The Efficacy of Market Abuse Regulation in the UK

Abstract

Analyzed in this study are the returns on stock prices of target companies surrounding the first publicized dates of completed takeovers in the UK between 2001 and 2010. Our sample is analyzed with respect to the event dates at which news of the takeover reaches the market both through a rumored date and official announcement. Statistically significant cumulative average abnormal returns (CAARs) prior to the event date are observed across the sample. This may indicate that trading on material nonpublic information is still a contributory factor in the run-up proportion of takeover premiums, thus drawing a question over the efficacy of the regulatory system.

JEL codes: G34, G38, G18

Introduction

Since assuming the guardianship of market integrity surprisingly little research has been carried out to gauge the success of the UK's financial regulatory body in meeting its enforcement responsibilities. The role of protecting the markets from abuse of various kinds was assumed by the Financial Services Authority (FSA) in 2000 following the introduction of the Financial Services and Markets Act 2000. In 2013 the FSA split into two bodies, the Prudential Regulatory Authority (PRA) and the Financial Conduct Authority (FCA). While the PRA was created to promote financial stability through regulating the deposit taking institutions in addition to investment banks and insurance firms the FCA adopted the remaining regulatory responsibilities which include policing the financial markets, its support structure and any firms which fall outside of the remit of the PRA. The objective of this study is to examine the efficacy of the regulatory regime in the UK in controlling the misuse of insider information around mergers and acquisitions in the period since the adoption of FMSA 2000.

To date, empirical studies that examine instances of abuse focus upon known cases of insider trading (Meulbroek 1992, Jarrell and Poulsen 1989). Research in this area often investigates corporate restructuring events such as mergers, acquisitions and tender offers which are usually encompassed in the catch-all term, takeover. Announcements relating to these have been shown in the literature to have a price altering effect when a proportion of the anticipated premium is incorporated into the underlying asset price ahead of the completion date following the announcement (Seyhun 1992). The anticipation is not limited to beginning just after the date when an acquiring firm officially announces its intention to engage in a takeover. A reaction is discernible in the target company's stock price prior to the date when the knowledge of the event becomes publicly available. A

broad body of empirical literature has been published both in Europe and the US, which supports this position (Keown and Pinkerton 1981, Jensen and Ruback 1983, Seyhun 2000, Bris 2005, amongst others). The question for researchers and regulators is which factors drive these anticipatory price movements.

Presumed in much previous work is that the pre-event price run up occurs as a result of informed trading (Seyhun 1992, Meulbroek and Hart 1997, Meulbroek 1992, Korczak et al 2010). If such abnormal returns are observable in the run-up to a takeover announcement then this could draw into question the effectiveness of legislation and the regulator's capacity to act as an enforcer. This is often referred to in the literature as the 'Informed trading hypotheses'. This paper's main contribution is to attempt to resolve this debate in the UK within a post FMSA (2000) context.

Shortly after the passing of the FMSA into legislation, the FSA (which has now become the FCA) adopted the role of 'policeman of the markets' ensuring that those in a position to engage in Market Abuse would be sufficiently deterred from doing so. Monitoring the activity of capital markets in an economy which is as developed as that of the UK is not an easy undertaking. By its own admission the FSA acknowledges that a scarcity of resources prohibits it from following up on every suspicious transaction that is made (Barnes 1999). The level of success is difficult to gauge as figures drawn from detection levels can only be understood as a proportion of all wrongdoing. Instances of market abuse go largely unreported and while the practice is not victimless it is often the case that the victims themselves are not aware of the transgression. As such, in order to glimpse some evidence of market abuse, we are forced to rely upon inferences from activity prior to events which are known to affect a company's value in a given way. Takeovers are an event type which offers to those in possession of private information an opportunity to capitalise on their position. An individual in possession of the knowledge that a takeover may occur can place themselves on the winning end of a trade in a target

firms shares. The investigative procedure for this study seeks to establish whether there is a significant ex ante reaction in stock price prior to the news reaching the market of an impending takeover.

This is achieved using event study analysis that checks for the presence of abnormal returns prior to the announcement dates. With takeovers there are two possible dates that news that a firm has become a target will reach the market. There is the rumour date, where news reaches the market that a firm may be taken over and there is the announcement date, this is where a firm will officially declare its intention to target another firm. This study uses a sample of rumour dates for only those deals which have been completed, removing the concern that unfounded rumours could find their way into the sample. It would be reasonable to assume that astute market participants could screen out rumours emanating from less reliable sources. With this date, the information is usually disseminated in the media and appears as a form of rumour or speculative statement, this is the day at which the takeover comes 'into play'. For the official announcement, this is fed out along the RNS communication channel when the acquiring firm meets conditions which stipulate the need to inform the market of the impending event, full details of these are given in section 2.2 of the Takeover Code (2013).

The remainder of this paper is structured as follows. First, the literature on insider activity around Mergers and Acquisitions is reviewed. Then, a full description of the UK legal context is provided through outlining the legislative framework and enforcement implications. Methodological procedures complete with a sample statistics and results are the outlined in the following section. The study concludes with a discussion of the results and research limitations and an exploration of directions for future useful work in this area.

Literature Review

There is considerable evidence to suggest that a price run-up can be expected within

target companies prior to the announcement of a takeover. Studies show that positive gains are realisable in stock prices a number of weeks before the formal announcement date. Some claim that as much as half of the total premium is attained by the close of the trading day immediately prior to the date on which the takeover is announced (See Jensen and Ruback 1983, Bradley, 1980, Keown and Pinkerton 1981, Jarrell, Brickley and Netter 1988).

Despite the general agreement that abnormal returns exist, there is a split in opinion as to what may be the attributing cause. The dividing line rests between those who are inclined to argue that such anticipation is consistent with ideas on a market that functions efficiently, picking up on all publicly available signals, and those who believe that it is a consequence of the leakage of privately held price sensitive information which then results in illicit trading actions based upon privately held price sensitive information.

