

STOCK MARKET EVENT STUDIES AND COMPETITION COMMISSION INQUIRIES

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Introduction

1. Event study analysis is a branch of econometrics which attempts to measure the effects of economic events on the value of firms by examining stock market data. Providing that share prices reflect the underlying economic values of assets, changes in equity values will properly capture expected changes in the economic profitability of the firm. This requires us to accept the hypothesis that stock markets are efficient and that prices reflect all publicly available information relevant to the prospects of the firm. Thus the effect of an event will be reflected almost immediately in asset prices. This immediate reaction makes any link easier to establish than if we were examining say, profitability, which might require months or years of observation before the effects of the event were fully felt.
2. This paper considers the effect on stock prices of announcements relevant to Competition Commission (CC) references, using established event study methodology. The methodology is discussed in the first two sections of the paper. We have chosen to adopt a market model of abnormal returns, calculated using daily total return data from Datastream.¹ Cumulative abnormal returns are calculated over an event window of three days to take lead and lag effects into account. The methodology is applied to a small sample of cases, including both merger and market inquiries, referred to the CC in recent years. In two cases, the investigations were ongoing at the time of writing. Various events were examined including the bid announcement date (for merger inquiries), the date of the reference to the CC, and date of publication of the issues statement, emerging thinking document (for market inquiries), provisional findings and final report. In some cases OFT announcements in the run-up to the reference were also examined.

Event study methodology

3. In most cases, the effect on equity prices is examined. A fundamental requirement for any event study is the availability of at least one listed financial instrument that tracks the value of the firm under examination. A further requirement is for a suitably deep market for the instrument in question. If the instrument is seldom traded, its posted price may not reflect changes in value on a sufficiently timely basis for our purposes. In theory, the methodology could be applied to debt instruments or derivatives such as credit default swaps. However, there are few, if any, examples of this in the literature.
4. Following Campbell, Lo and MacKinley (1997), we identify seven key stages to a typical event study as follows:

¹Total return is the theoretical growth in value of a shareholding over a specified period, assuming that dividends are re-invested to purchase additional units of an equity at the closing price applicable on the ex-dividend date. The formula is given by:

$$RI_t = RI_{t-1} * \frac{P_t}{P_{t-1}}$$

except when t = ex-date of the dividend payment D_t then:

$$RI_t = RI_{t-1} * \frac{P_t + D_t}{P_{t-1}}$$

Where:

P_t = price on ex-date

P_{t-1} = price on previous day

D_t = dividend payment associated with ex-date t

- (a) *Event definition.* The initial task of conducting an event study is to define the event of interest and identify the period over which the prices of the relevant financial instruments will be examined. This period is called the 'event window'. The selection of the event window can have profound effects on the results of the study. Whilst in a perfectly efficient market one would expect all value effects to be reflected immediately in asset prices, in practice the market may acquire information prior to the event; speculate on the content of an announcement before it is made; or take time to assimilate information and react to it. For this reason it is common in studies of this type to use an event window of two or three days—encompassing the day itself as well as the following day, and possibly the day before. The choice of event window is somewhat arbitrary and there does not appear to be any sound empirical basis for choosing a particular time period around an event. A variety of approaches have been adopted in previous studies as noted in the Literature Review section of this paper (see, in particular, paragraph 16). In our study we have generally used an event window of three days to capture both lead effects and lag effects. The use of an event window wider than a few days increases the risk of events other than the one being studied having an effect on the results (so called 'confounding' or 'contaminating events'). There is therefore something of a trade-off in selecting the appropriate period for the event window.
- (b) *Selection criteria.* The next task is to determine the selection criteria for the firms to be included in the study. A fundamental requirement for any event study is the availability of price data for at least one listed financial instrument that tracks the value of the firm under examination. A further requirement is for a suitably deep market for the instrument in question. If the instrument is seldom traded, its posted price may not reflect changes in value on a sufficiently timely basis for our purposes. This study concentrates on a selection of six recent CC merger inquiries and market investigations involving at least one firm with a traded equity (or in one case, traded debt). In addition, the case had to involve a substantial part of the firm's business, so that it would be reasonable to expect the case to have measurable effects on the share price. It is hard to be exact about this question as it involves factors such as the profitability of the various components of the business and its future strategy. We took a judgement in each case. We excluded transport inquiries from our study as these were not thought to be good candidates due to the potential involvement of competitor firms in the franchise bid. ITV/BSkyB was included as an unusual case that was still at the OFT stage when the study was conducted and might therefore provide evidence to the inquiry should the case be referred to the CC. Other very recent references (eg Woolworths) were excluded for practical reasons. Annex 1 contains a list of all current CC inquiries together with those completed in 2006 and 2007 from which the selection of cases was taken.
- (c) *Normal and abnormal returns.* To assess the impact of a specific event on the return from a financial instrument, we must first establish what the return would have been in the absence of the event (the 'normal return'). Since it is conventional to assume that asset returns are jointly multivariate normal and independently and identically distributed through time, the normal return can be estimated using one of two statistical models: the constant-mean-return model or the market model.² The constant-mean-return model assumes that the mean return of a given financial instrument is constant over time, whilst the market model assumes a stable linear relationship between the market return and the

²Economic models such as the capital asset pricing model (CAPM) can also be used but, in this application, offer no advantages over statistical models.

return on the financial instrument. The market model is potentially superior as it removes the portion of the return that is related to movement in the market,³ hence the variance of any abnormal returns detected should be reduced. The benefit of using the market model depends on the coefficient of determination, R^2 , a measure of the amount of variability of the financial instrument that can be explained by variability of the market.⁴ Since the use of the market model generally improves the chances of being able to isolate the effects of specific events, it is this model that has been adopted in this paper. It is specified as follows:

$$R_{it} = \alpha_i + \beta_{im}R_{mt} + \varepsilon_{it}$$

Where R_{it} and R_{mt} are the period- t returns on instrument i and on the market portfolio respectively, α_i is the intercept, β_{im} is the OLS regression coefficient between instrument i and the market portfolio, and ε_{it} is an error term with mean of zero. In practice, the market portfolio is represented by an appropriate stock index. In our study we use the FTSE All-share index for UK-listed stocks, the FTSE All-share Euro index for European-listed stocks, and the S&P Composite index for US-listed stocks.

The abnormal return is the difference between the actual return and the expected return as follows:

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

(d) *Estimation procedure.* Having selected a normal return model, the parameters of the model are obtained using a subset of the data referred to as the 'estimation window'. Campbell, Lo and MacKinley suggest an estimation window of 120 days prior to the event, but this is by no means a convention in the literature.⁵ Generally the event itself should not be included in the estimation window to avoid the event itself influencing the parameters of the normal performance model. In this study, we use an estimation window of 200 days ending ten trading days prior to the first event being examined (usually the announcement date for mergers or reference date for market inquiries).⁶ We generally examine an event window of three days, from t_0-1 to t_0+1 , where t_0 is the event date. Note that non-trading days must be removed from the data to avoid distorting the results, particularly around the event date itself.

(e) *Testing procedure.* A testing framework needs to be defined for any abnormal returns calculated, including the definition of the null hypothesis and techniques for aggregating the results over time and across individual firms. For example, an equally weighted or value-weighted portfolio may be constructed to test the effect of an event on several firms. We define the cumulative abnormal return (CAR) as the sum of the abnormal returns for each day in the event window, ie:

$$CAR_i = \sum AR_{it}$$

Under the null hypothesis the given event has no impact on the mean or variance of returns, hence the expectation of abnormal returns is zero. Inferences about the CAR can be drawn using a test statistic, t , where:

³Newspaper reports typically report pence per share falls and rises, and sometimes percentages, but rarely attempt to isolate the effect of the particular event being reported from general market movements.

⁴For example, if we find perfect correlation then $R = \pm 1$ and $R^2 = 1$ implying that the market is a perfect predictor of the price.

⁵Paragraph 16 discusses the estimation windows used in some recent studies.

⁶This methodology has the benefit of simplicity but results in the estimation window being some months before the last event. However, providing the systematic risk of the company in question has not changed significantly during the intervening period, it should have no material effect on the results of the study.

$$t = CAR_i / (\sigma_i / \sqrt{n})$$

σ_i is the standard error of the distribution and n is the number of days in the event window. Salinger (1992) discusses statistical significance testing of ARs and CARs in further depth. To draw inferences from an event study we need to understand its ability to detect the presence of a non-zero abnormal return; in other words, the likelihood that an event study test correctly rejects the null hypothesis where there is a genuine effect to be found. To analyse this ability, we must examine the 'power' of the statistical test in question. We have not formally conducted this analysis for the purposes of this paper. However, due to the small sample sizes and relatively large variances, the power of the tests is likely to be fairly low. For this reason we have examined statistical significance at the 1 per cent, 5 per cent and 10 per cent levels.

- (f) *Presentation of empirical results.* The presentation of a profusion of data can often produce confusing and hard-to-interpret results. For example, when looking at a portfolio of financial instruments it may be desirable to show aggregated results rather than those for individual instruments. In addition, abnormal returns for specific days in an event window may be of interest or the cumulative abnormal return alone may be presented. In this study we generally present results for individual stocks as, given the limited number of companies involved, the benefits of examining a portfolio of instruments were not available. Generally results are presented for the entire event window of three days, except where the results on specific days were of particular interest. The presentation of empirical results in this paper is therefore to some extent case specific. Detailed regression data is presented in Annex 2.
- (g) *Interpretation and conclusions.* Perhaps the most important step for the current study is to determine the inferences that may be drawn from the results. In the current study we are considering whether inferences can be drawn about (a) the information content of the announcement in question and (b) the competitive effects of the transaction. Inferences about the information content of announcements are relatively straightforward and are summarized in Table 1.

TABLE 1 Interpretations of movements in share prices around announcement dates

<i>Value of company*</i>	<i>Some possible economic interpretations of market's valuation</i>
Increase	Announcement viewed favourably by market in relation to expectations
No change	Announcement contains no new information or announcement contains good and bad news
Decrease	Announcement viewed unfavourably by market in relation to expectations

*Changes in the value of companies are net of market effects.

Inferences about competitive effects can be drawn only by examining both merging parties and competitor companies that are not part of the inquiry and therefore are only considered in relation to merger inquiries. Cox and Portes (1998) give a more detailed explanation of the theory behind these studies and describe some of the problems involved in interpreting the results. Table 2 is taken from Cox and Portes (1998) and shows some possible inferences that may be drawn from abnormal changes in the value of merging and competing companies around a merger announcement. As can be seen, the results are rarely unambiguous.

TABLE 2 Possible inferences from abnormal changes in the value of merging and competing companies around a merger announcement (after Cox and Portes (1998))

<i>Value of merging companies*</i>	<i>Value of competing companies</i>	<i>Some possible economic interpretations of market's valuation</i>
Increase	Increase	Reduced competition, higher prices, lower consumer welfare or no change in competitive conditions but re-evaluation by market†
Increase	Decrease	Increased efficiency of merged firm, lower prices, higher consumer welfare
Decrease	Increase	Decreased efficiency in merged firm, higher prices, reduced competition, lower consumer welfare
Decrease	Decrease	Increased competition, lower prices, higher consumer welfare or no change in competitive conditions but re-evaluation by market

*Changes in the value of merging companies and of competing companies are net of market effects.

†eg an increase in the value of competitors may be due to a merger announcement signalling to the market that other firms may become takeover targets in future.

- Possible biases can occur for several reasons. One possible source of bias is where price data is recorded at non-standard or irregular intervals (so called 'non-synchronous trading'). In our study we assume that all price data is recorded evenly in 24-hour intervals and appropriate adjustments have been made to allow for non-trading days such as weekends and bank holidays. For stocks that are seldom traded (so called 'thinly traded') the problem can have a substantial effect on the results.

Literature review

- Event studies are widely used in academic accounting and finance fields to assess the effects of an event on the value of a firm. They have a long history, dating back to Dolley (1933) who examined the effects of stock-splits on share prices. Studies by Ball and Brown (1968) and Fama, Fisher, Jensen and Roll (1969) introduced the methodology that is essentially used today. The Ball and Brown study considered the information content of earnings announcements, and the Fama et al study looked at the effects of stock-splits after controlling for the effects of simultaneous dividend increases. Event studies concerning mergers tend to focus on the effect of the merger announcement on shareholder value both in the target firm and in the bidder. Sudarsanam (2003) provides a summary of the numerous studies in this area. These studies consistently show substantial gains of between 20 and 40 per cent to shareholders in target firms; and typically show abnormal losses to acquiring company shareholders. Considerably less attention has been given to the effects on shareholder wealth of merger activity and competition policy, notable exceptions being Eckbo (1983); Wier (1983); Franks and Harris (1993); Forbes (1994); and the more recent work of Oxera (2006) and Arnold and Parker (2007).
- One class of study of particular interest to competition authorities involves an examination of market data for competitor firms to allow inferences about the competitive effects of the merger to be made. Eckbo (1983) examined 259 US mergers, of which 79 were challenged by the antitrust authorities. For the mergers that were challenged, Eckbo looked at movements in the share prices of competitor firms to see whether they supported a hypothesis of collusive behaviour and found that they did not. He inferred that these mergers had been based on cost-saving efficiencies rather than gaining market power. Stillman (1983) conducted a smaller study with a similar aim whose results were consistent with those of Eckbo. Both studies found a lack of statistical evidence from share price movements to support referral to the anti-trust authorities on competition grounds. However, a similar study by Duso et al, based on European cases, found the opposite to be true. According to Baker (2002), a weakness of these types of studies is that the central hypothesis is correct only if the anti-competitive theory centres on coordinated effects rather than exclusionary

effects.⁷ Cox and Portes (1998) give a more detailed explanation of the theory behind these studies and describe some of the problems involved in interpreting the results.

