit after almost 10 years of tenure may accept a bid with a lower abnormal bid premium from a bidder CEO aged more than 50 years old, which can result in a less than optimal bid offer transaction for the target's shareholders. The

results corroborate the conclusions of studies like Buchholtz and Ribbens (1994) and Jenter and Lewellen (2015) as target CEOs may settle for lower abnormal bid premiums towards the end of their tenures. The results regarding bidder CEO traits corroborated the results of studies like Yim (2013), indicating a propensity of younger CEOs to make acquisitions for personal compensation gains. An implication of this is the possibility that bidder CEOs may intentionally seek target CEOs looking for an early exit to ensure a better deal at a cost to the target's shareholders.

The study results show that the overall positive relationship of CEO wealth level, including options and equity value, helps align CEO interests with the target's shareholders. Hence, the study partially corroborates the results of studies like Buchholtz and Ribbens (1994), as the level of CEO equity ownership positively influences the abnormal bid premium. The results also support the conclusions of Cotter and Zenner (1994), which reference the target's management wealth gain as a main determinant of bid resistance.

The study found that, generally, the 'CEO held option value' also helps align with shareholder interests, especially in the bidder firm, as suggested by the relationship with the 'abnormal bid premium'. Hence, the utilisation of options as incentives is recommended to help align CEO interests with that of their respective shareholders rather than increased remuneration, which appears to exacerbate empire building motives in the bidder CEOs. The results corroborate the findings of studies such as Minnick et al. (2011).

In sum, these findings confirm the role of governance-related issues in the settlement of the abnormal bid premium. Moreover, utilising the abnormal bid premium highlights relationships that may not have been evident in prior literature, particularly between the level of the target's CEO equity ownership and the bid premium. The results present further evidence regarding the presence of the management welfare hypothesis with implications for shareholder welfare by

utilising the proxy of the abnormal bid premium. Thus, the governance literature was extended in the M&A field. These findings also enhance our understanding that, although UK firm regulations have discouraged pre-emptive defensive measures with the aim to reduce agency-related behaviour, we still need adequate equity or options based incentives for the regulations to work efficiently; otherwise, agency related behaviour among management may influence the bid premiums. However, it cannot be concluded that the systematic presence of the management welfare hypothesis influenced the mergers of UK publicly listed firms, as internal and external monitoring seemed to influence the abnormal bids as well.

A limitation of this study is that no attempt is made to quantify synergy, as the identification of merger synergies is internal information that is kept confidential and secure by the firms' management. Therefore, obtaining and valuating such information would be beyond the scope of this study. Hence, we cannot rule out the possibility, especially in the case of a positive relationship between the bidder CEO equity ownership and the abnormal bid premium, that a greater bid premium was paid as result of the special combination or unique synergistic benefits to be acquired post-merger by the bidder.

5 Chapter: Does Abnormal Bid Premium Matter to the Market?

5.1 Introduction

Market reaction of target and bidder shareholders to merger announcements has been researched in academia to gauge market's approval to merger deal. Researchers have utilized short-term event-based studies around an event window, such as studies by Brown and Warner (1985) and Mackinlay (1997), as a proxy for shareholder reaction or surprise in an observed market. Event methodology has been utilized by researchers, such as Bargeron et al. (2008) and Moeller et al. (2004), to investigate generally positive cumulative abnormal returns (CARs) for target firms, and negative or zero CARs for bidder firms around merger announcement events. Short-term market reaction to merger announcements has been of interest because researchers have taken positive abnormal market performance of publicly listed firms involved in mergers and acquisitions (M&A) to be a seal of approval in the presence of information asymmetry. Previous researchers have observed shareholder market reaction in relation to target, bidder, and deal characteristics, including bid premium offered, and corporate governance measures.

In chapter four. I computed the unexpected or surprise element of bid premium, and provided evidence that firm's governance characteristics influence this abnormal or unexpected part of bid premium, which was not apparent in prior research utilizing 'raw bid premium'. Hence, it was observed that 'abnormal bid premium' was a relevant proxy for the true impact or cost of agency conflict on shareholder wealth, as it aided in revealing the real motivation of the target and bidder firms' management for offering and accepting the bid offer. However, to establish an 'abnormal bid premium' as a relevant measure for 'bid quality', it must be investigated whether the market has reacted to the presence of abnormal bid premiums around merger announcements. Hence by establishing a relationship with the market reaction, 'abnormal bid premium' would have the

market's seal of approval as a better measure of bid quality than 'raw bid premium'. Therefore, this study has set out to assess the effect of abnormal bid premium on short-term market reaction from bidder and target shareholders in the event of a merger announcement. In other words, I analyse if an 'abnormal bid premium' is a better and more useful indicator for short-term market reaction around merger announcements than a 'raw bid premium'.

At present, I am not aware of any research attempt to explore the relationship between abnormal bid premium and CAR, other than Ang and Ismail (2015), who investigated purely from the behavioural finance perspective. Bates and Becher (2017) adopted 'abnormal bid premium' as a proxy for measuring bid quality to investigate target management's motives for bid resistance. However, we investigate the relationship between CAR and abnormal bid premium purely from the target valuation perspective in the abnormal bid premium computation procedure highlighted by Bates and Becher (2017), to validate the 'abnormal bid premium' as a useful measure of bid quality.

Hence, this excess or abnormal bid premium should accurately represent the surprise element of the bid offer, which target shareholders do not expect, and which is reflected in the market reaction. It should be realized that a high bid premium and other bid characteristics have been interpreted by the market as signals, due to the presence of information asymmetry between firm management and shareholders, in the event of a merger announcement. Understanding the link between 'CAR' and 'abnormal bid premium', along with other bid and target-bidder governance-based variables enhances understanding of investor response to merger announcements. I also investigate this relationship from both the target and bidder shareholder sides to comprehend which signals have been most relevant to the market. Hence, I included control variables for both target

and bidder, apart from our variable of interest of 'abnormal bid premium', which were motivated by other bid characteristics, board independence, CEO characteristics, and external block-holders.

The presence of information asymmetry, as in Grossman and Stiglitz (1976), has been a reality in every financial market, including merger markets, and has been referred to as 'signalling theory' in prior literature. In the event of a merger announcement, target and bidder shareholders base their decisions or valuations on signals. Researchers have pointed out that investors react to merger news due to the presence of information asymmetry; their reaction to new information includes revaluation of the respective target and bidder firms, and hence signalling plays an important role in this market revaluation. These signals have been found in prior literature to emanate from deal, target, and bidder characteristics. For instance, regarding deal characteristics, Ang and Ismail (2015) and Gaspar et al. (2005) reported a positive relationship between bid premium offered and the target's market return. Similarly, recent studies by Malmendier et al. (2016), Dimopoulos and Sacchetto (2014), and Offenberg and Pirinsky (2015) have established that initial cash tender offers and the presence of a toehold are positively associated with target abnormal market return, while Fishman (1989) and Mitchell et al. (2004) established a negative relationship between stock offers and bidder market return. Studies by Cosh et al. (2006) and Li and Srinivasan (2011) regarding governance characteristics indicated a positive reaction to board equity. A negative impact of hubris and entrenchment on bidder returns has been reported in studies like Morck et al. (1990), Malmendier and Tate (2008), Croci et al. (2010) and Harford et al. (2012).

Hence, prior research has established that investors consider valuation signals not only from the 'bid premium' perspective, but also from offer terms and target and bidder governance structure, as these parameters have been related to insider control. Previous studies, like Stulz

(1988) and Baran and Forst (2015), have provided evidence that insider control influences the probability of bid success and bid premium by virtue of a weakened board. Overall, there has been strong evidence to indicate that, because of information asymmetry, deal characteristics, target bidder board, and governance characteristics have been received by investors as signals. Furthermore, investors have processed this information and considered merger news for revaluing target and bidder firms, and the result of their decision making has been reflected in short-term market returns. Thus, in the context of mergers, investors in the presence of information asymmetry have been receptive to signalling and have latched on to every aspect of a deal, including offered bid premium.

There are two primary aims of this study. The first is to investigate the market reaction to abnormal bid premium, thus establishing it as a valid measure of bid quality. The second is to ascertain the nature of the relationship of abnormal bid premium with short-term market reaction from the perspective of both target and bidder for UK publicly listed firms involved in merger transactions.

Furthermore, this abnormal bid premium, combined with the previously mentioned target bidder board and governance characteristics, should efficiently explain or determine target or bidder CAR around the merger announcement window. I utilize standard event methodology in line with Brown and Warner (1985) to compute cumulative abnormal returns for both target and bidder, with an event window starting at -42 days to merger announcement for various intervals until merger completion. The sample and duration of the study is the same as indicated in the sampling section of chapter 4.

However, since event methodologies involve a computation of abnormal returns, one should be aware of the joint hypothesis problem. Any computation of the abnormal return, which is taken

as difference of actual return from the expected or predicted return, involves the utilisation of asset pricing models. These models, among other assumptions, rely on ideal market conditions, such as on the free flow of information. Therefore, any abnormal return may indicate an inefficient market and/or an incorrect model. This is referred to as the 'joint hypothesis problem' in the extant literature.

As previously mentioned, researchers have investigated the relationship between market reaction and bid premium, payment terms, and target bidder characteristics, but I am not aware of any comprehensive study which has also considered 'abnormal bid premium' as a better proxy for measurement of the underlying 'quality of bid'. For instance, Ang and Ismail (2015) have modelled the expected bid premium as the weighted average of rational and behavioural expectations of target shareholders. They describe the rational expectation regarding bid premiums as shaped by level of bid offers received in the market, and behavioural expectations are established by the range of target price levels. Hence, they have computed the expected bid premium purely from the behavioural finance perspective and investigated negative market reaction from a target shareholder's perspective only. However, as mentioned in chapter 4, I have utilised a target valuation-based approach to compute the abnormal bid premium and investigate market reactions from both target and bidder shareholders' perspectives. Furthermore, Bates and Becher (2017) computed the abnormal bid premium to investigate a target firm's management bid resistance; whereas, I have investigated market reactions of both target and bidder shareholders to the abnormal bid premium.

In other words, I have computed the abnormal bid premium as a measure of bid quality to investigate market reactions from both target and bidder shareholders' perspective when compared to Ang and Ismail (2015) who computed the bid quality from the perspective of an investor's

behavioural expectation to investigate only the negative target shareholder reaction. Bates and Becher (2017) computed the same bid quality measure to investigate on the topic of bid resistance when compared to my thesis in which I investigate the target and bidder shareholders' reactions.

Model utilised is also unique in the sense that it employs hand collected data for UK publicly listed target and bidder based governance variables to establish how governance structures send signals to their respective shareholders in the event of a merger. Therefore, our model aims to provide a more rigorous and complete explanation of investor market reaction to merger news on UK publicly listed bidder and target firms.

This study establishes the effect of abnormal bid premium on target CAR. The regression results for target firms indicate the presence of a statistically and economically significant positive relationship. The target market reaction has been robust to changes in model specifications and the duration of our event window. The sign and magnitude of target shareholder reaction to abnormal bid premium is comparable to the results in Ang and Ismail (2015). Target regression results have also corroborated evidence provided by studies like Fishman (1989) and Malmendier et al. (2016), which indicated a positive target shareholder reaction to an all-cash offer as a high valuation signal. Target shareholders view other signals, like board independence, to be positive but statistically insignificant. However, CEO wealth, the level of CEO equity ownership, and CEO remuneration are viewed as positive by target shareholders, likely because they may result in shareholder goal alignment. Interestingly, regression results indicate that target shareholders expect a higher compensated target CEO to resist or negotiate a better deal. Hence, target management with shareholder interest alignment may balance bid resistance and deal failure risks for a high abnormal bid premium.

The bidder CAR relationship with abnormal bid premium, although statistically significant, is relatively less robust to changes in model specifications. Hence, target shareholders perceive the abnormal bid premium to be more effective, compared to bidder shareholders. This is because the relationship between the abnormal bid premium and the target firms' CAR is statistically stronger as compared to bidder CAR. In other words, considering the short-term market reaction, target shareholders are more receptive to the abnormal bid premium, compared to bidder shareholders. Furthermore, bidder shareholders' negative market reaction indicates that the overriding concern of bidder shareholders is overpayment, rather than recognizing a high abnormal bid premium as a signal of high synergistic benefits. Similarly, bidder shareholders also reacted negatively to the presence of no-toehold, an entrenchment proxy motivated by unique target selection and options as proxies for hubris.

The remainder of the chapter is structured as follows. The second section of this chapter examines some key literature regarding information asymmetry and signalling, followed by short-term abnormal return and its relationship with bid and governance characteristics. The third section deals with the methodology used for this study. Same sample filtration and hand collected governance data was utilised the as indicated in the sampling section of chapter 4. The summary statistics of our sample are discussed in the fourth section, which only pertains to computed target and bidder CAR, as bid premium and target and bidder characteristics of the data are indicated in chapter 4. In the fifth section, I present and discuss our empirical results, while the final section offers conclusions.

5.2 Literature review

As indicated in previous chapter a primary concern, extensively addressed in M&A literature, has been the possibility of agency related issues influencing management decisions regarding acquisitions. Some researchers, such as Walkling and Long (1984), have pointed out that target management's decision to resist a bid or bidder management's decision to acquire may have been motivated by personal gains, rather than their respective shareholder welfare. However, due to the presence of information asymmetry, target, or bidder managements' real intentions behind merger decision making has not been apparent, and researchers have considered positive market reaction as a proxy for shareholder approval of a quality merger deal and vice versa. One of the first studies to consider market reaction in mergers was conducted by Dodd and Ruback (1977), who studied the effect of tender offers on target and bidder short-term abnormal returns. Since then, a large growing body of literature has considered market reaction, and investigated the presence of agency-related issues, with evidence supporting the management welfare hypothesis.

For example, Roll (1986) supported the hubris hypothesis in Dodd (1980) work, where he provided evidence that ex-post short-term bidder market performance suffers by about 2 percentage points. In a similar vein, Morck et al. (1990) interpreted a negative change in a bidder's market equity as related to diversifying mergers, glamour targets, or bidder management's inefficiency as evidence for the management welfare hypothesis. Together, these studies indicate that researchers have interpreted positive abnormal market performance of publicly listed firms involved in M&A to be a seal of approval of a quality bid. Hence, due to this market vetting in the short-term, event-based methodology has been widely used in financial literature to explain M&A performance. Furthermore, as discussed in the introduction, target and bidder shareholders have been receptive to signals in the presence of information asymmetry per the 'signalling theory' first presented by

Spence (1973). In the event of merger announcements, such signals have then been processed by shareholders, and reflected in their market reaction as measured using event-based methodology. Hence, the following summary of the literature has been included to review the role played by 'information asymmetry and signalling' in M&A markets around merger announcements. The literature review has been further arranged according to market based short-term merger performance measures and their relationship with bid, target, and bidder characteristics.

5.2.1 Short-term abnormal returns

Franks and Harris (1989) argued that, based on UK corporate takeover data between 1955–1985, mergers on the whole have created value for shareholders. They based their study on calculated monthly short-term returns on target and bidder stocks in months -4 to +1, with month 0 taken as month with the first approach or announcement date. Franks and Harris (1989) defined their methodology as a variation of the event-study method, and commented that simple procedures for calculating abnormal returns have been found to be just as effective as elaborate tests. They calculated firm specific realized month-end returns as the compounded (log) of capital gain and dividend yield, and control returns were calculated using the market model and the capital asset pricing model (CAPM). After adjusting return for firm size, Franks and Harris (1989) argued that, although target shareholders gain more as compared to bidders, bidder shareholders do not lose in merger transactions. Franks and Harris (1989) further point out that target shareholders still gained more when bids were contested or when the bidder has a toehold interest in the target.

Short-term CAR around an 11-day event window was computed by Powell and Stark (2005) using UK based merger data, and their findings were that targets earned statistically significantly more than 26 percentage points CAR, whereas bidder firms experienced a negative CAR of 1.5 percentage points. Dutta and Jog (2009) also calculated short-term bidder CAR around merger

announcements using Canadian merger data, and reported a positive 1.3 percentage points return for a -1 to +1-day event window. As most studies have reported negative ex-post bidder CAR for US based data, Dutta and Jog (2009) attributed this significantly positive result to more cash financed deals, and relatively larger target firm size in the Canadian M&A market.

Together, these studies indicate that, although target shareholders generally earned a positive abnormal return over a short-term event window, bidder shareholders have not systematically lost on merger announcements, especially if bidder shareholders have perceived or been signalled that the merger decision was made to benefit shareholders. The intensity of the target shareholder positive market reaction has also rested this premise.

5.2.2 Information asymmetry and signalling

Dodd and Ruback (1977) pointed out that investors react to new information in merger announcements due to the presence of information asymmetry between investors and management. Information asymmetry between managements of bidder and target firms and their respective investors cannot be measured directly, as it is not a readily observable phenomenon. Hence, prior literature has used proxies to measure information asymmetry, which primarily centre on the idea that management of newly developed firms with huge growth potential have been more acutely aware of their firm's potential as compared to outside investors. For example, Barron et al. (2002) provided evidence that there has been an inverse relationship between the level of firms' intangible assets and dispersion in analysts' earnings forecasts. Furthermore, Barron et al. (2002) pointed out that agreement in analysts' forecasts has been the lowest for firms with high research and development (R&D) expenditure. The growth rate in sales and net income can proxy for high growth companies. Similarly, young firms with no performance track record should also have high

information asymmetry as compared to older firms with established track records regarding their performance and management.

Dierickx and Koza (1991) suggested that the presence of information asymmetry also presents the problem of 'adverse selection' between target and bidder managements, and hence conveying a 'positive signal' may mitigate the problem. Gulati and Higgins (2003) highlighted the importance of trustworthy investment bank and venture capital firm backing during an IPO to send a positive signal of credibility. In the context of M&A, Brau and Fawcett (2006) provided evidence that the 'primary motivation' of a firm for an IPO is to support acquisitions, and the 'most important positive signal' is past earnings. Reuer and Ragozzino (2012) pointed out that firms engaged with prestigious investment banks during an IPO process are more likely to be acquired as compared to firms that engaged less reputable investment banks. However, in the absence of a past track record regarding historical earnings, engaging a reputable financial intermediary also sends a positive signal, which potential acquirers and investors can latch on to, and hence positive signals may have a positive impact on abnormal market returns in the event of a merger. Since the focus of our research is short-term market reaction, the remainder of the literature review focuses on signals in the bid terms from bidder-target management to their shareholders.

5.2.3 Abnormal bid premium

Ang and Ismail (2015) used target shareholder's market reaction in the range of -1.25 to +1.25 percentage points CAR as the baseline case with a three-day (-1 to +1) merger announcement event window. This neutral response subsample was then utilized by Ang and Ismail (2015) in a regression model to predict offer price for the entire sample. In other words, the aforementioned model was used to predict 'target shareholder expectation' and set the predicted shareholder expectation as a 'reference point'. The prediction model was utilized to compute 'excess offer

price' for the entire sample as the difference between the 'actual initial offer price received' and 'predicted values'.

Regarding the negative market reaction of target shareholders to a positive raw premium, Ang and Ismail (2015) hypothesized that target shareholders' market reaction was an expression of disappointment over the offer. Hence, Ang and Ismail (2015) argued that target shareholders' short-term market response to the offer price calculated via standard event methodology should be positively related to their computed 'excess offer price' or abnormal bid premium. They analysed their hypothesis utilizing both univariate and multivariate analysis.

Ang and Ismail (2015) reported that, considering the overall sample, target shareholders received significantly positive excess returns. Furthermore, Ang and Ismail (2015) also analysed positive, negative, and neutral market responses categorized on the basis of their subsamples, and reported statistically significant negative 'excess offer prices' for negative market response cases. The subsample means indicated similar results when excess offer prices were computed with variation for initial or final offer prices. In multivariate OLS regression with the dependent variable as target CAR, Ang and Ismail (2015) reported a statistically significant and positive relationship with the 'excess offer price', computed using the actual initial offer price. In other tests, they found that investors adapted their expectations in accordance with market conditions. Ang and Ismail (2015) utilized the abnormal initial offer premium as a parameter for market expectations for the offer, calculated as the actual initial price minus the expected offer price. Multivariate regression of target CAR for a 3-day announcement return on the initial offer premium, along with other control variables in prior literature on mergers, presented a statistically significant and positive relationship. The relationship showed that a single unit increase in target excess initial offer premium increased target CAR by 0.2 to 0.4 percentage points.

This research provides evidence that target shareholders already have a preconceived idea regarding the value of the offer premium, which is reflected in announcement period returns. It should be noted that if an offer is consistent with market expectations, target CAR should be zero. Hence, Ang and Ismail (2015) pointed out that their results provide support for the hypothesis that negative or positive market reactions to merger announcements are in response to target shareholders' expectations regarding offer price. Evidence for this research has been offered from the perspective of behavioural finance, where 'excess offer price' or abnormal bid premium has a statistically significant and positive relationship with target CAR. Hence, on the basis of evidence from Ang and Ismail (2015), I expect a statistically significant and positive relationship between target CAR and abnormal bid premium offered.

Gaspar et al. (2005) considered the relationship between investment timing of an institutional investor in the target stock and the impact on raw offer premium and utilised target firm CAR (-26, +126 days) around the announcement date and 'actual offer premium' (raw bid premium) as the dependent variables, with independent variables of investor turnover and target related control variables in separate regression models. Hence, a direct comparison can be made as both target CAR and offer premium have been used as independent variables in the same set of regressions and sample. The results indicated that target market to book ratio, size, and toehold have a negative relationship with both target CAR and offer premium. Deal related variables, such as hostility, competing bids, same industry, and tender offer, have positive and significant relationships with both target CAR and offer premium. Hence, we have inferred from Gaspar et al. (2005) regression results that market reaction in terms of target CAR and offer premium have a similar relationship with deal and target variables.

In a similar vein, Khatami et al. (2015) utilized raw bid premium, target CAR, and bidder CAR as dependent variables in separate multivariate regression models to analyse the impact of financial constraints. They found a negative and significant relationship between offer premium and target CAR and diversifying mergers, competitive bids, log of relative size, and all-stock bids. All-cash offers presented a positive relationship with target CAR, but a negative relationship with bid premium. A statistically significant positive relationship has been found with an all-cash offer dummy for both target and bidder CAR, but an inverse relationship for an all-stock offer. However, a hostile offer dummy has a statistically significant positive relationship with target CAR, and a negative relationship with bidder CAR. A similar relationship regarding a competing offers variable was observed in regression results reported by Khatami et al. (2015). Hence, the relationship between variables related to hostile and competing offers, which may have increased bid premium offered, and bidder CAR, is the opposite of the relationship to target CAR. Therefore, we hypothesize a negative relationship between bidder CAR and abnormal bid premium offered, in contrast to target CAR, where we have hypothesized a positive relationship.

However, according to evidence presented by Jennings and Mazzeo (1993), a high initial bid offer by bidders has deterred competing bids, and lowered potential target management resistance to the bid with first mover advantages. Previous research has established that a high initial bid sends a signal that the bidder wishes to deter competing bids, as well as a high valuation signal to target management, thereby increasing the chances of a successful bid. For example, Eckbo (2009) pointed out in the literature review that the probability of bid success is higher when the initial bid premium is high, and a high bid premium has been successful in pre-empting any further competing bids. Officer (2003) also corroborated evidence that an increase in bid premium is related to the probability of bid completion. Dimopoulos and Sacchetto (2014) modelled

preemptive bidding and target resistance with costly entry for competitive bidders. Dimopoulos and Sacchetto (2014) concluded that an initial bidder can successfully deter competition even by offering a low preemptive bid, and preemption only explains a small portion of the bid premium. Hence, offering high abnormal bid premiums with initial cash offers increases the probability of bid success by pre-empting competitive bids. Overall, evidence from prior literature suggests that a low bid premium risks competing offers and reduces the chances of a successful merger.

In a similar vein, Bates and Becher (2017) investigated initial bid rejection, and argued that target bid resistance may have been due to 'price improvement' or 'managerial entrenchment'. These motives of target management, according to Bates and Becher (2017) argument, may have been present simultaneously, as management welfare-based motivations have usually been concealed from shareholders. To determine if a bid resisted was of adequate quality, Bates and Becher (2017) modelled two measures of bid quality, one of which was based on abnormal bid premium. Bates and Becher (2017) reported that bid quality was a crucial factor in determining bid revisions, as the probability of a contested bid decreases with an increase in bid quality. Bates and Becher (2017) modelled completion of an auction in a logistic regression and reported that negative abnormal bid premiums have increased contested bids and reduced the chances of bid completion. Similarly, per Bates and Becher (2017), final bid premium quality has a positive relationship with the probability of completing a contested bid. Based on these relationships with abnormal bid premium, Bates and Becher (2017) concluded the presence of a 'price improvement' hypothesis. Hence, Bates and Becher (2017) demonstrated that an abnormal bid premium offered by a bidder has been absolutely central in determining target management's decision to resist bids.

Considering Bates and Becher (2017) evidence from target shareholders' perspective in the presence of information asymmetry, a high abnormal bid premium may send a positive signal to

the market regarding the quality of the bid. Per Bates and Becher (2017), target management also considers abnormal bid premium as a crucial factor in the bid resistance decision. In other words, the market must also have some recognition of an abnormal bid premium, as a significant relationship between abnormal bid premium and market reaction may validate this measure of bid quality. However, Bates and Becher (2017) did not deal with the market's reaction to the level of abnormal bid premium. Hence, this study intends to investigate the usefulness of an abnormal bid premium as a better measure of bid quality by determining the extent of target and bidder shareholder short-term market reaction to a merger announcement with an abnormal bid premium. Understanding the link between 'short-term market reaction' at merger announcement and 'unexplained bid premium' would establish the importance of an abnormal bid premium as a valid and superior measure of bid quality as compared to raw bid premium.

To the best of my knowledge, I have not found any other study that has investigated this relationship from the target and bidder shareholders' perspectives. Most studies related to M&A have only focused either on the target or the bidder side. For instance, Ang and Ismail (2015) and Bates and Becher (2017) have only considered the target firms' perspective. Furthermore, Ang and Ismail (2015), have modelled the expected bid premium of target shareholders from a 'behavioural finance perspective' to study a subsample of target firms with negative market reactions. However, unlike Ang and Ismail (2015), I approached this study purely from the target firm's valuation perspective. This is because the predicted bid premium has been modelled on the basis of target and bid characteristics.

To summarise, I not only investigate the market reaction to the abnormal bid premium from target shareholders' side but also from bidder shareholders' perspective. However, Ang and Ismail

(2015) and Bates and Becher (2017) have investigated abnormal bid premiums only from the target firms' perspective'.

Regarding target and bidder shareholder market reaction to abnormal bid premium, it should be considered that target shareholders receive the bid premium, which bidder shareholders pay in return for a successful merger. Hence, target shareholders would prefer the maximum possible bid premium, and bidder shareholders would want to avoid paying any more than necessary for bid completion. Therefore, ceteris paribus, we expect a positive relationship between target shareholder market reaction and abnormal bid premium offered.

However, if target shareholders drive for the highest achievable bid premium from bidders, then the deal may be in danger of collapsing, as bidder management may walk away from negotiations to avoid risk of overpayment. Therefore, target shareholders would react positively up to a certain level of abnormal bid premium, as target shareholders would also want the deal to succeed with a higher abnormal premium. In other words, although target shareholders expect bid resistance from their management to improve the offer price, they still would want the bid to succeed. Hence, target management is also expected to balance concerns while optimizing bid premium.

In this regard, Bates and Becher (2017) found that target management's decision to resist has been dependent on the abnormal bid premium. Therefore, target management may have balanced their negotiation or bargaining for a higher premium to avoid the risk of the deal collapsing. A strong independent target board with a focus on bid completion may resist less and give in relatively quickly to a bidder's negotiation, resulting in a lower abnormal bid premium for target shareholders. From the agency conflict perspective, an entrenched target management may have resisted the bid with a goal of frustrating the bidder management's attempt for a successful merger. Therefore, we also expect a negative relationship between target CAR and abnormal bid premium

if target shareholders are more concerned about a merger deal collapse than a higher abnormal bid premium.

On the other hand, bidder management ideally would be expected to pay an abnormal bid premium to target shareholders up to the point where potential synergistic merger benefits outweigh the cost of paying the abnormal bid premium. Evidence of merger related synergies have been presented in the extant literature in studies such as Bradley et al. (1988). Hence, bidder shareholders may have reacted positively to an abnormal bid premium to increase their chances of a successful bid, as Bates and Becher (2017) suggested that a positive abnormal bid premium decreases the probability of competitive bids. However, empire building motives or hubris-ridden bidder management may also be motivated to pay an abnormally high premium for targets with relatively low or no synergistic benefits. Hence, if bidder shareholders believe that a higher abnormal bid premium has been paid because of hubris or empire building motives, then we expect a negative relationship related to bidder shareholder market reaction and abnormal bid premium, and the opposite relationship for a synergy motivated merger.

It should be noted that target or bidder shareholders may not be aware of their management's welfare based motives due to information asymmetry. Hence, because of the presence of information asymmetry, target and bidder shareholders may latch on to signals emanating from the deal and target bidder management characteristics, including abnormal bid premium.

Therefore, I also expect a positive relationship between bidder CAR and abnormal bid premium offered, as bidder shareholders may have realized the need for a positive abnormal bid premium. Considering the opposing hypotheses regarding bidder CAR and abnormal bid premium offered, we expect a statistically insignificant relationship, as it may be difficult for bidder shareholders to decipher whether the positive abnormal bid premium offered by bidder management was a signal

for pre-emption or a sign of management's empire building or hubris related behaviour. Hence, I include target and bidder managements' governance characteristics and their relationship to market reaction in the event of a merger in our literature review. Therefore, considering extant literature regarding the relationship of abnormal bid premium with target and bidder CAR, first hypothesis is posited as follows:

1aH $_{Null}$: There is no relationship between final abnormal bid premium and target/ bidder CAR.