Pre-announcement abnormal returns

Is abnormal price behaviour the result of trading upon private information? In the US, a study by Asquith (1983) was among the first to identify significant abnormal returns in the days before a firm would announce its intention to engage in a takeover. Possible reasons for this price movement become a cause for concern and intuitive reasoning would suggest that private information about plans for a takeover is used to direct trades, thus creating an unfair trading situation. Following this reasoning, Meulbroek and Hart (1997) examined the abnormal returns in US firms where known illegal insider trading ahead of takeovers was known to have taken place; they concluded that insider trading contributes to the magnitude of the ex-ante abnormal returns ahead of the announcement. Meulbroek (1992) supports this conclusion through linking positive gains in the target run-up prior to merger announcement, to days where illegal insider trading was known to have occurred. Jarrell and Poulsen (1989) argue that 40% of the entire premium is achieved in the period

before the announcement of a takeover; they argue that this is in part due to media speculation arising from known attempts by acquirers to purchase shares in the target firm. Agrawal and Nasser (2012) report that insiders can also harvest profits passively through delaying the sales of shares they possess until an opportune time presents within the takeover process. The findings that suggests insiders are active grows more intriguing when robustness checks control for the presence of media rumours, and suitable adjustments are made for the normal premium expectancy.

Taking an opposing view, Keown and Pinkerton (1981) attribute ex-ante abnormal returns to the presence of pre-announcement rumours and astute investor action. Neely (1987) concurs with this and adds that the price movement is also due to the buying pressure created by acquirers before an announcement is made. As residual magnitudes are greater where target firm sizes are larger, this strengthens the argument that abnormalities are a function of investors acting upon publicly discernible signals.

In the UK context a similar perspective is offered, Korczak et al (2010) show that insiders display a propensity to trade ahead of company news announcements, and the capacity for investors to buy ahead of good news announcements outweighs their inclination to sell prior to the release of negative information. However, the level of insider activity before trading ahead of bad news is governed by the supposed significance of the event. Conversely, in conditions where the effect of the news is thought to dramatically affect stock prices, the probability of insider selling is shown to decrease. The authors conclude that this inappropriate behaviour is toned down when an incident is likely to attract more attention from regulators and market commentators.

During instances where news of the merger has been leaked or has established itself as a rumour there is no longer a solid case to suggest that the pre-announcement trading activity is instigated solely as a consequence of privately held information. However, evidence of activity prior to the rumour date is highly suggestive of insider trading activity.

In the empirical literature a number of studies have documented the presence of abnormal returns prior to the rumour date. Jarrell and Poulsen (1989) ascribe cumulative abnormal returns in such instances to reach 11.2% by close of the last trading day prior to the rumour. The general conclusion is that as the rumour date often precedes the announcement date by as many as two months, trading by directors can occur outside of a time when their activities are more likely to be scrutinised.

What is the effect of regulation and enforcement?

If we are to accept the insider trading hypothesis, then it is easy to see how significantly abnormal returns ahead of a takeover create cause for alarm. Empirical studies show that abnormal price movements can be detected as early as fifty days before the first public disclosure of a takeover (Meulbroek 1992),with a sharp increase in the magnitude of returns in the twenty days immediately prior to the event (Meulbroek and Hart 1997). This draws a question over the efficacy of the market abuse legislation and its mechanisms for enforcement. Some empirical work suggests that informed trading is curbed when insider trading regulations are introduced, Korczak et al (2010) point to UK evidence supporting this point. Durnev and Nain (2005), who examine a broad sample of twenty one countries, find that on the whole, restrictions on insider activity curb levels of informed trading, but that in companies where the share ownership is concentrated among large shareholders, these restrictions become less effective. Certainly the positive attitude among regulators toward imposing restrictions in this area is gathering into something of a global trend as markets compete in terms of efficiency and transparency. For example, Bhattacharya and Daouk (2002) surveyed the stock markets of 103 countries, and found that 87 of these prohibit the activity. Where a ban on insider trading is imposed, its principle motivation is to protect the integrity of the market by safeguarding the interests of the uninformed investors. However, it does not follow that an increase in regulation or sanctioning will

dampen either the instance or volume of insider trading. For example, Seyhun (1992) finds that despite the overhaul in regulation and sanctioning in the US, profits earned by insiders from reported trades increased from 3.5% in the pre-1980 period to 7% afterwards, this was accompanied by a fourfold increase in the volume of these types of trades.

The consensus among regulators is that it appears to be a form of 'cheating' that is 'legally forbidden, morally wrong and economically dangerous' (Zevitt 1998). However in a study of European takeovers, Bris (2005) showed that a period of intense takeover activity is generally preceded by an episode of concentrated insider trading. This study also found that there is a direct correlation between the severity of punishment, the diligence of regulators and the incidence and profitability of insider trading. From this, one could assume that more stringent enforcement could dramatically discourage this activity. There is a theoretical precedence here, the rational economic perspective posited by Becker (1993) which says that as the cost of violating the market abuse laws increase, self-interest will dissipate and the marginal benefits from participating in the activity will decrease. The answer to the problem of abuse seems straightforward, more legislation is required, yet studies show that the solution is not quite as simple as that. If market abuse is legislated for in a certain market yet is not enforced, then the effect on the cost of equity can be more severe than if there had been no law in place at all. Bhattacharya and Daouk (2002) find this to be the case in emerging markets where these conditions are the most prevalent. An explanation arrives using reasoning which echoes the prisoner's dilemma. In situations where a good but unenforced law is present some individuals will obey the law while others will choose not to comply, this therefore creates a disequilibrium in behaviour. The cost to the law abiders will thus be greater when a law exists and is not enforced as to when no law exists at all. Where enforcement is improved then there is some empirical evidence to suggest that the proposed aim of regulation can be met. This is shown in work which investigates insider trading behaviour around price sensitive disclosure events

(Bettis, Cole and Lemmon 2000, Roulstone 2003, Garfinkel 1997 and Jagonlinzer and Roulstone 2009). These studies concur that safeguarding practices encourage insiders to shift their trades to periods after the event related earnings announcements. They go further in suggesting that this results in a fall in the abnormal returns which are gained through insider trading activity. Seyhun (1992) uncovers similar displacement behaviour, but does not uncover a marked difference in the gains made by insiders once the trading pattern has shifted.[1]