8. Wier (1983) examined the costs of defending mergers challenged by the US antitrust enforcement agencies by considering abnormal returns at key events in the regulatory process. The conclusion was that generally merger complaint announcements result in abnormal losses and that large costs are borne by target firms if proposed mergers are cancelled as the wealth gains earned at the time of bid announcement are cancelled out by losses suffered by the time the inquiry concludes. The finding that target shareholders faced with a prohibition decision make an overall loss is not supported by the recent UK study of Arnold and Parker (2007) discussed below.
9. UK studies include those by Franks and Harris (1993) and Forbes (1994). Franks and Harris (1993) examined data from around 80 mergers referred to the Monopolies and Mergers Commission (MMC) between 1965 and 1990 to look at shareholder value changes in bidder and target firms. They found losses to shareholders on referral to the MMC and on the announcement of an adverse finding, as well as substantial losses when merger bids were prohibited. The effects were only statistically significant for the target company, with the effects on bidder shareholders being broadly neutral. Forbes (1994) looked at share prices of bidding firms around the announcement date, the reference date and the decision date in 53 MMC references made between 1976 and 1990. Forbes found that, consistent with Franks and Harris (1993), abnormal returns to bidding firm shareholders were not statistically significant.
10. A more recent study is that of Arnold and Parker (2007). The study examined data on 50 mergers referred to the MMC/CC between 1989 and 2002 to look at price movements when companies desire to merge and when the merger leads to a formal competition inquiry. The study confirmed the finding from earlier studies of greater gains to shareholders in target companies than in bidding companies. It did not find evidence to support an overall loss of shareholder value to target company shareholders when a merger is prohibited. The study tested two propositions related to how well market prices reflected the underlying value of the merger events on the companies, as follows:
 - (a) In merger cases where the deal is prohibited by the regulator or abandoned by the companies, the value change arising from bid-specific events to the target companies, from bid announcement to bid abandonment, is expected to be zero. This proposition follows from the fact that, aside from the costs of taking part in CC/MMC inquiries (which are assumed to be *de minimis* in relation to their values), if the merger is not completed the competition regime should have no effect on the fundamental value of the companies, as reflected in their share prices.⁸
 - (b) In merger cases where the deal is allowed (but not conditionally allowed) the value change arising from bid-specific events to the target company from bid to deal close is greater than zero.
11. Oxera (2006) considered around 250 OFT merger announcements concerning listed companies between June 2000 and February 2006. They found that the market's

⁷eg Article 82 defines exclusionary abuses as behaviours of dominant firms likely to have a foreclosure effect on the market.

⁸The authors note that it is possible for a merger bid to place a firm 'in-play' by highlighting it as a possible takeover target and as a result the city may expect further bids. However, the results were generally consistent with the proposition except for newly privatized industries where other issues appeared to influence share price behaviour.

reaction to a second phase referral was highly negative (–8 to –12 per cent on average) for merger targets, and mixed for bidders (–3 to 1 per cent on average). They found that the reaction to an OFT merger clearance was muted (less than ± 1 per cent) indicating that the market expects most mergers to be cleared at the first stage. An interesting question is why the capital markets do not correctly price in the risk of a second stage investigation when a bid is announced. The fact that 85 per cent of all mergers examined by the OFT are cleared without reference to the CC may be relevant to this question. The large negative effect was confirmed by the current study in the case of HMV/Ottakar's.

12. Arnold and Parker (2007) found evidence that when the regulatory regime was stable and well understood the capital market behaved efficiently in response to new information. However, for a subgroup of mergers involving companies with a new regulatory regime, where the industry and stock market had little or no experience with respect to mergers, the capital market operated less efficiently.
13. Some studies have considered the impact on shareholder value of EU competition regulation. One study of particular interest is Duso, Neven and Roeller (2003). This study followed the method of Eckbo (1983) and Stillman (1983) and was predicated on the view that an anti-competitive merger would result in increased share prices for competitors. This somewhat counter-intuitive result follows from the hypothesis that an anti-competitive merger would reduce competitive forces in the industry and thus reduce downwards pressure on prices and profits, and would hence be viewed positively by investors in the industry. Unlike the Eckbo and Stillman studies, Duso, Neven & Roeller found evidence to support their hypothesis that the mergers were indeed anti-competitive.
14. A more recent study is that of Langus and Motta (2007). This study used event study techniques to examine the impact of the main events in an antitrust investigation for a breach of Article 81 or 82 on a firm's stock market value. The study found that a surprise inspection at the firm's premises had a strong and statistically significant effect on the firm's share price, with its cumulative average abnormal return being approximately –2 per cent. It found that a negative Decision by the European Commission resulted in a cumulative average abnormal return of about –3.3 per cent.
15. Aktas, de Bodt and Roll (2007) employ event study techniques to test the proposition that European M&A regulation is protectionist. Their hypothesis was that if foreign acquirers were subject to more frequent regulatory intervention than domestic ones when local competitors were being harmed, then this could only mean protectionism on the part of the authorities. Based on 290 cases from between 1990 and 2000, they found that for mergers initiated by foreign bidders, the more negative the returns of European competitors around the initial announcement date, the higher was the probability of regulatory intervention. This study falls prey to the same criticism that Baker (2002) makes of Eckbo (1983) and Stillman (1983): the central hypothesis is correct only if the anti-competitive theory centres on coordinated effects rather than exclusionary effects. The authors state that 'Negative competitors' cumulative abnormal returns around the announcement date are in direct contradiction with a reinforcement of monopoly power in the concerned industries'. However, this statement ignores the very real possibility of exclusionary effects which were clearly of concern in some of the key European merger cases mentioned by the paper, for example Microsoft and GE/Honeywell.
16. Table 3 summarizes the choice of event window and estimation period used by several of the more recent and relevant studies. As can be seen, the choice of event window and estimation period varies greatly from study to study, which is

unsurprising given the lack of sound evidential basis on which to select these two periods.

TABLE 3 **Choice of event window and estimation period in selected recent event studies**

<i>Study</i>	<i>Purpose of study</i>	<i>Model</i>	<i>Index</i>	<i>Event window</i>	<i>Estimation period</i>
Arnold & Parker (2007)	Value effects of regulatory regime	Market	FTSE All Share	1 day before to 1 day after	1 calendar year ending 2 days before event
Cox & Portes (1998)	Horizontal merger - competitive effects analysis	Market	S&P500	1, 2 and 5 days following event	1 calendar year ending 1 day before event
Eckbo & Wier (1989)	Horizontal merger - competitive effects analysis	Market	S&P500	20 days before to 10 days after; and 1 day before to 1 day after the event	200 days before event to 10 days after
Forbes (1994)	Value effects of regulatory regime	Market	FTSE All Share	1 day before to 1 day after; and 10 days before to 10 days after the event	120 days beginning 300 days before referral to CC
Oxera (2006)	Value effects of regulatory regime	Market	FTSE All Share	Event day and day before; event day and 3 days before; 1 day before to 3 days after	Not stated

Case studies

BSkyB and ITV

17. Following the merger of NTL Incorporated with Telewest Global, Inc to form NTL:Telewest in March 2006, and the merger of NTL:Telewest with Virgin Mobile in July of the same year, Virgin Media became the first 'quadruple-play' media company in Great Britain, bringing together a service consisting of television, Internet, mobile phone and fixed-line telephony.
18. On 9 November 2006, Virgin Media Inc (formerly known as NTL:Telewest) announced that it had advised ITV of its interest in a possible 'combination transaction'. At this stage both Virgin Media and ITV stressed that the talks were highly tentative.
19. The results of our analysis of stock market data show that, over a three-day event window, shares in ITV enjoyed a cumulative abnormal return of 7 per cent. No abnormal returns for shares in Virgin Media and BSkyB were apparent over the same period, although Virgin Media's shares did fall slightly on the day. This pattern of price movements is consistent with the results of numerous other studies showing that target firms in merger transactions typically show positive returns around the announcement date, whilst shares in the bidder typically fall. Despite the tentative nature of this particular announcement, shareholders in ITV clearly believed there was a non-zero probability of a combination transaction being completed (although not necessarily with NTL) and that this would be value enhancing for ITV shareholders.
20. BSkyB's lack of reaction to the announcement may indicate that BSkyB shareholders did not believe there was a significant probability of the combination transaction being completed, and/or that a combination transaction would be competitively neutral. A significantly negative reaction may have indicated that BSkyB shareholders perceived a possible tie-up as anti-competitive to the extent that it disadvantaged BSkyB in the market. A significantly positive reaction might indicate an

increased potential for coordination in the market as a result of the transaction. However, neither view is supported by the data in this case.

21. On 17 November 2006, BSkyB announced that it had acquired a 17.9 per cent stake in ITV. *The Times* reported that several large blocks of shares were sold by financial institutions to BSkyB on the morning of the 17th, and described the purchase as 'a feat of financial execution' as ITV's share price moved by just 1 per cent.
22. The results of our study confirm that the price of ITV's shares did not move abnormally around the date of BSkyB's acquisition. Likewise, BSkyB's and Virgin Media's shares did not show any abnormal return over a three-day event window.
23. We also looked at RTL's share price. RTL is a major European broadcaster and owns 38 TV channels and 20 radio stations in ten different European countries. Its UK interests comprise Five, a competitor to BSkyB, and ITV. RTL was reported to be interested in making a bid for ITV. RTL's share price did not show an abnormal return around the date of BSkyB's acquisition. However, the international character of RTL (Channel 5 contributes less than 10 per cent of its revenues) means that the power to attribute movements in their share price to UK events is greatly diminished.
24. The lack of reaction, particularly of Virgin Media, is hard to interpret. The press had mixed views on this point; in one early article the *Financial Times* reported 'NTL's shares jumped 5 per cent on the news, as shareholders gambled that a deal that would double NTL's debts was now less likely', but later reported that 'The stake building is not good news for NTL [ie Virgin Media] and RTL'. If the BSkyB stake was exclusionary we would expect Virgin Media shares to react negatively. However, such a reaction could be disguised by an equal and offsetting positive reaction as shareholders perceived that the chances of Virgin Media acquiring ITV itself were lowered. This shows that, because of Virgin Media's involvement as a potential bidder for ITV, it becomes very difficult, if not impossible, to unravel the various possible explanations for the observed market reactions.
25. On 21 November, ITV announced that it had rejected Virgin Media's bid for the company. BSkyB's shares did not move abnormally around this date but both ITV's and Virgin Media's shares had abnormal negative returns of around 5 per cent. These results were significant at the 10 per cent level. Whilst the ITV reaction is logical given the positive reaction when the bid was announced, there is no obvious explanation for the negative reaction of Virgin Media shareholders. Since one would normally expect acquiring company shareholders to lose out in the event of a successful bid, the statement of rejection might well have been greeted positively by the market.
26. On 27 April 2007, the OFT recommended to the Secretary of State that the matter be referred to the CC. Our data shows that over a three-day event window, shares in ITV rose abnormally by 4.3 per cent, but that this rise was not statistically significant. *The Daily Telegraph* attributed the price rise on the day to speculation that if Sky was forced to reduce its stake it could reopen the door for Virgin Media (or presumably RTL) to launch another bid for ITV. Shares in BSkyB, RTL and Virgin Media did not move significantly. The lack of significant movement at this news would be consistent with the market believing that the deal was competitively neutral. There could be other explanations. Investors in Virgin Media might, on the one hand, view the merger as anti-competitive and thus welcome the reference (sending Virgin Media shares up), but on the other hand may view the possibility of Virgin Media reopening its bid for ITV as a bad thing (sending the shares down). If these two effects were broadly offsetting, the net effect would be no change in price. The same explanation would work for RTL. The effect of the reference on BSkyB is theoretically twofold;

first it stands to lose any potential strategic advantage gained from the transaction; and secondly, it stands to make a loss (reported to be in excess of £100 million) in the event of a forced divestment of its stake in ITV. If these two theories are correct, the slight rise in BSkyB's share price over the three-day event window is surprising. It is difficult to conclude anything from Virgin Media's price movements due to the complication of it being a potential bidder for ITV. Alternative explanations of the observed share price movements could equally support a theory of exclusionary effects or a theory of no competitive harm.