1aH $_{Alt}$: There is relationship present between final abnormal bid premium and target/ bidder CAR.

Moreover, in view of discussion regarding initial abnormal bid premium, I expect a relationship with target and bidder CAR to be similar in vein to final abnormal bid premium. Hence, second part to the first hypothesis in chapter 5 is presented as follows.

1bH $_{Null}$: There is no relationship between initial abnormal bid premium and target/ bidder CAR.

1aH $_{Alt}$: There is relationship present between initial abnormal bid premium and target/ bidder CAR.

5.2.4 Choice of payment

Payment choice in an acquisition has been modelled by Fishman (1989), where the initial bid offer attracts competing offers and information asymmetry is present. Fishman (1989) pointed out that, in an ideal market where there are no transaction costs, no taxes, and no information asymmetry, the 'medium of exchange is irrelevant'. In such a world, target and bidder shareholders would have access to all information regarding firm prospects that target and bidder management have. Hence, target investors could make an efficient choice regarding bid offers irrespective of the medium of payment. However, in real markets where information asymmetry is present, the choice of payment mode has been utilized by bidder management to signal high target valuation, thus

emphasizing its role in preempting competition. Hence, Fishman (1989) predicted that the value of target shares should increase if the offer is accepted. According to Fishman (1989), in the case of a stock offer, the value of bidder stock would be contingent upon the outcome of the merger, which necessitates access to private information by target management to properly evaluate a stock offer. However, cash offers require no such consideration, as target management can independently evaluate cash offers. Moreover, bidder management would only offer stock if their stock was overvalued; hence, an all-cash offer signals high valuation of the target. Taking information asymmetry into consideration, Fishman (1989) model implies that an initial cash offer is less likely to be rejected, and may attract fewer or no competitive bids due to preemption as compared to an initial stock offer. Furthermore, Fishman (1989) also predicted higher revaluations for bidders with cash offers as compared to mixed or all-stock offers.

Vladimirov (2015) found evidence in a filtered sample for cash offers that the choice of financing a cash merger has been a real determinant of market reaction to the bidder instead of the choice of payment method offered by the bidder. The three-day bidder CAR measured by standard event methodology was utilised as the dependent variable for a proxy of the market's reaction to the choice of financing decision by the bidder. Vladimirov (2015) showed that bidder CAR ranges from 0.4 to 0.7 percentage points, when a cash offer is not financed with debt as compared to overall CAR of 1 percentage point. Raghavendra Rau and Vermaelen (1998) showed that value acquirers in an all-cash offer earn almost 12 percentage points CAR, regardless of whether it is a tender or merger offer. Hence, cash payments by bidders, although for varied reasons as indicated by these studies, elicit a positive reaction from bidder shareholders.

As mentioned earlier in the abnormal bid premium section, Khatami et al. (2015) found a positive statistically significant relationship between all-cash offers and target CAR, and a negative

relationship with all-stock offers. Khatami et al. (2015) reported a similar relationship with bidder CAR for both all-stock and all-cash offers.

Most of the studies regarding payment choice observe the market reaction for completed bids; however, Malmendier et al. (2016) provided evidence that target revaluation after a failed bid is linked to the choice of payment for the failed offer. Malmendier et al. (2016) considered the impact of the market by calculating CAR 25 days before merger announcement to 25 days after bid failure for all-cash and all-stock merger deals. A plot of 'all-cash sample average CAR for target' over trading days shows that abnormal return for such deals remains at 15 percentage points even 25 days after the merger deal, as compared to -10 percentage points for an all-stock target. In other words, investors do take payment choice as valuation signals for targets, as reflected in CAR even after deal failure.

In a similar vein, Mitchell et al. (2004) offered evidence of a negative price reaction to bidder returns, especially in the case of stock offers, as seen in previous literature, in light of investor arbitrage activity around merger announcements. According to Mitchell et al. (2004), to hedge themselves against possible price movements around merger announcement dates, professional investors engage in merger arbitrage. For an all-cash offer, arbitrage is simple, as the arbitrageur needs only to go long in the target stock. Similarly, for an all-stock fixed-exchange-ratio offer, arbitrageurs can take a long position in the target stock with a simultaneous short position in the bidder stock. The short position is cancelled when the bidder's stock is received in exchange for target shares that are used to close the short position. However, arbitrage activity is complicated in cases of floating-exchange ratios and collar stock mergers. In other words, Mitchell et al. (2004) suggested that a short position in the bidder's stock as a result of arbitrage related activity creates downward pressure on the bidder's stock. Hence, they hypothesized that this merger related

arbitrage activity in the case of a stock offer is responsible for price pressure on the bidder's stock around merger announcement dates. Mitchell et al. (2004) calculated cumulative average abnormal returns (CAAR) to be -1.2 percentage point for their full sample and -2.6 percentage points for a subsample of stock offers around an announcement event window of 3 days (-1 to +1). However, Mitchell et al. (2004) reported that, once controlled for the price pressure effect, CAAR increases to -0.47 percentage points. Along with other reported results, Mitchell et al. (2004) claimed this as evidence in support of the 'price pressure hypothesis' in the case of a bidder stock offer.

Considering this evidence from prior literature, I posit a positive relationship between target CAR and an all-cash offer as prior literature suggests that an all-cash offer by the bidder sends out a high valuation signal to target shareholders. Similarly, considering Fishman (1989) model, regarding high target valuation with an all-cash offer, I also posit a positive relationship between bidder CAR and an all-cash offer.

However, Officer et al. (2009) provided evidence that the mitigating effects of target related information asymmetry increases bidder abnormal returns; when a bidder utilizes an all-stock payment, it shares the risk of target overvaluation. Hence this risk reduction in target overvaluation contributes to increased bidder returns as indicated by increased bidder CAR, when bidding for a privately listed target with an all-stock payment. Eckbo et al. (1990) modelled the choice of payment decision under double information asymmetry, and suggested that there is an optimal mix of cash and stock. According to Eckbo et al. (1990), a high bid carries a lower risk of rejection cost, but also carries a high overpayment cost to the bidder and vice versa. Furthermore, a high all-cash offer would place all the risk of overpayment cost on the bidder as compared to a high all-stock offer. Eckbo et al. (1990) reported significant positive bidder abnormal returns for 'mixed offers' as compared to all-cash or stock offers. Considering the evidence from Eckbo et al. (1990)

and Officer et al. (2009) regarding bidder risk sharing when offering stock in a payment mix, I posit a negative or no relationship with an all-cash offer and a positive relationship with stock in the payment mix. Hence, second hypothesis related to choice of payment consists of two parts. First, an all-cash offer hypothesis is presented as follows.

2aH $_{Null}$: There is no relationship between an all-cash offer and target/ bidder CAR.

2aH $_{Alt}$: There is positive relationship between an all-cash offer and target CAR. There is relationship present between all-cash offer and bidder CAR.

Furthermore, second part hypothesis related to stock offer in payment mix is presented as follows:

2bH $_{Null}$: There is no relationship between stock offer and target/ bidder CAR.

2bH $_{Alt}$: There is negative relationship between stock offer and target CAR. Vice versa, there is positive relationship between stock offer and bidder CAR.

5.2.5 Tender offer

Huang and Walkling (1987) reported that most tender offers have been associated with an all-cash payment, and positive and significant target cumulative abnormal returns. Huang and Walkling (1987) cited an increase in tax liability as a reason for a higher premium. Evidence found by Huang and Walkling (1987) on a final sample of 206 initial merger announcements for 1977 to 1982 revealed tender offers provide statistically significant cumulative abnormal returns on the target stock. Returns were calculated over 50 days before and after the initial announcement. Offenberg and Pirinsky (2015) also find evidence of a market reaction to a bidder's competitor's tender offer and found a negative market response to the bidder's rival's stock with a -1.1 percentage point

CAR, as compared to 0.81 percentage point CAR for mergers. Banerjee et al. (2015) also found tender offers to be significantly negatively related to bidder CAR (-10,10) over the announcement window. As mentioned in the literature review in chapter 2, Huang and Walkling (1987) reported that most tender offers are associated with an all-cash form of payment, and target cumulative abnormal returns are found to be positive and significant in such cases.

Similarly, Khatami et al. (2015) find that offer premium and target CAR have a positive and significant relationship with hostile bids and tender offers. The regression results of a comparison of target and bidder CAR indicates that there is a positive relationship with tender offers; however, the relationship has been more statistically significant for target CAR. However, Travlos (1987) reported a significantly negative return to bidder shareholders in the case of a tender offer coupled with an all-stock payment option.

As mentioned in chapter 4's literature review, Offenberg and Pirinsky (2015) indicate that a sense of demand urgency has been conveyed to target shareholders, which may have been treated as a positive signal by target shareholders. Hence, I expect a positive relationship between tender offers and target CAR according to Huang and Walkling (1987) and Khatami et al. (2015). I also expect a positive relationship considering Khatami et al. (2015) for bidder CAR, due to the possibility of a quick merger. However, according to Travlos (1987), I expect a negative relationship with bidder CAR, which may have signalled an overpayment to bidder shareholders, due to demand urgency displayed by bidder management. Hence:

$3H_{Null}$: There is no relationship between tender offer and target/ bidder CAR.

$3H_{Alt}$: There is positive relationship between tender offer and target CAR. There is relationship present between Tender offer and bidder CAR.

5.2.6 Toehold

As mentioned in the literature review in chapter 4, in prior literature, for example as mentioned by Povel and Sertsios (2014) and Betton and Eckbo (2000), large toeholds have served to reduce information asymmetry for bidders, by virtue of which relatively lower bid premiums are offered by the bidder. Franks and Harris (1989) provided evidence that the market reacts to toehold presence, as target shareholder abnormal returns range from 27–38 percentage points, when a toehold is less than 30 percentage points, as compared to no-toehold cases where target returns range between 21–28 percentage points. Further increments in toehold greater than 30 percentage points reverses the increased abnormal returns gains to target shareholders. They found their parallel study corroborated the finding of US based researchers, who controlled for tender offers, as most mergers in the UK happen through a tender offer.

Hence, I posit a positive relationship between toehold percentage and target CAR, considering the results of Franks and Harris (1989), as bigger toehold is linked to an increase in target firm's market return. Furthermore, I also posit a positive relationship between bidder CAR and toehold percentage considering Povel and Sertsios (2014) and Betton and Eckbo (2000), as a reduction in information asymmetry helps bidder firms avoid overpayment, which may encourage a positive reaction from bidder shareholders . Thus:

$4H_{Null}$: There is no relationship between toehold and target/ bidder CAR.

$4H_{Alt}$: There is positive relationship between toehold offer and target/ bidder CAR.

5.2.7 Board share ownership

Morck et al. (1988) claimed that there is a non-linear relationship between firm performance, measured by Tobin's Q, and insider ownership. Morck et al. (1988) found that Tobin's Q had a

positive relationship up to five percentage points of board ownership, after which the relationship turns negative, and then, at 25 percentage points board ownership, it increases to maintain a positive relationship with Tobin's Q. However, in their concluding remarks, Morck et al. (1988) mentioned that the relationship might be different for young high growth firms, where managerial holdings indicate compensation or play a signalling role. Hence, board equity at certain levels may help align shareholder and management goals and reduce agency-related behaviour.

However, as in previous literature, Fama and Jensen (1983b) pointed out that increased levels of board equity participation may have helped management vote out a threat of disciplinary takeover. In similar vein, Stulz (1988) argued that the presence of insider voting rights by virtue of equity holdings has two opposite effects on firm value in the case of a tender offer. Increased presence of insider control reduces the probability of a successful takeover, but on the other hand, increases the bid premium offered by bidders to counter entrenchment related behaviour of management emanating from increased insider control. The model by Stulz (1988) ignored the effects of information asymmetry and positive effects of incentive alignment on firm value in the case of a takeover offer.

Baran and Forst (2015) investigated the impact of insider control on board characteristics, and ultimately, its firm value. Baran and Forst (2015) utilized dual class shares as an ideal proxy for insider control, as they separate voting rights from cash flow rights, where voting rights management would enable them to maintain control of the firm for entrenchment related purposes, leading to an overall weaker board. As an alternate hypothesis, Baran and Forst (2015) considered that the presence of a stronger board would mitigate the negative effects of inequitable insider control. Baran and Forst (2015) observed the impact of insider control on board size, CEO chairman duality, board independence, and director tenure and age. They reported findings largely

consistent with the management entrenchment hypothesis, as there was a negative relationship between insider control and independent directors and their experience, while there was a positive relationship with older directors with longer tenure. Baran and Forst (2015) reasoned that disproportionate insider control purposely installs a weakened board, leading to a negative impact on firm value.

The studies presented thus far provide evidence that insider control at high levels, especially in dual class share structures, may negatively impact firm value. Due to regulations, the prevalence of a dual-class structure in UK publicly listed organizations has been non-existent; however, insider equity holdings have been present. For comparison of UK takeover regulation to USA please refer to section 2.2 of chapter 2. Hence, investors in the presence of information asymmetry might believe high levels of target insider equity contribute to management entrenchment related behaviour, leading to low bid success. Therefore, I expect a negative relationship between target CAR and high levels of insider equity. On the other hand, high levels of insider equity may also contribute to a high bid premium, as bidders may try to counter possible entrenchment related behaviour due to a high level of target insider equity, and hence I also expect there to be a positive relationship between target CAR and high levels of insider equity.

Regarding bidder board equity levels, a key study was performed by Cosh et al. (2006) with UK based data of 363 mergers of UK publicly listed companies over a period from 1985–1996. In their seminal study, Cosh et al. (2006) tested for evidence of management entrenchment effects in acquirer post-merger performance levels. Cosh et al. (2006) indicated that the presence of a ‘U shaped relationship’ evidenced by Mcconnell and Servaes (1995) and Weir et al. (2002) indicates entrenchment effects. Most importantly, Cosh et al. (2006) argued that for entrenchment to take effect, board members’ personal interests must also be aligned. The interests of non-executive

directors may be different from those of executive directors, especially CEOs. Hence, Cosh et al. (2006) tested the effect of bidder board ownership at different levels on various measures of post takeover performance. Post-merger bidder performance was computed based on short-term event studies, long-term share returns, and changes in post-acquisition bidder operating performance. Results for multivariate OLS regressions of short-term announcement returns on bidder board ownership have shown a positive but statistically insignificant relationship. Cosh et al. (2006) found no evidence to indicate the presence of entrenchment effects related to board equity ownership. Hence, I also expect a positive relationship between bidder level of board equity and bidder CAR, considering Cosh et al. (2006), as equity participation levels in UK boards may not have encouraged entrenchment related behaviour in bidder boards. The fifth hypothesis therefore is:

5H $_{Null}$: There is no relationship between the respective board share ownership and target/ bidder CAR.

5H $_{Alt}$: There is relationship present between target board share ownership and target CAR. There is positive relationship between bidder board share ownership and bidder CAR.

5.2.8 Entrenchment

Bidder management entrenchment was the central focus of a study by Harford et al. (2012), in which researchers found that value destruction of bidder shareholders has been led by aversion to public targets, and the tendency to utilize cash when paying for public targets with large external block-holders. Engaging private targets, as in Harford et al. (2012), allows entrenched management to avoid public scrutiny, and the choice of a cash payment prevents creation of potential block-holders, who may monitor bidder management in the future. Harford et al. (2012) claimed that bidder overpayment always leads to value destruction; however, bidder management

led by entrenchment motives may pay low premiums, but low premiums have been paid for targets with even lower synergistic potential. As a proxy for management's entrenchment, Harford et al. (2012) utilized an entrenchment index as in Bebchuk et al. (2009), who based their index on six provisions viewed as anti-takeover measures. Bebchuk et al. (2009) reported, based on their analysis, that firms that scored high on their entrenchment index demonstrated low market performance, and hence claimed that their index captures entrenchment motives relatively effectively. Harford et al. (2012) took short-term CAR around an announcement window of 5 days (-2 to +2), calculated using the market model, to measure the market's reaction to entrenched management. Firms labelled as dictators have CAR of -0.036 percentage points as compared to the full sample CAR of 0.3%. According to Harford et al. (2012), the results of multivariate OLS regression reveal statistically significant lower CAR for dictator dummies for both public and private targets. Harford et al. (2012) also measured long term operating performance three years before and after merger with EBIT scaled with total assets, and report that firms labelled as dictators perform relatively much worse. On the basis of both long and short-term performance of entrenched management, Harford et al. (2012) concluded that entrenched management destroys shareholder wealth by selecting targets in distinct ways. Hence, I posit the following sixth hypothesis regarding entrenchment.

$6H_{Null}$: There is no relationship between bidder management entrenchment and bidder CAR.

$6H_{Alt}$: There is negative relationship between bidder management entrenchment and bidder CAR.

5.2.9 CEO hubris

Morck et al. (1990) utilized a short-term event study to claim that managerial welfare has driven poorly performing acquisitions in markets. They computed a ratio of 'change in bidder's market value -2 to +1 days around initial announcement date' over 'acquisition price'. Target share price

one day following an announcement proxies for 'acquisition price'. The measure of bidder performance was calculated as cumulative dividend abnormal bidder stock return over three years. A second accounting-based measure of bidder performance, three-year compounded operating income growth prior to acquisition, was also used. Morck et al. (1990) explained that bidder returns are lower in the case of diversifying mergers, high growth targets, and when bidder management has not performed well as compared to the industry in the last three years prior to an acquisition. Hence, Morck et al. (1990) considered their result as evidence for Roll (1986) hubris hypothesis.

According to anecdotal evidence, management of bigger corporations are hubris-ridden. Moeller et al. (2004) found the presence of a size effect, as small firms fare better in acquisition announcements than larger firms. Moeller et al. (2004) defined a small firm as an NYSC listed firm in the first quartile according to market capitalization. To study the market impact of a merger, standard short-term event methodology is followed using a 3-day event window with a 'market model' based benchmark. CAR for the entire sample showed a 1.1 percentage point return, with 0.07 and 2.3 percentage points return for bid and small sub-samples, respectively. Hence, Moeller et al. (2004) reported contrasting results with the rest of the US based studies on bidder ex-post returns. Moeller et al. (2004) attributed this contrast in results to a mixed sample of public and private bidder firms. According to Moeller et al. (2004), positive market reactions to merger announcements indicate that small firms are better acquirers. Commenting on the results, Moeller et al. (2004) pointed out that the goals of smaller company management are better aligned with shareholder goals, and CEOs of smaller companies are usually not overconfident as compared to the much more glamorous CEO personalities of larger corporations.

Malmendier and Tate (2008) provided evidence of the impact of CEO hubris on bidder stockholder wealth, utilizing an event study with a three-day window. CAR for bidder stock was utilized as a

dependent variable to proxy for bidder shareholder wealth impact. Holding an in-the-money CEO option was used by Malmendier and Tate (2008) as a proxy for the independent variable of CEO overconfidence. Further, controls for year, industry, cash financing, cash offer, and board composition were also included in the OLS regression. With this research, Malmendier and Tate (2008) not only provided evidence for the CEO hubris hypothesis presented by Roll (1986), but also demonstrated that the market does react to corporate governance-related considerations. In a similar vein, Hiller and Hambrick (2005) presented evidence of the relationship between bidder/CEO hubris and worse subsequent bidder performance.

On CEO overconfidence, Croci et al. (2010) presented evidence on UK-based publicly listed bidders data from 1990–2005. They classified an overconfident bidder CEO as one who holds on to 'their options until the last year before the expiration date'; otherwise the CEO was classified as non-overconfident around the announcement date. Short-term event based methodology was utilized to calculate CAR around a 5-day event window (-2 to +2) with the value weighted FTSE all-share market index. Statistically significant CAR of 0.94% was computed for the full sample, with 1.26 and 0.16 percentage points CAR for non-overconfident and confident bidder CEOs, respectively. Based on their result, Croci et al. (2010) argued that 'non-overconfident' UK bidder CEOs have conducted value-enhancing acquisition deals, especially in booming merger market periods. Conversely, acquisitions by overconfident bidders have continued to perform worse ex-post over long periods of time. Hence, considering the evidence of Malmendier and Tate (2008) and Croci et al. (2010), I posit a negative relationship between a bidder CEO proxy for entrenchment or hubris and bidder CAR, as bidder CEOs may overpay for targets.

Banerjee et al. (2015) presented a statistically insignificant negative relationship between target CEO overconfidence and short-term bidder CAR over a 41-day event window. A hubris-ridden

target CEO may resist bids, and bidders may offer abnormal premiums to counter an attempt by hubris-ridden CEOs. Hence, as in prior literature, an entrenched or hubris-ridden target CEO may put up bid resistance, which may lower the chance of bid completion, but bid resistance from targets has led to an increase in bid premium. Therefore, I predict that there is a relationship between target CEO hubris and target CAR. Hence:

7H $_{Null}$: There is no relationship between the respective CEO hubris and target/ bidder CAR.

7H $_{Alt}$: There is a relationship present between target CEO hubris and target CAR. There is negative relationship between bidder CEO hubris and bidder CAR.

5.2.10 External block-holders

Cosh et al. (2006) argued that external factors like market competitive forces, leverage, and the presence of large external block-holders may have served to limit management's ability to act in accordance with management welfare related behaviour in mergers. In a similar vein, Kau et al. (2008) advised that bidder management has been more receptive when their remuneration is tied to performance, and when large block-holders are present. It should be noted that performance related management incentives and the presence of external block-holders have been indicated to reduce agency-related conflicts in previous M&A literature. Danbolt et al. (2015) claimed that the relationship between investor sentiment and bidder announcement return has been higher for bidders with relatively lower percentages of external block-holders. Hence, Danbolt et al. (2015) results indicate that the presence of large bidder block-holders act as information providers for other minority shareholders.

Hence, I posit a positive relationship between the presence of large block-holders for both target and bidder firms and their respective cumulative abnormal returns. Therefore:

8H $_{Null}$: There is no relationship between the respective external block-holder presence and target/ bidder CAR.

8H $_{Alt}$: There is positive relationship present between the respective external block-holder presence and target/ bidder CAR.

5.2.11 CEO equity and wealth

Boulton et al. (2014) found no presence of a statistically significant relationship between bidder CEO equity-based compensation and bidder abnormal returns around merger announcements. Boulton et al. (2014) utilized a change in the wealth of CEOs from a one-percentage change in stock price scaled by total CEO wealth as a proxy for CEO equity based incentives. Multivariate regression of short-term bidder CAR on the CEO incentive ratio shows a statistically insignificant negative relationship, after controlling for deal and bidder based characteristics. Statistically significant negative relationships have been observed in all equity, relative size, and bidder size control variables with dependent variables. However, El-Khatib et al. (2015) found that bidder CAR has a significantly negative relationship with CEO ownership level.

According to Firth (1991), senior bidder management in the UK seem to have benefited in terms of increased remuneration, even in situations where shareholders have suffered ex-post as a result of merger decisions. Based on evidence found, Firth (1991) concluded that mergers have empire building motives to the detriment of existing UK shareholders.

Announcement period CAR around a three-day window were utilized by Minnick et al. (2011) as the dependent variable on CEO pay for performance and other control variables. The regression results showed that performance based CEO incentives increase CAR by almost 3 to 6 percentage points. Minnick et al. (2011) also observed a three-year change in operational returns in a

multivariate regression, with controls for governance and deal characteristics. The result indicates statistically significant and positive changes in 'return on assets' and 'buy and hold abnormal return' (BHAR) when performance based incentives were utilized. Hence, considering Minnick et al. (2011) bidder shareholders may react positively to CEO wealth. Furthermore, as discussed earlier, the level of target CEO equity has been linked to lower management resistance Buchholtz and Ribbens (1994), hence target shareholders may react positively to higher target CEO equity levels. However, as discussed in section 5.2.8, presence of high levels of equity may also lead to entrenchment, to which target shareholders may react negatively.

Hence, the ninth hypothesis is as follows.

$9H_{Null}$: There is no relationship between the respective CEO equity level and target/ bidder CAR.

$9H_{Alt}$: There is relationship present between the respective CEO equity level and target/ bidder CAR.

5.2.12 Duality of Roles

Multivariate regression of bidder five-day market model adjusted announcement CAR on bidder, deal, and governance variables showed a significantly negative relationship with bidder CEO chairman roles. A dual CEO-chairman position results in an almost -0.8 percentage point reduction in bidder CAR. Board size also has a negative, but statistically insignificant relationship, with dependent variables based on the results of Masulis et al. (2007). Controls for bidder and deal variables have a statistically significant and negative relationship with bidder firm size, stock price run-up, and public targets with all-stock deals. Cosh et al. (2006) also presented evidence of a statistically significant negative relationship with bidder CAR. However, there have been a few

studies outside the area of M&A that have argued that CEO-Chairman duality is a specialist role required by small companies. Therefore, the tenth hypothesis is:

10H $_{Null}$: There is no relationship between bidder duality of roles and bidder CAR.

10H $_{Alt}$: There is negative relationship between bidder duality of roles and bidder CAR.

5.2.13 CEO characteristics

El-Khatib et al. (2015) found that corporate governance related control variables like board size, combined roles of CEO/Chairman, and CEO age all have positive but statistically insignificant relationships with bidder CAR. Replacing combined CAR as the dependent variable in the regression models in El-Khatib et al. (2015) result in similar relationships.

Jenter and Lewellen (2015) observed the market impact of CEO target age by plotting cumulative industry-adjusted stock returns around an announcement window (completed bids) of -30 to +20 trading days for target CEO age brackets. However, they reported no discernible difference in announcement returns related to different CEO age groups for targets or bidders. Therefore, on the basis of other results, Jenter and Lewellen (2015) concluded that target CEOs nearing retirement age increase the likelihood of deal completion without sacrificing premium. Therefore, I expect target shareholders to react positively to target CEO age. Thus:

11H $_{Null}$: There is no relationship between target CEO age and target CAR.

11H $_{Alt}$: There is positive relationship between target CEO age and target CAR.

Together, the literature review in section 5.2 indicates that in a merger announcement, both target and bidder shareholders may react to bid characteristics like bid premium. Hence, abnormal bid

premium measure may serve as a better proxy to observe this relationship. Moreover, apart from bid characteristics, market may also react to target and bidder firms' governance related characteristics, as signals in the presence of information asymmetry. Cumulative abnormal return is recognised in extant literature as a proxy to measure market reaction for both target and bidder firms.

Therefore, hypotheses in this literature review, related to abnormal bid premium along with other bid characteristics and firm governance considerations observe relationship with target and bidder CAR, in order to determine, if abnormal bid premium is a valid measure for market reaction. A summary related to hypotheses presented in chapter 5 is present in an appendix, which serves as an overview of the relationships that are discussed in literature review section 5.2. In the next section 5.3 mythology related to computation of CAR and related regression models is presented.

5.3 Methodology

I have utilized standard event methodology following Brown and Warner (1985) and elaborated by Mackinlay (1997) for daily interval data, to compute cumulative abnormal return (CAR) as a measure of short-term market performance. I measure event date as the announcement date mentioned in the ThomsonONE database. The event window has been described as -42 days or first mention of rumour date from PI navigator around the event date. The estimation window for measuring 'abnormal market return' over the event window is -250 days before the event date. The 'market model' has been utilized to compute expected return on the securities, by calculating 'Alpha' and 'Beta' over the estimation window. Since our sample pertains exclusively to the UK publicly listed targets and bidders market, the 'FTSE All-Share Index' was utilized as the benchmark in the market model. Target firms selected are publicly listed corporations with announcement dates from 1/1/1994 to 12/31/2013, and whose deal status has been indicated either as completed or unconditional.

The following ordinary least square models with year and industry fixed effects have been regressed on CAR computed at -42 days to 0, +2, +5, and until merger completion event windows separately as the dependent variable in each regression. The independent variables include the main interest variable of abnormal bid premiums, which were computed as mentioned in the methodology section of chapter 4. Apart from abnormal bid premium (ABP), other control variables are included, such as deal characteristics, board independence characteristics, and CEO personal and wealth characteristics. The bidder regression has been included with a bidder management entrenchment proxy as indicated in the literature review. Target and bidder regression models are indicated respectively in equation 5-1 and 5-2.

Equation 5-1 Target Regression

$$Y_{Target\ CAR\ (-42,0\ +2\ +5\ \&\ Completion)} = \alpha + \beta_1 initial\ or\ final\ Abnormal\ Bid\ Premium + \beta_2 Target\ Deal\ Characteristics + \beta_3 Target\ Board\ Independence + \beta_4\ Target\ Blockholders + \beta_5 Target\ CEO\ Personal\ Characteristics + \beta_6\ Target\ CEO\ Wealth\ Characteristics + \mathcal{E}_j$$

Equation 5-2 Bidder Regression

$$Y_{Bidder\ CAR\ (-42,0\ +2\ +5\ \&\ Completion)} = \alpha + \beta_1 initial\ or\ final\ Abnormal\ Bid\ Premium + \beta_2\ Bidder\ Deal\ Characteristics + \beta_3\ Bidder\ Board\ Independence + \beta_4\ Bidder\ Blockholders + \beta_5\ Bidder\ CEO\ Personal\ Characteristics + \beta_6\ Bidder\ CEO\ Wealth\ Characteristics + \beta_7\ Bidder\ Management\ Entrenchement + \mathcal{E}_j$$

As seen in the above regression model, four separate combinations of target bidder CAR as the dependent variable and initial final abnormal bid premiums as the main variable of interest have been regressed using four event window durations from -42 days to 0, +2, +5, and until merger completion.