Gilbert et al (2007) support the idea that an introduction of or improvement to the regulatory framework which specifically relates to enforcement can have a positive effect on markets. In their investigation of New Zealand stock market performance following the amendment of existing insider trading regulation, they found that an amendment to legislation created a reduction in terms of the cost of capital and price volatility; this is in addition to an increase in the liquidity of the traded assets. These changes result from increased investor confidence stemming from a belief that the new measure could facilitate a greater success rate in prosecution than that which had been previously achieved. Implicitly suggested here is that we see the benefits of a regulatory regime when enforcement or the promise of successful prosecutions appears. Anderson et al (2013) find that with regulatory intervention the instance of informed trading in the options market reduces dramatically. A similar conclusion is reached in Beny (2005, 2007) where it is argued that more prohibitive legislation coupled with stringent enforcement to a market's capacity to exhibit more dispersed equity ownership, greater liquidity and more informative stock prices. Cummings et al 2013 argue that the increased presence of rules in an exchange whether or not they are specifically related to insider trading alongside

[1] . This evidence is produced using US data following the imposition of the Insider Trading and Securities Fraud Enforcement Act (ITSFEA) 1988. The primary tenets of this act brought an increase in the sanctions available to authorities in addition to a broadening of the terms of culpability to incorporate the firms to which insiders belong. This incentivises firms to police the activities of their employees to a greater degree, thus the threat of enforcement and sanction then become the main drivers that mutate trading patterns among insiders.

increased surveillance will impact upon suspected levels of insider trading.

UK regulation and sanctioning

The introduction of the Financial Services and Markets Act (FMSA 2000) gave greater powers of investigation and enforcement to the organizing body, which at the time was the FSA, than that which it had previously held. The increased sanctioning powers, in addition to the ability to penalise failure to co-operate with investigations is perhaps one of the most important evolutionary changes in the market abuse regulation (Rider et al 2009). The Act permitted the pursuit of individuals and companies through both the civil and criminal courts (Section 2(1) FMSA 2000). Sections 167 and 168 of the FMSA granted the governing body the powers to conduct investigations on any individual suspected of being involved in market abuse. The terms of the legislation cast the net wider to include those who would benefit from the dissemination of the information, no matter whether they played a direct role in the firm or not. Although the legislation allows for the investigation of any persons suspected of committing market abuse, budgetary constraints mean that not every suspicious trade can be examined. An incident, if it is to warrant investigation, must meet a pre-designated set of criteria, including material evidence of a breach of legislation, proof of shareholder loss/detriment and an evident risk that the incident could damage investor confidence (Rider et al 2009). Furthermore, the governing body reserves the right to exercise to retain discretion when choosing whether to take action in cases where a legal infraction has been identified. The flexibility allows it to discount instances of abuse that are not deemed to be particularly serious or to trades where the firm itself has taken steps to rectify the situation. This supports the idea that the governing body should maintain a co-operative and open relationship with firms, especially those that demonstrate the initiative to assume responsibility for their own regulatory infringements. However that is not to say that the use of discretion signalled that the governing body would be soft on

offenders. The governing body made it very clear that they would use all means available in pursuing market abuse cases, so as to introduce ‘a change in the culture in the city’ (Cole 2008). The focus of this change was to pursue offenders through the criminal courts where a prosecution, if successful, could result in a prison sentence. Stigmatising offenders with criminality would have a greater dissuasive effect than a simple imposition of civil sanctions (Symington 2008). The penalties which could be imposed are wide ranging, from prison sentences to a less punitive ‘name and shame’ measure. Where remedial action has been undertaken by the offender, this latter option is often the preferred choice.

It can also assist both parties involved to reach an agreed settlement, where it may consider the individual circumstances of the case and issue an appropriate penalty. In particularly serious cases it may take action to remove the companies’ business permits or in the case of individuals their ‘approved persons status’, (FSA enforcement guide chapters 8 and 9). The authority may also take out a court injunction against individuals or companies to compel these to take a proscribed course of action or prohibit them from further engagement in market abuse. This is a particularly powerful sanction as refusal to comply would result in the party in question being held in contempt of court. Financial penalties when applied are determined in accordance with the figure the offending party is thought to have gained as a result of the transaction. Under sections 201 and 402 of FMSA 2000, the FCA has the power to prosecute the offence of misleading statements and practice. Further to this, it has also the power to prosecute insider dealing under part five of the 1993 Criminal Justice Act. In determining whether or not to pursue a case through the criminal courts, factors such as the seriousness of the offence and the impact this may have had on the markets are considered. Penalties liable to a person convicted of the offence of insider dealing are either a fine or imprisonment of up to seven years (FMSA 2000, Section 397(8) and the Criminal Justice act 1993 section 61). In cases deemed to be of particular severity the FCA may refer the matter to the Serious Fraud Office which has

the power to pursue a conviction under section 2 of the Criminal Justice Act 1987. Such referrals are made only in cases where the alleged fraud exceeds the value of £1 million or where the nature of the case requires the investigatory power of an organisation with a further reach than the FCA (Rider et al 2009).

Disclosure

Part VI of FMSA 2000 requires listed companies to release information along the regulatory information service, which when publicised would lead to a considerable movement in the price of the underlying security. This is what is deemed in the legislation to constitute 'price sensitive information', (Rider et al 2009). Furthermore, the information is required to be disseminated as soon as possible after it comes to light internally. The stipulations are that reports of director's dealings and transactions on the accounts of their spouses and children are offered in as timely a manner as possible. More explicitly, the director is obliged under the Model code, which forms part of the listing rules for every firm, to inform their company of such activity no later than five working days following the trade. The firm is then obliged to report this information to the LSE no later than one working day after the transaction has occurred. The company must also ensure that data vendors are informed via the regulatory news service feeds. In addition to this, the firm must enter details of the trade in a publicly available register within three days of the event (Fidrmuc et al 2006). There is also a requirement, put upon the company issuing the underlying shares, to make available to the FSA a full list of persons who may have access to the information. Individuals closely connected to the deal such as senior management and directors are also obliged to disclose transactions of issuing company shares in their own accounts. The full rules surrounding disclosure are available in the disclosure and transparency rules (DTRs) for listed companies, which is contained in the FSA's handbook. The statutory authority for these rules is laid down in part VI of FMSA 2000.