27. The results of the BSkyB and ITV study are shown in Table 4.

TABLE 4 BSkyB/ITV

Company	Model window		Event description	Event date	Minus days	Plus days	Results	
	Start	End					CAR %	t-stat
BSkyB	4/1/2006	18/10/2006	Virgin Media announcement of possible bid	9/11/2006	1	1	-1.2	-0.65
ITV	4/1/2006	18/10/2006	Virgin Media announcement of possible bid	9/11/2006	1	1	7.1	2.71*
Virgin Media	4/1/2006	18/10/2006	Virgin Media announcement of possible bid	9/11/2006	1	1	-1.4	-0.50
BSkyB	4/1/2006	18/10/2006	BSkyB announcement of acquisition of stake	17/11/2006	1	1	-0.7	-0.37
ITV	4/1/2006	18/10/2006	BSkyB announcement of acquisition of stake	17/11/2006	1	1	0.5	0.19
RTL	4/1/2006	18/10/2006	BSkyB announcement of acquisition of stake	17/11/2006	1	1	-2.5	-0.79
Virgin Media	4/1/2006	18/10/2006	BSkyB announcement of acquisition of stake	17/11/2006	1	1	-0.9	-0.33
BSkyB	4/1/2006	18/10/2006	ITV rejects Virgin Media offer	21/11/2006	1	1	-1.0	-0.50
ITV	4/1/2006	18/10/2006	ITV rejects Virgin Media offer	21/11/2006	1	1	-4.9	-1.86‡
Virgin Media	4/1/2006	18/10/2006	ITV rejects Virgin Media offer	21/11/2006	1	1	-5.2	-1.88‡
BSkyB	4/1/2006	18/10/2006	OFT refers matter to CC	27/4/2007	1	1	1.8	0.93
ITV	4/1/2006	18/10/2006	OFT refers matter to CC	27/4/2007	1	1	4.3	1.62
RTL	4/1/2006	18/10/2006	OFT refers matter to CC	27/4/2007	1	1	0.6	0.18
Virgin Media	4/1/2006	18/10/2006	OFT refers matter to CC	27/4/2007	1	1	-1.4	-0.52

*Significant at 1 per cent level.

†Significant at 5 per cent level.

‡Significant at 10 per cent level.

Classified Directory Advertising Services

28. On 18 August 2004 the OFT announced a review of undertakings given in relation to advertising in *Yellow Pages*.⁹ It later announced on 3 November 2004 that this review would form part of a wider study of the market for classified directory advertising services (CDAS).

29. On 5 April 2005, the OFT referred the CDAS market to the CC, saying that the market appeared to be suffering from a lack of competition. It found that the market

⁹These undertakings were originally given by BT, the then owner of *Yellow Pages*, in 1996 following a report by the MMC.

was highly concentrated with *Yellow Pages* accounting for more than 80 per cent of supply, and Thomson Directories accounting for a further 10 per cent, and that new entrants were deterred by network effects and strong branding. It cited high profits and limited competitive pressure on prices.

30. The CC published its issues statement on 31 August 2005; its emerging thinking document on 24 January 2006; its provisional findings on 13 June 2006; and its final report on 21 December 2006.
31. We examined share price movements in Yell (the owner of *Yellow Pages*) around the date of the reference to the CC; and the date of publication of the issues statement, the provisional findings and the final report. For each date, a three-day event window was used. The results are shown in Table 5.

TABLE 5 CDAS

Event description	Event window			Results		Event -1		Event		Event +1	
	Event date	Minus days	Plus days	CAR %	t-stat	AR %	t-stat	AR %	t-stat	AR %	t-stat
OFT announce market study	3/11/2004	1	1	-1.5	-0.91	0.1	0.14	-0.4	-0.43	-1.2	-1.29
Reference date +/- one day	5/4/2005	1	1	-15.8	-8.95*	-1.1	-1.13	-10.5	-10.27*	-4.2	-4.13*
Issues statement	31/8/2005	1	1	3.4	1.93‡	-0.7	-0.67	4.0	3.91*	0.1	0.13
Emerging thinking	24/1/2006	1	1	-0.4	-0.24	-0.7	-0.66	-3.7	-3.63*	3.9	3.83*
Provisional findings	13/6/2006	1	1	-3.5	-1.93‡	-0.5	-0.53	-1.0	-0.99	-1.9	-1.88‡
Final report	21/12/2006	1	1	1.8	0.99	-0.3	-0.28	1.6	1.53	0.5	0.47

*Significant at 1 per cent level.

†Significant at 5 per cent level.

‡Significant at 10 per cent level.

32. The data indicates that Yell shares suffered a cumulative abnormal negative return of 15.8 per cent around the date of the reference to the CC. The market took two days to fully absorb the impact of the reference, falling around 10 per cent on the day itself and a further 4 per cent the following day. Press reports blamed the dramatic share price reaction—which was the largest percentage fall since the shares were first traded in 2003—on analysts, who had predicted that existing regulatory price caps would be eased or even lifted altogether.¹⁰ Based on the lack of reaction to the OFT's announcement on 3 November that it was launching a market study, it would not appear that the market was predicting a bad outcome at this stage, and had clearly underestimated the risk of a reference to the CC.
33. On publication of the issues statement on 31 August 2005, Yell's shares rose slightly but not by a statistically significant amount over a three-day event window. There was, however, a significant rise of 4.0 per cent on the day of publication itself. According to press reports at the time, possible reasons for the positive reaction included the fact that the CC appeared to be minded to include online classified advertising in its market definition and relief that the statement did not contain any 'nasty surprises'.¹¹ However, a later report in the weekend edition of the *Financial Times* suggested that bid rumours were responsible for the 5.4 per cent rise in Yell's share price over the week.¹²

¹⁰See, for example, 'Yellow Pages faces price probe', FT.com, 5 April 2005; 'Pained Yell', *Financial Times*, 6 April 2005.

¹¹Yell relief at Commission statement', *The Independent*, 1 September 2006.

¹²Shares faced with Fanciful Future', *Financial Times*, 3 September 2005.

34. The CC published its emerging thinking on 24 January 2006. Over a three-day event window, the stock showed little movement. However, this disguises significant but offsetting movements on the publication date, when the shares fell by 4 per cent, and the following day, when they bounced back by an equivalent amount. *The Daily Telegraph* explains that ‘investors decided a nosedive on the back of ominous preliminary notes from the CC looked overdone’.¹³ This pattern of price movements supports the use of an event window that is wider than the event date itself.
35. The CC published its provisional findings on 13 June 2006, indicating that it was minded to maintain price controls on Yell and that Internet classified advertising had so far had little effect on classified directories. The data shows a cumulative abnormal negative return over a three-day event window of 3.5 per cent but this does not quite meet our test of statistical significance. There was little press interest in the provisional findings, and given the lack of significant price reaction, we might conclude that they contained little that was unexpected. A further possibility is that they contained good news and bad news in equal measures: the good news being that the Internet had little constraining effect on Yell’s prices; the bad news being that the CC was likely to control prices. Two other events are reported in the press that may also have had repercussions for the share price. The *Daily Mail* reported that Yell had reduced its reliance on the UK after buying Spanish directories business TPI in April.¹⁴ This would be likely to dampen any reaction to UK regulatory events. The *Financial Times* reported that *Yellow Pages* was being sued for misrepresentation and breach of contract as a result of its advertisement placement system.¹⁵ This may have contributed to the fall in the share price in the same week.
36. The share price showed little reaction to the publication of the final report on 21 December 2006, recommending that the current price control of inflation minus 6 per cent be maintained until March 2008 and thereafter recommending a price control of RPI –0 per cent. This is perhaps unsurprising given the chosen remedies were broadly those proposed in the provisional findings.

HMV and Ottakar’s

37. On 16 August 2005 Ottakar’s announced that discussions had taken place with an MBO team that might lead to a possible offer for the company. On 25 August 2005 HMV announced that it was considering making an offer for Ottakar’s. The following day, 26 August 2005, the MBO bid vehicle made a recommended bid for Ottakar’s of £3.50 per share. This was increased to £4.00 a share on 6 September 2005. On 8 September 2005, HMV announced its bid for Ottakar’s at £4.40 a share. On 13 September 2005, the independent directors of Ottakar’s withdrew their recommendation to shareholders to accept the MBO offer and recommended HMV’s offer. Newspaper reports suggest that whilst the market thought the bid would attract the interest of the competition authorities, they would be unlikely to block the bid outright.¹⁶ Shares in both HMV and Ottakar’s rose on the news of the announcement. The OFT referred the transaction to the CC on 6 December. The *Financial Times* notes that the reference to the CC was made after a ‘highly public campaign by publishers and authors’.¹⁷
38. The CC published its issues statement on 25 January 2006. The following week, HMV confirmed that it had received a takeover approach from Permira, a private

¹³‘The Market’, *The Daily Telegraph*, 26 January 2006.

¹⁴‘Competition watchdog to keep its eyes on Yell’, *Daily Mail*, 14 June 2006.

¹⁵‘Lawyer sues Yell over order of adverts’, *Financial Times*, 16 June 2006.

¹⁶See, for example, ‘HMV makes a play for Ottakar’s’, *The Independent*, 26 August 2005.

¹⁷‘HMV awaits OFT Ottakar’s decision’, *Financial Times*, 26 January 2006.

equity group. Permira continued to stalk HMV until 20 March 2006 when it announced that it was abandoning its takeover attempt.

39. The CC published its provisional findings on 30 March, indicating that it was minded to clear the proposed merger. Its final report published on 12 May 2006 confirmed its decision to clear the transaction.
40. We examined share price movements in HMV and Ottakar's around the dates of the merger announcement; the date of the reference to the CC; and the date of publication of the issues statement, the provisional findings and the final report. For each date, various event windows were considered from one day to seven days. We also examined share price movements in WH Smith, a listed competitor. The results are shown in Table 6.

TABLE 6 **HMV/Ottakar's**

Company	Model window		Event description	Event date	Event window		Results	
	Start	End			Minus days	Plus days	CAR %	t-stat
HMV	15/10/2004	2/8/2005	MBO announcement	16/8/2005	1	1	4.8	1.97‡
HMV	15/10/2004	2/8/2005	HMV announcement of intention	25/8/2005	1	1	2.3	0.92
HMV	15/10/2004	2/8/2005	HMV formal bid	8/9/2005	1	1	-1.2	-0.48
HMV	15/10/2004	2/8/2005	Reference date	6/12/2005	1	1	1.8	0.72
HMV	15/10/2004	2/8/2005	Issues statement	25/1/2006	1	1	1.0	0.41
HMV	15/10/2004	2/8/2005	Issues statement	25/1/2006	3	3	17.9	4.77*
HMV	15/10/2004	2/8/2005	Provisional findings	30/3/2006	1	1	-2.6	-1.05
HMV	15/10/2004	2/8/2005	Final report (clearance)	12/5/2006	1	1	2.0	0.78
Ottakar's	15/10/2004	2/8/2005	MBO announcement	16/8/2005	1	1	22.1	7.56*
Ottakar's	15/10/2004	2/8/2005	HMV announcement of intention	25/8/2005	1	1	10.5	3.58*
Ottakar's	15/10/2004	2/8/2005	HMV formal bid	8/9/2005	1	1	8.6	2.97*
Ottakar's	15/10/2004	2/8/2005	Reference date	6/12/2005	1	1	-9.1	-3.11*
Ottakar's	15/10/2004	2/8/2005	Issues statement	25/1/2006	1	1	0.6	0.21
Ottakar's	15/10/2004	2/8/2005	Provisional findings	30/3/2006	0	0	8.0	4.75*
Ottakar's	15/10/2004	2/8/2005	Provisional findings	30/3/2006	1	1	6.1	2.09‡
Ottakar's	15/10/2004	2/8/2005	Final report (clearance)	12/5/2006	0	0	4.6	2.62*
Ottakar's	15/10/2004	2/8/2005	Final report (clearance)	12/5/2006	1	1	1.5	0.50
WH Smith	15/10/2004	2/8/2005	MBO announcement	16/8/2005	1	1	4.2	1.52
WH Smith	15/10/2004	2/8/2005	HMV announcement of intention	25/8/2005	1	1	1.1	0.40
WH Smith	15/10/2004	2/8/2005	Date of formal HMV bid	8/9/2005	1	1	-0.9	-0.34
WH Smith	15/10/2004	2/8/2005	Reference date	6/12/2005	1	1	3.0	1.11
WH Smith	15/10/2004	2/8/2005	Issues statement	25/1/2006	1	1	-5.4	-1.96‡
WH Smith	15/10/2004	2/8/2005	Provisional findings	30/3/2006	1	1	-0.5	-0.20
WH Smith	15/10/2004	2/8/2005	Final report (clearance)	12/5/2006	1	1	1.2	0.40

*Significant at 1 per cent level.