5.4 Sampling

Control variables according to the model indicated in the methodology section are defined in the sampling section of chapter 4. However, our dependent variable, CAR, and additional computed variable definitions are described in table 4. The sample filtration procedure is the same as in the sampling procedure mentioned in table 4-1.

However, the sample size for our target regressions have been further reduced by 7 cases to a total of 230 cases, due to the unavailability of price data in DataStream, resulting in fewer computed CAR. Similarly, the unavailability of bidder price data in DataStream has resulted in a final sample size of 208 cases.

Table 5-1 Sample Filtration

Following table has detailed stepwise filtration for which Cumulative Abnormal returns have been computed for Target and Bidder Cases.

Sr.	Final Sample for M&A Cases	M&A Cases
1	Final sample in Chapter 4 table 4-1	241
2	Target CAR Computed for Sample	232
3	Bidder CAR Computed for Sample	212

Table 5-2 Variable definitions

New computed variable definitions have been indicated in following table, for remainder of variable definitions please refer to table 4-2 of previous chapter.

Variable Name	Variable Definition	Variable Computation
CAR0	Cumulative Abnormal Return till merger announcement Date	Target and Bidder Dependent Variable Computed at merger announcement event window (-42, 0) days
CAR+2	Cumulative Abnormal Return after two days of merger announcement	Target and Bidder Dependent Variable Computed at merger announcement event window (-42, +2) days
CAR+5	Cumulative Abnormal Return after five days of merger announcement	Target and Bidder Dependent Variable Computed at merger announcement event window (-42, +5) days

Variable Name	Variable Definition	Variable Computation
CAR Comp	Cumulative Abnormal Return till merger Completion	Target and Bidder Dependent Variable Computed at merger announcement event window from -42 days till merger Completion date as indicated by ThomsonONE database.
Initial Abnormal Bid Premium	Abnormal Bid Premium as computed in initial offer in ThomsonONE	Actual Initial premium offered – Predicted Initial premium
Entrenchment	Proxy for Bidder management entrenchment	Target Block holders holding greater than 25% of total target Shares, paid with Cash only payment =1; 0 otherwise
CEO Influence	Target or Bidder CEO influence on board in terms of equity ownership	Target of Bidder CEO stock ownership / Total amount of stock held by Target or Bidder Board
Board Equity	Equity held by all board as ratio of Total shares	Total Board Equity/ Total Shares

5.5 Summary Statistics

For a statistical summary of the final abnormal bid premiums, refer to table 4-3 in Chapter 4, whereas table 4-4 in Chapter 4 summarizes the bid characteristics. Tables 4-5 and 4-6 in chapter 4 present the statistical summary of target and bidder control variables.

The statistical summary for target and bidder CAR over different event windows is presented in table 5-3. The average values of bidder CAR indicate only a minor negative reaction of bidder shareholders to merger announcements.

Table 5-3 Cumulative Abnormal Returns (CAR) Statistical Summary.

Following tables presents total sample, mean, standard deviation, range, skewness, kurtosis, sum and Median of all Bidder CAR in panel A and Target CAR in panel B, utilized as dependent variables in regression.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	N	mean	sd	min	max	skew	kur	sum	p50
Panel A: Bidder									
Bidder CAR (-42, 0)	212	0.00189	0.225	-0.725	1.736	2.359	19.85	0.400	-0.0184
Bidder CAR (-42, 2)	212	-0.00733	0.226	-0.832	1.611	1.785	15.91	-1.554	-0.0183
Bidder CAR (-42, 5)	212	-0.0100	0.242	-0.893	1.739	1.901	16.47	-2.121	-0.0315
Bidder CAR (-42, Completion)	208	-0.0471	0.478	-1.975	2.116	0.183	8.076	-9.805	-0.0399
Panel B: Target									
Target CAR (-42, 0)	232	0.267	0.341	-1.040	1.594	0.0344	5.149	61.89	0.254
Target CAR (-42, 2)	232	0.270	0.347	-1.035	1.542	-0.117	5.048	62.75	0.258
Target CAR (-42, 5)	232	0.274	0.351	-1.027	1.567	-0.110	4.884	63.67	0.261
Target CAR (-42, Completion)	228	0.306	0.546	-2.595	2.152	-0.602	8.096	69.69	0.302

Table 5-4 of this chapter presents the statistical summary of the computed additional independent variables utilised in the regression for bidder firms in panel A and target firms in panel B. As mentioned, for the remaining statistical summary on target firms' governance variables, please refer to Table 4-5, and refer to Table 4-6 for bidder governance variables. The statistical summary of initial and final bid premiums is provided in panel A and B of Table 5-5, respectively, for the considered subsample.

Table 5-4 Statistical summary Target & Bidder

Following tables presents total sample, mean, standard deviation, range, skewness, kurtosis, sum and Median of additional computed Bidder independent variables in panel A and Target in panel B. For statistical summary remainder of independent variables please refer to Table 4-4 for Bid Characteristics, Table 4-5 Target governance Data and Table 4-6 Bidder Governance Data of Chapter 4. Mean for Dummy Variable of Target Block > 25% with 100% cash offer mean indicates ratio of dummy=1 to total sample.

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max	(7) skew	(8) kur	(9) p50
Panel A: Bidder								
CEO Influence	245	37.41	31.09	0	100	0.486	2.031	34.03
Target Block > 25% cash 100% = 1	245	0.200	0.401	0	1	-	-	-
CEO Compensation in £	245	492,726	660,497	11,000	5.925e+06	4.399	29.50	306,000
Total % held by Block-holders >= 3%	245	32.90	22.64	0	97.70	0.386	2.431	31
Board Equity/ Total Shares	245	0.0887	0.168	0	0.981	3.092	13.53	0.0182
Panel B: Target								
CEO Influence	244	33.78	31.37	0	100	0.656	2.245	28.67
CEO Compensation in £	245	257,383	242,241	12,296	1.919e+06	3.222	17.28	186,605
Total % held by Block-holders >= 3%	245	39.48	22.01	0	90.79	-0.174	2.238	41.50
Board Equity/ Total Shares	245	0.116	0.159	0	0.698	1.783	5.576	0.0460

Table 5-5 Statistical Summary of Initial and final Abnormal bid premiums

Following tables presents total sample, mean, standard deviation, range, skewness, kurtosis, sum and Median of Initial Bid Premium Computed Bidder independent variables in panel A. Initial raw Bid premium, estimated bid premium and abnormal bid premium can be compared to final bid premium values in panel B, as computed and mentioned in Chapter 4. Only1 percentage point difference in sample means of initial and final bid premium values has been observed, which indicates that on average bid premium has only been revised upwards by only 1 percentage point.

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max	(6) skew	(7) kur	(8) sum	(9) p50
Panel A: Initial Bid Premiums									
Bid Premiums	245	0.332	0.405	-0.910	1.443	0.217	4.342	81.38	0.294
Estimated Bid Premiums	241	0.380	0.215	-0.330	1.377	0.956	6.336	91.67	0.359
Abnormal Bid Premium	241	-0.0497	0.320	-1.524	1.272	0.400	7.077	-11.98	-0.0566
Panel A: Final Bid Premiums									
Bid Premiums	245	0.342	0.405	-0.910	1.443	0.164	4.319	83.75	0.311
Estimated Bid Premiums	241	0.386	0.216	-0.316	1.378	0.948	6.234	93.10	0.366
Abnormal Bid Premium	241	-0.0458	0.322	-1.532	1.274	0.340	6.974	-11.04	-0.0490

For further discussion on the built-up of computed abnormal returns for both target and bidder please refer to section 3.2. The table 3-4 presents the target subsample mean for computed daily abnormal returns from 42 days before the merger announcement to 5 days after the announcement. Similarly, built-up of bidder CAR is presented in table 3-5.

5.6 Empirical Results

In this section, I present the empirical results for regression model in 16 separate tables. The regression results have been summarized for target CAR with final Abnormal Bid Premium (ABP) in tables 5-6 to 5-9, target CAR with initial ABP in tables 5-10 to 5-13, bidder CAR with final ABP in tables 5-14 to 5-17 and bidder CAR with initial ABP in tables 5-18 to 5-21. Each table includes 5 models; the first model includes the linear variables and CEO total wealth. The second model includes the quadratic term of CEO personal characteristics and CEO equity percentage. The third model is specified with CEO wealth deconstructed into the log of remuneration, options, and equity value. The bidder second and third models include the entrenchment proxy. The last two models include interaction terms with abnormal bid premium, and the above sample median dummy variables. These models for bidder and target are also best fit models, as indicated by relatively higher R-squared values and statistically significant p-values for the F-test of overall model significance, which are reported in the tables' last two rows, respectively.

5.6.1 Target Regression Results

It is apparent from the regression results indicated in tables 5-6 to 5-13 with target CAR as the dependent variable and our variable of interest, abnormal bid premium, that overall, both the computed initial and final abnormal bid premium have a statistically significant positive relationship. Hence, the results regarding final and initial ABP suggest that the respective null hypothesis 1a and 1b can be rejected. The final abnormal bid premium regression coefficients illustrated in tables 5-6 to 5-9 have relatively higher yet similar levels to the initial abnormal bid premium coefficients found in tables 5-10 thru 5-13, when coefficients are compared with target CAR of similar event window duration. The differences in the initial and final abnormal bid premium for target regressions are minimal due to a low number of upward bid revisions in our

sample of completed or unconditional status deals. A minor upward bid revision in our sample has corroborated evidence in studies like Jennings and Mazzeo (1993) and Eckbo (2009), where high initial bid premium has ensured successful bid completion.

Table 5-6 Represents Target CAR (-42, 0) days as dependent variable regression results with Target final abnormal bid premium and governance variables.

*Robust standard errors in parentheses have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) TargetCAR0	(2) TargetCAR0	(3) TargetCAR0	(4) TargetCAR0	(5) TargetCAR0
Final Abnormal Bid Premium	0.523***	0.534***	0.512***	0.442***	0.281
	(0.136)	(0.129)	(0.137)	(0.152)	(0.192)
Final Abnormal Bid Pr Squared		-0.0707			
		(0.269)			
Tender Offer	0.0751	0.0837	0.0614	0.0717	0.0716
	(0.0662)	(0.0702)	(0.0646)	(0.0637)	(0.0626)
All Cash offer = 1	0.121***		0.126***	0.128***	0.126***
	(0.0375)		(0.0363)	(0.0376)	(0.0375)
Stock Offer % in Payment Mix		-0.0012***			
		(0.0004)			
No Toehold Dummy	-0.0258			-0.0420	-0.0366
	(0.0578)			(0.0538)	(0.0504)
Toehold %		0.00352	0.00381		
		(0.003)	(0.0031)		
Board Independent Director %		0.000			
		(0.00127)			
Independent Dir Equity %	0.00225	0.00250			
	(0.003)	(0.003)			
Total Board Equity / Total Shares			0.0554		
			(0.119)		
Independent Chairman =1	0.0241		0.0280		
	(0.0455)		(0.0372)		
Blockholder herfindal index	0.000				
	(0.000)				
Count of Blockholder >= 5%		-0.00723			
		(0.0123)			
Count of Blockholder >= 20%			-0.0406		
			(0.0333)		
CEO Age	0.00332	0.0174			
	(0.00269)	(0.0281)			
CEO Age Squared		-0.00015			
		(0.0003)			
CEO Tenure	-0.000557		-0.00140	0.000429	0.000425
	(0.00271)		(0.00267)	(0.00267)	(0.00274)

VARIABLES	(1) TargetCAR0	(2) TargetCAR0	(3) TargetCAR0	(4) TargetCAR0	(5) TargetCAR0
CEO Equity %		-0.00368		-0.00328	-0.00211
		(0.00517)		(0.00498)	(0.00494)
CEO Equity % Squared		0.000102		0.0000953	0.0000895
		(0.000)		(0.000)	(0.000)
Log CEO Total Wealth	0.00969				
	(0.016)				
Log CEO Equity Value			0.00164		
			(0.004)		
Log CEO Options held value			0.00432		
			(0.003)		
Log CEO Compensation			0.0125		
			(0.0231)		
CM CEO Duality of Role = 1	-0.0343			-0.0353	-0.0375
	(0.0639)			(0.0484)	(0.0493)
CEO Comp > median = 1					0.0904**
					(0.0383)
CEO Comp > median * Final Ab Bid Pr					0.276
					(0.255)
Block holder % > median = 1				0.00359	0.0221
				(0.0415)	(0.0390)
Block holder % > median = 1 * Final Ab Bid Pr				0.152	0.186
				(0.282)	(0.252)
Constant	-0.184	-0.277	-0.113	0.129	0.0736
	(0.349)	(0.717)	(0.303)	(0.105)	(0.108)
Observations	230	230	230	230	230
Adjusted R-squared	0.255	0.248	0.264	0.253	0.276
R-squared	0.323	0.320	0.332	0.319	0.346
Prob > F	0.000	0.000	0.000	0.000	0.000

Table 5-7 Represents Target CAR (-42, +2) days as dependent variable regression results with Target final abnormal bid premium and governance variables.

*Robust standard errors in parentheses have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) TargetCAR2	(2) TargetCAR2	(3) TargetCAR2	(4) TargetCAR2	(5) TargetCAR2
Final Abnormal Bid Premium	0.530***	0.547***	0.516***	0.439***	0.274
	(0.140)	(0.132)	(0.142)	(0.156)	(0.195)
Final Abnormal Bid Pr Squared		-0.0945			
		(0.274)			
Tender Offer	0.0800	0.0891	0.0688	0.0767	0.0773
	(0.0685)	(0.0718)	(0.0675)	(0.0662)	(0.0652)
All Cash offer = 1	0.121***		0.126***	0.129***	0.128***
	(0.0382)		(0.0370)	(0.0385)	(0.0382)
Stock Offer % in Payment Mix		-0.00130***			
		(0.000442)			
No Toehold Dummy	-0.0186			-0.0375	-0.0329
	(0.0612)			(0.0562)	(0.0534)
Toehold %		0.00367	0.00414		
		(0.00294)	(0.00321)		
Board Independent Director %		0.000			
		(0.00134)			
Indpendent Dir Equity %	0.00260	0.00283			
	(0.00319)	(0.00331)			
Total Board Equity / TotalShares			0.0172		
			(0.114)		
Independent Chairman =1	0.0267		0.0283		
	(0.0459)		(0.0374)		
Blockholder herfindal index	0.000				
	(0.0000)				
Count of Blockholder >= 5%		-0.0118			
		(0.0122)			
Count of Blockholder >= 20%			-0.0509		
			(0.0339)		
CEO Age	0.00438	0.0199			
	(0.00275)	(0.0294)			
CEO Age Squared		-0.000163			
		(0.000294)			
CEO Tenure	-0.000493		-0.00111	0.000798	0.000727
	(0.00267)		(0.00257)	(0.00271)	(0.00270)
CEO Equity %		-0.00440		-0.00457	-0.00325
		(0.00527)		(0.00508)	(0.00502)
CEO Equity % Squared		0.000104		0.000103	0.0000959

VARIABLES	(1) TargetCAR2	(2) TargetCAR2	(3) TargetCAR2	(4) TargetCAR2	(5) TargetCAR2
		(0.000101)		(0.0001)	(0.0001)
Log CEO Total Wealth	0.00980				
	(0.0156)				
Log CEO Equity Value			0.00216		
			(0.00423)		
Log CEO Options held value			0.00408		
			(0.00307)		
Log CEO Compensation			0.0212		
			(0.0233)		
CM CEO Duality of Role = 1	-0.0316			-0.0220	-0.0243
	(0.0626)			(0.0484)	(0.0480)
CEO Comp > median = 1					0.101**
					(0.0388)
CEO Comp > median * Final Ab Bid Pr					0.279
					(0.265)
Block holder % > median = 1				-0.00301	0.0169
				(0.0416)	(0.0391)
Block holder % > median = 1 * Final Ab Bid Pr				0.175	0.212
				(0.291)	(0.261)
Constant	-0.259	-0.351	-0.244	0.111	0.0492
	(0.352)	(0.744)	(0.308)	(0.112)	(0.115)
Observations	230	230	230	230	230
Adjusted R-squared	0.261	0.262	0.270	0.256	0.282
R-squared	0.329	0.333	0.337	0.321	0.351
Prob > F	0.000	0.000	0.000	0.000	0.000

Table 5-8 Represents Target CAR (-42, +5) days as dependent variable regression results with Target final abnormal bid premium and governance variables.

*Robust standard errors in parentheses have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) TargetCAR5	(2) TargetCAR5	(3) TargetCAR5	(4) TargetCAR5	(5) TargetCAR5
Final Abnormal Bid Premium	0.542***	0.564***	0.529***	0.428***	0.247
	(0.140)	(0.133)	(0.142)	(0.154)	(0.190)
Final Abnormal Bid Pr Squared		-0.0736			
		(0.277)			
Tender Offer	0.0924	0.0994	0.0819	0.0873	0.0881
	(0.0686)	(0.0721)	(0.0680)	(0.0660)	(0.0653)
All Cash offer = 1	0.123***		0.129***	0.131***	0.129***
	(0.0380)		(0.0369)	(0.0383)	(0.0379)
Stock Offer % in Payment Mix		-0.0014***			
		(0.000)			
No Toehold Dummy	-0.0263			-0.0437	-0.0388
	(0.0615)			(0.0551)	(0.0522)
Toehold %		0.00371	0.00439		
		(0.00284)	(0.00320)		
Board Independent Director %		0.000			
		(0.00136)			
Independent Dir Equity %	0.00171	0.00217			
	(0.00313)	(0.00322)			
Total Board Equity / Total Shares			-0.0144		
			(0.113)		
Independent Chairman =1	0.0129		0.0175		
	(0.0463)		(0.0379)		
Block-holder herfindal index	0.000				
	(0.0000)				
Count of Block-holder >= 5%		-0.0119			
		(0.0124)			
Count of Block-holder >= 20%			-0.0542		
			(0.0347)		
CEO Age	0.00448	0.0191			
	(0.00273)	(0.0296)			
CEO Age Squared		-0.000155			
		(0.000296)			
CEO Tenure	-0.000946		-0.00150	0.000600	0.000511
	(0.00276)		(0.00277)	(0.00278)	(0.00281)
CEO Equity %		-0.00368		-0.00398	-0.00252
		(0.00530)		(0.00517)	(0.00510)
CEO Equity % Squared		0.0000749		0.0000757	0.000068
		(0.0001)		(0.0001)	(0.0001)

VARIABLES	(1) TargetCAR5	(2) TargetCAR5	(3) TargetCAR5	(4) TargetCAR5	(5) TargetCAR5
Log CEO Total Wealth	0.0121				
	(0.0156)				
Log CEO Equity Value			0.00281		
			(0.00426)		
Log CEO Options held value			0.00355		
			(0.00311)		
Log CEO Compensation			0.0270		
			(0.0232)		
CM CEO Duality of Role = 1	-0.0420			-0.0203	-0.0228
	(0.0631)			(0.0504)	(0.0496)
CEO Comp > median = 1					0.112***
					(0.0392)
CEO Comp > median * Final Ab Bid Pr					0.305
					(0.260)
Block holder % > median = 1				-0.00353	0.0185
				(0.0418)	(0.0391)
Block holder % > median = 1 * Final Ab Bid Pr				0.225	0.266
				(0.291)	(0.257)
Constant	-0.272	-0.326	-0.309	0.117	0.0487
	(0.352)	(0.753)	(0.313)	(0.112)	(0.117)
Observations	230	230	230	230	230
Adjusted R-squared	0.271	0.270	0.280	0.269	0.301
R-squared	0.338	0.340	0.346	0.333	0.368
Prob > F	0.000	0.000	0.000	0.000	0.000

Table 5-9 Represents Target CAR (-42, Merger Completion) days as dependent variable regression results with Target final abnormal bid premium and governance variables.

*Robust standard errors in parentheses have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) Target CAR Comp	(2) Target CAR Comp	(3) Target CAR Comp	(4) Target CAR Comp	(5) Target CAR Comp
Final Abnormal Bid Premium	0.799***	0.798***	0.784***	0.456**	0.0184
	(0.201)	(0.197)	(0.201)	(0.215)	(0.238)
Final Abnormal Bid Pr Squared		-0.133			
		(0.405)			
Tender Offer	-0.0604	-0.0605	-0.0557	-0.0595	-0.0693
	(0.104)	(0.106)	(0.106)	(0.0970)	(0.0947)
All Cash offer = 1	0.122*		0.122*	0.134**	0.117*
	(0.0649)		(0.0638)	(0.0650)	(0.0660)
Stock Offer % in Payment Mix		-0.0013*			
		(0.001)			
No Toehold Dummy	-0.0301			-0.0634	-0.0369
	(0.0942)			(0.0804)	(0.0767)
Toehold %		0.004	0.004		
		(0.004)	(0.005)		
Board Independent Director %		0.000			
		(0.003)			
Independent Dir Equity %	-0.00199	-0.00176			
	(0.00569)	(0.006)			
Total Board Equity / Total Shares			-0.130		
			(0.230)		
Independent Chairman =1	0.0391		0.0282		
	(0.0821)		(0.0611)		
Block-holder herfindal index	0.000				
	(0.000)				
Count of Block-holder >= 5%		-0.00596			
		(0.0198)			
Count of Block-holder >= 20%			-0.0740		
			(0.0551)		
CEO Age	0.00445	-0.0275			
	(0.00503)	(0.0518)			
CEO Age Squared		0.000313			
		(0.001)			
CEO Tenure	-0.00527		-0.00505	-0.00497	-0.00432
	(0.004)		(0.004)	(0.004)	(0.004)
CEO Equity %		-0.0117		-0.0128*	-0.0113
		(0.00756)		(0.00749)	(0.00715)
CEO Equity % Squared		0.000252*		0.000268*	0.000269*

VARIABLES	(1) Target CAR Comp	(2) Target CAR Comp	(3) Target CAR Comp	(4) Target CAR Comp	(5) Target CAR Comp
		(0.000)		(0.000)	(0.000)
Log CEO Total Wealth	-0.0114				
	(0.024)				
Log CEO Equity Value			0.000643		
			(0.00771)		
Log CEO Options held value			0.000112		
			(0.00501)		
Log CEO Compensation			0.0281		
			(0.0407)		
CM CEO Duality of Role = 1	0.0208			0.0314	0.0274
	(0.115)			(0.0802)	(0.080)
CEO Comp > median = 1					0.138**
					(0.0639)
CEO Comp > median * Final Ab Bid Pr					0.796**
					(0.328)
Block holder % > median = 1				0.00561	0.0421
				(0.0588)	(0.0559)
Block holder % > median = 1 * Final Ab Bid Pr				0.609	0.678**
				(0.413)	(0.332)
Constant	0.286	1.007	-0.0496	0.338*	0.263
	(0.564)	(1.371)	(0.554)	(0.177)	(0.189)
Observations	226	226	226	226	226
Adjusted R-squared	0.187	0.187	0.187	0.221	0.280
R-squared	0.263	0.266	0.263	0.290	0.350
Prob > F	0.000	0.000	0.000	0.000	0.000

Overall, a positive and statistically significant relationship has corroborated the results of Ang and Ismail (2015). The relationship indicates that a one percentage point increase in target initial abnormal premium increases target CAR by almost 0.4 to 0.7 percentage points, which is relatively higher but near the 0.25 to 0.4 percentage point range indicated in the results of Ang and Ismail (2015). The regression result for the final abnormal bid premium indicates that a one percentage point increase increases target CAR by 0.4 to 0.8 percentage point. The final abnormal bid premium has a sample standard deviation of 0.32, therefore, according to the coefficients, a one

standard deviation change in abnormal bid premium leads to an almost 12.8 to 25.6 percentage point increase in target CAR.

Hence, the relationship between target CAR and abnormal bid premium is positive, and both economically and statistically significant throughout, regardless of our target regression model specification or the duration of our event window. In other words, for target CAR, abnormal bid premiums are significant even after controlling for other control variable signals. Therefore, abnormal bid premium as a signal seems to be robust relative to other signals, as the results are independent of the control variables utilized in the models. Hence, target CAR regression results provide support for our hypothesis that target shareholders approve of a higher abnormal bid premium. The quadratic term variable of initial and final bid premiums in the results of model 2 in all of the target CAR tables 5-6 thru 5-13 has a statistically insignificant negative relationship, which provides only weak support for our hypothesis that target shareholders may have been apprehensive about merger deals collapsing when the abnormal bid premium is higher. Although the regression results indicate the presence of a statistically insignificant weak curvilinear relationship, a strong positive statistically significant coefficient indicates a linear relationship. Hence, target CAR regression results suggest that abnormal bid premium is considered by target shareholders as a strong positive signal regarding the quality of the bid.

The results for choice of payment indicate a positive statistically significant relationship with the all-cash payment dummy variable, increasing target CAR by more than 12 percentage points, which is also economically significant. Hence, null hypothesis 2a regarding target CAR and all-cash offer, can be rejected. Similarly, the stock offer percentage in the payment mix has a statistically significant negative relationship with target CAR, which suggests that null hypothesis 2b regarding target CAR and stock offer in payment mix, can also be rejected. A one standard

deviation change in the stock offer leads to a 5.34 percentage point change in target abnormal bid premium. In comparing the final abnormal bid premium tables 5-6 through 5-9, with the initial bid premium tables 5-10 to 5-13, it can be seen that the coefficients for payment mix are relatively higher for overall initial abnormal bid models for similar levels of target CAR event windows. In other words, target shareholder reaction has been relatively higher and more positive for initial cash offers as compared to final cash offers. Hence, our results corroborate evidence provided by studies like Fishman (1989) and Malmendier et al. (2016), which indicated an all-cash offer as a high valuation signal by the bidder, especially in the case of an initial offer. On the other hand, a statistically significant negative target shareholder reaction to stock in the payment mix indicates that target shareholders prefer not to share risk with bidder shareholders in the event of a merger, and hence prefer an all-cash offer.

The tender offer relationship with target CAR is positive and statistically insignificant for zero, two, and five-day event windows. The relationship is positive for final bid premiums in tables 5-6 to 5-8 and for initial bid premium in tables 5-10 to 5-12, as tender offers have led to 6 to 8 percentage point increments in target CAR, which is economically significant. However, the relationship becomes negative and highly statistically insignificant in tables 5-9 and 5-13 for final and initial bid premiums, respectively. Hence, null hypotheses 3H for target CAR and tender offer cannot be rejected. Although relationship indicated for tender offer is statistically insignificant, a positive coefficient nonetheless provides support for studies like Huang and Walkling (1987) and Khatami et al. (2015), as target shareholders perceive a positive signal for demand urgency from bidder management as suggested by Offenberg and Pirinsky (2015). Similarly, our results in tables 6-6 to 6-13 show a positive but statistically insignificant relationship in the presence of toeholds, hence, null hypothesis 4 of target CAR and toehold cannot be rejected. Nonetheless, a positive

albeit statistically insignificant coefficient indicates, target shareholders view the presence of toeholds as reducing information asymmetry, and therefore conducive to a successful bid. Similarly, result of no-toehold variable indicates a similar statistically insignificant result. The presence of no-toehold by bidders in the target organization reduces target CAR by almost 3 to 6 percentage points, and the no-toehold dummy coefficients are similar for initial and final abnormal bid premium regression results in tables 5-6 to 5-13.

Table 5-10 Represents Target CAR (-42, 0) days as dependent variable regression results with Target initial abnormal bid premium and governance variables.

*Robust standard errors in parentheses have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) TargetCAR0	(2) TargetCAR0	(3) TargetCAR0	(4) TargetCAR0	(5) TargetCAR0
Initial Abnormal Bid Premium	0.525***	0.540***	0.512***	0.432***	0.263
	(0.137)	(0.130)	(0.138)	(0.152)	(0.194)
Initial Abnormal Bid Pr Squared		-0.0738			
		(0.270)			
Tender Offer	0.0712	0.0785	0.0563	0.0665	0.0683
	(0.0658)	(0.0701)	(0.0642)	(0.0633)	(0.0620)
CASH	0.123***		0.128***	0.129***	0.126***
	(0.0373)		(0.0361)	(0.0374)	(0.0374)
Stock Offer % in Payment Mix		-0.001***			
		(0.000)			
No Toehold Dummy	-0.0311			-0.0456	-0.0371
	(0.0576)			(0.0527)	(0.0497)
Toehold %		0.00347	0.00380		
		(0.00276)	(0.00312)		
Board Independent Director %		0.000			
		(0.00128)			
Independent Dir Equity %	0.00217	0.00246			
	(0.00314)	(0.00325)			
Total Board Equity/ Total Shares			0.0325		
			(0.121)		
Independent Chairman =1	0.0136		0.0195		
	(0.0460)		(0.0381)		
Block-holder herfindal index	0.000				
	(0.000)				
Count of Block-holder >= 5%		-0.00787			
		(0.0123)			
Count of Block-holder >= 20%			-0.0444		

VARIABLES	(1) TargetCAR0	(2) TargetCAR0	(3) TargetCAR0	(4) TargetCAR0	(5) TargetCAR0
			(0.0335)		
CEO Age	0.00363	0.0176			
	(0.00266)	(0.0280)			
CEO Age Squared		-0.000147			
		(0.000280)			
CEO Tenure	-0.000642		-0.00158	0.000409	0.000507
	(0.00270)		(0.00266)	(0.00269)	(0.00276)
CEO Equity %		-0.00386		-0.00369	-0.00252
		(0.00520)		(0.00502)	(0.00498)
CEO Equity % Squared		0.000		0.000	0.000
		(0.000)		(0.000)	(0.000)
Log CEO Total Wealth	0.00947				
	(0.0156)				
Log CEO Equity Value			0.00197		
			(0.00410)		
Log CEO Options held value			0.00461		
			(0.00297)		
Log CEO Compensation			0.00892		
			(0.0231)		
CM CEO Duality of Role = 1	-0.0399			-0.0316	-0.0324
	(0.0646)			(0.0508)	(0.0520)
CEO Comp > median = 1					0.0905**
					(0.0391)
CEO Comp > median *Initial Ab Bid Pr					0.283
					(0.255)
Block-holder % > median = 1				0.00486	0.0246
				(0.0418)	(0.0389)
Block-holder % > median = 1 * Initial Ab Bid Pr				0.173	0.212
				(0.281)	(0.248)
Constant	-0.183	-0.284	-0.0648	0.132	0.0701
	(0.349)	(0.718)	(0.306)	(0.105)	(0.109)
Observations	230	230	230	230	230
Adjusted R-squared	0.254	0.248	0.264	0.254	0.277
R-squared	0.323	0.321	0.332	0.319	0.347
Prob > F	0.000	0.000	0.000	0.000	0.000

Table 5-11 Represents Target CAR (-42, +2) days as dependent variable regression results with Target initial abnormal bid premium and governance variables.