Self-Regulation

Takeover activity in particular draws substantial attention from regulators as it is a noted focus of insider activity. The aspect of the model code which is concerned with takeovers (the takeover code) is administered by the panel on takeovers and mergers. The code lays down general principles and practices which are to be followed by listed companies during times of corporate change. In general, the rationale behind setting these principles is to ensure that shareholders receive fair treatment, adequate information and to ensure that no abusive trading occurs ahead of a bid announcement. While the panel itself holds no regulatory or sanctioning powers its decisions can be acted upon by the FCA. Therefore, a breach of code could result in disciplinary measures, which at the extreme might involve a delisting of the company concerned. Part of the code (Rule 2) requires that the bidding company must declare its interest in the target company should unusual price movements occur in the target's share price or rumours surface relating to the possibility of a takeover. The code (Rule 2.1) also requires any third party who may have access to such price sensitive information to keep this private.

Enforcement

In the years before the FSA which is now the FCA received the powers to police and prosecute the various forms of market abuse, responsibility for the task belonged to the Department of Trade and Industry (DTI). Throughout the 1980's 21 acts of insider dealing were successfully prosecuted under the Companies Act (1980/1985). Of these, six were as a result of trading by a director or an associate, or were made upon information provided by a director. The remaining offences were committed by individuals who held close links with companies through either professional involvement or links to other insiders (Barnes 2000). The prosecution success rate represents 58% of all cases pursued.

Following the implementation of FMSA 2000 in January 2001, the FSA took over the

role of policing market abuse from the DTI. With only two criminal convictions secured since 2001, it is apparent that the civil route is preferred when enforcing the regulations. Since 2001, there have been 12 successful civil actions relating to market abuse, of these, eight involved insider trading. In the two cases where criminal proceedings were initiated, the five individuals involved received prison sentences of up to two years and one individual received a community service order. In the civil cases, fines totalling £27,550,143 were imposed.[2] Despite this, it is clear that much more work has to be carried out to minimise the extent of insider trading in the UK market. Dubow and Monteiro (2006), examine 769 merger announcements on UK listed firms from 2000 to 2005 and found that informed trading appears to occur in 20% of the announced mergers. They use only a four day window around the announcement so arguably this estimation could be thought of as conservative.

Despite the comprehensive legislation, securing successful prosecutions is fraught with difficulty for the regulators, (Cole 2007). If changes are to occur, these are more likely to relate to a strategic rather than legislative change. Commentators have argued that the regulation should be based upon a set of principles rather than defined circumstances and should shift the focus towards compliance (Barnes 2009). This could be achieved through directing attention to the compliance efforts of companies deemed likely to be involved in market abuse. Furthermore, the introduction of processes to handle suspicious trades and the implementation of software systems which in real time identify notable changes in the share price and the volume of transactions for firms are new measures, which should increase the monitoring capacity and effectiveness of the authority. In a survey of enforcement practices in mature markets, Austin (2015), reports that the FCA has begun to use tips provided by members of the public or company whistleblowers to detect instances

[2] The smallest of these was £1,000, while the largest amounted to £17,000,000 and was levied against the Royal Dutch Shell Group in 2004 for providing misleading information to investors (FSA, 2011). The largest fine imposed for insider dealing was levied against GLG partners LP and a Mr Paul Sabre who were each fined £750,000 respectively (FSA 2011).

of market abuse. This, alongside the aforementioned suspicious transaction reports and detection software indicates that surveillance is the main method in the UK by which market abuse is detected.

Data

The market for corporate control incorporates a number of restructuring processes that fall beneath the umbrella term 'takeover'. In the literature this can refer to mergers, acquisitions, proxy contests or tender offers. With mergers, acquisitions and tender offers the bidding firm proposes to buy shares in the target firm for a price that is higher than the target firm's value. This is thought to be reflective of future income generated from the target's assets following the deal. In the case of mergers and acquisitions, the management of the target company is approached about the deal, in order to go ahead, approval is required from the target company's board of directors. For tender offers, the bidding company approaches the shareholders directly to buy the shares. The proxy contest is an attempt to win seats on the Board of Directors usually as a result of an activist group emanating from within the shareholder or management groups (Jensen and Ruback 1983).

For the purpose of the investigation, both tender offers and proxy contests are excluded from the sample. This is because a higher degree of legitimate leakage is possible to larger groups of people thereby blurring the line between what is considered to be public and private information. Restricting the sample to mergers and acquisitions, the deals identified comprise of 207 target companies which are listed on the London Stock Exchange. All deals were completed and carried out in the UK between March 2001 and January 2011. Details of each deal were acquired through the Zephyr database. Figure 1 illustrates the breakdown of mergers and acquisitions as they occurred in each year of the sample. The most intense period in takeover activity occurs in 2006 and 2009; these years could be seen as marking the high and low points of economic activity within the decade

respectively. The number of takeovers in the latter year far exceeds those which occurred in the previous year indicating that the motivations underpinning these decisions could have been value rather than growth based. All offers are in the form of cash or equity with the exception of one which was financed through the issuing of corporate bonds.

[Insert Figure 1 about here]

We estimate abnormal returns surrounding two specific events for each of the deals. The announcement date is often used in the literature to mark the date on which the information becomes public. The definition for this is the day upon which either a formal offer has been made to merge with or to acquire the target company or when one of the parties involved has confirmed that the deal is to go ahead.

Measuring the anticipatory effect created for a reason other than public disclosure can only be achieved with any degree of accuracy if we factor in the possibility that news of the impending change could itself be viewed as the event. If the markets are informationally efficient then the first day in which the possibility of a merger or takeover is openly discussed could induce movement in the target's share price. As a consequence, for each deal in the sample we examine the date on which a rumour first appeared in addition to the announcement date. This date is defined as that day on which the possibility of a forthcoming deal is first mentioned. This may be the first time it is reported in the media, or issued as a company press release. The announcement date doubles as the rumour date in instances where the first indication of the possibility of a move is the day upon which the deal is announced. From our entire sample, 39 of the 207 deals have a rumour date that is different from the day in which the deal is announced. All rumour dates are linked to deals which have been completed. The mean average length between the dates is 231 trading days, although this reduces to 118 when outliers are removed. With such a large

discrepancy in trading days, there is a distinct possibility that more informed trading could occur prior to a rumour when the possibility of the trade being linked with the announcement is less. The solution is to test both events independently of one another to ascertain whether abnormal returns are evident.