‡Significant at 5 per cent level.

‡Significant at 10 per cent level.

41. The study indicates that the HMV share price reacted positively to the MBO announcement but not to any of the other four events in question. The reaction to the MBO announcement may be related to speculation that trade buyers (including HMV or WH Smith) would make a counter-offer for Ottakar's; but only if the market viewed such a transaction as favourable. The fact that WH Smith shares also rose could indicate anti-competitive effects, but since the effect did not meet our tests of statistical significance we cannot attribute it to the event with the required degree of certainty. Note that the choice of event window around the date of the issues statement is important; if a seven-day window is chosen, a cumulative abnormal return (CAR) of 19.5 per cent is indicated, as this window captures the effect of the Permira bid announcement on 30 January. The choice of a narrower three-day

window indicates that there was no abnormal price movement around the date of the issues statement itself.

42. The results indicate that the Ottakar's share price reacted positively to the bid announcements. Over the period between the initial MBO announcement and HMV's formal bid, shareholders in Ottakar's enjoyed an abnormal positive return of around 50 per cent.
43. The reaction on the date of the reference was an abnormal fall in price of 9 per cent. This is relatively small in comparison with the rise in share price over the bid period, possibly indicating that Ottakar's shareholders expected the CC to clear the merger. This could reflect a belief that the reference had been made as a result of political pressure (and a public campaign by authors and publishers) and not due to legitimate competition concerns.
44. The provisional findings indicated to the market that the CC was minded to clear HMV's bid for Ottakar's, and the final report confirmed this view. As expected, shares in Ottakar's rose abnormally around both dates, recovering the loss in value suffered around the reference date. Over the entire period between bid announcement and CC clearance of the transaction, the CAR was around 50 per cent, indicating that the CC investigation had no effect on the value of the target company and thus confirming the findings of Arnold and Parker (2007).
45. We also examined the share price of WH Smith, a major competitor in the retail book market. WH Smith is listed on the London Stock Exchange. The results of our study did not indicate any significant reaction on either of the announcement dates: 25 August 2005, on which HMV announced it was considering making an offer, or 8 September 2005, on which HMV made public its formal bid. There was also no significant reaction on the date that the transaction was referred to the CC. The lack of reaction to the key dates involving the HMV bid does not support a theory of competitive harm and is therefore consistent with the CC's clearance of the transaction.
46. We noted that WH Smith shares fell abnormally around the date of publication of the issues statement. On further investigation, this movement can be readily attributed to a mixed trading statement delivered the day before on 24 January and to speculation that WH Smith was considering a bid for Woolworths.¹⁸

Groceries

47. The OFT announced its proposal to refer the market for the supply of groceries by retailers in the UK to the CC on 9 March 2006. This proposal followed an appeal of an earlier decision not to refer by the Association of Convenience Stores (ACS). Following a consultation period, a reference to the CC was made on 9 May 2006.
48. The CC published its issues statement on 15 June 2006 and its emerging thinking on 23 January 2007.
49. We examined share price movements in Sainsbury's, Tesco, Morrisons, and Marks & Spencer around the date of the reference to the CC; and the date of publication of the issues statement and the emerging thinking document. For each date, a three-day event window was considered. The results are shown in Table 7.

¹⁸See, for example, 'WH Smith to keep books at its core', *Financial Times*, 25 January 2006; and 'Counterbid for P&O Creates Waves', *Financial Times*, 28 January 2006.

TABLE 7 Groceries event study

Company	Model window		Event description	Event window		Results		
	Start	End		Event date	Minus days	Plus days	CAR %	t-stat
Tesco	6/7/2005	20/4/2006	Reference	9/5/2006	1	1	0.6	0.31
Tesco	6/7/2005	20/4/2006	Issues statement	15/6/2006	1	1	-0.4	-0.23
Tesco	6/7/2005	20/4/2006	Emerging thinking	23/1/2007	1	1	-0.1	-0.07
Sainsbury's	6/7/2005	20/4/2006	Reference	9/5/2006	1	1	3.5	2.35†
Sainsbury's	6/7/2005	20/4/2006	Issues statement	15/6/2006	1	1	2.4	1.61
Sainsbury's	6/7/2005	20/4/2006	Emerging thinking	23/1/2007	1	1	1.5	1.05
M&S	6/7/2005	20/4/2006	Reference	9/5/2006	1	1	1.2	0.64
M&S	6/7/2005	20/4/2006	Issues statement	15/6/2006	1	1	3.7	1.94‡
M&S	6/7/2005	20/4/2006	Emerging thinking	23/1/2007	1	1	1.8	0.92
Morrisons	6/7/2005	20/4/2006	Reference	9/5/2006	1	1	0.9	0.42
Morrisons	6/7/2005	20/4/2006	Issues statement	15/6/2006	1	1	-0.1	-0.03
Morrisons	6/7/2005	20/4/2006	Emerging thinking	23/1/2007	1	1	0.7	0.31

*Significant at 1 per cent level.

†Significant at 5 per cent level.

‡Significant at 10 per cent level.

50. The results show that around the reference date itself, the prices of all four companies' shares rose, although only in the case of Sainsbury's was this by a significant amount over the three-day event window being considered. At the time, press reports interpreted this apparently perverse reaction as evidence that the inquiry would not result in any widespread changes.¹⁹
51. Most of the companies' shares did not react significantly to the issues statement or the emerging thinking. There was a three-day abnormal return to Marks & Spencer shareholders of 3.7 per cent on the date of the issues statement. However, we noted that any movements around the date of the issues statement were likely to be influenced by Tesco's first quarter sales announcement on the same day.²⁰
52. The absence of any systematic effect on share prices is interesting in itself. The OFT's concerns centred around the planning system and the holding of land banks by the supermarkets; and it is in these areas that it saw scope for remedial action to be taken. Against a background of falling prices, and improvements in product ranges and service,²¹ it seems that investors viewed the probability of any remedial action being taken that might threaten levels of profitability in the sector to be small.

South East Water and Mid Kent Water

53. The following study was conducted during the CC's inquiry into the merger of South East Water and Mid Kent Water. This transaction resulted in a compulsory reference to the CC under the Water Industry Act 1991. The test in this case differed from the usual Enterprise Act 2002 'substantial lessening of competition' (SLC) test, being related to the Director General's (ie Ofwat's) ability to make comparisons between water companies for the purposes of setting price controls. The event study considered whether the announcement of Hastings' acquisition of South East Water had a noticeable effect on the prices of corporate bonds issued by companies active in the water sector.

¹⁹See, for example, 'Supermarkets stand firm in face of new OFT probe', *Daily Mail*, 10 May 2006.

²⁰The *Financial Times* (Markets section, p7, 15 June 2006) reports that Tesco posted first quarter sales at the lower end of market expectations and Tesco shed 2.5p to 327.5p but its figures boosted rival J Sainsbury up 7.75 to 318.75.

²¹The OFT's decision document of May 2006 (OFT 845) states that 'Overall, the evidence suggests that consumers have benefited in recent years from falling prices, an increase in product range within stores, and an apparent improvement in service.'

54. The methodology was as follows:

- (a) Daily total return data²² was collected from Datastream for a two-year period going back to January 2005 for:
 - (i) a selection of five long-term bonds issued by water companies;²³ and
 - (ii) the FTSE index of sterling corporate bonds of 15 years maturity and above.
- (b) The average daily changes in returns were calculated for an equally weighted portfolio of the bonds and for the index—the relevant bond index being one of comparable maturity to the bonds in question.
- (c) Abnormal returns were calculated using a model of the form:

$$\text{Abnormal return} = \text{observed return on portfolio} - \text{expected return}$$

where the parameter for the expected return was estimated by regressing portfolio returns on the index over days –448 to –10 prior to the announcement.

The abnormal return was calculated for the announcement date itself and for an event window of one day either side of the announcement date. The results were tested for significance.

55. The results of the study were as follows:

- (a) All the bonds were very highly correlated with the chosen index.
- (b) Figure 1 shows actual and expected trading day returns on the portfolio. On the announcement date (2 October 2006) the expected return was –0.42 per cent and the actual return was –0.02 per cent. Therefore, the portfolio exhibited a positive abnormal return of 0.4 per cent on the announcement date itself, which is statistically significant at the 5 per cent level.
- (c) Extending the event window to cover one day before and one day after the announcement date produces a cumulative expected return of –0.4 per cent and a cumulative actual return of –0.38 per cent. The cumulative abnormal return of 0.02 per cent over this period is not statistically significant at the 5 per cent level.

Further details are set out in Table 8.

²²The total return is the return on investment, including interest payments, as well as appreciation or depreciation in the price of the bond. The formula used to calculate total return is as follows:

$$RI_t = RI_{t-1} \times \frac{P_t + A_t + NC_t + CP_t}{P_{t-1} + A_{t-1} + NC_{t-1}}$$

Where:

RI = Total return

P = Clean price

A = Accrued interest

NC = Next coupon. Adjustment made when a bond goes ex-dividend.

CP = Value of any coupon received on t or since t–1.

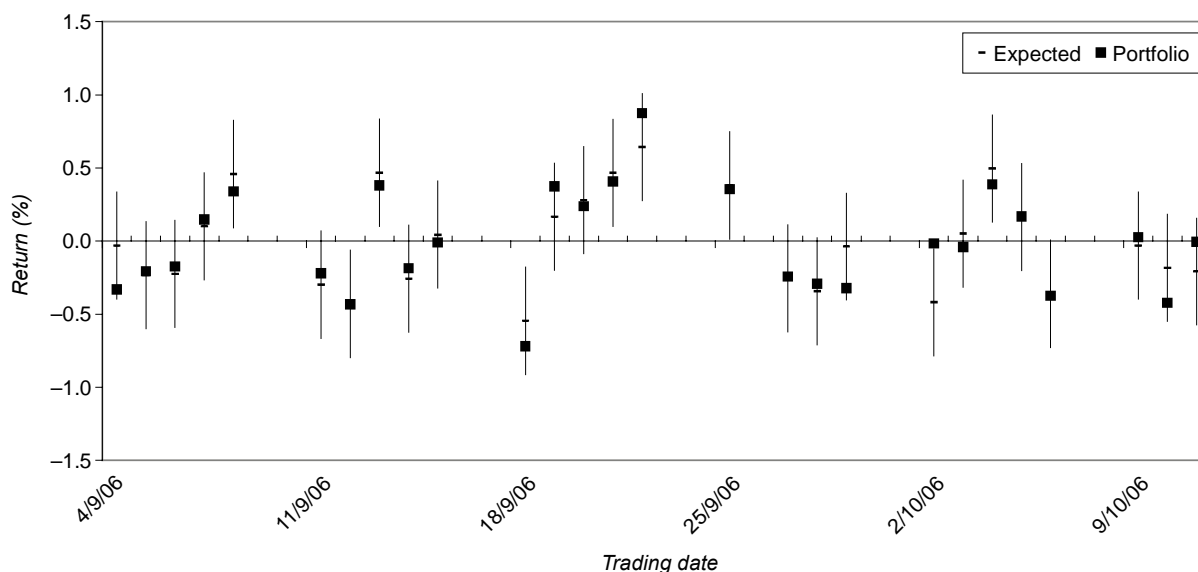
t = Time

t-1 = Time less 1 day

²³Referred to in a Deutsche Bank research report *UK Water—Boiling Point*, 18 October 2006.

FIGURE 1

Actual and expected trading day returns on equal-weighted portfolio of five water enterprises' bonds



56. The study noted that it is common in event studies to consider returns over a wider event window of several days either side of the event date itself. This is typically to allow for leaks of information to the market prior to the event and slow reaction to news by the market. In this case, since the market appears to have reacted to the announcement on the date itself, there is no particular reason to consider a wider event window. However, if the event window is widened by one day before and one day after the event, the abnormal return is not sustained over the longer period.

57. The study noted that no data was available on trading volumes and hence the relative liquidity of the instruments selected had not been examined.

TABLE 8 Returns on water industry bond portfolio

Date	Index return	Bond 1 return	Bond 2 return	Bond 3 return	Bond 4 return	Bond 5 return	Portfolio return	per cent	
								Normal return	Abnormal return
<i>Portfolio returns</i>									
29/9/2006	-0.041	-0.348	-0.337	-0.323	-0.356	-0.263	-0.323	-0.038	-0.285
2/10/2006	-0.430	0.046	-0.034	-0.046	0.017	-0.049	-0.016	-0.418	0.402†
3/10/2006	0.050	-0.017	-0.071	-0.002	0.059	-0.138	-0.042	<u>0.051</u>	<u>-0.093</u>
							3-day CAR	-0.405	0.024

*Significant at 1 per cent level.
 †Significant at 5 per cent level.
 ‡Significant at 10 per cent level.
 Note:

Bond/index details

1. Kelda Group 2000 6 5/8% 17/04/31.
 2. Thames Water 1998 6 3/4% 16/11/28.
 3. Severn Trent 1999 6 1/4% 07/06/29.
 4. Wessex Water 2003 5 3/4% 14/10/33.
 5. Northumbrian Water 1998 6 7/8% 06/02/23.
- Index: FTSE Sterling Corp 15+ years.