*Robust standard errors in parentheses have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) TargetCAR2	(2) TargetCAR2	(3) TargetCAR2	(4) TargetCAR2	(5) TargetCAR2
Initial Abnormal Bid Premium	0.531***	0.554***	0.517***	0.430***	0.256
	(0.141)	(0.133)	(0.142)	(0.155)	(0.197)
Initial Abnormal Bid Pr Squared		-0.0980			
		(0.275)			
Tender Offer	0.0760	0.0837	0.0636	0.0714	0.0739
	(0.0681)	(0.0716)	(0.0672)	(0.0657)	(0.0646)
CASH	0.123***		0.129***	0.131***	0.129***
	(0.0380)		(0.0368)	(0.0383)	(0.0381)
Stock Offer % in Payment Mix		-0.0013***			
		(0.000)			
No Toehold Dummy	-0.0239			-0.0412	-0.0333
	(0.0608)			(0.0550)	(0.0528)
Toehold %		0.00362	0.00413		
		(0.00295)	(0.00322)		
Board Independent Director %		0.000			
		(0.00134)			
Independent Dir Equity %	0.00252	0.00277			
	(0.00321)	(0.00335)			
Total Board Equity/ Total Shares			-0.00581		
			(0.116)		
Independent Chairman =1	0.0161		0.0197		
	(0.0465)		(0.0383)		
Block-holder herfindal index	0.000				
	(0.0000)				
Count of Block-holder >= 5%		-0.0125			
		(0.0121)			
Count of Block-holder >= 20%			-0.0547		
			(0.0341)		
CEO Age	0.00470*	0.0201			
	(0.00271)	(0.0292)			
CEO Age Squared		-0.000163			
		(0.000292)			
CEO Tenure	-0.000578		-0.00129	0.000772	0.000806
	(0.00267)		(0.00256)	(0.00273)	(0.00274)
CEO Equity %		-0.00458		-0.00499	-0.00367
		(0.00530)		(0.00512)	(0.00506)
CEO Equity % Squared		0.000		0.000	0.000
		(0.000)		(0.000)	(0.000)

VARIABLES	(1) TargetCAR2	(2) TargetCAR2	(3) TargetCAR2	(4) TargetCAR2	(5) TargetCAR2
Log CEO Total Wealth	0.00957				
	(0.0156)				
Log CEO Equity Value			0.00249		
			(0.00423)		
Log CEO Options held value			0.00438		
			(0.00304)		
Log CEO Compensation			0.0176		
			(0.0233)		
CM CEO Duality of Role = 1	-0.0373			-0.0183	-0.0193
	(0.0634)			(0.0508)	(0.0506)
CEO Comp > median = 1					0.101**
					(0.0397)
CEO Comp > median * Initial Ab Bid Pr					0.286
					(0.266)
Block-holder % > median = 1				-0.00170	0.0195
				(0.0420)	(0.0390)
Block-holder % > median = 1 * Initial Ab Bid Pr				0.196	0.238
				(0.290)	(0.257)
Constant	-0.259	-0.358	-0.195	0.114	0.0457
	(0.352)	(0.744)	(0.311)	(0.111)	(0.116)
Observations	230	230	230	230	230
Adjusted R-squared	0.261	0.264	0.271	0.257	0.283
R-squared	0.329	0.335	0.338	0.322	0.352
Prob > F	0.000	0.000	0.000	0.000	0.000

Table 5-12 Represents Target CAR (-42, +5) days as dependent variable regression results with Target initial abnormal bid premium and governance variables.

*Robust standard errors in parentheses have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) TargetCAR5	(2) TargetCAR5	(3) TargetCAR5	(4) TargetCAR5	(5) TargetCAR5
Initial Abnormal Bid Premium	0.538***	0.566***	0.524***	0.417***	0.228
	(0.141)	(0.133)	(0.142)	(0.153)	(0.192)
Initial Abnormal Bid Pr Squared		-0.0750			
		(0.276)			
Tender Offer	0.0887	0.0941	0.0769	0.0821	0.0850
	(0.0687)	(0.0724)	(0.0682)	(0.0662)	(0.0653)
CASH	0.124***		0.131***	0.132***	0.130***
	(0.0380)		(0.0368)	(0.0384)	(0.0381)
Stock Offer % in Payment Mix		-0.0014***			
		(0.000)			
No Toehold Dummy	-0.0318			-0.0469	-0.0386
	(0.0610)			(0.0539)	(0.0516)
Toehold %		0.00363	0.00437		
		(0.00285)	(0.00320)		
Board Independent Director %		0.000			
		(0.00137)			
Independent Dir Equity %	0.00165	0.00216			
	(0.00315)	(0.00328)			
Total Board Equity/ Total Shares			-0.0376		
			(0.116)		
Independent Chairman =1	0.00164		0.00839		
	(0.0470)		(0.0390)		
Block-holder herfindal index	0.000				
	(0.0000)				
Count of Block-holder >= 5%		-0.0125			
		(0.0123)			
Count of Block-holder >= 20%			-0.0582*		
			(0.0350)		
CEO Age	0.00481*	0.0193			
	(0.00271)	(0.0295)			
CEO Age Squared		-0.000155			
		(0.000294)			
CEO Tenure	-0.00104		-0.00171	0.000561	0.000578
	(0.00275)		(0.00277)	(0.00279)	(0.00282)
CEO Equity %		-0.00387		-0.00441	-0.00294
		(0.00534)		(0.00521)	(0.00514)
CEO Equity % Squared		0.000		0.000	0.000
		(0.000)		(0.000)	(0.000)

VARIABLES	(1) TargetCAR5	(2) TargetCAR5	(3) TargetCAR5	(4) TargetCAR5	(5) TargetCAR5
Log CEO Total Wealth	0.0120				
	(0.0157)				
Log CEO Equity Value			0.00318		
			(0.00428)		
Log CEO Options held value			0.00387		
			(0.00307)		
Log CEO Compensation			0.0234		
			(0.0237)		
CM CEO Duality of Role = 1	-0.0484			-0.0170	-0.0181
	(0.0642)			(0.0529)	(0.0524)
CEO Comp > median = 1					0.112***
					(0.0404)
CEO Comp > median * Initial Ab Bid Pr					0.310
					(0.260)
Block holder % > median = 1				-0.00193	0.0213
				(0.0423)	(0.0392)
Block holder % > median = 1 * Initial Ab Bid Pr				0.240	0.286
				(0.290)	(0.253)
Constant	-0.274	-0.334	-0.260	0.120	0.0444
	(0.352)	(0.755)	(0.323)	(0.112)	(0.117)
Observations	230	230	230	230	230
Adjusted R-squared	0.266	0.266	0.276	0.265	0.297
R-squared	0.334	0.337	0.342	0.329	0.364
Prob > F	0.000	0.000	0.000	0.000	0.000

Table 5-13 Represents Target CAR (-42, Merger Completion) days as dependent variable regression results with Target initial abnormal bid premium and governance variables.

*Robust standard errors in parentheses have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) Target CAR Comp	(2) Target CAR Comp	(3) Target CAR Comp	(4) Target CAR Comp	(5) Target CAR Comp
Initial Abnormal Bid Premium	0.772***	0.778***	0.754***	0.414**	-0.0442
	(0.200)	(0.199)	(0.200)	(0.210)	(0.234)
Initial Abnormal Bid Pr Squared		-0.131			
		(0.399)			
Tender Offer	-0.0638	-0.0668	-0.0617	-0.0653	-0.0695
	(0.106)	(0.108)	(0.109)	(0.0997)	(0.0961)
CASH	0.121*		0.123*	0.133**	0.115*
	(0.0660)		(0.0649)	(0.0658)	(0.0668)
Stock Offer % in Payment Mix		-0.0013*			
		(0.001)			
No Toehold Dummy	-0.0379			-0.0659	-0.0312
	(0.0941)			(0.0795)	(0.0762)
Toehold %		0.00355	0.00424		
		(0.00415)	(0.00512)		
Board Independent Director %		0.000			
		(0.00310)			
Independent Dir Equity %	-0.00196	-0.00160			
	(0.00565)	(0.00560)			
Total Board Equity/ Total Shares			-0.165		
			(0.235)		
Independent Chairman =1	0.0201		0.0130		
	(0.0837)		(0.0631)		
Block-holder herfindal index	0.000				
	(0.0000)				
Count of Blockholder >= 5%		-0.00633			
		(0.0198)			
Count of Blockholder >= 20%			-0.0804		
			(0.0556)		
CEO Age	0.00497	-0.0272			
	(0.00504)	(0.0519)			
CEO Age Squared		0.000314			
		(0.000503)			
CEO Tenure	-0.00548		-0.00548	-0.00512	-0.00420
	(0.00431)		(0.00427)	(0.00462)	(0.00448)
CEO Equity %		-0.0120		-0.0134*	-0.0118
		(0.00763)		(0.00755)	(0.00720)
CEO Equity % Squared		0.000253*		0.000276*	0.000274**

VARIABLES	(1) Target CAR Comp	(2) Target CAR Comp (0.000)	(3) Target CAR Comp	(4) Target CAR Comp (0.000)	(5) Target CAR Comp (0.000)
Log CEO Total Wealth	-0.0111				
	(0.0236)				
Log CEO Equity Value			0.00135		
			(0.00782)		
Log CEO Options held value			0.000690		
			(0.00500)		
Log CEO Compensation			0.0224		
			(0.0428)		
CM CEO Duality of Role = 1	0.00826			0.0319	0.0321
	(0.118)			(0.0840)	(0.0852)
CEO Comp > median = 1					0.141**
					(0.0652)
CEO Comp > median * Initial Ab Bid Pr					0.811**
					(0.327)
Block holder % > median = 1				0.0108	0.0505
				(0.0595)	(0.0556)
Block holder % > median = 1 * Initial Ab Bid Pr				0.637	0.720**
				(0.408)	(0.324)
Constant	0.274	0.992	0.0236	0.338*	0.242
	(0.566)	(1.376)	(0.586)	(0.179)	(0.190)
Observations	226	226	226	226	226
Adjusted R-squared	0.171	0.172	0.172	0.208	0.269
R-squared	0.249	0.253	0.250	0.279	0.340
Prob > F	0.000	0.001	0.000	0.000	0.000

Hence, results support studies like Franks and Harris (1989) and Betton and Eckbo (2000). Therefore, based on the regression results for bid characteristic variables, I conclude that target shareholders view and react to ‘abnormal bid premium’ and ‘mode of payment’ as strong signals regarding the quality of the bid offered in a merger event.

The regression results for target CAR and board independence parameters indicate statistically insignificant relationships. There is a positive target shareholder reaction for 0, 2, and 5-day event windows with board independence variables like percentage of independent directors in the board,

independent director equity ownership, and independent chairman. Similarly, there is a statistically insignificant negative reaction to the duality of the chairperson/CEO role dummy variable. The regression results for final bid premium in tables 5-6 to 5-8 indicate that a one standard deviation change in independent NED level leads to only an approximately one percentage point increase in target CAR, and initial bid premium in tables 5-10 to 5-12 also show a similar level of statistical and economic insignificance. The results for the same tables indicate that the presence of an independent chairperson increases target CAR by 2 to 3 percentage points, and dual role positions in target boards decrease target CAR by 2 to 4 percentage points.

The total board equity ratio has a statistically insignificant negative relationship in target CAR regression model 3, except for tables 5-6, 5-7, and 5-10. Hence, statistically insignificant results indicate that null hypothesis 5 for target CAR cannot be rejected. The relationship indicates that a one standard deviation change in total board equity level leads to a maximum 2.5 percentage points reduction in target abnormal bid premium, which is also economically insignificant. Nonetheless, a negative relationship suggests that target shareholders may perceive board equity level as an impediment to successful bid completion, according to studies like Fama and Jensen (1983b) and Stulz (1988).

However, a statistically and economically insignificant relationship provides support to Cosh et al. (2006), as no significant relationship was found between market reaction and board equity levels for either target or bidder. Therefore, based on regression results related to board independence parameters, the results suggest that although target shareholders perceive stronger independent boards as conducive for successful mergers, the association is not statistically or economically significant. Similarly, we found no evidence to suggest that an independent board may not effectively bargain for a higher abnormal bid premium, as I did not observe any significant

negative relationship with board independence parameters. An outside director according to Harford (2003) may have also not resisted an offer, as directors who have rejected offers have lower chances of ex-post settling. However, Cotter et al. (1997) suggested a strong positive relationship between board independence and the level of bid premium, but I found no clear statistically significant relationship to suggest that target shareholders connect a strong independent board with abnormal bid premium.

Target shareholder reaction to the presence of large external block-holders is generally negative for initial and final bid premium regressions. The relationship is negative and borderline statistically significant in model 3 of table 5-12 for the number of block-holders that each hold an equity block greater than 20 percentage points. However, further interaction of the greater than sample median dummy for external equity percentage held by target block-holders with abnormal bid premium indicates a statistically significant positive relationship with the target CAR event window computed until completion, as seen in model 5 of tables 5-9 and 5-13. Target shareholders react positively to a higher abnormal bid premium in the presence of above sample median target block-holders. A one standard deviation change in abnormal bid premium in the presence of above median target block-holders leads to a more than 20 percentage point increase in target CAR until merger completion. Hence, in view of statistically significant results regarding target block-holder, null hypothesis 8 related to target can be rejected.

Hence, I found support for studies like Mueller (1969) and Cosh et al. (2006), in which shareholders expect external block-holders to act as external monitors and prevent management welfare related behaviour in mergers, as indicated by the positive interaction variable. However, this relationship may not be linear, as the market may expect the presence of greater external block-holders with more than 20% blocks to extract private benefits by majority shareholders over

minority shareholders in Barclay and Holderness (1989). This may increase the possibility of a deal collapse, as such block-holders may bargain harder for their blocks. Nonetheless, statistically and economically stronger evidence is that external block-holders are viewed by the market positively for their monitoring role, as indicated in the literature reviews in chapters 4 and 5.

Regarding target CEO personal characteristics, CEO age has a borderline statistically significant positive relationship with the target CAR event window (-42, +2) as indicated in model 1 of tables 5-7 and 5-11. Therefore, null hypothesis 11 regarding target CEO age may be rejected. The quadratic variable of CEO age in model 2 indicates a statistically insignificant curvilinear relationship, but the statistically significant linear variable suggests a linear relationship. The linear coefficient indicates that a one standard deviation change in the age of the target CEOs results in a 3.3 percentage point increase in target CAR. These results provide support to Jenter and Lewellen (2015), as they concluded that target CEOs nearing retirement age increase the likelihood of deal completion without sacrificing premium. Hence, target shareholders react positively to older CEOs, as target shareholders anticipate a successful deal.

Models 2, 4, and 5 of tables 5-9 and 5-13 indicate a curvilinear statistically significant relationship of target CAR until completion and CEO level of equity ownership percentage. Hence, target based null hypothesis 9 regarding target CEO equity can be rejected. The coefficients indicate that there is a negative reaction to CEO equity at lower levels; however, target shareholder reaction is positive at higher levels of CEO equity as the deal approaches completion. The non-linear relationship has its turning point at 23.8 percentage points of equity, after which the relationship becomes positive. The presence of a non-linear relationship between board equity and performance has been indicated in studies like Mcconnell and Servaes (1995), Weir et al. (2002) and Cosh et al. (2006). Here, we observe a similar relationship between CEO equity and target CAR, as the

relationship indicates that target shareholders expect interest alignment at higher levels of CEO equity ownership. The results provide support for the conclusions of Buchholtz and Ribbens (1994) that equity-based incentives do align management with shareholders' interests. In other words, target shareholders expect CEOs with higher levels of ownership to negotiate successfully for a better bid premium as compared to CEOs with lower levels of equity participation.

The log of target CEO value of equity, options, and compensation variables in model 3 of tables 5-6 to 5-13 have a statistically insignificant positive relationship with target CAR. Hence, considering results of target CEO options, null hypothesis 7 related to CEO hubris cannot be rejected. The results indicate that all components of target CEO wealth are viewed by target shareholders positively, as they may help align CEO interests with shareholder interests in mergers. Interestingly, I observe a statistically significant positive relationship for CEO compensation when above the sample median is interacted with abnormal bid premium. According to the interaction results in model 5 of tables 9 and 13, the market has reacted more positively to higher abnormal bid premium in relation to that of above median target CEO compensation. In other words, target shareholders regard the above median CEO compensation as an important positive signal in the event of a merger announcement. In this situation, a highly paid CEO may be motivated to protect his/her position of higher compensation in the firm, and hence may have resisted a bid offer more as compared to target CEOs with relatively lower compensation packages. It has been found in prior literature, for example, Bates and Becher (2017), that bid resistance leads to higher premiums paid to target shareholders, as bidder management may increase the bid offer to win target shareholders. Furthermore, it may be increasingly difficult for target management of a publicly listed firm to resist a bid, even out of self-interest, that rejects a high abnormal bid premium, without attracting shareholder scrutiny. According to Cotter and Zenner (1994), the

decision to resist an offer has been established by a change in target managerial wealth. Hence, this stronger resistance proxy has been captured by above median target CEO salary, as shareholders expect such target CEOs to effectively resist and deliver high abnormal bid premiums without risk of deal failure. On the other hand, the market has no interest in those target CEOs with below median CEO compensation.

5.6.2 Bidder Regression Results

Regression results indicated in regression models 1–3 of tables 5-14 to 5-21 show a statistically insignificant relationship with bidder CAR as the dependent variable and our variable of interest, final abnormal bid premium. The best fit models 4 and 5 for bidder have higher R-squared and statistically significant coefficients as indicated by p-values. In model 4 of tables 5-17 and 5-21, bidder CAR until completed merger has a statistically significant negative relationship with both initial and final abnormal bid premium. Hence, the result for model 4 in tables 5-17 and 5-21 suggests that null hypothesis 1a and 1b is rejected, regarding bidder CAR with initial and final abnormal bid premium respectively.

The coefficients indicate that a one standard deviation change in final abnormal bid premium causes an almost 15 percentage point decrease in bidder CAR computed until merger completion. Bidder shareholders react negatively to an increase in abnormal bid premium paid by bidder management. Studies like Jennings and Mazzeo (1993) and Eckbo (2009) suggest, a high bid premium is crucial for successful bid completion by deterring competing bids. However, as seen in our regression results, bidder shareholders are largely concerned with the risk of overpayment by bidder management and react negatively to a high abnormal bid premium offer. A positive reaction to an abnormal bid premium would have indicated that bidder shareholders acknowledge the potential synergies that could be realized by a successful bid.

Hence, bidder shareholders believe that higher abnormal bid premiums are paid because of hubris or empire building rather than for synergistic motives. Furthermore, although the relationship with abnormal bid premium in bidder regressions are not as consistent and statistically strong as those in the target regressions, by reacting to abnormal bid premium, bidder shareholders nonetheless also acknowledge it as a better measure of bid quality.

Table 5-14 Represents Bidder CAR (-42, 0) days as dependent variable regression results with Bidder final abnormal bid premium and governance variables.

*Robust standard errors have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) BidderCAR0	(2) BidderCAR0	(3) BidderCAR0	(4) BidderCAR0	(5) BidderCAR0
Final Abnormal Bid Premium	0.0106	0.00662	0.0131	-0.314	0.00138
	(0.0765)	(0.0840)	(0.0709)	(0.225)	(0.123)
Tender Offer	0.0293	0.0440	0.0412	0.0548	
	(0.0531)	(0.0566)	(0.0519)	(0.0472)	
All Cash offer = 1	-0.0333		-0.00182	-0.0499	-0.0315
	(0.0369)		(0.0369)	(0.0359)	(0.0312)
Stock Offer % in Payment Mix		0.000			
		(0.000480)			
No Toehold Dummy	-0.0347				-0.0650
	(0.0445)				(0.0405)
Toehold %		0.00176	0.00223	0.00329	
		(0.00177)	(0.00176)	(0.00199)	
Board Independent Director %		0.00105			
		(0.00101)			
Ind Dir Equity %	-0.00399	-0.00561			
	(0.00573)	(0.00497)			
Total Board Equity / Total Shares					
Independent Chairman =1	0.0252		0.0268		
	(0.0361)		(0.0341)		
Block-holder herfindal index	0.0000				
	(0.00001)				
Count of Block-holder >= 5%		-0.00485			
		(0.00879)			
Count of Block-holder >= 10%			-0.0256		
			(0.0161)		
CEO Age	0.000859				

VARIABLES	(1) BidderCAR0	(2) BidderCAR0	(3) BidderCAR0	(4) BidderCAR0	(5) BidderCAR0
	(0.00258)				
CEO Tenure	0.00258	0.00853	0.00206	0.00549	0.00496
	(0.00286)	(0.00708)	(0.00285)	(0.00686)	(0.00627)
CEO Tenure Squared		-0.000218		-0.000152	-0.0001
		(0.000277)		(0.000282)	(0.000241)
CEO Equity %		0.00825			
		(0.00672)			
CEO Equity % Squared		-0.000174			
		(0.000148)			
Log CEO Total Wealth	0.0132				
	(0.0132)				
Log CEO Equity Value			0.00416		
			(0.00467)		
Log CEO Options held value			0.00194		
			(0.00275)		
Log CEO Compensation			-0.00904		
			(0.0277)		
CEO Influence				0.000858	
				(0.000571)	
CM CEO Duality of Role = 1	-0.0181				
	(0.0447)				
Entrenchment Proxy =1		-0.0887**	-0.0695*		
		(0.0429)	(0.0420)		
Chairman or CEO Founder =1				0.00475	
				(0.0475)	
CEO Comp > median = 1				0.0757**	0.0578*
				(0.0306)	(0.0323)
CEO Comp > median * Final Ab Bid Pr				0.372**	0.364**
				(0.176)	(0.166)
CEO Option > median = 1					0.0303
					(0.0362)
CEO Option > median * Final Ab Bid Pr					-0.348***
					(0.116)
Block-holder % > median = 1				-0.0306	
				(0.0381)	
Block-holder % > median = 1 * Final Ab Bid Pr				0.142	
				(0.150)	
Constant	-0.194	-0.0734	0.00788	-0.0481	0.0645
	(0.253)	(0.113)	(0.303)	(0.0960)	(0.0778)
Observations	208	208	208	208	208
Adjusted R-squared	0.020	0.031	0.045	0.113	0.156
R-squared	0.129	0.143	0.152	0.215	0.241
Prob > F	0.219	0.162	0.0943	0.0602	0.000

Table 5-15 Represents Bidder CAR (-42, +2) days as dependent variable regression results with Bidder final abnormal bid premium and governance variables.

*Robust standard errors have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) BidderCAR2	(2) BidderCAR2	(3) BidderCAR2	(4) BidderCAR2	(5) BidderCAR2
Final Abnormal Bid Premium	0.0131	0.0132	0.0169	-0.290	0.0159
	(0.0750)	(0.0811)	(0.0690)	(0.212)	(0.122)
Tender Offer	0.0243	0.0412	0.0385	0.0535	
	(0.0516)	(0.0550)	(0.0508)	(0.0466)	
All Cash offer = 1	-0.0137		0.0169	-0.0328	-0.0143
	(0.0369)		(0.0375)	(0.0361)	(0.0322)
Stock Offer % in Payment Mix		0.000			
		(0.000484)			
No Toehold Dummy	-0.0375				-0.0699*
	(0.0445)				(0.0396)
Toehold %		0.00246	0.00290*	0.00380*	
		(0.00177)	(0.00172)	(0.00204)	
Board Independent Director %		0.00150			
		(0.00106)			
Ind Dir Equity %	-0.00478	-0.00681			
	(0.00586)	(0.00519)			
Total Board Equity / Total Shares					
Independent Chairman =1	0.0306		0.0281		
	(0.0359)		(0.0341)		
Block-holder herfindal index	0.0000				
	(0.000)				
Count of Block-holder >= 5%		-0.00484			
		(0.00845)			
Count of Block-holder >= 10%			-0.0275*		
			(0.0163)		
CEO Age	0.000873				
	(0.00253)				
CEO Tenure	0.00214	0.00872	0.00157	0.00527	0.00494
	(0.00297)	(0.00727)	(0.00295)	(0.00709)	(0.00648)
CEO Tenure Squared		-0.000231		-0.000155	-0.000110
		(0.000287)		(0.000290)	(0.000248)
CEO Equity %		0.00739			
		(0.00679)			
CEO Equity % Squared		-0.000157			
		(0.000148)			
Log CEO Total Wealth	0.0152				
	(0.0135)				

VARIABLES	(1) BidderCAR2	(2) BidderCAR2	(3) BidderCAR2	(4) BidderCAR2	(5) BidderCAR2
Log CEO Equity Value			0.00501		
			(0.00452)		
Log CEO Options held value			0.00219		
			(0.00268)		
Log CEO Compensation			-0.00694		
			(0.0268)		
CEO Influence				0.00101*	
				(0.000562)	
CM CEO Duality of Role = 1	-0.00433				
	(0.0467)				
Entrenchment Proxy =1		-0.0891**	-0.0735*		
		(0.0429)	(0.0421)		
Chairman or CEO Founder =1				-0.00601	
				(0.0487)	
CEO Comp > median = 1				0.0810**	0.0620*
				(0.0315)	(0.0325)
CEO Comp > median * Final Ab Bid Pr				0.357**	0.347**
				(0.169)	(0.158)
CEO Option > median = 1					0.0335
					(0.0349)
CEO Option > median * Final Ab Bid Pr					-0.349***
					(0.115)
Block-holder % > median = 1				-0.0295	
				(0.0370)	
Block-holder % > median = 1 * Final Ab Bid Pr				0.126	
				(0.147)	
Constant	-0.242	-0.116	-0.0631	-0.0802	0.0413
	(0.253)	(0.112)	(0.294)	(0.0927)	(0.0730)
Observations	208	208	208	208	208
Adjusted R-squared	0.025	0.039	0.057	0.115	0.157
R-squared	0.134	0.151	0.162	0.218	0.242
Prob > F	0.112	0.048	0.022	0.019	0.000

Table 5-16 Represents Bidder CAR (-42, +5) days as dependent variable regression results with Bidder final abnormal bid premium and governance variables.

*Robust standard errors have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) BidderCAR5	(2) BidderCAR5	(3) BidderCAR5	(4) BidderCAR5	(5) BidderCAR5
Final Abnormal Bid Premium	-0.00570	-0.00181	-0.000650	-0.331	0.00116
	(0.0804)	(0.0873)	(0.0743)	(0.230)	(0.132)
Tender Offer	0.0307	0.0500	0.0469	0.0631	
	(0.0546)	(0.0582)	(0.0539)	(0.0489)	
All Cash offer = 1	-0.00872		0.0186	-0.0311	-0.0103
	(0.0405)		(0.0408)	(0.0394)	(0.0352)
Stock Offer % in Payment Mix		0.000			
		(0.000522)			
No Toehold Dummy	-0.0237				-0.0632
	(0.0478)				(0.0434)
Toehold %		0.00234	0.00276	0.00369*	
		(0.00180)	(0.00178)	(0.00207)	
Board Independent Director %		0.00164			
		(0.00116)			
Ind Dir Equity %	-0.00467	-0.00693			
	(0.00622)	(0.00568)			
Total Board Equity / Total Shares					
Independent Chairman =1	0.0307		0.0233		
	(0.0384)		(0.0362)		
Block-holder herfindal index	0.0000				
	(0.000)				
Count of Block holder >= 5%		-0.00453			
		(0.00895)			
Count of Block holder >= 10%			-0.0251		
			(0.0182)		
CEO Age	0.00104				
	(0.00279)				
CEO Tenure	0.00150	0.00914	0.00128	0.00545	0.00471
	(0.00305)	(0.00741)	(0.00300)	(0.00716)	(0.00647)
CEO Tenure Squared		-0.000257		-0.000174	-0.000116
		(0.000268)		(0.000267)	(0.000224)
CEO Equity %		0.00785			
		(0.00780)			
CEO Equity % Squared		-0.000187			
		(0.000170)			
Log CEO Total Wealth	0.0186				
	(0.0146)				
Log CEO Equity Value			0.00524		

VARIABLES	(1) BidderCAR5	(2) BidderCAR5	(3) BidderCAR5	(4) BidderCAR5	(5) BidderCAR5
			(0.00470)		
Log CEO Options held value			0.00223		
			(0.00290)		
Log CEO Compensation			-0.00244		
			(0.0294)		
CEO Influence				0.00104*	
				(0.000606)	
CM CEO Duality of Role = 1	0.0175				
	(0.0527)				
Entrenchment Proxy =1		-0.0894*	-0.0747		
		(0.0473)	(0.0462)		
Chairman or CEO Founder =1				-0.00167	
				(0.0510)	
CEO Comp > median = 1				0.0852**	0.0627*
				(0.0340)	(0.0355)
CEO Comp > median * Final Ab Bid Pr				0.391**	0.379**
				(0.183)	(0.170)
CEO Option > median = 1					0.0384
					(0.0378)
CEO Option > median * Final Ab Bid Pr					-0.381***
					(0.123)
Block-holder % > median = 1				-0.0290	
				(0.0400)	
Block-holder % > median = 1 * Final Ab Bid Pr				0.129	
				(0.157)	
Constant	-0.298	-0.112	-0.110	-0.0676	0.0543
	(0.268)	(0.117)	(0.315)	(0.0948)	(0.0813)
Observations	208	208	208	208	208
Adjusted R-squared	0.021	0.033	0.044	0.108	0.153
R-squared	0.129	0.145	0.150	0.211	0.239
Prob > F	0.231	0.077	0.062	0.041	0.001

Table 5-17 Represents Bidder CAR (-42, Merger Completion) days as dependent variable regression results with Bidder final abnormal bid premium and governance variables.