Table I provides a breakdown of both samples in terms of size, and indicates the range and degree of variation around these figures. Although the number of observations in the samples differs, the average size of the deal expressed as both the arithmetic mean and the median remains similar. Prices used to generate returns for each company in the sample were obtained from DataStream. Once missing observations are removed as a consequence of the pre–event estimation period stretching beyond the date of the firm's establishment, the sizes for the announced and rumoured event samples are 207 and 193 firms respectively.

[Insert Table I about here]

Results

In order to analyse the firm returns prior to the dates when takeovers become imminent an event study is employed following the process set out in McKinlay (1997). The method allows for the detection of abnormal returns surrounding the day the news is made public either through formal announcement or when a rumour surfaces in the press. Abnormal returns are calculated according to the benchmarks recommended by Brown and Warner (1985). These are the market and the constant mean return model. Both models use a separate estimation period which does not overlap with the event window period. This begins at day $t-160$ and finishes at day $t-61$. The event windows span from day $t-60$ up to day $t+10$, where the event occurs at day $t = 0$.

The market model benchmark assumes that security returns are estimable using a single factor market model as follows;

$$R_{it} = \alpha_i + \beta_i R_{mt} + e_{it}$$

Where R_{it} is the rate of return of the common stock of target i on day t and R_{mt} equates to the return on the FTSE All Share Market index which is sourced from DataStream, e_{it} is the random error term which is assumed to have an expected value of zero and is uncorrelated both with R_{mt} and R_{it} over the estimation period. The error term is also assumed not to be auto-correlated and to be homoscedastic. β_i represents the slope parameter taken from the OLS regression between returns of stock i and with returns on the market over the estimation period. Beta is thus a measure of the sensitivity of the returns on the stock to the market index returns.

Abnormal returns, according to this model, are assumed to be realised as follows;

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt})$$

The coefficients α_i and β_i are estimates and are the products of an OLS regression between the returns of stock i and the market over the designated estimation period. Abnormal returns are then averaged across the entire sample of target company securities to obtain a sample mean.

$$AAR_t = \frac{\sum_{i=1}^{N} AR_{it}}{N}$$

Where N refers to the number of firms in the sample and t represents the trading day within the event window period. The Cumulative Average Abnormal Return (CAAR) is then computed for the desired number of days within the event window period as follows;

$$CAAR_{T_2T_1} = \frac{1}{N}\sum_{i=1}^{N}\sum_{t=T_1}^{T_2} AR_{it} = \sum_{t=T_1}^{T_2} AAR_t$$

Where T_1represents the first trading day and T_1 is the final trading day within the abnormal return series. The constant mean adjusted model is computed through finding the arithmetic mean return for the firm stock i over the estimation period similar to that previously described. The average return figure is then subtracted from the return on each trading day in the event window period.

$$AR_{it} = R_{it} - \bar{R}_i$$

The procedures for arriving at AAR_t and $CAAR_{T_2T_1}$ are similar to those described for the market model.

The degree of statistical significance following parametric assumptions is ascertained using a t-test similar to that employed in Bialkowski et al (2008). This approach enables volatility stemming from the event to be incorporated into the test through retaining the estimation within the event window period.

$$t(CAAR(n_1, n_2)) = \frac{CAAR(n_1, n_2)}{\sigma(AAR) * \sqrt{n_1 - n_2 + 1}}$$

Where n_1 and $n_2$represent the start and finish dates of the event window and $\sigma(AAR)$ is the standard deviation from the mean of abnormal returns which is calculated from daily observations over the period over which the event is measured.

A further test for significance is carried out when the parametric assumptions are relaxed. This investigates whether the proportion of positive CARs can differ from 0.5. (This test is defined in Białkowski et al 2008). It is computed as follows:

$$z = \frac{p - 0.5}{\sqrt{p(1-p)/N}}$$

Where p is the observed proportion of CARs which are positive and N refers to the size of

the sample.

The Cumulative Average Abnormal Return (CAAR) for the announcement sample is given in Table II and Figure 2. The results demonstrate that there is evidence to support the hypothesis that statistically significant abnormal returns are realisable before the event date. The findings are conclusive when both the market model and constant mean return benchmarks are used. For both these benchmarks, CAARS remain consistently positive and maintain this sign from early in the event window period at 55 days prior to the event. Similarly, when the daily average abnormal returns (AAR) are considered, in the sixty days prior to the announcement date AAR is positive for 43 days for the constant mean return model while the figure is 41 days for the market model. For both models there is a drop in CAARs on the day of the announcement, which is not consistent with much of the literature. It suggests that information pertaining to the event has for the most part been assimilated into the price prior to the announcement being made. Interestingly, in the five days before the event date AAR is consistently negative, if insider trading is behind the abnormal returns, then there is a decided absence of activity immediately preceding the announcement. This could signal that in order to exercise caution insiders shy away from conspicuously flouting the rules. Furthermore, the absence of a surge of immediate pre-event positive AARs fails to strengthen the idea that the takeovers in question are publicly discernible.

[Insert Table II about here]

[Insert Figure 2 about here]

As targets are held to consistently deliver positive premia as a result of announcement of a

proposed deal, cumulative abnormal returns from the day of the announcement up to the tenth day after the event are examined separately. These findings show that with respect to announcements, the market meets a proportion of the deals proposed with genuine surprise. In the sample prior to the announcement the presence of positive CARs is suggestive of the possibility that private information drives trading on a number of target company's shares.

Turning now to the investigation using the first date at which news of the impending deal appears in the public domain, it can be seen from Table III and Figure 3 that both benchmarks demonstrate that positive CARs of a slightly greater magnitude are attained through the rumoured sample. The sizes could be explained by the similarities between the two samples, 39 of the 193 firms examined display a rumour date that is separate from the announcement date. The difference that does exist however may suggest that insider trading could be more likely to occur prior to a rumoured rather than the announcement date as the possibility of detection would perhaps be less likely. However, this assertion is undermined by the proportion of deals displaying positive CAARs, this is only slightly greater for the sample that investigates the announcements. A further notable point is that in the 11 days following the event date the CAARs drop in magnitude to the tune of 0.4% for the constant mean return model and 0.69% for the market model, as buying pressure eases following the release of the information (See Table III). The rationale behind choosing rumour dates attached only to completed deals is to negate the possibility of using unfounded rumours which can come from any source. Insiders presumably would act only upon information which they themselves deem to be reliable. This would discount the need to include rumours generated outside the firm where the deal is unsuccessful. When rumours arise from within the firm but relate to deals which are not completed then it is still possible that insiders may trade upon these as it is likely that they would deem these to be reliable. While this study does not capture the effect with the target firms of non-

completed proposed deals, there is no reason to assume that the effect would be any different to what has been recorded here. With deals for which insiders would have no a priori doubts about the feasibility of the takeover we could reasonably assume that these would display the same pattern in pricing change as we witness here with the firms used in the sample

[Insert Table III about here]

[Insert Figure 3 about here]

It would appear that for both the announcement and rumour samples statistically significant cumulative abnormal returns are present before the occurrence with each date. This is consistent with the hypothesis that informed trading is taking place prior to the public dissemination of the information. The magnitude of the run-up is similar to results produced by Jarrell and Poulsen (1989) who record abnormal returns of 11% on a similarly sized sample where the event date employed equates to the day on which the news is publicly disseminated.