58. The CC's final report summed the results of the study up as follows:

We considered whether the announcement of Hastings' acquisition of SEW had a noticeable effect on the prices of corporate bonds issued by companies active in the water sector. The study compared daily total returns from a portfolio of five water industry bonds to those from a general index of corporate bonds. It found that on the announcement date itself, the portfolio of water industry bonds exhibited a positive abnormal return and that this was statistically significant.

We considered possible explanations for this result. One explanation could be that investors believed that the transaction would prejudice Ofwat's ability to make comparisons, thus increasing water companies' revenues at future price controls with a consequential lessening of default risk. We noted that for this hypothesis to hold, investors would also have to believe that there was a chance that such a merger could be allowed by the competition authorities. A second explanation could be that the announcement was seen as signalling the possibility of further consolidation with consequential synergies for companies in the sector. This might also be expected to reduce default risk for bond investors. Hastings suggested that this result might be related to two other transactions: the possibility that Macquarie could now bid for Thames Water as a result of the sale of SEW, and/or the acquisition of AWG by the Osprey Consortium which was announced on the same day.

We noted that the results of the study would be consistent with a finding that the merger results in a prejudice to Ofwat's ability to make comparisons. However, we were unable to isolate the effect of any one of the above explanations.

59. For the purposes of this paper we also considered daily returns on a portfolio of water industry bonds²⁴ around the announcement date, the date of the reference to the CC, and the date of publication of the issues statement, the provisional findings and final report.
60. The results, presented in Table 9 below, show an abnormal return on the announcement date itself but not over a three-day event window (consistent with the original study), and no statistically significant results on the other dates. Since the reference was a compulsory one, and the issues generic to mergers in the sector, the lack of reaction on the reference date and date of publication of the issues statement is not surprising. However, the lack of reaction to the provisional findings, in which a provisional adverse finding of limited prejudice was made, is not consistent with the earlier hypothesis (based on share prices movements around the announcement date) that investors believed that the transaction would prejudice Ofwat's ability to make comparisons and would therefore benefit other companies in the sector. The provisional finding of limited prejudice significantly increased the chances of the transaction being completed. Therefore, if investors believed that this was a good thing for other companies in the sector, one would have expected to see a positive reaction to the news. In summary, the additional evidence appears to support an alternative explanation for the observed abnormal return around the announcement date.

²⁴A larger portfolio of nine water bonds was used in this study.

TABLE 9 Water industry bond portfolio

Company	Model window		Event window				Results	
	Start	End	Event description	Event date	Minus days	Plus days	CAR %	t-stat
Water bond portfolio	12/12/2005	18/9/2006	Announcement	2/10/2006	0	0	0.3	2.09†
Water bond portfolio	12/12/2005	18/9/2006	Announcement	2/10/2006	1	1	0.2	0.54
Water bond portfolio	12/12/2005	18/9/2006	Reference date	16/11/2006	1	1	0.1	0.51
Water bond portfolio	12/12/2005	18/9/2006	Issues statement	20/12/2006	1	1	0.0	-0.10
Water bond portfolio	12/12/2005	18/9/2006	Provisional findings	8/3/2007	1	1	-0.2	-0.66
Water bond portfolio	12/12/2005	18/9/2006	Final report	1/5/2007	1	1	-0.1	-0.38

*Significant at 1 per cent level.

†Significant at 5 per cent level.

‡Significant at 10 per cent level.

Payment Protection Insurance

61. Following a super-complaint by Citizens Advice, the OFT launched a market study into payment protection insurance on 3 April 2006. On 19 October 2006 it announced its intention to refer the market to the CC, subject to a consultation period. The OFT was worried about the lack of ability of consumers to shop around for PPI and of stand-alone providers to access consumers. It cited low claims ratios and (suspected) high profits.
62. The OFT referred the PPI market to the CC on 7 February 2007, and the CC published its issues statement on 12 April.
63. We examined the share prices of a selection of listed financial institutions which are involved in the PPI market around the date of the reference to the CC and publication of the issues statement. Since PPI is only one segment of these firms' businesses, the ability of an event study to detect reactions to PPI-specific announcements is questionable. However, some commentators have indicated that it does contribute disproportionately to profits.²⁵ The results are shown in Table 10.

²⁵See, for example, Citigroup.

TABLE 10 PPI

Company	Model window		Event window				Results	
	Start	End	Event description	Event date	Minus days	Plus days	CAR %	t-stat
Lloyds	8/6/2005	20/3/2006	OFT launches study (PPI)	3/4/2006	1	3	-2.0	-1.11
Cattles	8/6/2005	20/3/2006	OFT launches study (PPI)	3/4/2006	1	3	-0.4	-0.13
Alliance & Leicester	8/6/2005	20/3/2006	OFT launches study (PPI)	3/4/2006	1	3	-2.7	-1.50
Barclays	8/6/2005	20/3/2006	OFT launches study (PPI)	3/4/2006	1	3	0.2	0.09
Lloyds	8/6/2005	20/3/2006	OFT proposes to refer	19/10/2006	1	1	-1.3	-0.90
Cattles	8/6/2005	20/3/2006	OFT proposes to refer	19/10/2006	1	1	-4.6	-1.96‡
Alliance & Leicester	8/6/2005	20/3/2006	OFT proposes to refer	19/10/2006	1	1	-0.1	-0.05
Barclays	8/6/2005	20/3/2006	OFT proposes to refer	19/10/2006	1	1	0.0	-0.02
Lloyds	19/4/2006	24/1/2007	Reference date (PPI)	7/2/2007	1	1	1.0	0.85
Cattles	19/4/2006	24/1/2007	Reference date (PPI)	7/2/2007	1	1	-1.4	-0.60
Alliance & Leicester	19/4/2006	24/1/2007	Reference date (PPI)	7/2/2007	1	3	0.4	0.16
Barclays	19/4/2006	24/1/2007	Reference date (PPI)	7/2/2007	1	3	0.8	0.45
Lloyds	19/4/2006	24/1/2007	Issues statement (PPI)	12/4/2007	1	1	-0.1	-0.04
Cattles	19/4/2006	24/1/2007	Issues statement (PPI)	12/4/2007	1	1	-3.6	-1.53
Alliance & Leicester	19/4/2006	24/1/2007	Issues statement (PPI)	12/4/2007	1	1	0.4	0.22
Barclays	19/4/2006	24/1/2007	Issues statement (PPI)	12/4/2007	1	1	0.4	0.31

*Significant at 1 per cent level.

†Significant at 5 per cent level.

‡Significant at 10 per cent level.

64. The results do not indicate any systematic reaction to the key events leading up to the reference or to the issues statement. Lloyds and Alliance & Leicester suffered small adverse share price reactions when the OFT announced the launch of its market study, but Alliance & Leicester shares actually rose. Cattles plc shares suffered a cumulative abnormal adverse return of 4.6 per cent (significant at the 10 per cent level) when the OFT announced it was proposing to refer the market to the CC, and a further adverse CAR of 1.4 per cent around the reference date and 3.6 per cent around publication of the issues statement. Because of the lack of systematic share price reaction and the lack of (or weak) statistical significance of the results, we cannot with certainty attribute them to the events in question. They are within the range of movements that may be attributable to chance fluctuations.
65. We noted that Cattles had published its Annual Report and Accounts on the same date as the issues statement.

Wienerberger Finance BV/Baggeridge Brick plc

66. This case concerned the anticipated acquisition of Baggeridge Brick plc by Wienerberger Finance BV, a wholly-owned subsidiary of Wienerberger AG. Wienerberger AG is the world's largest producer of bricks and has more than 260 plants in 24 countries (including the USA) and a global workforce of over 13,000. It is listed on the Austrian stock exchange. Baggeridge Brick plc is listed on the London Stock Exchange.
67. We examined the share price of Baggeridge Brick plc and Wienerberger AG around the date of the announcement on 17 August 2006, the reference date on 11 December 2006 and the dates of publication of the issues statement on 19 January 2007; the provisional findings on 4 April 2007; and final report on 10 May 2007. The index used to represent the market in the case of Wienerberger AG was the FTSE Euro stocks index.

68. We also examined the share prices of two firms competing in the UK brick market: Michelmersh plc and Hanson plc.

69. The results are shown in Table 11.

TABLE 11 **Wienerberger AG**

Company	Model window		Event window				Results	
	Start	End	Event description	Event date	Minus days	Plus days	CAR %	t-stat
Baggeridge	15/10/2004	2/8/2005	Bid announcement	17/8/2006	1	1	21.2	6.79†
Wienerberger	15/10/2004	2/8/2005	Bid announcement	17/8/2006	1	1	-0.8	-0.30
Michelmersh	15/10/2004	2/8/2005	Bid announcement	17/8/2006	1	1	2.4	0.91
Hanson	15/10/2004	2/8/2005	Bid announcement	17/8/2006	1	1	1.6	0.86
Baggeridge	15/10/2004	2/8/2005	Reference date	11/12/2006	1	1	-9.0	-2.87‡
Wienerberger	15/10/2004	2/8/2005	Reference date	11/12/2006	1	1	2.4	0.91
Michelmersh	15/10/2004	2/8/2005	Reference date	11/12/2006	1	1	2.7	1.00
Hanson	15/10/2004	2/8/2005	Reference date	11/12/2006	1	1	0.9	0.49
Baggeridge	15/10/2004	2/8/2005	Issues statement	19/1/2007	1	1	-1.0	-0.31
Wienerberger	15/10/2004	2/8/2005	Issues statement	19/1/2007	1	1	3.8	1.45
Michelmersh	15/10/2004	2/8/2005	Issues statement	19/1/2007	1	1	0.6	0.24
Hanson	15/10/2004	2/8/2005	Issues statement	19/1/2007	1	1	-1.2	-0.69
Baggeridge	15/10/2004	2/8/2005	Provisional findings (clearance)	4/4/2007	1	1	10.4	3.30‡
Wienerberger	15/10/2004	2/8/2005	Provisional findings (clearance)	4/4/2007	1	1	2.8	1.07
Michelmersh	15/10/2004	2/8/2005	Provisional findings (clearance)	4/4/2007	1	1	-1.8	-0.66
Hanson	15/10/2004	2/8/2005	Provisional findings (clearance)	4/4/2007	1	1	-0.1	-0.08

*Significant at 1 per cent level.

†Significant at 5 per cent level.

‡Significant at 10 per cent level.

70. The results of our study on Wienerberger were not statistically significant, although abnormal positive returns of between 2 and 4 per cent occurred around the reference date, issues statement and provisional findings. We note in this case the relatively small size of the target in relation to the acquirer: the turnover of Baggeridge Brick plc was less than 10 per cent of that of Wienerberger AG. Hence the power of the study to detect abnormal returns in Wienerberger AG stock will be considerably reduced.

71. Neither of the competing companies' shares showed any significant reaction to the bid or to the reference. The lack of reaction to the key dates involving the HMV bid does not support a theory of competitive harm and is therefore consistent with the CC's clearance of the transaction.

72. Baggeridge plc shares enjoyed a significant abnormal positive return of 21.2 per cent around the announcement date and a negative abnormal return of 9 per cent on the reference date. The shares recovered this loss in value when the provisional findings were released indicating a clearance. These reactions reinforce the findings of other event studies.

Stericycle International LLC/Sterile Technologies Group Limited

73. This case was referred to the CC on 28 June 2006 and concerned the completed acquisition of Sterile Technologies by Stericycle International LLC, a wholly-owned subsidiary of Stericycle Inc. Stericycle Inc is the USA's largest provider of regulated medical waste services and is listed on the Nasdaq exchange.

74. We examined the share price of Stericycle around the announcement date, reference date and the date of publication of the provisional findings on 20 October 2006 and

final report on 12 December 2006. The index used to represent the market in this case was the S&P Composite index. The results are shown in Table 12.

TABLE 12 Stericycle Inc

Company	Model window		Event window				Results	
	Start	End	Event description	Event date	Minus days	Plus days	CAR %	t-stat
Stericycle	28/4/2005	13/2/2006	Announcement	28/2/2006	1	1	-0.3	-0.17
Stericycle	28/4/2005	13/2/2006	Reference date	28/6/2006	1	1	-0.7	-0.34
Stericycle	28/4/2005	13/2/2006	Provisional findings (SLC)	20/10/2006	1	1	-0.4	-0.18
Stericycle	28/4/2005	13/2/2006	Final report (SLC, sale ordered)	12/12/2006	1	1	-1.6	-0.81

*Significant at 1 per cent level.

†Significant at 5 per cent level.

‡Significant at 10 per cent level.

75. The results were not statistically significant. We were not able to examine the share price movements of competitors in the UK market as we could not identify any competitor with traded equity and for whom medical waste formed a substantial part of the business.