*Robust standard errors have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) Bidder CAR Comp	(2) Bidder CAR Comp	(3) Bidder CAR Comp	(4) Bidder CAR Comp	(5) Bidder CAR Comp
Final Abnormal Bid Premium	0.0803	0.0878	0.0284	-0.474*	0.0502
	(0.130)	(0.143)	(0.136)	(0.272)	(0.250)
Tender Offer	-0.114	-0.0839	-0.0906	-0.0280	
	(0.0952)	(0.101)	(0.0947)	(0.0902)	
All Cash offer = 1	0.0210		0.0135	-0.0177	-0.0343
	(0.0699)		(0.0736)	(0.0628)	(0.0582)
Stock Offer % in Payment Mix		-0.001			
		(0.000943)			
No Toehold Dummy	-0.0625				-0.162*
	(0.0988)				(0.0868)
Toehold %		0.00259	0.00339	0.00441	
		(0.00406)	(0.00371)	(0.00381)	
Board Independent Director %		0.00109			
		(0.00257)			
Ind Dir Equity %	0.000734	0.000966			
	(0.0134)	(0.0119)			
Total Board Equity / Total Shares					
Independent Chairman =1	0.0240		0.0287		
	(0.0742)		(0.0696)		
Block-holder herfindal index	0.0001				
	(0.000)				
Count of Block holder >= 5%		-0.000318			
		(0.0200)			
Count of Block holder >= 10%			-0.0177		
			(0.0400)		
CEO Age	0.000931				
	(0.00541)				
CEO Tenure	0.00883	0.0269*	0.00509	0.0177	0.0219*
	(0.00623)	(0.0147)	(0.00587)	(0.0141)	(0.0126)
CEO Tenure Squared		-0.000779*		-0.000539	-0.000617
		(0.000460)		(0.000459)	(0.000411)
CEO Equity %		-0.00813			
		(0.0136)			
CEO Equity % Squared		0.00005			
		(0.000324)			
Log CEO Total Wealth	0.00517				
	(0.0263)				
Log CEO Equity Value			0.00974		
			(0.0101)		

VARIABLES	(1) Bidder CAR Comp	(2) Bidder CAR Comp	(3) Bidder CAR Comp	(4) Bidder CAR Comp	(5) Bidder CAR Comp
Log CEO Options held value			-0.00444		
			(0.00530)		
Log CEO Compensation			0.0822*		
			(0.0480)		
CEO Influence				0.00120	
				(0.00126)	
CM CEO Duality of Role = 1	-0.102				
	(0.127)				
Entrenchment Proxy =1		-0.0272	-0.0236		
		(0.0942)	(0.0911)		
Chairman or CEO Founder =1				-0.108	
				(0.151)	
CEO Comp > median = 1				0.274***	0.290***
				(0.0670)	(0.0670)
CEO Comp > median * Final Ab Bid Pr				0.590**	0.610**
				(0.281)	(0.263)
CEO Option > median = 1					-0.129*
					(0.0687)
CEO Option > median * Final Ab Bid Pr					-0.629***
					(0.228)
Block-holder % > median = 1				0.0300	
				(0.0658)	
Block-holder % > median = 1 * Final Ab Bid Pr				0.291	
				(0.240)	
Constant	0.179	0.110	-0.867	0.116	0.371**
	(0.449)	(0.265)	(0.560)	(0.195)	(0.153)
Observations	204	204	204	204	204
Adjusted R-squared	0.015	0.015	0.034	0.125	0.179
R-squared	0.127	0.131	0.143	0.229	0.264
Prob > F	0.278	0.152	0.038	0.010	0.000

Regarding bid characteristics, bidder shareholders react positively to tender offers, which corroborates the results of Khatami et al. (2015). However, all relationships regarding tender offer are statistically insignificant, which suggests that null hypothesis 3 of bidder CAR cannot be rejected. The relationship changes to negative in tables 17 and 21 for bidder CAR until completion,

which provides support to Travlos (1987) and Banerjee et al. (2015), as they also found tender offers to be negatively related to bidder CAR. Hence, initially bidder shareholders react positively to news of tender offers, but towards bid completion, market sentiments become negative, due to risk of overpayment.

The regression results for bidder CAR have a statistically insignificant negative relationship with stock offers in the payment mix, which corroborates studies like Mitchell et al. (2004). Furthermore, the relationship suggests that bidder shareholders do not view risk sharing by target shareholders in the event of a stock offer according to Officer et al. (2009). The results for bidder tender, all-cash offer and stock offer are highly statistically insignificant and hence null hypothesis 3, 2a and 2b respectively, cannot be rejected.

Bidder shareholders react positively to the presence of a toehold in target firms prior to merger announcements. The relationship is positive and statistically significant in model 4 of tables 5-15, 5-16, 5-19 and 5–20, as a one standard deviation change in toeholds held increases bidder market reaction by 2.6 percentage points. Therefore, bidder CAR null hypothesis 4 related to toehold is rejected. The no-toehold dummy variable in model 5 of tables 5-15, 5-17, 5-19 and 5-21 also has a statistically significant negative relationship with bidder CAR, as no toehold in the target leads to an almost 16 percentage points reduction in bidder CAR until merger completion. Hence, our regression results provide evidence that bidder shareholders view the presence of a toehold as reducing information asymmetry, according to Povel and Sertsios (2014) and Betton and Eckbo (2000), which has also been found in literature regarding bid premium offered by the bidder.

The regression results for bidder CAR and board independence parameters indicate statistically insignificant relationships. Bidder shareholders react positively to the level of independent directors in the board in model 2, and to the presence of an independent chairperson in model 3 of

tables 14–21. The coefficients indicate that the presence of an independent chairperson increases bidder CAR by a maximum of 3 percentage points. Similarly, a one standard deviation change in the presence of independent directors in the board also leads to a maximum 2.44 percentage point increase in bidder CAR. However, bidder shareholders react negatively to equity ownership levels of independent directors in tables 14–20, except for bidder CAR computed until completion in tables 17 and 21. Although all coefficients for independent director equity participation are statistically insignificant, a negative bidder shareholder reaction indicates agency related concerns, as only a positive reaction would have indicated that bidder shareholders do not link equity ownership with shareholder interest alignment. Statistically insignificant relationship regarding bidder CEO duality also suggests that null hypothesis 10 cannot be rejected.

Similarly, when independent director ownership is substituted for the total board shareholder ownership variable in model 2 of tables 14–17, it also has a similar statistically insignificant negative relationship with bidder CAR, which suggest that bidder CAR null hypothesis 5 related to board share ownership cannot be rejected. A one standard deviation change in board equity ownership results in almost 7 percentage points in bidder CAR until completion.

Hence, our results also provide partial support to Baran and Forst (2015), as they linked insider control to entrenchment and loss of firm value. Furthermore, although negative relationships as seen in our results indicate the possibility of entrenchment related behaviour, the statistically insignificant results also provide partial support to Cosh et al. (2006), as they also found no relationship that suggests equity participation levels lead to entrenchment related behaviour in UK boards.

These results also indicate that board equity ownership levels may not have been a better proxy for bidder management entrenchment. In models 2 and 3 of tables 5-14 to 5-21, the dummy

variable for bidder management's entrenchment related behaviour was utilized, which was motivated by Harford et al. (2012), as mentioned in the literature review section. The results suggest that bidder shareholders react negatively when bidder management makes a cash-only offer to a target with greater than 25 percentage points of target firm's block-holders, with the goal of avoiding the shareholder scrutiny from those target block-holders that might have resulted if they had been paid with bidder stock.

Table 5-18 Represents Bidder CAR (-42, 0) days as dependent variable regression results with Bidder initial abnormal bid premium and governance variables.

*Robust standard errors have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) BidderCAR0	(2) BidderCAR0	(3) BidderCAR0	(4) BidderCAR0	(5) BidderCAR0
Initial Abnormal Bid Premium	0.00984	0.00512	0.0127	-0.313	-0.00593
	(0.0775)	(0.0859)	(0.0719)	(0.226)	(0.128)
Tender Offer	0.0292	0.0440	0.0411	0.0529	
	(0.0535)	(0.0571)	(0.0523)	(0.0468)	
All Cash offer = 1	-0.0334		-0.00188	-0.0488	-0.0320
	(0.0368)		(0.0369)	(0.0358)	(0.0312)
Stock Offer % in Payment Mix		-0.0000681			
		(0.000482)			
No Toehold Dummy	-0.0347				-0.0645
	(0.0444)				(0.0405)
Toehold %		0.00175	0.00223	0.00326	
		(0.00177)	(0.00175)	(0.00198)	
Board Independent Director %		0.00105			
		(0.00102)			
Ind Dir Equity %	-0.00400	-0.00562			
	(0.00572)	(0.00497)			
Total Board Equity / Total Shares					
Independent Chairman =1	0.0251		0.0268		
	(0.0362)		(0.0342)		
Block-holder herfindal index	-0.0000108				
	(0.00002)				
Count of Block-holder >= 5%		-0.00487			
		(0.00891)			
Count of Block-holder >= 10%			-0.0256		
			(0.0161)		
CEO Age	0.000858				

VARIABLES	(1) BidderCAR0	(2) BidderCAR0	(3) BidderCAR0	(4) BidderCAR0	(5) BidderCAR0
	(0.00256)				
CEO Tenure	0.00259	0.00853	0.00207	0.00564	0.00536
	(0.00287)	(0.00706)	(0.00285)	(0.00685)	(0.00628)
CEO Tenure Squared		-0.000218		-0.000158	-0.000110
		(0.000276)		(0.000282)	(0.000242)
CEO Equity %		0.00825			
		(0.00677)			
CEO Equity % Squared		-0.000174			
		(0.000149)			
Log CEO Total Wealth	0.0132				
	(0.0132)				
Log CEO Equity Value			0.00416		
			(0.00468)		
Log CEO Options held value			0.00195		
			(0.00274)		
Log CEO Compensation			-0.00900		
			(0.0277)		
CEO Influence				0.000827	
				(0.000565)	
CM CEO Duality of Role = 1	-0.0181				
	(0.0449)				
Entrenchment Proxy =1		-0.0887**	-0.0694		
		(0.0430)	(0.0421)		
Chairman or CEO Founder =1				0.00432	
				(0.0473)	
CEO Comp > median = 1				0.0757**	0.0574*
				(0.0305)	(0.0324)
CEO Comp > median * Initial Ab Bid Pr				0.369**	0.364**
				(0.174)	(0.168)
CEO Option > median = 1					0.0306
					(0.0365)
CEO Option > median * Initial Ab Bid Pr					-0.336***
					(0.112)
Block-holder % > median = 1				-0.0291	
				(0.0384)	
Block-holder % > median = 1 * Initial Ab Bid Pr				0.143	
				(0.151)	
Constant	-0.194	-0.0731	0.00755	-0.0487	0.0608
	(0.252)	(0.113)	(0.303)	(0.0958)	(0.0787)
Observations	208	208	208	208	208
Adjusted R-squared	0.020	0.031	0.045	0.112	0.153
R-squared	0.129	0.143	0.152	0.215	0.239
Prob > F	0.221	0.164	0.095	0.061	0.000

Table 5-19 Represents Bidder CAR (-42, +2) days as dependent variable regression results with Bidder initial abnormal bid premium and governance variables.

*Robust standard errors have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) BidderCAR2	(2) BidderCAR2	(3) BidderCAR2	(4) BidderCAR2	(5) BidderCAR2
Initial Abnormal Bid Premium	0.00994	0.00974	0.0144	-0.291	0.00921
	(0.0759)	(0.0828)	(0.0699)	(0.213)	(0.126)
Tender Offer	0.0243	0.0412	0.0384	0.0518	
	(0.0519)	(0.0554)	(0.0511)	(0.0464)	
All Cash offer = 1	-0.0138		0.0167	-0.0319	-0.0149
	(0.0368)		(0.0375)	(0.0359)	(0.0322)
Stock Offer % in Payment Mix		-0.000224			
		(0.000486)			
No Toehold Dummy	-0.0374				-0.0694*
	(0.0444)				(0.0396)
Toehold %		0.00245	0.00289*	0.00376*	
		(0.00177)	(0.00172)	(0.00203)	
Board Independent Director %		0.00149			
		(0.00107)			
Ind Dir Equity %	-0.00480	-0.00683			
	(0.00585)	(0.00519)			
Total Board Equity / Total Shares					
Independent Chairman =1	0.0306		0.0279		
	(0.0360)		(0.0341)		
Block-holder herfindal index	-0.0000138				
	(0.00002)				
Count of Block-holder >= 5%		-0.00487			
		(0.00856)			
Count of Block-holder >= 10%			-0.0276*		
			(0.0163)		
CEO Age	0.000857				
	(0.00252)				
CEO Tenure	0.00214	0.00873	0.00158	0.00541	0.00532
	(0.00298)	(0.00725)	(0.00296)	(0.00708)	(0.00648)
CEO Tenure Squared		-0.000231		-0.000161	-0.000120
		(0.000287)		(0.000290)	(0.000249)
CEO Equity %		0.00740			
		(0.00684)			
CEO Equity % Squared		-0.000157			
		(0.000149)			
Log CEO Total Wealth	0.0153				
	(0.0135)				

VARIABLES	(1) BidderCAR2	(2) BidderCAR2	(3) BidderCAR2	(4) BidderCAR2	(5) BidderCAR2
Log CEO Equity Value			0.00502		
			(0.00453)		
Log CEO Options held value			0.00218		
			(0.00267)		
Log CEO Compensation			-0.00680		
			(0.0268)		
CEO Influence				0.000980*	
				(0.000556)	
CM CEO Duality of Role = 1	-0.00403				
	(0.0469)				
Entrenchment Proxy =1		-0.0891**	-0.0734*		
		(0.0430)	(0.0422)		
Chairman or CEO Founder =1				-0.00602	
				(0.0486)	
CEO Comp > median = 1				0.0809**	0.0616*
				(0.0314)	(0.0326)
CEO Comp > median * Initial Ab Bid Pr				0.352**	0.346**
				(0.167)	(0.160)
CEO Option > median = 1					0.0337
					(0.0351)
CEO Option > median * Initial Ab Bid Pr					-0.340***
					(0.112)
Block-holder % > median = 1				-0.0282	
				(0.0371)	
Block-holder % > median = 1 * Initial Ab Bid Pr				0.127	
				(0.148)	
Constant	-0.242	-0.115	-0.0644	-0.0804	0.0380
	(0.253)	(0.112)	(0.294)	(0.0924)	(0.0737)
Observations	208	208	208	208	208
Adjusted R-squared	0.025	0.039	0.057	0.114	0.154
R-squared	0.134	0.151	0.162	0.217	0.240
Prob > F	0.115	0.050	0.023	0.020	0.000

Table 5-20 Represents Bidder CAR (-42, +5) days as dependent variable regression results with Bidder initial abnormal bid premium and governance variables.

*Robust standard errors have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) BidderCAR5	(2) BidderCAR5	(3) BidderCAR5	(4) BidderCAR5	(5) BidderCAR5
Initial Abnormal Bid Premium	-0.00958	-0.00570	-0.00344	-0.331	-0.00735
	(0.0815)	(0.0892)	(0.0754)	(0.231)	(0.137)
Tender Offer	0.0308	0.0502	0.0471	0.0614	
	(0.0549)	(0.0587)	(0.0543)	(0.0486)	
All Cash offer = 1	-0.00885		0.0184	-0.0301	-0.0109
	(0.0405)		(0.0409)	(0.0393)	(0.0351)
Stock Offer % in Payment Mix		-0.0002			
		(0.000)			
No Toehold Dummy	-0.0237				-0.0627
	(0.0477)				(0.0434)
Toehold %		0.00232	0.00275	0.00365*	
		(0.00180)	(0.00177)	(0.00206)	
Board Independent Director %		0.00164			
		(0.00116)			
Ind Dir Equity %	-0.00467	-0.00694			
	(0.00622)	(0.00568)			
Total Board Equity / Total Shares					
Independent Chairman =1	0.0307		0.0232		
	(0.0384)		(0.0362)		
Blockholder herfindal index	-0.0000149				
	(0.00002)				
Count of Block-holder >= 5%		-0.00461			
		(0.00908)			
Count of Block-holder >= 10%			-0.0252		
			(0.0182)		
CEO Age	0.00101				
	(0.00277)				
CEO Tenure	0.00149	0.00913	0.00128	0.00558	0.00512
	(0.00306)	(0.00739)	(0.00301)	(0.00715)	(0.00648)
CEO Tenure Squared		-0.000256		-0.000179	-0.000126
		(0.000267)		(0.000267)	(0.000225)
CEO Equity %		0.00789			
		(0.00785)			
CEO Equity % Squared		-0.000187			
		(0.000171)			
Log CEO Total Wealth	0.0187				
	(0.0146)				
Log CEO Equity Value			0.00526		
			(0.00472)		
Log CEO Options held value			0.00222		

VARIABLES	(1) BidderCAR5	(2) BidderCAR5	(3) BidderCAR5	(4) BidderCAR5	(5) BidderCAR5
			(0.00288)		
Log CEO Compensation			-0.00230		
			(0.0294)		
CEO Influence				0.00101*	
				(0.000599)	
CM CEO Duality of Role = 1	0.0180				
	(0.0529)				
Entrenchment Proxy =1		-0.0894*	-0.0747		
		(0.0474)	(0.0464)		
Chairman or CEO Founder =1				-0.00157	
				(0.0509)	
CEO Comp > median = 1				0.0850**	0.0622*
				(0.0339)	(0.0355)
CEO Comp > median * Initial Ab Bid Pr				0.387**	0.377**
				(0.181)	(0.173)
CEO Option > median = 1					0.0386
					(0.0381)
CEO Option > median * Initial Ab Bid Pr					-0.369***
					(0.120)
Block-holder % > median = 1				-0.0277	
				(0.0402)	
Block-holder % > median = 1 * Initial Ab Bid Pr				0.130	
				(0.158)	
Constant	-0.297	-0.112	-0.111	-0.0677	0.0508
	(0.268)	(0.117)	(0.315)	(0.0944)	(0.0816)
Observations	208	208	208	208	208
Adjusted R-squared	0.021	0.033	0.044	0.107	0.151
R-squared	0.130	0.145	0.150	0.210	0.237
Prob > F	0.236	0.080	0.062	0.042	0.001

Table 5-21 Represents Bidder CAR (-42, Merger Completion) days as dependent variable regression results with Bidder initial abnormal bid premium and governance variables.

*Robust standard errors have been mentioned below coefficients in parentheses and statistically significant results have been mentioned as *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1) Bidder CAR Comp	(2) Bidder CAR Comp	(3) Bidder CAR Comp	(4) Bidder CAR Comp	(5) Bidder CAR Comp
Initial Abnormal Bid Premium	0.0758	0.0805	0.0182	-0.472*	0.0366
	(0.132)	(0.145)	(0.137)	(0.274)	(0.252)
Tender Offer	-0.114	-0.0843	-0.0901	-0.0313	
	(0.0952)	(0.101)	(0.0947)	(0.0896)	
All Cash offer = 1	0.0207		0.0128	-0.0163	-0.0356
	(0.0700)		(0.0737)	(0.0629)	(0.0585)
Stock Offer % in Payment Mix		-0.000665			
		(0.000944)			
No Toehold Dummy	-0.0622				-0.161*
	(0.0987)				(0.0867)
Toehold %		0.00257	0.00338	0.00433	
		(0.00405)	(0.00369)	(0.00378)	
Board Independent Director %		0.00107			
		(0.00258)			
Ind Dir Equity %	0.000702	0.000950			
	(0.0134)	(0.0119)			
Total Board Equity / Total Shares					
Independent Chairman =1	0.0238		0.0282		
	(0.0743)		(0.0696)		
Block-holder herfindal index	0.0000666				
	(0.00005)				
Count of Block-holder >= 5%		-0.000251			
		(0.0201)			
Count of Block-holder >= 10%			-0.0178		
			(0.0400)		
CEO Age	0.000929				
	(0.00540)				
CEO Tenure	0.00889	0.0270*	0.00510	0.0180	0.0226*
	(0.00626)	(0.0148)	(0.00589)	(0.0141)	(0.0126)
CEO Tenure Squared		-0.001*		-0.001	-0.0001
		(0.000)		(0.000)	(0.000)
CEO Equity %		-0.00818			
		(0.0136)			
CEO Equity % Squared		0.000056			
		(0.000323)			
Log CEO Total Wealth	0.00520				
	(0.0263)				
Log CEO Equity Value			0.00981		
			(0.0101)		

VARIABLES	(1) Bidder CAR Comp	(2) Bidder CAR Comp	(3) Bidder CAR Comp	(4) Bidder CAR Comp	(5) Bidder CAR Comp
Log CEO Options held value			-0.00450		
			(0.00530)		
Log CEO Compensation			0.0827*		
			(0.0480)		
CEO Influence				0.00114	
				(0.00126)	
CM CEO Duality of Role = 1	-0.102				
	(0.127)				
Entrenchment Proxy =1		-0.0269	-0.0237		
		(0.0942)	(0.0910)		
Chairman or CEO Founder =1				-0.108	
				(0.150)	
CEO Comp > median = 1				0.275***	0.289***
				(0.0670)	(0.0668)
CEO Comp > median * Initial Ab Bid Pr				0.581**	0.596**
				(0.280)	(0.264)
CEO Option > median = 1					-0.129*
					(0.0690)
CEO Option > median * Initial Ab Bid Pr					-0.607***
					(0.224)
Block-holder % > median = 1				0.0330	
				(0.0664)	
Block-holder % > median = 1 * Initial Ab Bid Pr				0.288	
				(0.243)	
Constant	0.179	0.111	-0.872	0.116	0.365**
	(0.450)	(0.266)	(0.560)	(0.195)	(0.153)
Observations	204	204	204	204	204
Adjusted R-squared	0.015	0.014	0.034	0.123	0.175
R-squared	0.127	0.131	0.143	0.227	0.261
Prob > F	0.280	0.159	0.034	0.010	0.000

The relationship is statistically significant for all bidder CAR periods, except for CAR computed until merger completion. Hence, null hypothesis 6 regarding entrenchment is rejected. As indicated by the coefficients, bidder management's process of target selection and payment leads to a maximum 8.9 percentage point reduction in bidder CAR. Hence, my results provide support to the conclusions of Harford et al. (2012), as bidder shareholders react negatively to all-cash payments

offered in the presence of target firms' large external block-holders, which is interpreted as a bidder entrenchment related signal in the market.

Regression result in tables 5-14 to 5-21 regarding presence of bidder block-holders variables and bidder CAR are statistically insignificant. Moreover, the interaction of greater than sample median dummy for external equity percentage held by bidder block-holders with abnormal bid premium also indicates a statistically insignificant positive relationship with the bidder CAR. Hence, in view of all statistically insignificant results regarding bidder block-holder, null hypothesis 8 for bidder is not rejected.

Bidder CEO age has a positive but statistically insignificant relationship, as seen in our regression results in tables 5-14 to 5-21 with bidder CAR, which provides support for the results of Jenter and Lewellen (2015). However, bidder tenure has a statistically significant non-linear relationship with bidder CAR in models 2 and 5 of tables 5-17 and 5-21. According to the linear coefficient, a one standard deviation change in CEO tenure leads to an 11.5 percentage point increase in bidder CAR until completion. However, the relationship becomes negative after almost 17.3 years of CEO tenure. This result provides support for Jacobsen (2014), whose evidence showed that an inexperienced CEO is more likely to withdraw a bid for price reasons; hence bidder shareholders react positively to an experienced CEO.

Overall bidder CEO wealth has a statistically insignificant positive relationship with bidder CAR, as shown by the results from tables 5-14 to 5-21. Decomposition of CEO wealth into equity value, options, and compensation in model 3 indicate a positive statistically insignificant relationship, except for CEO compensation, which has a negative relationship. Hence, although CEO compensation has a negative statistically insignificant relationship to bidder CAR in 0, 2, and 5-day event windows, a statistically significant and positive relationship is seen with bidder CAR

until merger completion in model 3 of tables 5-17 and 5-21. The coefficient indicates, a one standard deviation change in bidder CEO annual compensation increases bidder CAR until completion by 7.5 percentage points. The interaction of the above sample median dummy of bidder CEO annual remuneration with abnormal bid premium shows a statistically significant positive relationship with bidder CAR in models 4 and 5 of tables 5-14 to 5-21. Bidder shareholders react positively to a higher abnormal bid premium for above sample median bidder CEO compensation. A one standard deviation change in abnormal bid premium in the presence of above median bidder CEO remuneration leads to a maximum 19.3 percentage points increase in bidder CAR until merger completion. Therefore, the negative bidder shareholder reaction to CEO compensation level supports the conclusions of studies like Firth (1991) and Bliss and Rosen (2001), which indicated that bidder management has benefited from increased compensation even in mergers which have not performed. Hence, bidder shareholders may have initially reacted negatively to CEOs with higher compensation, as such bidder CEOs may have sought to further increase their compensation package with a merger, as suggested by management welfare theory.

However, bidder CAR until merger completion indicates that bidder shareholders ultimately react positively to bidder CEO compensation. According to anecdotal evidence, CEO compensation also depends on CEO experience, and hence CEO compensation level may have also served as a proxy for CEO experience. Another proxy for CEO experience is CEO tenure, for which I found a positive relationship. Furthermore, Harford and Li (2007) argued that, although bidder CEOs gain in terms of equity based compensation, their future wealth depends on post-acquisition performance. Although self-interest motivated CEOs may have acquired a target firm for increased compensation, their future wealth depends on post-merger performance, and hence this may have served as a deterrent to bidder CEOs with high pay not to overpay for a target with little or no

synergistic benefits for the firm. Therefore, bidder shareholders may react positively to higher paid CEOs.

Regarding bidder CEO equity, a one standard deviation change in bidder CEO equity value log increases bidder CAR until completion by 4.5 percentage points. Bidder shareholder reaction to the level of CEO equity has also been measured by bidder CEO influence over the board in terms of the CEO equity ownership ratio over total board equity. The statistically significant coefficient in model 4 of tables 5-15, 5-16, 5-19 and 5-20, a one standard deviation change in bidder CEO influence on the board increases bidder CAR until completion by 3.1 percentage points. Considering this result, bidder CAR based null hypothesis 9 regarding bidder CEO equity level may be rejected. Therefore, bidder shareholders also react positively to bidder CEOs with higher levels of equity ownership as compared to board ownership, as they expect such a CEO to act in shareholders' interests in making acquisition decisions. Overall, our regression results for bidder CEO equity and overall wealth provide support to studies like Denis et al. (1997) and Datta et al. (2001), who concluded that CEO equity leads to lower levels of agency related behaviours, and hence acknowledge that bidder shareholders have reacted positively to both.

However, our regression results in table 5-17 indicate a 3.65 percentage point decrease in bidder CAR until merger completion for changes in bidder CEO options value. In other words, bidder shareholders react to the log value of in-the-money CEO options, as a hubris-ridden management may have overpaid for a target. As discussed in literature review section 5.2.9, Malmendier and Tate (2008) utilized in-the-money bidder CEO options as a proxy for the independent variable of CEO hubris.

Considering only the statistically insignificant results of bidder CEO options variable in tables 5-14 to 5-21, null hypothesis 7 related to bidder CEO hubris cannot be rejected. However, regression

results also indicate a negative market reaction to the value of bidder CEO's in-the-money options, which is observed more significantly and prominently through an interaction variable in model 5 of all regression tables from 5-14 to 5-21. The interaction of the above sample median dummy of bidder CEO options held before merger announcement with abnormal bid premium indicates a statistically significant negative relationship with bidder CAR. Hence, bidder shareholders react negatively to an abnormal bid premium paid in the presence of above sample median bidder CEO options held. A one standard deviation change in abnormal bid premium in the presence of above median bidder CEO in-the-money options leads to a maximum 20.3 percentage point decrease in bidder CAR until merger completion. Therefore, the interaction result of bidder CEO options nonetheless, supports the conclusions of Moeller et al. (2004), Malmendier and Tate (2008), and Croci et al. (2010) regarding the negative market reaction to hubris CEO proxies.

5.7 Conclusions

The regression results indicate a strong positive relationship between abnormal bid premium and target CAR for all durations and model variations. Hence, target relationships are statistically and economically significant and robust. The relatively same level of coefficients for initial and final abnormal bid premium indicate that high initial bid premiums result in fewer bid revisions, and ensure successful bid completion according to Jennings and Mazzeo (1993) and Eckbo (2009). Hence, this strong relationship result has established 'abnormal bid premium' as a useful measure of 'bid quality' for targets.