Conclusions

This study investigated the pricing behaviour of successfully completed takeover target firm stocks in the period surrounding the first announcement or appearance of a rumour pertaining to the impending event. To the best knowledge of the author, this study is the first to specifically examine pricing behaviour around both announcement and rumour dates that specifically relate to mergers and acquisitions in the ten year period since FMSA (2000). It goes further than previous studies of its kind in that it assesses the effectiveness of regulation and enforcement initiatives through employing a wider event window that catches earlier movements in price.

In both samples the results indicate that there appears to be activity that suggests informed trading occurs prior to the public release of the information. The appearance of abnormal returns forerunning announcements is something which has been well documented in the literature (Seyhun 1992, Meulbroek 1992, Jarrell and Poulsen 1989, Dubow and Monteiro 2006, Korczak et al 2010, among others).

The influence of the media rumours on residuals can be ruled out when a sample is constructed consisting of rumour dates and announcement dates for which no previous indication of an impending bid exists. The presence of a run-up prior to a rumour date is something which has been confirmed by Pound and Zeckhauser (1990). However, as abnormal returns are similar for both samples this implies that the run-up is less likely to be attributable to media generated rumour. The similarity in residuals are explained by the fact that in both samples the majority of event dates are the same, and that in all firms the takeovers are eventually completed. Insider activity is more plausible ahead of a rumour date because rumours are generated by market watchers who notice unusual activity in firms stocks (Pound and Zeckhauser 1990). In the instances where rumours turned out to be true, the driving force behind the change could have been informed.

As the presence of rumours in the media does not appear to influence abnormal returns the temptation is to ascribe the price behaviour to unidentified insider trades. Our basis for assuming this is that in the UK, a number of successful prosecutions have been already been brought against individuals who have received tip offs that a takeover may occur, or who have had access to this knowledge while acting as an intermediary. Furthermore, the opportunities to disseminate the information to individuals to act on the behalf of the senior people within a company who are compelled to disclose trading activities still remain. Although the legislation is designed to take these conditions into consideration, following up on every suspicious trade and tracing the information on which this was based back to its source would be an almost impossible task.

This study demonstrates that despite enhanced legislation and powers of enforcement, insider trading ahead of mergers and acquisitions may still occur in the UK. In light of this, the efficacy of the current system for preserving market integrity must be brought under scrutiny. The question policymakers are left with is: 'If market abuse legislation proves ineffective, should the response be to strengthen legislation and/or to endow the FCA with greater powers?' Certainly a situation where unequal access to information between investors becomes the basis for a trading strategy for one party, will serve only to increase the cost of equity for all market participants.

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Figure 1: Number of takeovers per year in the sample