Home Credit

76. We examined share price movements in Cattles Plc and Provident Financial Plc, two major suppliers of home credit in the UK. Our study showed a lack of systematic reaction to any of the events in question. Cattles Plc showed no statistically significant reaction to any of the events in question. This is unsurprising given that the home credit business only accounts for around 6 per cent of Cattles' turnover and therefore makes it a poor candidate for the study. The results are shown in Table 13.

TABLE 13 Home Credit

Company	Model window		Event window				Results	
	Start	End	Event description	Event date	Minus days	Plus days	CAR %	t-stat
Cattles	24/2/2004	6/12/2004	Reference date	20/12/2004	1	1	-2.4	-0.96
Cattles	24/2/2004	6/12/2004	Issues statement	18/4/2005	1	1	-2.9	-1.17
Cattles	24/2/2004	6/12/2004	Emerging thinking	27/10/2005	1	1	-1.5	-0.62
Cattles	24/2/2004	6/12/2004	Provisional findings	27/4/2006	1	1	0.8	0.32
Cattles	24/2/2004	6/12/2004	Final report	30/11/2006	1	1	0.3	0.13
Provident	24/2/2004	6/12/2004	Reference date	20/12/2004	1	1	2.8	1.30
Provident	24/2/2004	6/12/2004	Issues statement	18/4/2005	1	1	-1.1	-0.49
Provident	24/2/2004	6/12/2004	Emerging thinking	27/10/2005	1	1	-1.4	-0.65
Provident	24/2/2004	6/12/2004	Provisional findings	27/4/2006	1	1	-4.3	-1.98†
Provident	24/2/2004	6/12/2004	Final report	30/11/2006	1	1	5.7	2.60‡

*Significant at 1 per cent level.

†Significant at 5 per cent level.

‡Significant at 10 per cent level.

77. Provident Financial Plc showed a significantly adverse reaction to the provisional findings, falling 4.3 per cent over a three-day event window. Press reports at the time appear to attribute this movement to the CC's report: for example, AFX.com²⁶ reported that the shares were lower amid disappointment over the CC's ruling that credit lenders share customer data, according to dealers.

²⁶AFX International Focus, Provident Financial slips amid disappointment over watchdog findings, 27 April 2006.

78. However, Provident's share price recouped this earlier loss around the date of publication of the final report, rising 5.7 per cent over a three-day event window. This appears to support press comments that the remedies imposed were not as severe as they could have been; in particular, they stopped short of imposing a price cap on the industry. This illustrates the difficulty with this type of study as we cannot measure what the returns would have been absent the inquiry. Over the entire two-year course of the inquiry, Provident's shares rose 23 per cent above the market. However, without the inquiry, they might have risen even further. Analysts estimated the effects on Provident's full-year profits at £10 million²⁷ or 7 per cent of profits from home credit, suggesting that in this case the remedies did have a measurable effect, but one that is not easily identified by the current study.

Summary and concluding remarks

79. Table 14 summarizes the results of the event study on merger inquiries. The results were as follows:
- *BSkyB/ITV*: In this case both acquirer and target were listed and we examined their share prices as well as those of competitor Virgin Media. We did not find statistically significant abnormal returns around dates connected with the acquisition or with the referrals to the OFT or the CC. The results were inconclusive and could have equally supported a theory of exclusionary effects or a theory of limited competitive harm. A problem in this case was that the only pure-play listed competitor, Virgin Media, was also intimately involved with the transaction, having previously made a bid for control of ITV. This muddied the water and made it a less than ideal candidate for an event study.
 - *Baggeridge/Wienerberger*: Both target and acquirer exhibited typical patterns of share price movements at merger announcement and reference. Movements for the competitor firms were not statistically significant. In this case the competitor firms were reasonably specialized and might therefore be regarded as good candidates for a study of this nature. We can therefore conclude that the lack of significant reaction was consistent with the CC's clearance of the transaction.
 - *HMV/Ottakar's*: Both target and acquirer exhibited typical patterns of share price movements at merger announcement and reference. Movements for the competitor firm were not statistically significant. The availability of only one listed competitor firm which is at best only partially in the same market as the main parties makes this a poor candidate for an event study.
 - *Mid Kent Water/South East Water*: In this case there was evidence of an abnormal return in competitor bond prices on the announcement date itself but not when the event window was expanded to three days. The observed abnormal return could have supported a theory of competitive harm but was not corroborated by evidence of a similar reaction to provisional findings. In this case another, much larger, merger announcement on the same day is likely to have been responsible for the rise in bond prices. The ability of the market to evaluate the outcome of any competition inquiry with any certainty in these types of cases must be questioned given the relatively untested nature of the regulatory regime and complexity of the econometric modelling at the heart of the case. It is more likely that bond prices rose in anticipation of consolidation in the sector and consequen-

²⁷ *Yorkshire Post*, 'Lending Inquiry Calls for Price Cut', 1 December 2006.

tial debt restructurings leading to improved credit quality and/or appetite for this class of security and/or opportunities for arbitrage.

TABLE 14 CAR of main parties and competitors around key dates on merger inquiries

per cent

	<i>Announcement date</i>			<i>Reference date</i>			<i>Provisional findings</i>		
	<i>Target</i>	<i>Acquiror</i>	<i>Competitors</i>	<i>Target</i>	<i>Acquiror</i>	<i>Competitors</i>	<i>Target</i>	<i>Acquiror</i>	<i>Competitors</i>
BSky/ITV	0.5	-0.7	-0.9	4.3	1.8	-1.4	-	-	-
Baggeridge	21.2*	-0.8	2.0	-9.0*	2.4	1.8	10.4*	2.8	-1.0
Ottakar's	8.6*	-1.2	-0.9	-9.1*	1.8	3.0	6.1†	-2.6	-0.5
MKW (1 day)			0.3‡			0.1			-0.2

*Significant at 1 per cent level.

†Significant at 5 per cent level.

‡Significant at 10 per cent level.

80. It is important to note that it is only by examining the share price movements of competitors that any inferences can be made about competitive effects.

81. In market investigations, we found few cases where the stock price movement was large enough to be conclusively linked to the event in question. The largest effects were seen in the CDAS market inquiry, not surprisingly given its quasi-regulatory nature and focus on the price control mechanism applying to the future revenues of Yell plc. Other market investigations appeared to have little effect on share prices, perhaps reflecting the nature of remedies imposed in investigations of this type: remedies tend to be behavioural rather than structural; and are generally aimed at improving customer information and price transparency.

82. Table 15 deals with the four market inquiries in the study. It shows the average cumulative abnormal return for a selection of main parties to each inquiry at each of four key dates in the inquiry. In summary:

- *PPI*: No systematic reaction to the reference was detected by the study. This is likely to reflect the fact that the subject of the reference forms only a part of the banks' businesses and possibly a low expectation of remedial action having a significant impact on profits.
- *Home credit*: No clear evidence of systematic effects. Only one main party (Provident) was listed and sufficiently specialized in home credit to show any effects. Remedial action proposed at provisional findings was clearly seen as a threat by the market but in the event any detrimental effect was more than offset by the general upwards trend in Provident's share price over the course of the inquiry.
- *Groceries*: No clear evidence of systematic reactions to any announcements. This is likely to reflect expectations that any remedial action is unlikely to have a significant effect on the value of firms.
- *CDAS*: This inquiry was a better candidate than most market inquiries for an event study as the reference goods formed almost the entirety of Yell's business and the likely remedy (revision of the existing price control) clearly had the ability significantly to impact the value of the firm. The other important feature was that the market had not anticipated the reference prior to the announcement by the OFT: this means that the value effects of the announcement were captured in their entirety around the date of the announcement itself. This contrasts with many cases where the possibility of a reference is priced into the shares over a period of

many months leading up to the actual reference date making it difficult to measure them.

TABLE 15 Average CAR of selected main parties to market inquiries

	<i>per cent</i>			
	<i>Reference date</i>	<i>Emerging thinking</i>	<i>Provisional findings</i>	<i>Final report</i>
PPI	0.9	N/A	N/A	N/A
Home Credit	0.2	-1.5	-1.8	3.0
Groceries	1.5	1.0	N/A	N/A
CDAS	-15.8*	-0.4	-3.5‡	1.8

*Significant at 1 per cent level.

†Significant at 5 per cent level.

‡Significant at 10 per cent level.

83. Event studies can clearly be of great interest where movements in share prices can be attributed with some certainty to particular events. Unfortunately, as our case studies have shown, this is rarely possible, as a number of specific conditions must be satisfied. Most importantly:

- For the study to have any chance of shedding light on competitive effects we need to have competitor firms with traded equity²⁸ operating in the same market as the main parties. The more listed competitors the better, as the portfolio of competitors will exhibit less variability than a single stock, and hence the power of the study to attribute movements to the event in question will be increased.
- The event in question must have a substantial impact on the value of the firm. Since we are measuring investors' expectations of this value impact, not only must the possible value impact be substantial in the first place but the probability of that impact must be reasonably high. If there is much uncertainty as to whether the value of the firm will be affected at all, or by how much, the event study will be unlikely to be conclusive.
- This means that for inquiry purposes, the reference goods or services must form a significant part of the main parties' and competitors' businesses.

84. Even given the above conditions there are still difficulties, meaning that event studies in competition cases are likely to produce results that are ambiguous and open to challenge. It is often impossible to pinpoint the effects of an announcement with the required level of statistical significance since:

- 'normal' levels of share price volatility reduce the ability to attribute movements to the event in question unless they are very significant (see the example in the following paragraph);
- lead and lag effects (anticipation of announcements and slow reaction to announcements) introduce uncertainty as to the appropriate period over which returns should be assessed; and
- events unrelated to the event in question often affect the share price and therefore further increase noise in the data.

²⁸It may in theory be possible to look at traded debt but the value effects are weaker and we could find nothing in the literature to suggest that this has been successfully done in practice.

85. It is worth reiterating that the effect on the value of the firm may need to be very substantial in order to be able to attribute it to an event with the required level of statistical significance. By way of example, in theory, if the remedies imposed by the CC have the effect of permanently reducing a firm's annual profits by 10 per cent, its share price should also reduce by 10 per cent. But if the firm is diversified, and obtains, say, 50 per cent of its profits from other markets, the share price would only reduce by 5 per cent. And because the fact, and the results, of the inquiry become known over a period of time, the effects are diluted even more. So, if a merger is referred to the CC, and the stock market evaluates the chance of an adverse finding resulting in a 10 per cent reduction in profits at 60 per cent, and the reference goods represent 50 per cent of the profits of the firm, the share price would reduce by 10 per cent x 60 per cent x 50 per cent = 3 per cent. Unfortunately in many cases a movement of this magnitude is indistinguishable from the usual background noise. As a rule of thumb, when setting up an event study it may be useful to consider whether the effect of the announcement or event is likely to be of sufficient magnitude to be picked up by the study.
86. Secondly, assuming the study has detected statistically significant effects, there are profound difficulties of interpretation: for example, if the share prices of competitor firms go down, does this point to exclusionary effects or efficiency? If the share price of competitor firms goes up, does this point to collusive effects or anticipation of further M&A activity in the sector? Other evidence gathered in the course of a competition investigation may help to answer these questions. In view of this, if event studies are to be used in competition inquiries, the evidence needs to be considered in the light of the case as a whole and not as a stand-alone piece of evidence. In this sense, results from these types of event study should normally be viewed as supporting evidence rather than evidence of competition problems on a *prima facie* basis.²⁹
87. By way of closing remarks, it is worth emphasizing that where the conditions for an event study to be successful are met, the results have the potential to provide compelling evidence to a competition authority. Unfortunately the small sample of cases chosen for this paper did not provide good illustrations of this potential and it might well be worthwhile to expand the study to look at other, potentially more fruitful, examples. There might also be scope for the use of more sophisticated statistical techniques than those employed by this paper. In addition, the use of bond portfolios rather than equities might be worth exploring further, as these instruments exhibit less volatility than equities and therefore value effects are easier to detect. Further research is needed!

Lucy Beverley
August 2007

²⁹This is similar to the role of profitability analysis in a market inquiry, where the guidance characterizes evidence of persistently and substantially high profits for firms representing a substantial part of the market as an indicator of market power. They are not regarded as an anti-competitive feature of the market *per se*.