The quadratic term of initial and final bid premiums is statistically insignificant, and market reaction is almost linear. Hence, target shareholders' primary concern is price improvement, and they do not consider risk of deal failure. The target regression results also indicate a statistically significant positive relationship with all-cash offers, and the coefficient is higher for the model with initial bid premium as compared to final. Hence, our results also corroborate evidence provided by studies like Fishman (1989) and Malmendier et al. (2016), which indicated an all-cash offer is associated with high valuation. Regarding other control variables, target shareholders view board independence as positive but statistically insignificant. A possible explanation for this might be that the UK Corporate Governance Code set out by the Financial Reporting council (FRA) emphasizes including a good representation of non-executive or outside directors. Hence, the UK regulatory environment has ensured good presence of independent directors on boards of publicly listed firms, which may explain the lack of any signalling effect from board independence measures. Target shareholders react positively to collective CEO wealth and its component variables of equity, options, and remuneration. Studies like Buchholtz and Ribbens (1994) indicated that equity based incentives do align management interests with shareholders' interests.

This result may be explained by the fact that target management whose interests are aligned with shareholders' interests may balance bid resistance and deal failure risks for a high abnormal bid premium, which is reflected in the positive target shareholder reaction to CEO wealth variables.

As compared to target firms, bidders' CAR relationship with abnormal bid premium is statistically significant but relatively less robust to changes in model specifications. It seems possible that target shareholders are more receptive to abnormal bid premium signals, as they are on the receiving end of the premium, and hence they would not get another chance to redeem any loss on a merger transaction. Nonetheless, bidder shareholders also react to the presence of abnormal bid premium, although negatively, as the overriding concern of bidder shareholders may be overpayment rather than perceiving a high abnormal bid premium as a signal of high synergistic benefits. Similarly, bidder shareholders also react negatively to the presence of no-toehold, an entrenchment proxy motivated by unique target selection and options as proxies for hubris.

These findings provide evidence that the market reacts to the presence of an abnormal bid premium, and hence abnormal bid premium can be utilized as a valid measure for 'bid quality'. Target shareholders are more receptive to abnormal bid premium as compared to bidder shareholders, as target and bidder shareholders are on opposite sides of the merger transaction. Target shareholders are more receptive to high bid premium signals received through bid characteristics and CEO characteristics. However, bidder shareholders are concerned with overpayment, as they are equally receptive to hubris and entrenchment related proxies as compared to abnormal bid premium. Limitation of this study is that, due to information asymmetry, bidder shareholders may be unable to reliably verify or ascertain synergistic benefits of mergers promised by bidder management within the short time frame of this study.

6 Chapter: Bidder Ex-Post Merger Performance and Abnormal Bid Premium

6.1 Introduction

Investigating a bidder's post-merger performance is a continuing concern within the research area of mergers and acquisitions (M&As), as it enables researchers to validate, in hindsight, bidder management's true merger motivation. Although, the overall market conditions may affect the post-merger performance, measuring performance in relation to an industry-matched firm may eliminate the presence of systematic effects on the post-merger performance.

In chapter 4, abnormal bid premium was computed in line with Bates and Becher (2017) as a measure of bid quality to detect over or under payment of bid; it was observed that bid premium is influenced by governance-related characteristics. Abnormal bid premium is utilised as a measure of bid quality in chapter 5 to investigate short-term market reaction for merger announcement. It was concluded that target shareholders react positively, and bidder shareholders react negatively to payment of abnormal bid premium. However, relationship of bidder is not as strong as target short term market reaction to abnormal bid premium paid. Furthermore, studies like Fama (1998) have indicated that bidder firms continue to earn negative abnormal bid returns, in accordance with Agrawal et al. (1992) for couple of years after merger, terming it as a long term anomaly. Hence, considering this, I have also investigated the relationship of abnormal bid premium paid in long term from both operational and market perspective.

In this chapter, a bidder's ex-post market and operational performance is utilized to observe if payment of bid premium was motivated by shareholder or management welfare. Theoretically, if abnormal bid premium is paid under the management welfare hypothesis, then bidder

management's ex-post performance should suffer and be subsequently reflected negatively in the bidder's long-term ex-post market and operating performance. On the other hand, under the shareholder welfare hypothesis, a positive abnormal bid premium would have been paid by bidder management for potential synergistic benefits, and hence the bidder's ex-post long-term performance would have improved as perceived post-merger synergies are realized. Abnormal bid premium is utilized again and, as in chapter 5, shareholders' short-term market reaction is recognized as a better measure of bid quality.

However, this chapter examines if abnormal bid premium is a valid measure of bid quality for a market in the long term and if it can adequately predict bidder's ex-post merger operational performance. Although extensive research was carried out to measure the effect of bid premium on bidder performance, I am not aware of any studies that were able to establish a clear link between abnormal bid premium offered and ex-post long-term bidder performance. Variables highlighted in extant studies pertaining to corporate governance as discussed in literature review are incorporated in regression model to better explain the presence of either hypothesis in the UK merger market for publicly listed firms.

Ex-post bidder performance is conditional on how much bidder management ultimately paid for the acquisition. Efficient market forces would ensure that bidder management performance should suffer ex-post from overpaying or, vice versa, benefit from a discount. Ex-post bidder performance depends on not only the correct target valuation and resultant acquisition payment but also bidder management agency-related behaviour, such as hubris and empire building motives. Therefore, to fully comprehend this issue, a reliable measure of the amount of abnormal bid premium paid has been utilized, which, in chapters 4 and 5, is proven to be a better measure of bid quality in the short term. Prior studies did not consider ex-post bidder performance in relation to a reliable measure of

bid quality, which would clearly represent the amount of abnormal bid premium offered. This abnormal bid quality parameter, which is devoid of non-valuation parameters, enables one to study the true relationship between ex-post bidder return and governance-related issues leading to the presence or absence of the management welfare hypothesis. Hence, utilizing abnormal bid premium as an independent variable to ex-post bidder performance, as calculated by Bates and Becher (2015), enables one to account for core valuation-based bid parameters available ex-ante that a bidder would have considered in target valuation.

The overall results have suggested that there is no evidence of a relationship between bidder long-term market reaction measure in terms of buy and hold abnormal returns (BHAR) and the 'abnormal bid premium' paid for all three post-merger years. However, results for firm-matched ex-post operational performance of the combined firm indicate that abnormal bid premium paid by bidder management may have influenced its post-merger performance. A long-term relationship is transient in nature, as performance enhancement indicated in the first year can erode in later years. Furthermore, the presence of a bidder's founder chairperson or chief executive officer (CEO) and a number of external block holders is observed to enhance post-merger operational performance. Bidder shareholders can also to react positively to founder members offering positive abnormal bid premium.

The remainder of chapter 6 is structured as follows. Section 6.2 examines some key literature regarding bidder long-term performance from both market and operating performance perspectives. Since, bidder governance-related issues in M&As have been indicated in chapters 4 and 5, they have not been repeated in the current chapter's literature review. Section 6.3 deals with the methodology used for this study. We utilise the same sample filtration and hand-collected governance data as indicated in the sampling section of chapter 5. Summary statistics of our sample

are discussed in section 6.5, which only pertains to computed bidder BHAR and abnormal operating firm matched cash flow, as data on bid premium, target, and bidder characteristics are indicated in chapter 4. Section 6.6 presents the empirical results and discussion and conclusions are mentioned in section 6.7.

6.2 Literature review

Enhanced post-merger performance in prior literature is as an indication of a successful acquisition, which is devoid of any major agency-related management behaviour. Otherwise, efficient market forces would reduce bidder's post-merger performance of an acquisition that is affected by management agency issues. Such post-merger performance lapse was accepted in previous research as an indication of acquisition influence by bidder management's agency-related behaviour. In chapters 4 and 5 of this thesis, presence of agency-related issues in extant literature was discussed from the target bidder's perspective, and hence this literature review is primarily focused on bidder's post-merger performance. Agency related behaviour in management was measured in literature from the post-merger firm performance perspective, utilising the accounting-based information and stock market benchmarks.

Research into comprehending and measuring organizational performance has a long history; for example, in a review of organizational effectiveness models, Steers (1975) explained that even though organizational effectiveness is a natural attribute of an organization, few serious attempts have been made to model it, and most models have been inconsistent in their approach. This view is supported by Richard et al. (2008), who claimed that organizational performance in extant literature is approached as an 'open question'. In previous literature, organizational performance was studied from various perspectives, and variable selection depended upon data availability. However, according to Richard et al. (2008), the term 'organizational performance' in previous literature was used to refer to outcomes of market and financial performance. Hence, researchers used 'financial market measures' and 'accounting-based measures' to 'objectively' measure organizational performance. Researchers also utilized more 'subjective' measures in the area of management sciences to measure organizational performance from a more perceptual perspective

of organizational learning, innovation, and satisfaction. Richard et al. (2008) concluded that objective measures of financial performance can broadly be categorized into accounting, financial market, and mixed measures.

Das and Kapil (2012), in their review of M&A performance, suggested two major approaches being followed in extant literature. Event-based studies have been employed in the area of finance, whereas outcome studies have been conducted in the area of industrial organization. Considering performance variable classification in prior literature, Das and Kapil (2012) further categorized it into four measures, namely, market, accounting, objective, and subjective measures. However, this literature review is limited to the 'objective measures' of publicly listed firm performance in the subject area of finance, as our research sample is related to publicly listed targets and bidders.

Ex-post bidder performance was gauged in extant research using two sources. First, market-related abnormal profits around event dates are more forward looking but noisy proxies for bidder performance. Second, accounting-based measures gauge ex-post bidder performance through operating profit or sales growth, but such measures highlight historic activity and are prone to accounting manipulation by bidders. Therefore, this literature review has been arranged according to bidder's long-term market-based and accounting-based performances.

6.2.1 Bidder BHAR

Fama (1998) argued that a short-term event-based measure of merger performance depends on the premise that investors are fully aware of all information regarding the M&A transaction and that the market has been efficient. Hence, according to Zollo and Meier (2008), short-term merger performance studies, due to their inadequate time horizon, may not be able to detect the full benefit of a merger reflected in the ex-post-merger performance of bidder. Long-term studies in finance literature presented evidence over a period of one to five years. If markets have been efficient in

accordance with Fama (1998), then the impact of any financial event should essentially be felt entirely on a short-term basis.

However, many authors who conducted long-term studies reported rather incompatible results, for example, Franks et al. (1991) and Loughran and Vijh (1997). Although Franks et al. (1991) reported negative ex-post bidder returns, they raised doubts regarding the inconsistency of results due to variation in the chosen benchmarks. Loughran and Vijh (1997) commented that measurement of abnormal returns by the intercept of monthly rebalance portfolios by Franks et al. (1991) may not have been a good methodology to adopt as compared with the buy and hold return. Loughran and Vijh (1997) reported positive returns to bidders with all cash tender offers.

According to Fama (1998), long-term anomaly of mean-revert performance was first researched by Werner and Thaler (1985), who attributed this anomaly to the market behaviour of overreaction. In this respect, Fama (1998) put down these 'long-return anomalies' down to the methodology adopted, as these 'anomalies tend to disappear with reasonable changes in technique'. In an investigation into the anomaly of post-merger long-term returns, Agrawal et al. (1992) adjusted their sample to firm size effect and beta risk and reported that post-merger, acquirer shareholders lose 10% of their wealth over five years. This finding led Agrawal et al. (1992) to conclude that the post-merger anomaly of negative long-term returns to acquirer remains unresolved.

However, Boone and Mulherin (2008) reported no consistent negative returns to bidders. Boone and Mulherin (2008) hypothesized that ex-post negative bidder returns stem from increased competition in the merger market. According to Boone and Mulherin (2008), prior researchers presented a mixed picture due to lack of proper 'benchmark value' for the target's assets. Boone and Mulherin (2008) utilized a discrete variable of 'auction versus negotiation' extracted from their hand-collected data on target bidder interaction prior to any public announcement to get a

more robust measure of ‘merger competition’. They also used other deal- and target-specific variables and reported no significant relationship between takeover competition and ex-post bidder returns. Apart from utilising a more forward-looking profitability measure of net-of-market returns, they utilised a historic performance measure such as operating performance and reported similar results. Dutta and Jog (2009) utilized both ‘BHAR’ and the ‘Fama-French three-factor regression’ following Fama and French (1993) to study ex-post returns to Canadian bidders and reported the presence of no systematic ex-post negative bidder returns. Dutta and Jog (2009) computed BHAR over a 36-month ex-post merger period with individual matching firm returns as the benchmark.

In their key study, Barber and Lyon (1997) compared common approaches found in literature, utilized to compute long-run abnormal stock returns. They compared the computation of cumulative abnormal returns (CAR) and BHAR on a sample of 10,000 randomly selected firms during 1963–1993, and in the process, they highlighted the differences between these two procedures for calculating return. They stated that for testing the null hypothesis related to ‘mean monthly abnormal return’ of a sample firm being equal to zero during an event year, 12-month CAR was utilized. Similarly, Barber and Lyon (1997) stated that for the test statistic related to ‘mean annual abnormal return’ of a sample firm being equal to zero during an event year, annual BHAR was utilized. In their review of calculation procedures, Barber and Lyon (1997) presented a graph between the CAR-BHAR difference and 100 portfolios of BHAR ranking with the benchmark of equally weighted market index, arranged in ascending order. The graph revealed a trend that the CAR-BHAR difference is positive for negative to low positive values of annual BHAR. However, the difference declines for higher values of annual BHAR and drops to negative for even higher values of annual BHAR. Barber and Lyon (1997) attributed this trend to the

computational nature of CAR, which ignores compounding as compared with BHAR that does include the effect of compounding. As an implication, Barber and Lyon (1997) termed the aforementioned case of CAR being a biased predictor of long-run BHAR as a 'measurement bias'. Hence, Barber and Lyon (1997) recommended the utilization of simple BHAR as compared with CAR while computing abnormal returns for long-term studies. Hence, bidder ex-post, BHAR is computed for observing long-term bidder's market performance, the details of which are mentioned in the methodology section.

They also pointed out that utilization of a reference portfolio as benchmark would be problematic due to introduction of the new listing bias, rebalancing bias, and skewness bias. Hence, for benchmark purposes, Barber and Lyon (1997) recommended matching sample firms to 'control firms' on the basis of firm size and market-to-book ratios for reducing all previously mentioned biases.

Therefore, a negative relationship between bidder BHAR and abnormal bid premium offered may be observed, as bidder shareholders react negatively in the long term consistent with the results of studies such as Agrawal et al. (1992). If the UK market has been efficient in the short term with no presence of information asymmetry to hamper the judgement of bidder shareholders, then considering Fama (1998), the full effect of merger announcement should be felt in the short term, which, in results of chapter 5, is also a predominantly negative relationship. Such negative relationship would also have indicated that abnormal bid premium by UK publicly listed bidders was paid as a sign of management's empire building or hubris-related behaviour.

However, a positive or statistically insignificant relationship with abnormal bid premium may also be expected, considering studies such as Boone and Mulherin (2008) and Dutta and Jog (2009), which did not report any consistent negative BHAR for bidders. According to Fama (1998), this

could be interpreted to mean that the UK market reacted otherwise as time progressed after merger announcement when information asymmetry was reduced. A positive relationship would also indicate that abnormal bid premium had been paid by bidder management for attaining possible synergistic benefits. Therefore, the first hypothesis is:

$1H_{Null}$: There is no relationship between abnormal bid premium and bidder BHAR.

$1H_{Alt}$: There is relationship present between abnormal bid premium and bidder BHAR.

6.2.1.1 Bid characteristics

Loughran and Vijh (1997) evidenced that all stock completed mergers earn significantly negative post-merger returns. Loughran and Vijh (1997) conducted a key study comparing ex-post merger long-term stock performance of bidders with cash offer as compared with stock offer. They computed ex-post bidder BHAR for over five years with a matching firm benchmark and utilized it as a dependent variable for the method of payment and tender offer variables. Bivariate regression results by Loughran and Vijh (1997) showed that cash payment increases BHAR by more than 30 percentage point and tender offer increases bidder BHAR by more than 50 percentage points. They evidenced that all stock completed mergers earn significantly negative post-merger returns as compared with cash offers. Hence, second hypothesis is as follows.

$2H_{Null}$: There is no relationship between stock offer and Bidder BHAR.

$2H_{Alt}$: There is negative relationship between stock offer and Bidder BHAR.

In an investigation into the anomaly of post-merger long-term returns measured by CAR, Agrawal et al. (1992) adjusted their sample to firm size effect and beta risk and reported that post-merger, acquirer shareholders lose 10 percentage points of their wealth over five years. This finding led Agrawal et al. (1992) to conclude that the post-merger anomaly of negative long-term returns to

acquirer remains unresolved. Agrawal et al. (1992) mentioned that their research focuses on mergers, and upon examination of data for tender offer, they reported higher acquirer returns for tender offers as compared with merger by other means. Descriptive analysis of our own UK-based data shows that 87 percent points of publicly listed targets are acquired through tender offer. On long-term performance of mergers with tender offer, Agrawal et al. (1992) briefly mentioned that an unreported result found that performance was worse for tenders paid with bidder stock rather than for cash. According to Agrawal et al. (1992), this signified the slow reaction of the market to offer terms, which is against the principles of efficient markets, and hence the market may have been slow to react to merger offer terms. Therefore, the third hypothesis is:

3H $_{Null}$: There is no relationship between tender offer and bidder BHAR.

3H $_{Alt}$: There is positive relationship between tender offer and bidder BHAR.

Regarding toehold, as discussed in literature review subsection 5.2.6 of chapter 5 that market reacts to toehold as its presence reduces information asymmetry according to Povel and Sertsios (2014) and Betton and Eckbo (2000). Furthermore, regression results of chapter 5 in tables 5-15, 5-16, 5-19 and 5-20 indicated a statistically significant positive relationship of toehold to bidder short-term market reaction. In similar vein, bidder shareholders may also react positively in the long term to presence of toehold as its presence may lead to a better merger deal. Hence, I posit the following fourth hypothesis.

4H $_{Null}$: There is no relationship between toehold presence and bidder BHAR.

4H $_{Alt}$: There is positive relationship between toehold presence and bidder BHAR.

6.2.1.2 Hubris

Raghavendra Rau and Vermaelen (1998) evidenced that poor bidder post-merger performance is specific to low market-to-book bidders. Raghavendra Rau and Vermaelen (1998) computed CAR with benchmark portfolio for size and market-to-book ratio for over three years to observe bidder market performance. Subsamples for completed public targets with tender offer were a statistically significant 8.56 percentage points as compared with −2.58 percentage points for a completed merger offer. Such management of overvalued bidder corporations may also suffer from hubris, leading to overestimation of the target and subsequent underwhelming post-merger bidder performance. Hiller and Hambrick (2005) found support for the relationship between bidder CEO hubris and worse subsequent bidder performance, as bidder CEO hubris leads to overpayment.

Croci et al. (2010) also observed long-term market effects by utilizing procedures outlined by Barber and Lyon (1997), in which BHAR was computed as compared with a control firm selected based on the size and market-to-book ratio. Computed ex-post merger BHAR for three years presented a statistically significant −21.75 percentage points return for overconfident bidder CEOs. This evidence also highlighted that the presence of hubris in bigger firms by way of overpayment in merger reduces ex-post bidder market performance.

Hodgkinson and Partington (2008) reported the presence of hubris and the weak form of agency-motivated mergers based on the total gain with bidder and target shareholders in the UK merger market for publicly listed targets and bidders. Presence of hubris according to Hodgkinson and Partington (2008) is evidenced on basis of investigating correlation between target and total gains, as in case of hubris there may be no correlation found as management's expectation of synergies is not realised into actual gains. Hence, in this regard, relationship between payment of abnormal

bid premium and ex-post abnormal performance of combined firm is also discussed in section 6.2.2.2.

6.2.1.3 Internal and External Equity

As indicated in the literature review of chapter 3, Cosh et al. (2006) reported the significant positive relationship between ex-post bidder return and board equity ownership levels. Results have been particularly strong for higher levels of CEO equity ownership, highlighting the role of equity ownership in the resolution of bidder management and shareholder agency conflict in the UK merger market.

Univariate analysis by Cosh et al. (2006) for three-year bidder ex-post BHAR returns showed an increasingly negative BHAR starting at −15.2 percentage points for 0–1% board ownership range to almost −30 percentage points BHAR for 10–15% board ownership range. Multivariate ordinary least squares regression of bidder BHAR ex-post return and board ownership reveals a positive and significant relationship, which shows that one-unit rise in board ownership raises BHAR by one unit. In a separate multivariate analysis by Cosh et al. (2006), the model with the aforementioned dependent variable and bidder CEO equity participation showed that there is a positive and significant relationship between them. A one-unit increase in CEO stockownership leads to 3.76 percentage points increase in BHAR return.

Cosh et al. (2006) found no evidence to indicate the presence of entrenchment effects related to board equity ownership. External block holders have a positive but statistically insignificant relationship. CEO-chairman duality has a negative but statistically insignificant relationship with BHAR.

Dutta and Jog (2009) computed BHAR over a 36-month post-merger period with matching firm returns as the benchmark, wherein the relationship between the computed BHAR is statistically significant and negative with stock payment, and CEO equity ownership in 15-25 percentage points range. Dutta and Jog (2009) evidenced that this relationship was statistically significant and positive with non-independent board and director ownership. However, similar statistically significant relationships were not noted by Dutta and Jog (2009) when they utilized the calendar-time with the Fama-French three-factor model. Therefore, long-term performance evidence according to Dutta and Jog (2009) is inconclusive, as similar relationships were not confirmed with a change in methodology.

$5H_{Null}$: There is no relationship between CEO Equity and bidder BHAR.

$5H_{Alt}$: There is relationship present between CEO Equity and bidder BHAR.

6.2.1.4 Founder presence

Fahlenbrach (2009) argued that founder CEOs make more focused acquisitions. Analysis value weighted and equal weight long-term portfolio, rebalanced annually from 1992 to 2002 for CEO-founder companies, have shown an abnormal return of 10 and 8.5 percentage points, respectively. Multivariate regression between the acquisition count and CEO characteristics showed that the incidence of acquisition has been less for a one-unit increase in CEO stockownership percentage and CEO age and more for founder CEO. In other words, founder CEOs may have better understanding of their firms and its growth requirements, which in turn may have helped such founder CEOs to make superior decisions regarding acquisitions. Furthermore, effect of enhanced acquisition choices by founder may also have a positive effect on post-merger operational performance of firm as synergistic benefits reach fruition.

Hence, effect of founder presence is taken into consideration by inclusion of founder dummy. If results provided by Fahlenbrach (2009) are interpreted in the context of long-term market performance, then a positive relationship between long-term market returns and the presence of a CEO founder is expected. In similar vein, a positive relationship is also expected with ex-post change in operational performance. However, a negative relationship with founder may possibly indicate presence of hubris or overconfidence in founder CEO or chairperson. Thus, sixth and seventh hypothesis is presented as follows.

6H $_{Null}$: There is no relationship between Founder presence and bidder BHAR.

6H $_{Alt}$: There is relationship present between Founder presence and bidder BHAR.

7H $_{Null}$: There is no relationship between Founder presence and bidder Ex-post Operational Performance.

7H $_{Alt}$: There is relationship present between Founder presence and bidder Ex-post Operational Performance.

6.2.2 Bidder Ex-Post Performance

Central to the research area of merger performance is the concept of defining and measuring organizational performance. Before the literature review of post-merger performance, for clarity, 'organizational performance' is reviewed and defined briefly in prior literature. Hence, first, a brief review of firm performance is presented before the literature review of post-merger performance.

6.2.2.1 Firm performance

Different researchers approached the subject area of merger performance and utilized numerous proxies for gauging the success of mergers depending on data availability, time duration of study, and firm performance perspective. However, there has been a lot of debate about not only what defines M&A performance but also the best strategies for measuring it. To better understand the mechanisms of ex-post performance, King et al. (2004) conducted a meta-analytical study and concluded that 'unexplained variables' may explain the variation in previous studies.

Zollo and Meier (2008) argued that M&A performance is a 'multifaceted construct', and hence one comprehensive proxy cannot possibly capture ex-post performance from all viewpoints. Zollo and Meier (2008) suggested that there are two dimensions to the study of acquisition performance, which relate to the 'level of analysis' and 'time horizon' of study. The first dimension of 'level of analysis' is described by Zollo and Meier (2008) as including the task, transaction, and firm levels, while the second dimension of 'time' is related to short-to-medium term and long-term studies. According to the first dimension of Zollo and Meier (2008), benefits of an acquisition are consummated in stages; for instance, at the 'task level', performance of various integration processes can be measured. Similarly, at the 'transaction level', benefits of well-integrated processes are reflected in the top line of the firm, and proposed cost efficiencies from acquisition further increase the bottom line of the firm. Zollo and Meier (2008) explained that 'firm level' is the broadest of all levels, as it reflects the effects of the previous two levels on other business processes of the post-acquisition firm.

Hence, for this research, ex-post bidder performance is proxied by operating cash flow, as it adequately captures both top and bottom line benefits, which have not been effected much by accounting-based manipulation. Zollo and Meier (2008), in their review of acquisition

performance, pointed out that short-term event-based methodology was followed in majority of studies, as compared with long-term event-based studies, which academicians have only utilized in relatively recent works. Furthermore, Zollo and Meier (2008) mentioned that long-term accounting-based acquisition performance methodology is followed mostly in the subject areas of strategic management and organizational studies.

6.2.2.2 Operational performance

Healy et al. (1992) conducted their analysis of post-acquisition operating performance on a relatively small sample of 50 merged firms and provided evidence in support of operational performance increase. Ex-post and ex-ante operating performance for both the target and bidder was measured five years before and after the merger. Operating performance was computed as earnings before interest and tax (EBIT) scaled by sales, regressed ex-post industry-adjusted operating performance on ex-ante combined industry-adjusted operating performance, and utilized intercept as a benchmark. Results showed that bidder industry-adjusted ex-post operating performance increases by 0.2 percentage points, which is attributed to increased asset turnover by Healy et al. (1992). The short-term measure of abnormal returns over a three-day event window has a significant and positive relationship with bidder industry-adjusted ex-post operating performance, and as Healy et al. (1992) evidenced, abnormal announcement returns signify a change in market expectations after merger.

Powell and Stark (2005) compared two different methodologies on UK-based merger data to analyse ex-post operating performance improvement. They also compared pure cash and accounting-based operating performance measures scaled with sales, total assets, and market value (MV). According to Powell and Stark (2005), regression-based benchmarking methodology by Healy et al. (1992) leads to relatively inflated results. Results are sensitive to the choice of scaling

parameter utilized and proxy of operating performance. Furthermore, Powell and Stark (2005) found no relationship between form of payment and post-merger performance. However, the overall results provide strong evidence of operating performance improvement for UK-based bidders, which, according to Powell and Stark (2005), is in contrast with US-based studies such as Ghosh (2001).

Investigating operational performance for horizontal mergers, Fee and Thomas (2004) reported that change in operating cash flow scaled by sales was positive and most noticeable in the year after the merger. Furthermore, Fee and Thomas (2004) indicated that such change in subsequent post-merger years seemed to reverse as data in the third year of the merger indicated a negative change. Hence, Fee and Thomas (2004) concluded that operating performance improvement in the year after the merger is only temporary in nature, as, in the long run, any strategic benefits accrued as a result of merger may be eroded by other firms taking counter-strategic measures of their own.

Three-year ex-ante and ex-post merger operating performance was measured by Dutta and Jog (2009) with 'cash flow to total assets ratio' according to Healy et al. (1992)'s industry-mean adjusted criterion and Ghosh (2001)'s performance matched criterion. Similar results were reported by Dutta and Jog (2009), as 'industry-mean adjusted based returns' show a positive 1.3 percentage point mean difference in annual performance. However, matching firm-based methodology showed a statistically insignificant −0.6 percentage point 'post-pre mean difference in operating performance'. A later result provided support for the results of Ghosh (2001), which also report no operating performance improvement in bidder when sample firms are matched on performance and size instead of industry-median benchmarks. Hence, change in methodology from an industry-median based match, as per Healy et al. (1992), to pre-acquisition based firm match on operating performance change led Ghosh (2001) to conclude that there is no post-

acquisition increase in the operating cash flow of merged firms. Ghosh (2001) argued that industry-median based outperformance disappears when pre-acquisition superior performance of bidder firms, as indicated by Barber and Lyon (1996), is accommodated for changed methodology. In other words, Ghosh (2001) implied that acquisition may not lead to superior performance.

Dickerson et al. (1997) investigated post-merger performance of publicly listed UK firms and reported that profitability has suffered, and the results were independent of whichever rate of return measure was utilized. Hence, Dickerson et al. (1997), based on their long-term study, concluded that for UK publicly listed firms, merger has not led to any performance boost as measured by profitability. Martynova and Renneboog (2008), in their literature survey, indicated that 14 out of 26 studies indicated a decline in post-merger operational performance. Furthermore, based on extant literature, Martynova and Renneboog (2008) observed that proposed synergistic post-merger benefits are generally unattainable or exaggerated. In other words, aiming for 'generally unattainable' post-merger benefits points towards presence bidder management hubris.

Agrawal and Jaffe (2003) investigated the 'target inefficient management hypothesis' by measuring long-term pre-acquisition target performance from the market and operating profit perspectives. Operating performance measures of 'return on assets' (ROA) and 'operating return on sales' were utilized by Agrawal and Jaffe (2003) after adjusting for firm size, industry, and past performance. Market-based performance was controlled for firm size, book-to-market ratio, and market momentum. Hence, Agrawal and Jaffe (2003) reported no support for the performance-related disciplinary takeover and corroborated the results of previous literature.