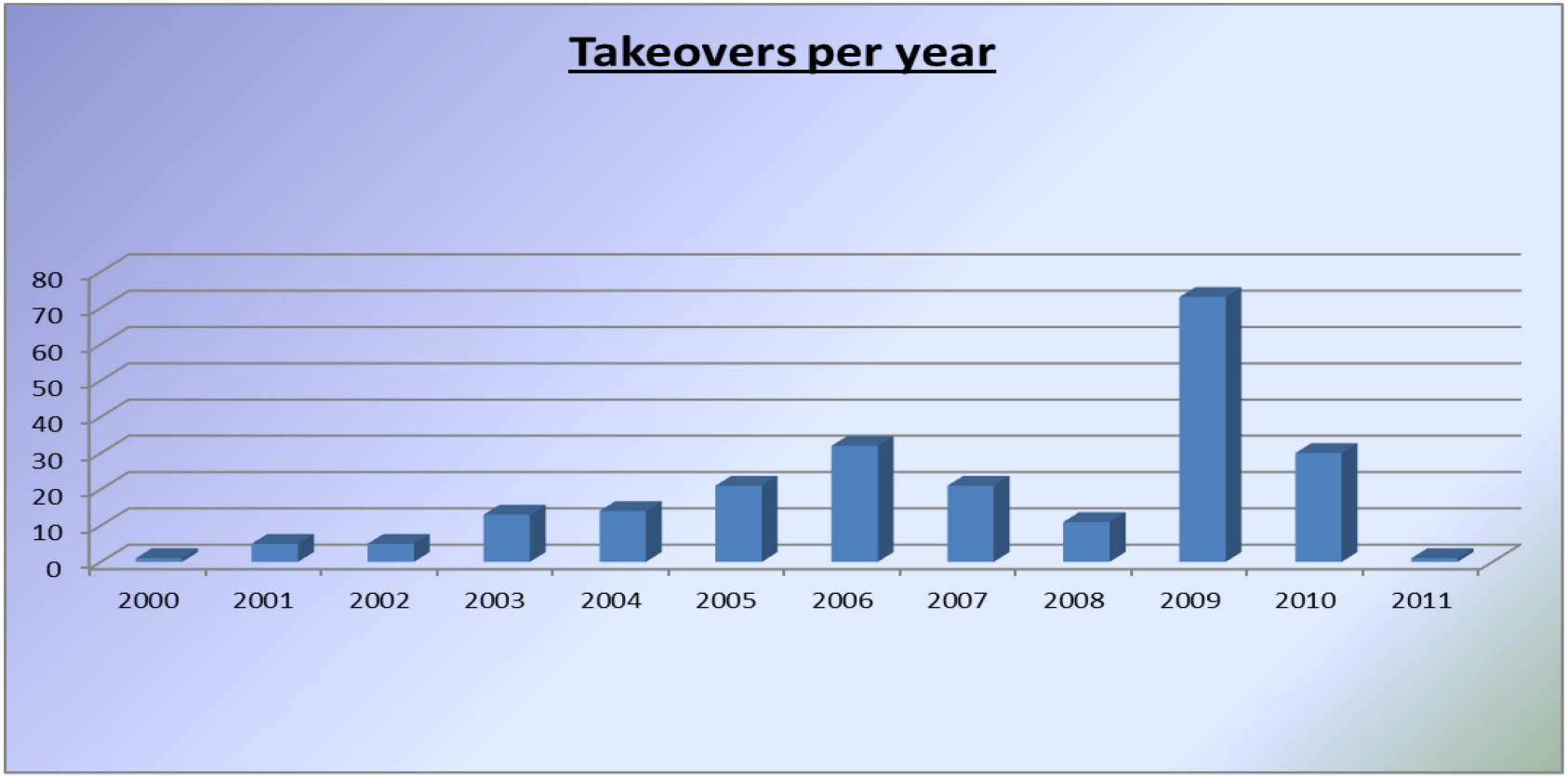


Table I Deal Sizes

Presented below are the deal sizes for the target firms analysed in both samples statistics relating to size are given in £ (thousands).

Sample	Obs.	Mean	SD	Median	25th Percentile	75th Percentile
Announced	207	261088.7789	1365518.8714	9885.4950	2554.4300	62598.5950
Rumoured	193	286384.0979	1412209.7042	9527.8800	2979.6600	71253.9600

Table II Cumulative Average Abnormal Returns surrounding Announcement date

Reported in the table below are the cumulative abnormal returns for the event windows surrounding the announcement of forthcoming Mergers or Acquisitions which have since been completed. The cumulative average abnormal returns are calculated from prices denominated in UK sterling and are expressed in percentage terms. The sample in total consists of 207 Companies. Panel A contains CAARs defined over event windows of various sizes for which abnormal returns are calculated using the constant mean return model providing an expected return. This is generated using the estimated average of returns in each company 100 trading days immediately prior to the first day of each event window. In Panel B CAARs are calculated from returns generated using the market model, which estimates returns from coefficients taken from an OLS regression using a estimation period similar to that of the previous model. Listed in the third and fourth column of each panel are the t-statistics and p-values for the sample of CARs, which test the hypothesis that as a collective, the mean of the Cumulative Abnormal Returns is equal to zero. The final three columns in each panel of the table below report the results of a non parametric investigation that bases its tests on the hypothesis that cumulative abnormal returns are equal to zero when the assumption that returns are normally distributed is removed. The null hypothesis states that the proportion of negative and positive CARs are equal.

Panel A: Constant Mean Return Model

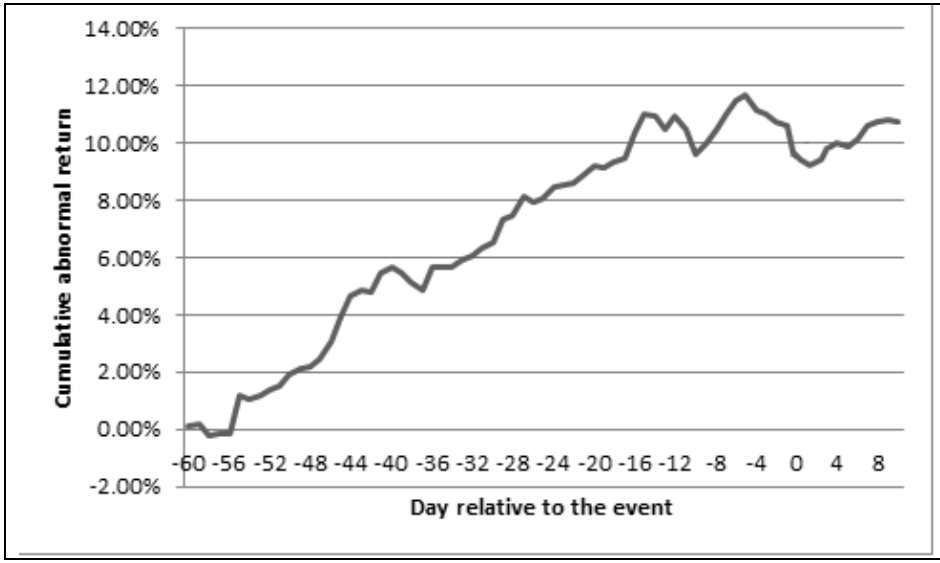
Event Window	CAAR	t-stat	p-value	Proportion of positive CARs	z-stat	p-value
(-60, -1)	10.5822%	3.4615	0.0010	0.5604	1.7504	0.0400
(-60, 10)	10.7616%	2.9539	0.0043	0.5362	1.0453	0.1479
(0, 10)	0.1794%	0.0954	0.9956	0.4638	-1.0453	0.8521

Panel B: Market Model

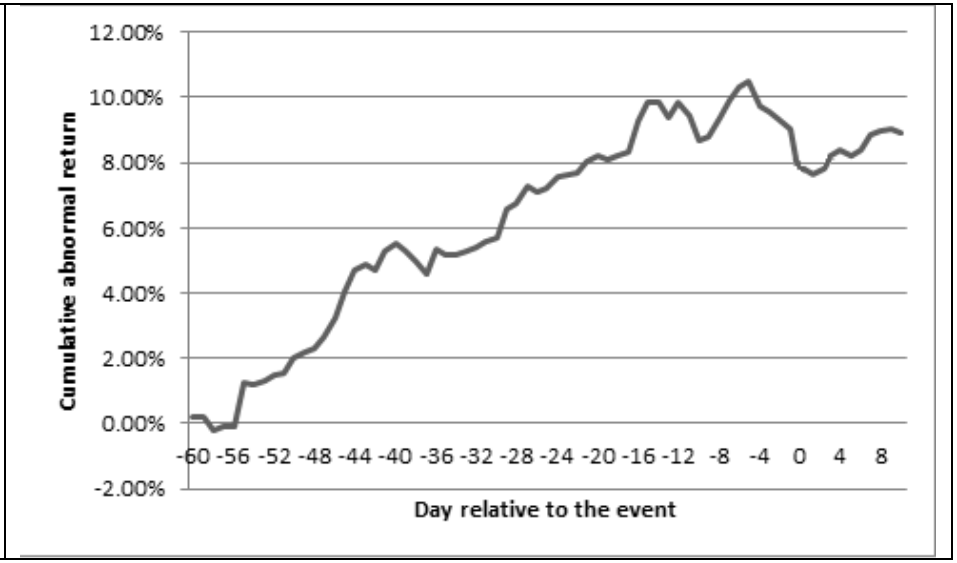
Event Window	CAAR	t-stat	p-value	Proportion of positive CARs	z-stat	p-value
(-60, -1)	9.0314%	2.8735	0.0056	0.5550	1.6007	0.0547
(-60, 10)	8.9455%	2.4165	0.0182	0.5407	1.1798	0.1190
(0, 10)	-0.0859%	-0.0434	0.9662	0.4641	-1.0403	0.8509