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Table of recent CC inquiries

<i>Inquiry</i>	<i>Year completed</i>	<i>Type</i>	<i>At least one listed main party</i>	<i>Major part of business</i>	<i>Subject of case study</i>	<i>Comments</i>
Pan Fish ASA/Marine Harvest NV	2006	Merger	✓			
CBS Private Capital Ltd/Hampden Agencies Ltd	2006	Merger				
IPC Media Ltd/Horse Deals Ltd	2006	Merger				
Store Card Credit Services	2006	Market	✓			UK storecards business would not have significant influence on share price of main parties
Vue Entertainment Holdings (UK) Limited/A3 Cinema Limited	2006	Merger				
HMV Group plc/Waterstone's plc/Ottakar's plc	2006	Merger	✓	✓	✓	
Macaw (Holdings) Ltd/Cott Beverages Ltd	2006	Merger				
Safenet inc/nCipher plc	2006	Merger	✓			Laid aside
Heinz/HP Foods Group	2006	Merger				
Greater Western Passenger Rail Franchise	2006	Merger	✓	✓		Transport inquiries not included in the current study
Classified Directory Advertising Services	2007	Market	✓	✓	✓	
Hamsard 2786 Ltd/Academy Music Holdings Ltd	2007	Merger				
MDA/Quest Associates	2007	Merger				
EWS Railway Holdings/Marcroft Engineering	2007	Merger				
Stericycle International LLC/Sterile Technologies Group Limited	2007	Merger	✓	?	✓	Target not listed. Assumed to be a substantial acquisition but no figures given in report.
Sportech plc/Vernons	Ongoing	Merger	✓	✓		Referred too late for inclusion in current study
Rolling Stock Market	Ongoing	Market	✓			
Tesco/Co-op store acquisition in Slough	Ongoing	Merger	✓			
Woolworths Group plc/Bertram Group Ltd.	Ongoing	Merger				
Heathrow and Gatwick quinquennial review	Ongoing	Regulatory	✓	✓		Referred too late for inclusion in current study
BAA Airports	Ongoing	Market	✓	✓		Referred too late for inclusion in current study
Greif Inc/Blagden Packaging Group	Ongoing	Merger				
Payment Protection Insurance (PPI)	Ongoing	Market	✓	✓	✓	Banks are diversified but PPI thought to represent substantial part of business
Kemira GrowHow Oyj and Terra Industries Inc.	Ongoing	Merger				
Thermo Electron Manufacturing Limited/GV Instruments Limited	Ongoing	Merger				
Wienerberger Finance BV/Baggeridge Brick plc	Ongoing	Merger	✓		✓	Acquiror listed. Target represents less than 10% of acquiror's turnover
Mid-Kent Water/South-East Water	Ongoing	Merger			✓	Study examines prices of bonds issued by other water companies
Stonegate Farmers Ltd/Deans Food Group Ltd	Ongoing	Merger				
Svitzer/Wijismuller A/S/Adsteam Marine Limited inquiry	Ongoing	Merger				
Domestic bulk liquefied petroleum gas	Ongoing	Merger				
Groceries Market	Ongoing	Market	✓	✓	✓	
Stagecoach/Scottish Citylink	Ongoing	Merger	✓	✓		Transport inquiries not included in the current study
Northern Irish Personal Banking	Ongoing	Market	✓			Not thought to represent a suitably substantial part of main parties' businesses
Home Credit	Ongoing	Market	✓	✓	✓	

Detailed regression statistics

Company	Model window		Event window				Results					Event -1		Event		Event +1	
	Start	End	Event description	Event date	Minus days	Plus days	Variance	Intercept	Beta	CAR %	t-stat	CAR %	t-stat	CAR %	t-stat	CAR %	t-stat
Alliance & Leicester	19/4/2006	24/1/2007	Reference date (PPI)	7/2/2007	1	1	1.31E-04	-3.07E-04	1.02	0.5	0.27	0.7	0.57	-0.5	-0.45	0.4	0.36
Alliance & Leicester	8/6/2005	20/3/2006	OFT launches study (PPI)	3/4/2006	1	1	6.20E-05	2.91E-04	1.14	2.5	1.82‡	2.3	2.93*	-0.7	-0.90	0.9	1.13
Alliance & Leicester	19/4/2006	24/1/2007	Issues statement (PPI)	12/4/2007	1	1	1.31E-04	-3.07E-04	1.02	0.4	0.22	1.1	1.00	-0.4	-0.32	-0.3	-0.30
Baggeridge	15/10/2004	2/8/2005	Bid announcement	17/8/2006	1	1	3.20E-04	2.42E-04	0.36	21.2	6.79*	-0.1	-0.08	21.4	11.94*	-0.1	-0.03
Baggeridge	15/10/2004	2/8/2005	Reference date	11/12/2006	1	1	3.20E-04	2.42E-04	0.36	-9.0	-2.87*	-0.2	-0.09	-7.5	-4.18*	-1.3	-0.73
Baggeridge	15/10/2004	2/8/2005	Issues statement	19/1/2007	1	1	3.20E-04	2.42E-04	0.36	-1.0	-0.31	-0.9	-0.48	-0.2	-0.10	0.1	0.04
Baggeridge	15/10/2004	2/8/2005	Provisional findings (clearance)	4/4/2007	1	1	3.20E-04	2.42E-04	0.36	10.4	3.30*	-0.3	-0.18	10.6	5.92*	0.0	0.03
Barclays	19/4/2006	24/1/2007	Reference date (PPI)	7/2/2007	1	1	6.06E-05	2.43E-04	1.22	1.0	0.72	0.5	0.69	-0.4	-0.48	0.8	1.05
Barclays		20/3/2006	OFT launches study (PPI)	3/4/2006	1	1	5.83E-05	1.74E-04	1.22	-1.2	-0.87	0.0	0.03	-1.4	-1.81‡	0.2	0.27
Barclays	19/4/2006	24/1/2007	Issues statement (PPI)	12/4/2007	1	1	6.06E-05	2.43E-04	1.22	0.4	0.31	-0.3	-0.39	0.8	0.99	0.0	-0.06
BSkyB	4/1/2006	18/10/2006	Virgin Media announcement of possible bid	9/11/2006	1	1	1.20E-04	2.27E-04	0.69	-1.2	-0.65	-0.9	-0.86	0.1	0.09	-0.4	-0.36
BSkyB		18/10/2006	BSkyB announcement of acquisition of stake	17/11/2006	1	1	1.20E-04	2.27E-04	0.69	-0.7	-0.37	0.8	0.75	-0.6	-0.57	-0.9	-0.82
BSkyB	4/1/2006	18/10/2006	ITV rejects Virgin Media offer	21/11/2006	1	1	1.20E-04	2.27E-04	0.69	-1.0	-0.50	-0.9	-0.82	0.4	0.32	-0.4	-0.38
BSkyB	4/1/2006	18/10/2006	OFT refers matter to CC	27/4/2007	1	1	1.20E-04	2.27E-04	0.69	1.8	0.93	0.5	0.45	0.4	0.41	0.8	0.76
Cattles	24/2/2004	6/12/2004	Reference date	20/12/2004	1	1	2.02E-04	5.39E-04	0.77	-2.4	-0.96	0.8	0.55	-1.6	-1.16	-1.5	-1.05
Cattles	8/6/2005	24/2/2004	Issues statement	18/4/2005	1	1	2.02E-04	5.39E-04	0.77	-2.9	-1.17	-1.3	-0.90	-1.2	-0.80	-0.5	-0.33
Cattles	24/2/2004	6/12/2004	Emerging thinking	27/10/2005	1	1	2.02E-04	5.39E-04	0.77	-1.5	-0.62	-1.2	-0.81	1.0	0.71	-1.4	-0.98
Cattles	24/2/2004	6/12/2004	Provisional findings	27/4/2006	1	1	2.02E-04	5.39E-04	0.77	0.8	0.32	0.4	0.30	-0.2	-0.15	0.6	0.41
Cattles	4/1/2006	24/2/2004	Final report	30/11/2006	1	1	2.02E-04	5.39E-04	0.77	0.3	0.13	1.1	0.73	-1.0	-0.69	0.2	0.17
Cattles	19/4/2006	24/1/2007	Reference date (PPI)	7/2/2007	1	1	1.76E-04	7.51E-04	1.08	-1.4	-0.60	1.0	0.78	-1.2	-0.90	-1.2	-0.91
Cattles	8/6/2005	20/3/2006	OFT launches study (PPI)	3/4/2006	1	1	1.84E-04	3.15E-04	0.62	-0.9		0.4	0.29	-0.1	-0.08	-1.2	-0.86
Cattles	19/4/2006	24/1/2007	Issues statement (PPI)	12/4/2007	1	1	1.76E-04	7.51E-04	1.08	-3.6	-0.37	-1.5	-1.16	-2.2	-1.65‡	0.2	0.14
Hanson	15/10/2004	2/8/2005	Bid announcement	17/8/2006	1	1	1.08E-04	8.33E-04	1.20	1.6	0.86	0.0	-0.04	1.1	1.08	0.5	0.46
Hanson	15/10/2004	2/8/2005	Reference date	11/12/2006	1	1	1.08E-04	8.33E-04	1.20	0.9	0.49	0.3	0.33	1.5	1.40	-0.9	-0.88
Hanson	15/10/2004	2/8/2005	Issues statement	19/1/2007	1	1	1.08E-04	8.33E-04	1.20	-1.2		-0.3	-0.28	-0.6	-0.62	-0.3	-0.30
Hanson	15/10/2004	2/8/2005	Provisional findings (clearance)	4/4/2007	1	1	1.08E-04	8.33E-04	1.20	-0.1	-0.08	0.2	0.20	-0.2	-0.15	-0.2	-0.19
HMV	15/10/2004	2/8/2005	MBO announcement	16/8/2005	1	1	1.95E-04	-6.93E-04	1.19	4.8	1.97‡	0.9	0.66	1.1	0.80	2.8	1.98‡
HMV	15/10/2004	2/8/2005	HMV announcement of intention	25/8/2005	1	1	1.95E-04	-6.93E-04	1.19	2.3	0.92	0.8	0.57	1.7	1.21	-0.2	-0.18
HMV	15/10/2004	2/8/2005	HMV formal bid	8/9/2005	1	1	1.95E-04	-6.93E-04	1.19	-1.2	-0.48	-0.1	-0.06	0.0	0.01	-1.1	-0.78
HMV	15/10/2004	2/8/2005	Reference date	6/12/2005	1	1	1.95E-04	-6.93E-04	1.19	1.8	0.72	0.4	0.30	0.9	0.63	0.4	0.32
HMV	15/10/2004	2/8/2005	Issues statement	25/1/2006	1	1	1.95E-04	-6.93E-04	1.19	1.0	0.41	2.6	1.85‡	-1.8	-1.24	0.2	0.12
HMV	15/10/2004	2/8/2005	Provisional findings	30/3/2006	1	1	1.95E-04	-6.93E-04	1.19	-2.6	-1.05	-0.7	-0.48	-1.1	-0.76	-0.8	-0.58
HMV	15/10/2004	2/8/2005	Final report (clearance)	12/5/2006	1	1	1.95E-04	-6.93E-04	1.19	2.0	0.78	0.8	0.57	1.1	0.76	0.1	0.08
ITV	4/1/2006	18/10/2006	Virgin Media announcement of possible bid	9/11/2006	1	1	2.25E-04	-9.58E-04	1.01	7.1	2.71*	1.3	0.89	6.3	4.20*		-0.37
ITV	4/1/2006	18/10/2006	BSkyB announcement of acquisition of stake	17/11/2006	1	1	2.25E-04	-9.58E-04	1.01	0.5	0.19	-0.3	-0.20	2.0	1.30	-1.2	-0.78
ITV	4/1/2006	18/10/2006	ITV rejects Virgin Media offer	21/11/2006	1	1	2.25E-04	-9.58E-04	1.01	-4.9	-1.86‡	-1.2	-0.78	-2.1	-1.39	-1.6	-1.07
ITV	4/1/2006	18/10/2006	OFT refers matter to CC	27/4/2007	1	1	2.25E-04	-9.58E-04	1.01	4.3	1.62	0.3	0.19	2.9	1.95‡	1.0	0.68
Lloyds	19/4/2006	24/1/2007	Reference date (PPI)	7/2/2007	1	1	5.00E-05	3.67E-04	0.86	1.0	0.83	0.9	1.29	-0.4	-0.60	0.5	0.75
Lloyds	8/6/2005	20/3/2006	OFT launches study (PPI)	3/4/2006	1	1	6.62E-05	2.78E-04	1.00	-1.9	-1.35	-0.3	-0.39	-0.6	-0.78	-1.0	-1.18
Lloyds	19/4/2006	24/1/2007	Issues statement (PPI)	12/4/2007	1	1	5.00E-05	3.67E-04	0.86	-0.1	-0.04	-0.3	-0.36	0.1	0.12	0.1	0.17
M&S	6/7/2005	20/4/2006	Reference	9/5/2006	1	1	1.21E-04	2.25E-03	0.40	1.2	0.64	-0.1	-0.10	0.7	0.62	0.6	0.59
M&S	6/7/2005	20/4/2006	Issues statement	15/6/2006	1	1	1.21E-04	2.25E-03	0.40	3.7	1.94‡	0.5	0.41	0.1	0.05	3.2	2.93*