In extant literature, investigating the relationship between change in post-merger abnormal operational of combined firm and abnormal bid premium it can be observed if bidder management overpaid to attain synergistic benefits or to engage in self-interest. Hence, considering that

abnormal bid premium may have been paid under the shareholder welfare hypothesis for realizing potential post-merger synergistic benefits, then a positive relationship is expected between change in abnormal operational performance and abnormal bid premium, considering studies such as Healy et al. (1992). Furthermore, according to argument of Ghosh (2001) and Dutta and Jog (2009), industry-median difference leads to biased results, and the firm-matching methodology did not indicate the presence of any increase in operational performance of a merged firm. Therefore, considering Dutta and Jog (2009), no relationship is expected between ex-ante firm matched abnormal operational performance and abnormal bid premium paid. However, in case abnormal bid premium has been paid under the managerial welfare hypothesis, then a negative relationship is expected, as the performance of a post-merged firm may suffer due to overpayment by bidder management because of governance-related issues. Therefore, hypothesis related to bidder ex-post operation performance is presented as follows.

$8H_{Null}$: There is no relationship between abnormal bid premium and bidder Ex-post Operational Performance.

$8H_{Alt}$: There is relationship present between abnormal bid premium and bidder Ex-post Operational Performance.

6.2.2.3 Bid characteristics

As discussed in the literature review of chapter 5, studies such as Fishman (1989) suggested that an all cash offer signals high target valuation. Dutta and Jog (2009) evidenced that all cash offer acquisitions have better post-merger performance as compared with stock offers and identified reasons why stock-based acquisitions do not reflect fruition of synergistic gains.

Using US-based data, Heron and Lie (2002) analysed if there is a relationship between ex-post bidder operational performance and payment choice. Operating performance is a measure of a firm's profitability from its core functions and is usually computed as an accounting ratio. In other words, it signifies real gains in terms of the post-merger performance, from a fundamental perspective, which is proxied by the Earnings before interest tax depreciation and amortisation (EBITDA) and scaled by total assets or sales in the extant literature, such as in Cosh et al. (2006) and Yen and André (2007).

The operational performance indicator has been measured by accounting-based operating income divided by sales. Heron and Lie (2002) advised against the utilization of MV as a deflator considering the market's positive reaction to increase in performance. The control firm, for benchmarking purposes, was filtered first on the basis of a two-digit standard industrial classification (SIC) code, and then the firm with the nearest operating performance in the year before the merger was selected. Benchmark comparison for bidders prior to merger was done with the matching bidder control firm, and after merger, sales-based weighted average of the target and bidder control firm was used for comparison. Heron and Lie (2002) found no evidence of a relationship between the method of payment and ex-post merger operational performance. However, Heron and Lie (2002) pointed out that improvement in operating performance is higher when the target has lower market-to-book ratio and belongs to the same industry. The regression result between change in bidder operating performance and deal variables showed that high bidder market-to-book ratio leads to significantly positive change in bidder operating performance. Commenting on the results, Heron and Lie (2002) suggested that short-term market reaction to the payment method may be related to bidder's change in capital structure when offering cash as the method of payment.

Linn and Switzer (2001) argued that the impact of choice of payment should be studied in the long-term combined ex-post operational efficiency of the bidder. According to Fishman (1989), choice of payment is used by bidders to signal initial high target valuation, thus pre-empting competition and effectively closing the door for further competitive bids. Therefore, Linn and Switzer (2001) tested the five-year pre and post combined operating performance. Operating performance was proxied with earnings before interest, taxes, depreciation, and amortization (EBITDA) and adjusted for the firm and industry median. Ex-ante combined operating performance was computed as weighted averaged MV of the target bidder, and industry portfolio was identified based on a four-digit SIC code. Change in ex-ante excess operating performance was measured by Linn and Switzer (2001) as the difference of combined operating performance and weighted average performance of industry portfolio. Similarly, excess operating performance was measured as the difference of bidder ex-post merger operating performance and industry portfolio. Computed excess operating performance for each of the five years before and after merger showed that all cash payment offered 3.14 percentage points return as compared with all stock, which offered 0.77 percentage points industry-adjusted improvement. Hence, bidders who have paid with the all-cash option have insider information about possible merger synergies, which they signal to the market with the method of payment. Hence, a positive relationship is posited between abnormal operating performance and cash offers and vice versa for stock offer. Thus:

$9H_{Null}$: There is no relationship between stock offer and bidder Ex-post Operational Performance.

$9H_{Alt}$: There is negative relationship between stock offer and bidder Ex-post Operational Performance.

Furthermore, regarding tender offer, Offenberg and Pirinsky (2015) showed that bidder rivals also suffer decrease in ex-post operational performance, as the change in ROA is −2.73 percentage

points in the case of tender offers as compared with the 1.54 percentage point change in ROA in the case of mergers. However, Banerjee et al. (2015) reported a statistically insignificant negative relationship between industry-adjusted change in operating performance measured by the bidder, with EBIT scaled by sales and tender offer as a control variable. Therefore, considering extant literature:

10H $_{Null}$: There is no relationship between tender offer and Bidder Ex-post Operational Performance.

10H $_{Alt}$: There is negative relationship between tender offer and Bidder Ex-post Operational Performance.

6.2.2.4 Board and CEO equity

As discussed in the literature review of chapter 5, Cosh et al. (2006) suggested that board equity participation level has implications for shareholder welfare, as little or no participation levels may lead to 'empire building', and although the right levels of equity participation serve to alleviate agency-related concerns, still higher levels of equity participation may lead to 'management entrenchment'. Change in operating performance was computed as the difference of 'combined ex-ante weighted average performance of target and bidder in years −3 to −1' to 'post event bidder performance +1 to +3 years'. Performance was measured based on EBITDA and operating cash flow scaled with total assets, sales, and MV of assets. Hence, Cosh et al. (2006) utilized the aforementioned parameters in six ratios for measures of bidder operating performance, with control firms matched by industry and profitability.

However, Cosh et al. (2006) also reported other key results pertaining to CEO ownership that indicate that higher CEO equity participation level leads to better acquisitions in terms of post-

merger performance. In this regard, Cosh et al. (2006) indicated that particularly strong results for higher levels of CEO equity ownership highlight the role of equity ownership in the resolution of bidder management and shareholder agency conflict in the UK merger market. According to Cosh et al. (2006), the aforementioned result holds for both long-run results and operating performance variables. Thus:

11H $_{Null}$: There is no relationship between CEO equity and bidder Ex-post Operational Performance.

11H $_{Alt}$: There is positive relationship between CEO equity and bidder Ex-post Operational Performance.

Carline et al. (2009) evidenced the presence of a statistically significant positive relationship between change in ex-post operating cash flow and total board equity participation. However, Carline et al. (2009) shed new light on the topic by computing the Theil index of dispersion for board ownership and showed that concentrated or non-uniform equity participation in board members decreases operating performance. Overall, there seems to be some evidence to indicate that the presence of an independent board and CEO equity-based incentive alignment contributes to post-merger performance. Thus:

12H $_{Null}$: There is no relationship between board equity and bidder Ex-post Operational Performance.

12H $_{Alt}$: There is positive relationship between board equity and bidder Ex-post Operational Performance.

However, according to Banerjee et al. (2015), control variables of cash offer and relative deal size as well as the main variable of interest CEO overconfidence have a statistically significant and

positive relationship with dependent variables. Banerjee et al. (2015) stated that CEOs' personal characteristics such as age and tenure do not appear to drive any operating performance results.

6.2.2.5 External block-holder

Yen and André (2007) studied the relationship between ownership concentration and post-acquisition performance in a cross-country analysis of English-origin countries. According to Yen and André (2007), English-origin countries have 'strongest investor protection rules', and hence they should provide an interesting case to study whether concentrated ownership leads to improvement in performance. Yen and André (2007) argued that in prior literature, since concentrated ownership helps in monitoring management, it should lead to better acquisition decision making, reflected in increased operating performance after merger. Yen and André (2007) measured performance improvement by comparing three years' ex-ante combined operating performance with three years' ex-post bidder operating performance, which was proxied by EBITDA scaled by MV. Combined operating performance was computed as the MV weighted average of target bidder's EBITDA. The firm-matching criterion was based upon Barber and Lyon (1996) to ensure the matching ROA range for the matching firm is kept between 50 to 150 percentage points of the sample firm. The independent variable of interest, that is, concentrated ownership, is taken as a dichotomous variable with shareholding greater than or equal to 10 percentage points. Control variables related to the deal and the country-specific control variable were included in OLS-based regressions. Yen and André (2007) reported that a large concentration of ownership leads to 2.9 percentage points change in performance; however, this relationship is not present for an ownership concentration of less than 20 percentage points. Hence, Yen and André (2007) evidenced the presence of a non-linear relationship between concentrated ownership and three-year post-acquisition performance.

Carline et al. (2009) also provided evidence of a statistically significant positive relationship between the Herfindahl index of external block holders that is greater than 3 percentage points and change in the ex-post operating performance. Together, these studies indicated that the presence of large blocks of external block holders positively influences operating performance, possibly by increased monitoring of management actions. Hence, considering studies such as Carline et al. (2009), a positive relationship is expected with the presence of external block holders. Therefore:

13H $_{Null}$: There is no relationship between external block-holder and bidder Ex-post Operational Performance.

13H $_{Alt}$: There is positive relationship between external block-holder and bidder Ex-post Operational Performance.

Together, these studies in literature review 6.2 suggest that bid premium paid may influence the long-term ex-post performance of the combined firm. Hence, abnormal bid premium measure may serve as a better proxy to observe the long-term relationship with ex-post performance of the firm. In other words, if abnormal bid premium is a valid measure of bid quality then ex-post performance of firm would suffer from overpayment and vice versa flourish. Extant literature indicates the buy and hold abnormal return (BHAR) as a measure to observe long-term market reaction and firm matched operational performance as an appropriate proxy to measure the ex-post combined firm performance.

Therefore, hypotheses regarding ‘abnormal bid premium’ along with other bid and governance considerations in this literature review examines the relationship with ex-post performance, in terms of BHAR and firm matched operational performance, as indicated in discussed extant

literature. A summary related to hypotheses presented in chapter 6 is present in an appendix, which provides an overview of the relationships that are discussed in this literature review section. In the next section 6.3 mythology related to computation of BHAR and ex-post firm matched operational performance is presented.

6.3 Methodology

Evidence of the market's over- and under-reaction and its adjustment in the long run by Werner and Thaler (1985), and by subsequent studies such as Lakonishok et al. (1994) and Eberhart et al. (2004), have necessitated that events should also be studied in the long term. Eberhart et al. (2004) studied the long-term impact of abnormal increases in research and development (R&D) expenses on the operating performance of firms and market return. Hence, previous researchers such as Healy et al. (1992) and Harford et al. (2012) suggested the use of EBIT scaled by sales, while Cosh et al. (2006) and Yen and André (2007) suggested the use of EBITDA scaled by sales and total assets.

For this study, the latter option is selected to serve as a proxy for accounting-based bidder performance. EBITDA or 'operating cash flow' based return is not susceptible to accounting-based manipulation as compared with other accounting measures such as ROA or return on equity, wherein the bottom-line profitability figures may be manipulated by bidder management to present a better picture to their shareholders. Target and bidder firms are matched one year prior (year−1) to the merger, based on their respective EBITDA scaled by total assets, industry, and market-to-book value, to compute the pre- and post-merger combined operational performance variable to meaningfully compare bidder performance three years after the merger.

Eberhart et al. (2004) found evidence of significant positive abnormal stock returns for the five-year period post increment in R&D expense, and they provided this result as evidence of systematic market under-reaction. Barber and Lyon (1997) pointed out that the main difference between CAR and BHAR is compounding, as CAR ignores the compounding of returns. Hence, Barber and Lyon (1997) recommended the use of simple BHAR as compared with CAR while computing abnormal returns for long-term studies, that is, those longer than one year. Ang and Zhang (2004) also argued

in their review paper evaluating long-term event studies that the impact of an economic event felt in the market during a long-term study goes against the principles of the efficient markets hypothesis. Hence, we propose to observe the long-term market reaction or ex-post merger performance measured by BHAR. Abnormal returns are proposed to be computed based on a market model with parameters calculated one year prior and three weeks before the event date. Barber and Lyon (1997) suggested the utilization of a matching Fama-French three-factor model in Fama and French (1993), and hence, for market-based BHAR, we have computed three factors. Daily data for the computation of market, size, and value factors for UK publicly listed companies can be accessed from the Exeter Business School's website.

In order to measure operational post-merger performance growth, an additional variable, henceforth referred to as operational abnormal cash flow, has been computed as inspired from Lie (2005). Although in literature, as mentioned earlier in Section 6.2.2.3, EBITDA is utilised as a proxy for cashflow, there are differences due to which it may not fully reflect cashflow. For instance, it does not consider cash requirement due to a change in working capital.

Abnormal cash flow is computed to measure post-merger operational performance, preferably devoid of any accounting-based earnings manipulation. Hence, as indicated, EBITDA scaled by total assets (TA) is taken as an indicator of operational cash flows, as this parameter should offer a proxy for meaningful comparison of operational performance between publicly listed UK firms. Abnormal performance is measured by selecting a matched firm for each target and bidder in the year before the merger on the EBITDA/TA ratio, industry, and market-to-book ratio. Hence, change in abnormal performance is computed as the difference in ratio to the matched firm as follows:

Equation 6-1

$$Abnormal\ Cashflow\ one\ year\ before\ merger$$

$$= \left\{Target\frac{EBITDA}{TA} - Matched\ Target\ \frac{EBITDA}{TA}\right\} \times Target\ Market\ weight$$

$$+ \left\{Bidder\frac{EBITDA}{TA} - Matched\ Bidder\ \frac{EBITDA}{TA}\right\} \times Bidder\ Market\ weight$$

Equation 6-2

$$Abnormal\ Cashflow\ 1\ to\ 3\ years\ after\ merger$$

$$= Bidder\frac{EBITDA}{TA} - \left\{Matched\ Target\frac{EBITDA}{TA} \times Target\ Market\ weight\right\}$$

$$+ \left\{Matched\ Bidder\frac{EBITDA}{TA} \times Bidder\ Market\ weight\right\}$$

MV weights of both target and bidder are calculated only in the year prior to the merger as follows:

Equation 6-3

$$Target\ Market\ Weight = \frac{Target\ MV}{(Target\ MV + Bidder\ MV)}$$

Equation 6-4

$$Bidder\ Market\ Weight = \frac{Bidder\ MV}{(Target\ MV + Bidder\ MV)}$$

Target and bidder-based firm matches are done in STATA by utilizing the propensity score matching (PSM) technique (Becker and Ichino, 2002). PSM is performed in the year before merger based on year and firm ratio EBITDA/TA and market-to-book value. Year zero is marked as the year of the merger and excluded from any post-merger computations. Firms that have been involved in any merger activity are excluded from the matching pool of firms for one year prior and five years after the merger; however, they have been allowed back into the pool after the exclusion period. This exclusion criterion has prevented a biased matching firm pool as compared

with the blanket exclusion criterion of removing all firms involved in any merger activity for the duration of our sample. Please refer to section 6.3.1 for further detail on PSM methodology.

Finally, the difference for newly created firm-matched operational performance variable has been calculated, considering one year prior to merger as the base year for computing performance as follows for all three post-merger years:

Equation 6-5

$$Difference\ in\ Abnormal\ Cash\ Flow\ year\ -1\ to\ +1,+2,+3\ = Abnormal\ Cash\ Flow\ year\ +1,+2,+3\ - Abnormal\ Cash\ Flow\ one\ year\ before\ merger$$

In order to maintain consistency for result comparison with the short-term market reaction study performed in chapter 5, same bidder model specifications are utilised and only dependent variable is changed to bidder BHAR and ex-post operational performance. Model selection is further discussed in section 6.6. However, not all regression results are presented; only relevant results are presented and discussed in the empirical results section.

Heinrich et al. (2010) in their study of PSM technique have indicated this technique to be 'one of the most important innovation' for a matching method. Rosenbaum and Rubin (1983) presented propensity score technique as means to remove bias in treatment effect estimation. Hence, Heinrich et al. (2010) mentions that it's been utilised extensively in literature as matching tool in economics, finance and medicine related research.

6.3.1 Firm Matching Technique: PSM

I utilize propensity score matching (PSM) technique for matching Target and bidder-based firm in STATA as per Becker and Ichino (2002). First, matching pool of UK publicly listed firms are coded to indicate treatment variable and it receives value of '1' (or treated) if firm is involved

in any merger activity; otherwise value is coded as zero (or untreated). Next, propensity score match score is computed for firms on performance indicators of EBITDA/TA & Market-to-Book Ratio for each year. Balancing property test of the propensity score in STATA is performed and output indicated that 'The balancing property is satisfied'.

The 'firm match' is performed in the year prior to merger, based on year and firm ratio of EBITDA/TA and market-to-book value. Year 'zero' is marked as the year of the merger and is excluded from any post-merger computations. Moreover, firms that have been involved in any merger activity are also excluded from the 'matching pool' of firms for one year prior and five years after the merger. However, they are allowed back into the pool after the exclusion period. This exclusion criterion prevents match from a biased matching firm pool, as compared with the blanket exclusion criterion of removing all firms involved in any merger activity for the duration of our sample. Matching Algorithm utilized is 'nearest neighbor', as Heinrich et al. (2010) describes it as 'most straightforward matching procedures' as match is chosen on the closest propensity score. Tolerance of match is indicated by 'caliper', which has been set at 0.02 in this case. Hence, match tolerance has been set at a very narrow range to ensure closet matches possible.

The following table 6-A presents STATA output for mentioned psmatch2 command, which indicates that 'Average Treatment Effect on the Treated' (ATT) has almost zero difference with their matched firms. ATT is the average effect of treatment (i.e. merger) on the group of firms that received treatment. T-statistic for matched firms indicates that null hypothesis of no statistical significance between matched and its treated samples is not rejected. Hence, STATA output reflects that firms are indeed appropriately matched.

Table 6-A STATA T-test output for PSM match

SATA output related to matched firms indicates that 'Average Treatment Effect on the Treated' (ATT) has got almost zero difference. Moreover, a statistically insignificant difference in mean indicated by computed T-statistic, confirms that firms are appropriately matched.

Sample	Treated	Controls	Difference	S.E.	T-stat
Unmatched	0.04595	-0.05988	0.10583	0.04865	2.18
ATT	0.04898	0.05435	-0.00537	0.00814	-0.66

6.4 Sampling

The same sample for bidder is utilized as mentioned chapter 5; however, sample size has been reduced due to unavailability of bidder price data or financial data for bidder and matched firm data. Unavailable accounting data are also included from the last available financial statement of targets wherein accounting data have not been available for a year prior to the merger. For details, refer to Table 4-1 Sample Filtration table for first and second regressions..

Table 6-1 Sample filteration

Stepwise filtration for which cumulative abnormal returns are computed for the target and bidder cases.

Sr.	Final Sample for M&A Cases	M&A Cases
1	Bidder sample in chapter 5	212
2	Bidder BHAR 12 computed sample size	207
3	Bidder firm-matched operational performance computed	171

6.5 Summary statistics

The statistical summary is indicated for the sample in following Tables 6-2 through 6-5. In Table 6-2, the BHAR for the bidder 12 months after the post-merger period was −0.1 percentage points on average, which has gone down to almost −12 percentage points for the period of 24 months. Hence, long term market reaction to the sample merged firm on average has become increasingly negative. Overall, Table 6-2 presents descriptive statistics that indicate that bidder shareholders on average continue to react negatively in the long term and to a merger, as they did in the short term as mentioned in Table 5-3 of chapter 5. Hence, sample means have indicated that bidder shareholders on average have not changed their initial negative market reaction to merger news. Regarding bid premium, although the mean final bid premium of almost 35 percentage points has been offered, the sample mean negative abnormal bid premium value of 4.5 percentage points indicates that bidders generally do not overpay for their targets for the sample.

Table 6-2 BHAR Statistical Summary

BHAR calculated with three-factor Fama. Data are winsorized at 5%.

VARIABLES	N	mean	med	sd	min	max
Final Bid Premium	210	0.3461	0.3146	0.3904	-0.9098	1.4425
Abnormal Bid Premium	207	-0.0432	-0.0458	0.2996	-1.5324	1.0430
BHAR 12 Months	207	-0.0094	-0.0035	0.3061	-0.5255	0.8221
BHAR 24 Months	203	-0.1246	-0.1447	0.3218	-0.7008	0.5084
BHAR 36 Months	186	-0.2076	-0.2239	0.3054	-0.7294	0.4060

In Table 6-3, descriptive statistics related to the target and bidder financial summary are tabulated in the year prior to merger. The targets have mean return of 6 percentage points on total assets as

compared with bidders, which on average have earned a return of 9 percentage points on their assets. Further comparison between target and bidder indicates that for the UK merger market, bidders are generally 6 times larger than their chosen target according to their MVs one year prior to merger. Similar comparison with total assets indicates that bidders are 15 times bigger than the target.

Table 6-3 Target and bidder financial Statistical summary

Target and bidder financial summary one year before merger. Accounting-based data are mentioned in thousands. Panel A presents a statistical summary of the target, and Panel B presents an accounting statistical summary of bidder firms in our sample.

Panel A: Target					
Target Variable*	Obs	Mean	Std. Dev.	Min	Max
EBITDA	213	38,565.50	206,346.30	-504,000.00	2,091,000.00
TA	213	272,406.00	808,764.00	1,767.00	7,680,000.00
MV	213	481.89	3,339.98	0.80	46,863.58
EBITDA/TA	213	0.06	0.30	-3.47	0.78
EBITDA/MV	213	0.08	0.29	-2.42	0.82
Panel B: Bidder					
Bidder Variable**	Obs	Mean	Std. Dev.	Min	Max
EBITDA	195	275,847.10	863,777.60	-14,227.00	6,875,511.00
TA	196	4,293,194.00	19,500,000.00	694.00	162,000,000.00
MV	200	2,988.40	12,274.83	0.58	122,427.40
EBITDA/TA	195	0.09	0.18	-1.20	0.52
EBITDA/MV	195	0.11	0.20	-1.22	0.80

Summary of the calculated target and bidder pre-merger weights according to MVs in Table 6-4 reveals that merged firms on average have 3:7 target to bidder ratio according to their MV weights. Hence, bidders are bigger firms as compared with target firms in our sample average for UK publicly listed firms.

Table 6-4 Target and bidder's calculated MV weights one year before merger.

MV is indicated in millions.

Variable	Obs	Mean	Std. Dev.	Min	Max
Target MV*	197	467.03	3,449.15	0.80	46,863.58
Bidder MV*	197	2,852.20	12,268.57	0.58	122,427.40
Target TA	197	252,555.70	809,327.20	1,767.00	7,680,000.00
Bidder TA	193	4,235,656.00	19,600,000.00	694.00	162,000,000.00
Target EBITDA/TA	197	0.0606	0.3113	-3.4749	0.7777
Bidder EBITDA/TA	192	0.0928	0.1739	-1.2019	0.5210
Target MV Weight	197	0.2908	0.2320	0.0014	0.9492
Bidder MV Weight	197	0.7092	0.2320	0.0508	0.9986

In the statistical summary mentioned in Table 6-5, differences between pre and post merger firm-matched abnormal cash flow are presented. Average difference of the first year of post-merged and pre-merged firms indicates an almost 0.8 percentage point increase in abnormal cash flow based return. Average difference increased to almost 3 percentage points in the next two years.

Table 6-5 Computed abnormal cashflow Statistical Summary

Difference in the calculated abnormal cash flow variable from one year before merger to the post-merger years. Data are winsorized at 5%.

Variable	Obs	Mean	Med	Std. Dev.	Min	Max
Post-Merger (+1) - Pre-Merger (-1)	171	0.0080	0.0031	0.1313	-0.2628	0.3195
Post-Merger (+2) - Pre-Merger (-1)	169	0.0119	-0.0054	0.1345	-0.2541	0.3207
Post-Merger (+3) - Pre-Merger (-1)	147	0.0295	0.0117	0.1692	-0.3018	0.4639

Hence, descriptive statistics for our sample indicate that, on average, merged firms experience positive and increasing abnormal operational performance difference in the post-merger period up to three years. Hence, according to the sample, UK publicly listed bidders on average are larger firms as compared to UK publicly listed targets, and bidders on average do not overpay for their targets considering the average abnormal final bid premium statistics. Mergers, on average, have increased ex-post firm-adjusted operational performance in our sample.

6.6 Empirical results

Empirical results have been presented for our regression by utilizing bidder BHAR computed post-merger completion until 36 months and the difference in operating performance of the combined firm until the third year post-merger as dependent variables. In this chapter 6, for brevity, all models related to bidder in chapter 5 are not discussed, and only Model 2 with the strongest specifications in chapter 5 from Tables 5-14 to 5-21 are presented. Variables pertaining to the values of bidder CEO compensation, options, and equity before merger in Model 3 of chapter 5 are not found suitable to study the long-term effects, as they may have changed after the merger due to the change in bidder's market price in the post-merger period. Similarly, Models 4 and 5 in Tables 5-14 to 5-21 are also not utilized due to the presence of interaction variables with the value of bidder CEO compensation and options. The interaction with variables such as the CEO's compensation or options with the abnormal bid premium is unsuitable for examining the long-term effects because their value may change in the post-merger period. Hence, in order to maintain consistency with the short-term study in Chapter 5, only Model 2 is utilised for studying the post-merger bidder operation and market performance.

Results of the aforementioned regression models are presented in Table 6-6 for post-merger operating performance change and in Table 6-7 for post-merger BHAR.

6.6.1 Firm matched abnormal operating performance difference

Empirical results for change in firm matched abnormal operating performance as a dependent variable are summarized in Table 6-6 for post-merger years one, two, and three in Models 1, 2, and 3, respectively. In Model 1, the relationship between change in operating performance in post-merger year one and abnormal bid premium is highly statistically significant and positive. Hence, considering the statistically significant results, null hypothesis 8 related to abnormal bid premium

is rejected. The relationship indicates that post-merger performance boosts the combined firm, which indirectly supports the results of studies such as Healy et al. (1992) and Powell and Stark (2005), which indicated that industry-adjusted performance increases the median by almost 2 percentage points in all three post-merger years.

Table 6-6 Post-merger firm-matched combined firm operational performance as dependent variable regression results with abnormal bid premium and governance variables.

*Robust standard errors are mentioned below the coefficients in parentheses, and statistically significant results are mentioned as *** p<0.01, ** p<0.05, and * p<0.1.*

VARIABLES	(1) Ab CF Diff (-1 to +1)	(2) Ab CF Diff (-1 to +2)	(3) Ab CF Diff (-1 to +3)
A_BPR	0.0593**	-0.0245	-0.0766*
	(0.0284)	(0.0355)	(0.0460)
Tender Offer	0.0418	0.0178	-0.0259
	(0.0343)	(0.0308)	(0.0494)
Stock Offer % in Payment Mix	0.00007	-0.000151	0.000492
	(0.000237)	(0.000276)	(0.000376)
Toehold %	0.000119	0.000625	0.00107
	(0.00165)	(0.00180)	(0.00178)
Board Ind Director %	0.000735	0.000598	0.00175
	(0.000740)	(0.000740)	(0.00112)
Ind Dir Equity %	0.00326	0.00342	-0.000757
	(0.00470)	(0.00500)	(0.00609)
Count of Block holder >= 5%	0.0138**	0.0116**	0.0170**
	(0.00558)	(0.00477)	(0.00730)
CEO Tenure	0.00305	0.00159	-0.00253
	(0.00644)	(0.00512)	(0.00705)
CEO Tenure Squared	0.0004	0.0003	0.000224
	(0.000328)	(0.000210)	(0.000298)
CEO Equity %	0.00180	0.00297	0.00470
	(0.00391)	(0.00471)	(0.00831)
CEO Equity % Squared	-0.00004	-0.0000	-0.00008
	(0.00008)	(0.000156)	(0.000304)
Chairman or CEO Founder =1	0.0683*	0.0720*	0.254***
	(0.0357)	(0.0411)	(0.0699)
Constant	-0.149*	-0.0915	-0.175*
	(0.0834)	(0.0611)	(0.0889)
Observations	163	161	141
Adjusted R-squared	0.074	-0.008	0.094
Prob > F	0.000152	0.0954	0.000

It is apparent from Table 6-4's summary statistics that the mean post-merger performance for our sample is positive, and hence on average our sample firms benefit from a merger with a peak means sample value of 0.03 units.

As mentioned, the aim of this research is to study the relationship between ex-post bidder return and payment of abnormal bid premium, for which results indicate that one standard deviation change in abnormal bid premium of 30 percentage points results in almost 0.02 units increase in the abnormal operating performance of bidders. Hence, in the first year after merger payment, abnormal bid premium increases the abnormal operating performance of combined firms in our sample.

However, relationships in Table 6-6 indicate the presence of a statistically insignificant relationship in post-merger year two and a negative borderline statistically significant relationship in post-merger year three, mentioned in Models 2 and 3, respectively. The regression for Model 2 has the lowest explanatory power, as indicated by the low-adjusted r-squared scores and p-value of the F-statistic, which indicates borderline statistical significance for the overall regression. Hence, it can be concluded that there has been no relationship between the abnormal bid premium and bidder abnormal post-merger performance in the second year.

The relationship between abnormal bid premium and third-year abnormal performance is borderline statistically significant. According to the result in Model 3 of Table 6-6, one standard deviation change in abnormal bid premium leads to a decrease of 0.023 units in abnormal bid premium. A comparison of the two results reveals that the post-merger performance boost acquired in the first year has been eroded in later years. As indicated earlier, it should be noted that sample means for combined ex-post abnormal operational performance are positive and increasing for all three post-merger years. Hence, it can be concluded that abnormal bid premium paid by UK

publicly listed bidder management led to an initial but temporary boost in abnormal performance, which may have eroded three years after the merger. Hence, statistically significant results presented in model 1 and 3 of table 6-6 regarding abnormal bid premium, suggest that null hypothesis 8 may be rejected. Furthermore, based on these relationships, it can be concluded that abnormal bid premiums are paid by bidder management for anticipated synergies; however, benefits from these synergies are temporary in nature. According to hypothesis discussed in literature review, initial positive statistically significant point to possible early synergies, but long-term relationship seems to be indicative that bidder management have over paid for these synergies. This result is also consistent with market's initial short-term interpretation mentioned in chapter 5.