Figure 2: Cumulative average abnormal returns to sample of target companies surrounding announcement date of takeover

Panel A: Constant-Mean Return Model



Panel B: Market Model



Note: Above are graphs illustrating the cumulative average abnormal returns in an event window for companies 60 trading days preceding and 10 days following an announcement of a merger or acquisition, the sample employed investigates 207 events in the UK markets over a period of 119 months from March 2001 to January 2011

Table III Cumulative Average Abnormal Returns surrounding Rumour date

The results recorded in the following table are the cumulative abnormal returns for the event windows surrounding the rumour date for a merger or acquisition which has since been successfully completed. The cumulative average abnormal returns are expressed in percentage terms; the entire sample used includes 193 target companies. Panel A contains CAARs calculated using the constant mean return model, both event windows defined span from day t = -60 to day t = -1 and from day t = -60 to day t =+10 respectively. The benchmark model used in Panel A provides an expected return equal to an average of 100 trading days immediately prior to the first day of each event window. In Panel B CAARs are generated using the market model to estimate expected returns, this computes an expected return using coefficients taken from an OLS regression over an estimation period spanning 100 days and which ends immediately prior to the first day of the event window. The third and fourth column of each of the panel's reports the t-statistics and p-values for the series of CARs and tests the hypothesis that the mean of the Cumulative abnormal returns is equal to zero. The remaining three columns in both panels below report the results of a non-parametric z test which investigates the hypothesis that the mean cumulative abnormal returns equates to zero removing the assumption that the CARs are normally distributed. Under the null hypothesis the proportion of negative and positive CARs are equal.

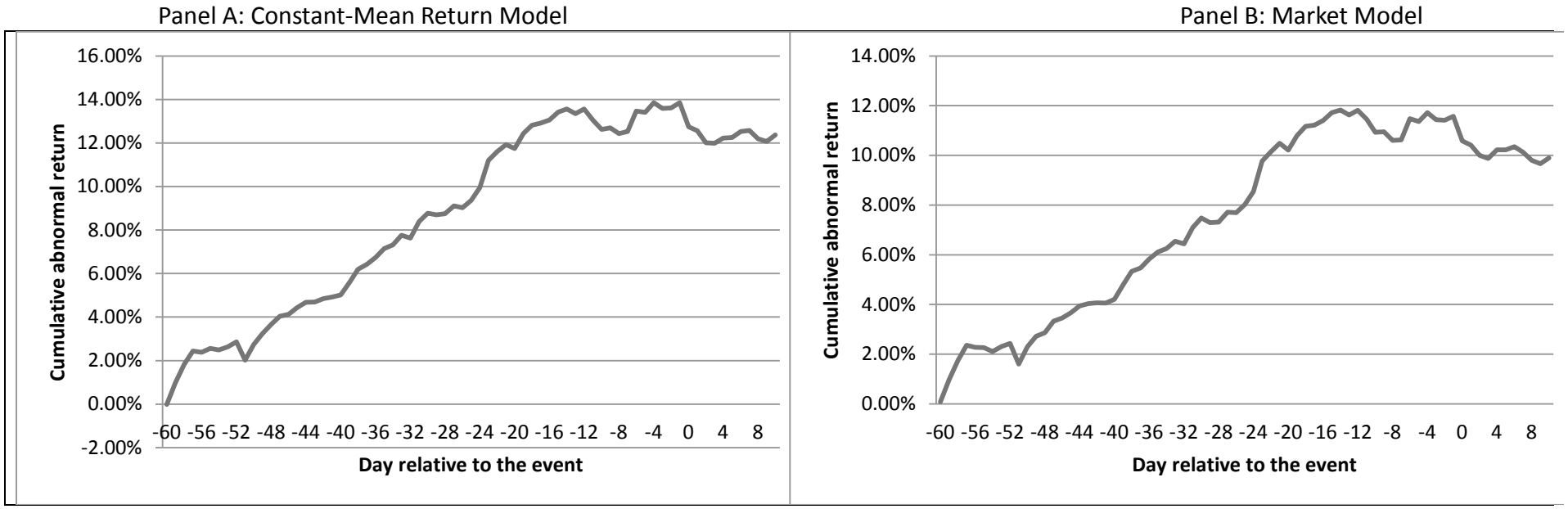
Panel A: Constant Mean Return Model

Event Window	CAAR	t-stat	p-value	Proportion of positive CARs	z-stat	p-value
(-60, -1)	13.8459%	4.8282	0.0000	0.5596	1.6675	0.0477
(-60, 10)	12.3654%	3.6893	0.0004	0.5648	1.8148	0.0348
(0, 10)	-1.4805%	-1.0068	0.3085	0.4404	-1.6675	0.9523

Panel B: Market Model

Event Window	CAAR	t-stat	p-value	Proportion of positive CARs	z-stat	p-value
(-60,-1)	11.5756%	4.1741	0.0000	0.5692	1.9523	0.0255
(-60, 10)	9.8910%	3.1100	0.0027	0.5436	1.2220	0.1108
(0, 10)	-1.6847%	-1.4043	0.1878	0.4410	-1.6586	0.9514

Figure 3: Cumulative average abnormal returns to sample of target companies surrounding rumour date of takeover



Note: Portrayed in Figure 3 are the cumulative average abnormal returns in an event window for a sample of companies 6o trading days preceding and 10 days following the first published rumour of a merger or acquisition, the sample examines 193 events in the UK markets over a period of 119 months from March 2001 to January 2011

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