Company	Model window		Event window				Results					Event -1		Event		Event +1	
	Start	End	Event description	Event date	Minus days	Plus days	Variance	Intercept	Beta	CAR %	t-stat	CAR %	t-stat	CAR %	t-stat	CAR %	t-stat
M&S	6/7/2005	20/4/2006	Emerging thinking	23/1/2007	1	1	1.21E-04	2.25E-03	0.40	1.8	0.92	-0.6	-0.52	1.5	1.34	0.9	0.78
Michelmersh	15/10/2004	2/8/2005	Bid announcement	17/8/2006	1	1	2.36E-04	5.92E-04	-0.02	2.4	0.91	-0.1	-0.03	2.6	1.66‡	-0.1	-0.04
Michelmersh	15/10/2004	2/8/2005	Reference date	11/12/2006	1	1	2.36E-04	5.92E-04	-0.02	2.7	1.00	-0.1	-0.03	2.8	1.82‡	-0.1	-0.04
Michelmersh	15/10/2004	2/8/2005	Issues statement	19/1/2007	1	1	2.36E-04	5.92E-04	-0.02	0.6	0.24	0.4	0.23	0.4	0.23	-0.1	-0.04
Michelmersh	15/10/2004	2/8/2005	Provisional findings (clearance)	4/4/2007	1	1	2.36E-04	5.92E-04	-0.02	-1.8	-0.66	0.0	-0.03	-0.1	-0.04	-1.7	-1.08
Ottakars	15/10/2004	2/8/2005	MBO announcement	16/8/2005	1	1	2.78E-04	-1.44E-03	0.11	22.1	7.56*	1.2	0.73	16.4	9.78*	4.5	2.67*
Ottakars	15/10/2004	2/8/2005	HMV announcement of intention	25/8/2005	1	1	2.78E-04	-1.44E-03	0.11	10.5	3.58*	0.9	0.55	7.3	4.38*	2.2	1.33
Ottakars	15/10/2004	2/8/2005	HMV formal bid	8/9/2005	1	1	2.78E-04	-1.44E-03	0.11	8.6	2.97*	0.7	0.44	7.6	4.51*	0.3	0.20
Ottakars	15/10/2004	2/8/2005	Reference date	6/12/2005	1	1	2.78E-04	-1.44E-03	0.11	-9.1	-3.11*		0.11	-13.5	-8.07*	4.3	2.55‡
Ottakars	15/10/2004	2/8/2005	Issues statement	25/1/2006	1	1	2.78E-04	-1.44E-03	0.11	0.6	0.21	0.3	0.21	0.2	0.10	0.1	0.07
Ottakars	15/10/2004	2/8/2005	Provisional findings	20/3/2006	1	1	2.78E-04	-1.44E-03	0.11	6.1	2.09‡	-1.4	-0.84	8.0	4.75*	-0.5	-0.29
Ottakars	15/10/2004	2/8/2005	Final report (clearance)	12/5/2006	1	1	2.78E-04	-1.44E-03	0.11	1.5	0.50	-2.0	-1.20	4.6	2.62*	-1.0	-0.61
Provident	24/2/2004	6/12/2004	Reference date	20/12/2004	1	1	1.56E-04	-6.22E-04	0.78	2.8	1.30	1.0	0.81	0.5	0.39	1.3	1.05
Provident	24/2/2004	6/12/2004	Issues statement	18/4/2005	1	1	1.56E-04	-6.22E-04	0.78	-1.1	-0.49	-1.2	-0.98	1.2	0.93	-1.0	-0.82
Provident	24/2/2004	6/12/2004	Emerging thinking	27/10/2005	1	1	1.56E-04	-6.22E-04	0.78	-1.4	-0.65	-1.5	-1.20	0.1	0.08	0.0	-0.02
Provident	24/2/2004	6/12/2004	Provisional findings	27/4/2006	1	1	1.56E-04	-6.22E-04	0.78	-4.3	-1.98‡	-1.3	-1.01	-1.8	-1.40	-1.3	-1.04
Provident	24/2/2004	6/12/2004	Final report	30/11/2006	1	1	1.56E-04	-6.22E-04	0.78	5.7	2.60*	2.8	2.19‡	0.0	-0.03	3.0	2.36‡
RTL	4/1/2006	18/10/2006	BSkyB announcement of acquisition of stake	17/11/2006	1	1	3.30E-04	8.83E-04	0.27	-2.5	-0.79	-1.1	-0.62	0.2	0.09	-1.5	-0.85
RTL	4/1/2006	18/10/2006	OFT refers matter to CC	27/4/2007	1	1	3.30E-04	8.83E-04	0.27	0.6	0.18	-0.1	-0.03	0.3	0.17	0.3	0.17
Sainsburys		20/4/2006	Reference	9/5/2006	1	1	7.08E-05	1.88E-04	0.76	3.5	2.35‡	1.2	1.36	0.1	0.10	2.2	2.62*
Sainsburys		20/4/2006	Issues statement	15/6/2006	1	1	7.08E-05	1.88E-04	0.76	2.4	1.61	2.5	3.01*	-1.0	-1.16	0.9	1.01
Sainsburys		20/4/2006	Emerging thinking	23/1/2007	1	1	7.08E-05	1.88E-04	0.76	1.5	1.05	0.2	0.26	0.8	0.90	0.6	0.65
Stericycle	28/4/2005	13/2/2006	Announcement	13/2/2006	1	1	1.34E-04	6.66E-04	0.71	-0.3	-0.17	-0.3	-0.26	0.6	0.53	-0.7	-0.56
Stericycle	28/4/2005	13/2/2006	Reference date	28/6/2006	1	1	1.34E-04	6.66E-04	0.71	-0.7	-0.34	-2.1	-1.77‡	-0.1	-0.05	1.4	1.19
Stericycle	28/4/2005	13/2/2006	Provisional findings (SLC)	20/10/2006	1	1	1.34E-04	6.66E-04	0.71	-0.4	-0.18	-0.1	-0.10	-0.2	-0.21		0.00
Stericycle	6/7/2005	28/4/2005	Final report (SLC, sale ordered)	12/12/2006	1	1	1.34E-04	6.66E-04	0.71	-1.6	-0.81	-0.6	-0.48	-0.6	-0.55	-0.4	-0.37
Tesco	6/7/2005	20/4/2006	Reference	9/5/2006	1	1	1.04E-04	-3.81E-04	0.67	0.6	0.31	-0.8	-0.77	0.5	0.470.0	0.9	0.85
Tesco	6/7/2005	20/4/2006	Issues statement	15/6/2006	1	1	1.04E-04	-3.81E-04	0.67	-0.4	-0.23	-0.7	-0.65	-0.3	-0.30	0.6	0.55
Tesco	6/7/2005	20/4/2006	Emerging thinking	23/1/2007	1	1	1.04E-04	-3.81E-04	0.67	-0.1	-0.07	0.1	0.14	0.4	0.37	-0.6	-0.62
Virgin Media	4/1/2006	18/10/2006	Virgin Media announcement of possible bid	9/11/2006	1	1	2.52E-04	-5.12E-04	1.26	-1.4	-0.50	0.8	0.47	-1.8	-1.13	-0.3	-0.21
Virgin Media	4/1/2006	18/10/2006	BSkyB announcement of acquisition of stake	17/11/2006	1	1	2.52E-04	-5.12E-04	1.26	-0.9	-0.33	-2.0	-1.27	5.1	3.23*	-4.0	-2.53‡
Virgin Media	4/1/2006	18/10/2006	ITV rejects Virgin Media offer	21/11/2006	1	1	2.52E-04	-5.12E-04	1.26	-5.2	-1.88‡	-4.0	-2.53‡	-1.0	-0.64	-0.2	-0.11
Virgin Media	4/1/2006	18/10/2006	OFT refers matter to CC	27/4/2007	1	1	2.52E-04	-5.12E-04	1.26	-1.4	-0.52	0.4	0.26	-1.1	-0.66	-0.8	-0.50
WH Smith	15/10/2004	2/8/2005	MBO announcement	16/8/2005	1	1	2.44E-04	5.49E-05	1.05	4.2	1.52	0.8	0.53	1.9	1.19	1.5	0.93
WH Smith	15/10/2004	2/8/2005	HMV announcement of intention	25/8/2005	1	1	2.44E-04	5.49E-05	1.05	1.1	0.40	0.8	0.54	0.6	0.36	-0.3	-0.21
WH Smith	15/10/2004	2/8/2005	Date of formal HMV bid	8/9/2005	1	1	2.44E-04	5.49E-05	1.05	-0.9	-0.34	0.6	0.36	-0.5	-0.34	-0.9	-0.60
WH Smith	15/10/2004	2/8/2005	Reference date	6/12/2005	1	1	2.44E-04	5.49E-05	1.05	3.0	1.11	4.6	2.94*	-0.8	-0.53	-0.8	-0.49
WH Smith	15/10/2004	2/8/2005	Issues statement	25/1/2006	1	1	2.44E-04	5.49E-05	1.05	-5.4	-1.96‡	-2.4	-1.54	-2.6	-1.64	-0.3	-0.21
WH Smith	15/10/2004	2/8/2005	Provisional findings	30/3/2006	1	1	2.44E-04	5.49E-05	1.05	-0.5	-0.20	0.9	0.55	-0.9	-0.60	-0.5	-0.30
WH Smith	15/10/2004	2/8/2005	Final report (clearance)	12/5/2006	1	1	2.44E-04	5.49E-05	1.05	1.2	0.40	0.6	0.40	0.2	0.13	0.3	0.20
Wienerberger	15/10/2004	2/8/2005	Bid announcement	17/8/2006	1	1	2.20E-04	7.46E-04	0.65	-0.8		-1.9	-1.28	0.9	0.58	0.3	0.19
Wienerberger	15/10/2004	2/8/2005	Reference date	11/12/2006	1	1	2.20E-04	7.46E-04	0.65	2.4	0.30.91	-0.3	-0.22	3.3	2.25‡	-0.7	-0.44
Wienerberger	15/10/2004	2/8/2005	Issues statement	19/1/2007	1	1	2.20E-04	7.46E-04	0.65	3.8	1.45	1.7	1.15	1.4	0.95	0.6	0.42
Wienerberger	15/10/2004	2/8/2005	Provisional findings (clearance)	4/4/2007	1	1	2.20E-04	7.46E-04	0.65	2.8	1.07	1.3	0.88	0.8	0.53		0.46
WM Morrison	6/7/2005	20/4/2006	Reference	9/5/2006	1	1	1.51E-04	-4.69E-04	0.75	0.9	0.42	-0.1	-0.11	0.4	0.36	0.6	0.47
WM Morrison	6/7/2005	20/4/2006	Issues statement	15/6/2006	1	1	1.51E-04	-4.69E-04	0.75	-0.1	-0.03	-0.1	-0.12	-2.7	-2.09‡	2.7	2.22‡
WM Morrison	6/7/2005	20/4/2006	Emerging thinking	23/1/2007	1	1	1.51E-04	-4.69E-04	0.75	0.7	0.31	0.3	0.26	0.1	0.09	0.2	0.19
Yell	8/1/2004	21/10/2004	OFT announce market study	3/11/2004	1	1	8.86E-05	6.50E-04	0.65	-1.5		0.1	0.14	-0.4	-0.43	-1.2	-1.29
Yell	6/6/2004	17/3/2005	Reference date +/- one day		1	1	1.02E-04	1.37E-03	0.64	-15.8	-0.98.95*	-1.1	-1.13	-10.5	-10.27*	-4.2	-4.13*
Yell	6/6/2004	17/3/2005	Issues statement	31/8/2005	1	1	1.02E-04	1.37E-03	0.64	3.4	1.93‡	-0.7	-0.67	4.0	3.91*	0.1	0.13
Yell	6/6/2004	17/3/2005	Emerging thinking	24/1/2006	1	1	1.02E-04	1.37E-03	0.64	-0.4	-0.24	-0.7	-0.66	-3.7	-3.63*		3.83*
Yell	6/6/2004	17/3/2005	Provisional findings	13/6/2006	1	1	1.02E-04	1.37E-03	0.64	-3.5	-1.93‡	-0.5	-0.53	-1.0	-0.99	-1.9	-1.88‡

3.9

Company	Model window		Event window				Results					Event -1		Event		Event +1	
	Start	End	Event description	Event date	Minus days	Plus days	Variance	Intercept	Beta	CAR %	t-stat	CAR %	t-stat	CAR %	t-stat	CAR %	t-stat
Yell	6/6/2004	17/3/2005	Final report	21/12/2006	1	1	1.02E-04	1.37E-03	0.64	1.8	0.99	-0.3	-0.28	1.6	1.53	0.5	0.47
Yell	6/6/2004	17/3/2005	Reference date - price data	4/4/2005	1	1	1.06E-04	1.35E-03	0.57	-11.6	-6.44*	0.0	-0.01	-1.2	-1.13	-10.4	-10.03*

*Significant at 1 per cent level.
†Significant at 5 per cent level.
‡Significant at 10 per cent level.