Overall, with the exception of the first year, in the long run, there appears to be a negative or no relationship between payment of abnormal bid premium and abnormal operating performance, and this result provides support to studies such as Ghosh (2001) and Dutta and Jog (2009). The transient nature of the relationship also provides indirect support to the conclusions of Fee and Thomas (2004); a similar relationship was presented in their study on the same industry's mergers. As mentioned, Fee and Thomas (2004) reasoned that any synergistic benefits acquired by a combined firm would be eroded by counter actions taken by other competitive firms as a result of merger. Hence, considering Fee and Thomas (2004) the overall results indicated that any abnormal bid premium paid by the bidder ex-ante for synergistic benefits may initially yield abnormal operational cash flow, before other competitive firms adapting strategies to the merger lead to erosion of such abnormal performance in later years after the merger. Therefore, it cannot be concluded that abnormal bid premium paid by UK publicly listed bidder firms was under the management welfare hypothesis, as payment of abnormal bid premium led to an initial increase in

abnormal operating cash flow. However, this initial boost in performance was not sustained, which indicates that ex-post bidder management may have paid an abnormal bid premium for only an initial increase in performance. Based on these relationships, it can also be argued that bidder management may have focused on short-term performance improvement through merger.

Regression results regarding the remainder of deal characteristics reveal statistically insignificant relationship with the change in operation performance for all post-merger years in Table 6-6, and hence null hypothesis number 9 and 10 regarding stock and tender offer respectively, cannot be rejected. Presence of tender offer has a positive relationship in Models 1 and 2, but it turned negative in the last year. Coefficients of stock offer are near zero and highly statically insignificant to indicate a meaningful relationship with change in operational performance for all post-merger years. The level of toehold in the target prior to the merger announcement has a positive and statistically insignificant relationship for all post-merger years in Table 6-6. A similar positive but statistically significant relationship is evident in Table 6-7, which indicates that the presence of toehold is viewed by bidder shareholders as reducing information asymmetry, and it may have contributed to increasing ex-post operational performance by aiding bidder management to offer an adequate bid premium to target shareholders.

Regarding board independence, the relationship indicates that level of independent non-executive directors (NED) in a board contribute to an increase in operational performance in the post-merger years. Although the relationship is statistically insignificant in Models 1 and 2 of Table 6-6, it has almost borderline statistical significance in Model 3. The coefficient specifies that, one standard deviation change in the level of NED increases operational performance in the third post-merger year by almost 0.03 units. Similarly, the relationship is also positive in Table 6-7, and hence it can be concluded that merger decisions taken by the presence of an independent board lead to better

merger performance, and shareholders also consider it as such in both the short term, in Tables 5-14 to 5-17 in chapter 5, and the long term. Hence, the regression result supports Carline et al. (2009), who concluded from extant literature that although board independence may support bidder firm performance, it may not have a statistically significant relationship. The aforementioned conclusion was drawn by Carline et al. (2009) based on merger data prior to the Cadbury report in 1994, when data on UK NED were not reported consistently. However, results of this research support this conclusion based on data after the Cadbury report. Please refer to section 2.1.1 for further detail on UK corporate governance history. Furthermore, independent board equity positively influences post-merger firm performance, in Models 1 and 2 in Table 6-6, which may support the results of studies such as Jensen and Meckling (1976) regarding interest alignment. However, statistically insignificant results for board equity suggests that null hypothesis 12 may not be rejected.

The presence of several bidder external block holders, each holding more than 5 percentage points in equity, has a highly significant positive relationship with firm-matched change in the abnormal operating performance for all regression models in Table 6-6. Thus, null hypothesis number 13 regarding presence of external bidder block-holders is rejected. The coefficient indicates, one standard deviation change in the number of bidder external block holders leads to an increase in firm-matched operating performance by a maximum of almost 0.03 units. This relationship highlights the role of external block holders as monitors for bidder management, as their presence at the merger indicates a positive merger outcome for all shareholders of combined firms. Hence, this result corroborates the conclusions of studies such as Yen and André (2007) and Carline et al. (2009).

The CEO characteristics-based variable is highly statistically insignificant for all regression models in Table 6-6. CEO tenure generally has a positive relationship with firm-matched operating performance of the combined firm. Presence of CEO equity initially has a positive statistically insignificant relationship up to almost 18 percentage points of equity before the relationship turns negative with the change in operational performance, which may be taken as a sign of CEO entrenchment-related motives impacting firm operational performance. Similarly, although regression results are not reported for the management entrenchment-related proxy according to the definition in chapter 5, a negative statistically insignificant relationship is observed between the entrenchment proxy and firm-matched change in the operating performance of the combined firm. However, variables for CEO equity also indicate a statistically insignificant results and hence null hypothesis number 11 cannot be rejected.

Interestingly, the presence of founder chairperson or CEO as bidder at the time of merger is found to increase the post-merger performance of firm-matched change in operating performance for combined firms in all three years in Table 6-6. The relationship is especially prominent in magnitude and statistically significant three years after the merger. Hence, null hypothesis 7 regarding presence of founder as chairperson or CEO, is rejected. The coefficient of Model 3 in Table 6-6 indicates that, presence of a founder chairperson or CEO in the bidder board at the merger announcement increases ex-post operational performance by 0.25 units, which is a highly statistically and economically significant result. Hence, the results support the conclusions of studies such as Fahlenbrach (2009) and results mentioned are independent to effect of founder presence.

6.6.2 BHAR

The overall regression results in Table 6-7 indicate that there is a highly statistically insignificant relationship between our main variable of interest of abnormal bid premium and BHAR computed for 12, 24 and 36 months in the post-merger period. Hence, the statistically insignificant result suggests that null hypothesis 1 cannot be rejected. It is apparent from statistical summary in Table 6-1 that sample mean BHAR for all three post-merger years is negative at −0.94, −12.4, and −20.7 percentage points for the first, second, and third post-merger years, respectively.

The short-term market reaction of bidder shareholders to final abnormal bid premium, as indicated in Tables 5-14 to 5-17 in chapter 5, indicates a statistically insignificant negative relationship at CAR (−42, +5) and CAR (−42, merger completion). Similarly, in this chapter regarding bidder long-term market reaction as measured by BHAR 12, in Model 1 of Table 6-7, there is an initial, negative, highly statistically insignificant relationship with abnormal bid premium. Post-merger BHAR computed for 24- and 36-month durations shows a positive relationship with abnormal bid premium. However, BHAR computed for 24 months has an overall high F-statistic P-value score, and therefore Model 2 of Table 6-7 is statistically insignificant.

Furthermore, a highly statistically insignificant positive relationship with abnormal bid premium is only observed for BHAR computed at 36 months. Hence, the overall results of the highly statistically insignificant relationship in Table 6-7 indicate that there is no evidence of a relationship between bidder BHAR and our variable of interest ‘abnormal bid premium’.

Table 6-7 Post-merger BHAR as dependent variable regression results with abnormal bid premium and governance variables.

*Robust standard errors are mentioned below the coefficients in parentheses, and statistically significant results are mentioned as *** p<0.01, ** p<0.05, and * p<0.1.*

VARIABLES	(1) BHAR12	(2) BHAR24	(3) BHAR36
A_BPR	-0.0172	0.103	0.0746
	(0.0773)	(0.0880)	(0.0859)
Tender Offer	-0.0637	-0.0102	-0.102
	(0.0643)	(0.0738)	(0.0663)
Stock Offer % in Payment Mix	-0.000348	-0.00102*	-0.00105**
	(0.000484)	(0.000582)	(0.000531)
Toehold %	0.00136	0.00272	0.00754**
	(0.00282)	(0.00285)	(0.00290)
Board Ind Director %	0.000817	0.00106	0.00183
	(0.00158)	(0.00198)	(0.00180)
Ind Dir Equity %	-0.00766	-0.00380	-0.0102
	(0.00821)	(0.0118)	(0.0137)
Count of Block-holder >= 5%	0.0206	0.0193	0.00503
	(0.0126)	(0.0150)	(0.0142)
CEO Tenure	0.00781	0.00422	0.00443
	(0.00935)	(0.0107)	(0.00949)
CEO Tenure Squared	-0.000313	-0.00006	0.000172
	(0.000349)	(0.000409)	(0.000351)
CEO Equity %	-0.00151	-0.0132	-0.0157
	(0.0101)	(0.0104)	(0.0127)
CEO Equity % Squared	0.000248	0.000661**	0.000640
	(0.000312)	(0.000331)	(0.000481)
Chairman or CEO Founder =1	-0.00668	-0.184	0.0188
	(0.0980)	(0.120)	(0.111)
Constant	0.0467	-0.0348	0.142
	(0.152)	(0.180)	(0.186)
Observations	207	194	177
Adjusted R-squared	0.016	0.003	0.107
Prob > F	0.00310	0.160	0.000

Robust standard errors in parentheses

In other words, it can be concluded that, considering the sample, UK publicly listed bidder shareholders react to paid abnormal bid premium only in the short term, as no long-term statistically significant relationship is observed. Hence, BHAR for the post-merger duration

indirectly supports the results of studies such as Boone and Mulherin (2008) and Dutta and Jog (2009), as they also did not report any consistent negative returns to bidder in the long term. Furthermore, since reaction to abnormal bid premium is entirely on a short-term basis, as Fama (1998), the results are not inconsistent with market efficiency, as there are no 'post-outcome negative abnormal returns'. Furthermore, bidder post-merger operational performance is influenced by abnormal bid premium, as compared with bidder's post-merger long-term market performance, which indicates no relationship with abnormal bid premium. One possible reason for this relationship is that operational performance is linked more closely to a firm's internal performance ex-post, which may have been influenced directly by abnormal bid premium paid, whereas firms' long-term market performance is not only dependent on a firm's performance ex-post but also other external factors not related to the merger, which may not have been reflected in the model by year and industry fixed effects.

Turning to other bid characteristics, Model 3 of Table 6-7 shows that there is a positive statistically significant relationship with the level of toehold held prior to the merger announcement, which suggests that null hypothesis 4 is rejected. One standard deviation change in the toehold increases BHAR for 36 months to almost 5 percentage points, which is at a similar level as observed in the results in chapter 5. As indicated in chapter 4, according to Povel and Sertsios (2014) and Betton and Eckbo (2000), the presence of toehold reduces information asymmetry, which may lead to a better merger deal.

There is a negative statistically significant relationship between the level of stock offer and BHAR. Thus, null hypothesis 2 regarding stock offer is rejected. The coefficient indicates, one standard deviation change in the level of stock offer percentage in the payment mix leads to a 4.6 percentage point reduction in BHAR for 36 months. A similar negative but statistically insignificant

relationship is observed in the bidder market in the short term in chapter 3. Hence, both short- and long-term results corroborate the conclusions of Mitchell et al. (2004).

Regarding tender offer, long-term BHAR displays a similar relationship in the results of CAR until merger completion, which corroborates the results of studies such as Agrawal et al. (1992) and Banerjee et al. (2015). According to the coefficient, presence of tender offer reduces bidder BHAR at 36 months by almost 10 percentage points. However, the relationship is borderline statistically insignificant, and hence null hypothesis 3 regarding tender offer cannot be rejected.

Regarding board independence, the relationships are positive and highly statistically insignificant. Similarly, board equity has a negative and highly statistically insignificant relationship, which is compatible with the bidder regression results in chapter 5. CEO tenure characteristics also have a statistically insignificant curvilinear relationship with bidder BHAR as with bidder CAR in chapter 5. Overall, these results indicate that ex-post bidder shareholder market reaction has relationships in an almost similar vein in the long term, as compared with the bidder results of chapter 5 for the short-term study. Hence, overall, the market has been consistent in its reaction to deal characteristics and board independence in both the short and long term.

CEO equity also has a statistically insignificant curvilinear relationship, which, according to the coefficients of Model 3 in Table 6-7, has a turning point in the relationship at more than 12.26 percentage points in equity. Considering the statistically insignificant relationship, null hypothesis 5 regarding CEO Equity cannot be rejected. Presence of a founder chairperson or CEO in the firm has a statistically significant and positive relationship with ex-post operational performance of the firm in Table 6-6, but the relationship is highly statistically insignificant with BHAR for all durations in Table 6-7. Hence, null hypothesis 6 regarding Founder presence and bidder BHAR

cannot be rejected. The relationship nonetheless indicates that, in third year bidder shareholders react positively to the presence of the founder chairperson or CEO.

As mentioned earlier, it should be noted that the presence of the founder, according to the regression results of Table 6-7, has a positive relationship with change in operational performance of the bidder, and that relationship is of highest magnitude and statistical significance for Model 3, that is, in the third year. Therefore, merger initiated in the presence of the founder has a positive influence on post-merger operational performance, which is also picked up by bidder shareholders' positive market reaction in third year. In other words, bidder founder chairpersons or CEOs may have not only been acutely aware of its post-merger synergistic benefits but also made sure that such benefits are realized in the post-merger performance and bidder shareholders acknowledged it by their positive market reaction, as indicated by BHAR. Furthermore, three years have been considered as an ample period for proposed merger benefits to come to fruition. This result sheds light on one crucial factor of the leadership role in mergers and the resultant mechanics of a successful post-merger performance in the presence of such leadership.

6.7 Conclusions

Results in section 6.6.2 of this study has identified that, in the long-term, the market does not react to the abnormal bid premium, as indicated by the statistically insignificant relationship between the abnormal bid premium and BHAR at 12, 24, and 36-month post-merger period, as the proxy for the long-term market reaction. Hence, the market has reacted to the abnormal bid premium in short-term only, as presented in results of Chapter 5.

The research has also shown that the market reacts in the long-run to bid characteristics, as indicated in the results section related to BHAR. A statistically significant positive relationship between the toehold presence and BHAR indicates that the market views the presence of the

toehold to reduce information asymmetry, prior to a merger, leading to a better merger. Another statistically significant relationship is observed between percentage points of stock offer in payment mix and BHAR at 36 months. This relationship shows that the market continues to react negatively to stock offer in payment mix as market views it as a negative signal.

This study has found that, generally, there is no significant long-term market reaction to governance characteristics. This is because all relationships between all the computed BHAR periods and governance-based variables are statistically insignificant. Hence, an investigation on the long-term market reaction, as proxied by BHAR, has indicated that although, in the long-run, the market may not react to the abnormal bid premium, it may continue to react to bid characteristics like payment mix and the presence of toehold. Additionally, in the long term, governance-based characteristics do not hold much significance for the market.

The overall regression results indicate that there is no evidence of a relationship between bidder BHAR for all three post-merger years and our variable of interest 'abnormal bid premium'. Hence, the presence of no relationship corroborates the results of studies such as Boone and Mulherin (2008) and Dutta and Jog (2009); however, their results may not be compared directly as, in this chapter, ex-post long-term market reaction is observed with abnormal bid premium.

Regarding ex-post change in firm-matched combined operating performance, there appears to have been a negative or no relationship with the abnormal bid premium except for first year after the merger. Furthermore, enhancement in operational performance for merger paid with positive abnormal bid premium is limited to only the first year. Initial positive relationship related to hypothesis in literature review, suggest realisation of early synergistic benefits. However, long-term relationship implies that bidder management may have overpaid to attain these synergies and this result is also consistent with market's short-term interpretation discussed in chapter 5.

In other words, positive abnormal bid premium may have been paid by UK publicly listed bidder management focused on augmenting operational performance on a relatively short-term basis, as management may benefit from a performance-related rise in compensation, and such compensation revisions are usually inflexibly downwards. This potential myopic approach by bidder management for productivity improvement may be observed and evaluated negatively by bidder shareholders in the short term. Furthermore, the long-term market reaction regressions have a statistically insignificant relationship with post-merger BHAR and short-term CAR market reaction in chapter 5 to final abnormal bid premium paid is largely negative. Considering the eventual post-merger performance, it appears that shareholders only got relationship temporarily incorrect with positive one-year post merger performance, however performance down the line over longer term, it seems market reaction was correct. Hence, as Fama (1998) presence of no long-term relationship implies that market is to some extent efficient with respect to abnormal bid premium paid. Market appears efficient as it seems to have interpreted and reacted to abnormal bid premium correctly as measured by CAR in short term as there is no correction in market after the bid. Nonetheless, any interpretation for the long-term bidder market reaction must be made cautiously as the result is statistically insignificant.

It should be note that abnormal firm-matched operating performance change is the real effect of merger and short-term market reaction was correct to react negatively to payment of positive abnormal bid premium as in the third year of merger there is also a negative relationship of operational performance with abnormal bid premium. In other words, the bidder management may have overpaid for the target as ultimately in third year, abnormal bid premium has a negative effect on abnormal cash flow return. However, bidder management's overpayment may not be interpreted strictly under management welfare hypothesis as combined firm's performance

indicates a positive change in first year post-merger operational performance. Hence, management possibly over paid for the target under hubris, as bidder management may have overestimated their capability and capacity to continue to sustain post-merger synergistic benefits acquired in the first year, as in third year over paid bid premium affects operational performance.

Interestingly, the presence of bidder's founder chairperson or CEO is observed to enhance ex-post combined firm-adjusted operational performance, and the relationship has been both economically and statistically highly significant. Furthermore, bidder shareholders react positively to higher bid premium paid by firms with a merger initiated in the presence of the founder chairperson or CEO in the third post-merger year, as this may be an ample period for founder members to ensure the proposed merger benefits come to fruition. Founder presence, as indicated by Fahlenbrach (2009), has made mergers more focused, which is observed in this chapter by a positive relationship with combined firms' post-merger operational performance, possibly due to a deep understating of the firms' growth requirements by founder members. Hence, high abnormal bid premium offered in the presence of the founder chairperson or CEO has a positive market reaction in the three-year post-merger period. In short, the results indicate that abnormal bid premium is related to post-merger firm performance and this result is independent to the founder effect.

Post-merger firm-adjusted operational performance is also statistically related to the presence of external block holders. Therefore, the presence of increased number of external block holders in bidder firms during mergers may have supervised bidder management for better acquisition deals, which may have led to increased post-merger performance as indicated by the relationship. Hence empirical results provide evidence of their supervisory role, in extant literature such as Yen and André (2007) and Carline et al. (2009).

Overall, the results indicate that abnormal bid premium paid by bidder management may influence its post-merger performance as indicated by the relationships. Furthermore, although in the year following merger a statistically strong positive relationship is present, an inverse marginally significant relationship may indicate that either the synergistic mergers materialized were short lived or management may have been myopic in their growth targets when high abnormal bid premiums were paid for targets. As mentioned, a temporary increase in ex-post bidder performance may permanently revise management's compensation upward. The transient nature of positive relationship between operational performance and abnormal bid premium may also be explained based on market competition, which per Fee and Thomas (2004) as new merger may force other competitors to adjust their strategy in the post-merger years to counter post-merger synergistic benefits of the combined firm.

Therefore, it cannot be concluded that UK publicly listed bidders have systematically paid high abnormal bid premium under the management welfare hypothesis. Results indicate that UK based publicly listed bidders may have paid abnormal bid premium under the 'shareholder welfare hypothesis', as realized synergies have translated into post-merger operational performance growth in first year for the combined firm. However, increased abnormal operating performance of combined firm does not seem to sustain such performance in the long run for positive abnormal bids. In the regression model, apart from bid characteristics, agency related variables were included such as internal equity and yet, presence of negative relationship between abnormal bid premium and change in abnormal operational performance ultimately indicates that management may have overestimated post -merger synergistic benefits.

It should be noted that initial positive relationship, indicative of possible abnormal bid premium payment for potential synergies were eventually not sustained or persistent. To conclude, taking

first and third year relationship into account, bidder management may not have deliberately destroyed shareholder wealth through merger and hence they perhaps be hubris more oriented than driven by agency issues. The presence of management hubris for publicly listed UK target and bidder firms is evidenced by Hodgkinson and Partington (2008), utilising 'correlation technique' as mentioned in literature review. Hence, this inference also provides support to the conclusion of Hodgkinson and Partington (2008) in which researchers have indicated that results are driven more by hubris as compared to agency related behaviour for UK publicly listed firms involved in merger transaction.

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7 Appendix

No.	Chapter 4 Hypotheses	Test H_0 Target	Test H_0 Bidder
1a	1aH $_{Null}$: There is no relationship between target/ bidder board independence and abnormal bid premium. 1aH $_{Alt}$: There is relationship present between target/ bidder board independence and abnormal bid premium.	Do not reject	Do not reject
1b	1bH $_{Null}$: There is no relationship between target/ bidder chairperson independence and abnormal bid premium. 1bH $_{Alt}$: There is relationship present between target/ bidder chairperson independence and abnormal bid premium.	Reject	Do not reject
2	2H $_{Null}$: There is no relationship between independent NEDs equity level in target/ bidder board and abnormal bid premium. 2H $_{Alt}$: There is positive relationship present between independent NEDs equity level in target board and abnormal bid premium. Vice versa, there is a negative relationship between independent NEDs equity level in bidder board and abnormal bid premium.	Reject	Do not reject
3a	3aH $_{Null}$: There is no relationship between target/ bidder CEO equity level and abnormal bid premium. 3aH $_{All}$: There is relationship present between target/ bidder CEO equity level and abnormal bid premium.	Do not reject	Do not reject
3b	3bH $_{Null}$: There is no relationship between target/ bidder CEO equity value and abnormal bid premium. 3bH $_{All}$: There is relationship present between target/ bidder CEO equity value and abnormal bid premium.	Reject	Reject
4a	4aH $_{Null}$: There is no relationship between target/ bidder CEO wealth and abnormal bid premium 4aH $_{Alt}$: There is relationship present between target/ bidder CEO wealth and abnormal bid premium.	Reject	Do not reject
4b	4bH $_{Null}$: There is no relationship between target/ bidder CEO stock options and abnormal bid premium 4bH $_{Alt}$: There is positive relationship between target CEO stock options and abnormal bid premium. There is negative relationship between bidder CEO stock options and abnormal bid premium.	Reject	Reject
5	5H $_{Null}$: There is no relationship between target/ bidder CEO age for and abnormal bid premium. 5H $_{Alt}$: There is nonlinear relationship present between and target CEO age and abnormal bid premium. There is negative relationship present between and bidder CEO age and abnormal bid premium.	Do not reject	Reject
6	6H $_{Null}$: There is no relationship between target/ bidder CEO tenure and abnormal bid premium. 6H $_{Alt}$: There is relationship between target CEO tenure and abnormal bid premium. There is positive relationship between bidder CEO tenure and abnormal bid premium.	Reject	Do not reject

No.	Chapter 4 Hypotheses	Test H_0 Target	Test H_0 Bidder
7	7H $_{Null}$: There is no relationship between target/ bidder block-holder presence and abnormal bid premium. 7H $_{Alt}$: There is relationship present between target block-holder presence and abnormal bid premium. There is a negative relationship between bidder block-holder presence and abnormal bid premium.	Reject	Do not reject

No.	Chapter 4 Hypotheses continued	Test H_0
8	8H $_{Null}$: There is no relationship between stock offer and bid premium. 8H $_{Alt}$: There is negative relationship present between stock offer and bid premium.	Reject
9	9H $_{Null}$: There is no relationship between tender offer and bid premium. 9H $_{Alt}$: There is positive relationship between tender offer and bid premium.	Do not reject
10a	10aH $_{Null}$: There is no relationship between no toehold and bid premium. 10aH $_{Alt}$: There is relationship between no toehold and bid premium.	Reject
10b	10bH $_{Null}$: There is no relationship between toehold presence and bid premium. 10bH $_{Alt}$: There is negative relationship between toehold presence and bid premium.	Reject
11	11H $_{Null}$: There is no relationship between target price runup and bid premium. 11H $_{Alt}$: There is positive relationship between target price runup and bid premium.	Reject

No.	Chapter 5 Hypotheses	Test H_0 Target	Test H_0 Bidder
1a	1aH $_{Null}$: There is no relationship between final abnormal bid premium and target/ bidder CAR. 1aH $_{Alt}$: There is relationship present between final abnormal bid premium and target/ bidder CAR.	Reject	Reject
1b	1bH $_{Null}$: There is no relationship between initial abnormal bid premium and target/ bidder CAR. 1bH $_{Alt}$: There is relationship present between initial abnormal bid premium and target/ bidder CAR.	Reject	Reject
2a	2aH $_{Null}$: There is no relationship between an all-cash offer and target/ bidder CAR. 2aH $_{Alt}$: There is positive relationship between an all-cash offer and target CAR. There is relationship present between all-cash offer and bidder CAR.	Reject	Do not reject
2b	2bH $_{Null}$: There is no relationship between stock offer and target/ bidder CAR. 2bH $_{Alt}$: There is negative relationship between stock offer and target CAR. Vice versa, there is positive relationship between stock offer and bidder CAR.	Reject	Do not reject
3	3H $_{Null}$: There is no relationship between tender offer and target/ bidder CAR. 3H $_{Alt}$: There is positive relationship between tender offer and target CAR. There is relationship present between Tender offer and bidder CAR.	Do not reject	Do not reject
4	4H $_{Null}$: There is no relationship between toehold and target/ bidder CAR. 4H $_{Alt}$: There is positive relationship between toehold offer and target/ bidder CAR.	Do not reject	Reject
5	5H $_{Null}$: There is no relationship between the respective board share ownership and target/ bidder CAR.	Do not reject	Do not reject

No.	Chapter 5 Hypotheses	Test H_0 Target	Test H_0 Bidder
	5H $_{Alt}$: There is relationship present between target board share ownership and target CAR. There is positive relationship between bidder board share ownership and bidder CAR.		
6	6H $_{Null}$: There is no relationship between bidder management entrenchment and bidder CAR. 6H $_{Alt}$: There is negative relationship between bidder management entrenchment and bidder CAR.	-	Reject
7	7H $_{Null}$: There is no relationship between the respective CEO hubris and target/ bidder CAR. 7H $_{Alt}$: There is a relationship present between target CEO hubris and target CAR. There is negative relationship between bidder CEO hubris and bidder CAR.	Do not reject	Do not reject
8	8H $_{Null}$: There is no relationship between the respective external block-holder presence and target/ bidder CAR. 8H $_{Alt}$: There is positive relationship present between the respective external block-holder presence and target/ bidder CAR.	Reject	Do not reject
9	9H $_{Null}$: There is no relationship between the respective CEO equity level and target/ bidder CAR. 9H $_{Alt}$: There is relationship present between the respective CEO equity level and target/ bidder CAR.	Do not reject	Reject
10	10H $_{Null}$: There is no relationship between bidder duality of roles and bidder CAR. 10H $_{Alt}$: There is negative relationship between bidder duality of roles and bidder CAR.	-	Do not reject
11	11H $_{Null}$: There is no relationship between target CEO age and target CAR. 11H $_{Alt}$: There is positive relationship between target CEO age and target CAR.	Reject	-

No.	Chapter 6 Hypotheses	Test H_0
1	1H $_{Null}$: There is no relationship between abnormal bid premium and bidder BHAR. 1H $_{Alt}$: There is relationship present between abnormal bid premium and bidder BHAR.	Do not reject
2	2H $_{Null}$: There is no relationship between stock offer and Bidder BHAR. 2H $_{Alt}$: There is negative relationship between stock offer and Bidder BHAR.	Reject
3	3H $_{Null}$: There is no relationship between tender offer and bidder BHAR. 3H $_{Alt}$: There is positive relationship between tender offer and bidder BHAR.	Do not reject
4	4H $_{Null}$: There is no relationship between toehold presence and bidder BHAR. 4H $_{Alt}$: There is positive relationship between toehold presence and bidder BHAR.	Reject
5	5H $_{Null}$: There is no relationship between CEO Equity and bidder BHAR. 5H $_{Alt}$: There is relationship present between CEO Equity and bidder BHAR.	Do not reject
6	6H $_{Null}$: There is no relationship between Founder presence and bidder BHAR. 6H $_{Alt}$: There is relationship present between Founder presence and bidder BHAR.	Do not reject
7	7H $_{Null}$: There is no relationship between Founder presence and bidder Ex-post Operational Performance. 7H $_{Alt}$: There is relationship present between Founder presence and bidder Ex-post Operational Performance.	Reject

No.	Chapter 6 Hypotheses	Test H_0
8	8H $_{Null}$: There is no relationship between abnormal bid premium and bidder Ex-post Operational Performance. 8H $_{Alt}$: There is relationship present between abnormal bid premium and bidder Ex-post Operational Performance.	Reject
9	9H $_{Null}$: There is no relationship between stock offer and bidder Ex-post Operational Performance. 9H $_{Alt}$: There is negative relationship between stock offer and bidder Ex-post Operational Performance.	Do not reject
10	10H $_{Null}$: There is no relationship between tender offer and Bidder Ex-post Operational Performance. 10H $_{Alt}$: There is negative relationship between tender offer and Bidder Ex-post Operational Performance.	Do not reject
11	11H $_{Null}$: There is no relationship between CEO equity and bidder Ex-post Operational Performance. 11H $_{Alt}$: There is positive relationship between CEO equity and bidder Ex-post Operational Performance.	Do not reject
12	12H $_{Null}$: There is no relationship between board equity and bidder Ex-post Operational Performance. 12H $_{Alt}$: There is positive relationship between board equity and bidder Ex-post Operational Performance.	Do not reject
13	13H $_{Null}$: There is no relationship between external block-holder and bidder Ex-post Operational Performance. 13H $_{Alt}$: There is positive relationship between external block-holder and bidder Ex-post Operational Performance.	Reject