

How do takeovers in the United Kingdom split value gains between domestic deals' parties?

Surprising
results

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Abstract

Purpose – This paper aims to address the question: What is the distribution of value (in pounds) created in a sample of domestic takeovers in the United Kingdom from 2013 to 2020 among acquirer and target stockholders?

Design/methodology/approach – The author employs a traditional event study methodology to calculate the percentage excess returns of companies on the announcement date. These returns are then converted into pound-denominated excess returns using the companies' market capitalizations. This allows the author to estimate the synergies of the mergers and acquisitions (M&As) and how they are allocated between acquirers and targets. This innovative transformation from percentage to pound excess returns establishes a new ratio methodology for addressing the paper's objective.

Findings – This paper reveals that in UK takeovers, 40 percent of the synergies in pounds are allocated to the stockholders of acquiring companies, while 60 percent go to the stockholders of target companies. In other words, acquirers retain a significant portion—more than half—of the synergies generated in these domestic deals. This original finding is statistically significant at the one percent level and strongly contradicts the hypothesis that acquirers, at best, merely break even.

Originality/value – The evidence that UK takeovers distribute value gains nearly equally between domestic deal parties challenges the enduring conventional insight in the M&A literature. This conventional wisdom suggests that the value created by business combinations is entirely distributed to target company stockholders. Consequently, this reexamination may have broader implications, offering an alternative perspective on the motives behind business combinations. This perspective differs from the “managerial hubris hypothesis,” which aligns with the prevailing conventional insight but receives limited support in the original finding reported here.

Keywords Mergers and acquisitions, Synergies, Excess returns

Paper type Research paper

1. Introduction

This paper provides evidence that the synergies resulting from domestic takeovers in the United Kingdom are roughly equally divided between the stockholders of acquiring companies and target companies from 2013 to 2020. This finding, in conjunction with the recent and growing empirical literature on the subject (discussed in [Section 2](#)), suggests the need to reevaluate a long-standing paradigm in takeover literature, potentially establishing a new baseline.

The conventional wisdom in the takeover literature, which posits that, on average, stockholders of target companies benefit from takeovers while stockholders of acquiring companies break even at best (e.g. [Betton et al., 2008](#), p. 405), is deeply ingrained in widely adopted corporate finance textbooks (e.g. [Copeland et al., 2005](#), p. 778; [Ross et al., 2008](#), p. 835; [Brealey et al., 2011](#), p. 813). This reference is henceforth referred to as the *conventional insight*



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and can be alternatively stated as a general proposition: any value created by takeovers is entirely distributed to the stockholders of the target company.

In [Section 3](#), we begin by estimating the *percentage* excess returns on the announcement (or disclosure) days for both acquiring companies' stockholders and target companies' stockholders. These *percentage* excess returns provide *partial* statistical evidence that is consistent with the *conventional insight*.

Next, we calculate *pound* excess returns from the *percentage* excess returns by multiplying them by the corresponding market capitalizations. This allows a direct estimation of the distribution of takeover synergies. Astonishingly, the statistical tests performed on the synergy distribution estimation reveal a new perspective, suggesting that UK takeovers nearly halve the synergies between the stockholders of the involved parties, challenging the *conventional insight*. [Section 4](#) reports this groundbreaking finding, which is highly statistically significant.

[Section 5](#) discusses the methodological features of our approach that underlies this remarkable new finding when compared to the results of papers that support the *conventional insight*. The approach proposed herein (1) relies on a pairwise analysis (i.e., including deals for which *pound* excess returns for both parties can be estimated simultaneously) and (2) properly accounts for differences in the sizes of the takeover companies. The proposed *ratio methodology* standardizes *percentage* excess returns based on the market capitalizations of the involved companies and estimates *pound* synergies and their distribution. In doing so, the *ratio methodology* unequivocally addresses the distribution effect as it includes companies on both sides of a takeover.

Compared to the methodologies of the recent articles criticizing the *conventional insight*, the *ratio methodology*, which is an innovation in this context, typically requires less data. This is because these articles often rely on *percentage* excess returns, just like the methodologies supporting the *conventional insight*, for their statistical tests. To compensate for this limitation, these articles typically use larger sample sizes and broader pre-event and event windows to gather sufficient information to draw their conclusions.

Thus, the *ratio methodology* broadens the potential applicability of our approach to include researchers at different career stages (from graduate students to tenured faculty members), different periods and different markets where financial data are less abundant.

In addition to these direct effects, our results may have implications for related debates such for example, the one regarding the underlying motivations for corporate takeovers [1]. An explanation frequently associated with the *conventional insight* is based on the acquirer's management "hubris hypothesis" (Roll, 1986), which suggests that acquirers' managers may engage in merger and acquisition (M&A) deals that, on average, generate no gain for acquirers' stockholders due to their unrealistic beliefs in their superior managerial skills, leaving all the gains to targets' stockholders to the detriment of acquirers. However, the new results presented here indicate that acquirer stockholders gain approximately as much as target stockholders, providing evidence that acquirers' managers make reasonable M&A decisions on behalf of their stockholders rather than succumbing to their hubris.

In conclusion ([Section 6](#)), numerous influential articles that support the *conventional insight* may have done so simply because they rely on *percentage* excess returns to draw inferences about synergy value distribution among takeover participants. As demonstrated, the *percentage* excess return approach yields indirect and potentially biased inferences regarding synergy distribution. Hence, it is advisable to maintain a degree of skepticism regarding their support for the *conventional insight* until they are reassessed using *pound* excess returns as the focal variables in these studies.

2. Review of the related literature

This section contextualizes this paper's findings. The existing empirical evidence, derived from samples of takeover cases in the United Kingdom, is largely in line with the prevailing literature,

which suggests that, on average, stockholders of target companies benefit from takeovers, while stockholders of acquiring companies, at best, break even (i.e., with negligible or slightly negative *percentage* excess returns), a perspective referred to as the *conventional insight*.

Draper and Paudyal (1999) explore the impact of information on stockholder wealth and trading activity for acquiring and selling companies in the United Kingdom. Their sample spans from 1988 to 1996 and includes 349 bids involving companies traded on the London Stock Exchange. In Table 1, they report that, on the announcement day, the value-weighted market-adjusted excess returns (MAR) are 7.18% for target firms and -0.66% for bidding firms, both statistically significant at the 5% significance level.

Sudarsanam and Mahate (2003) investigate the effect of different acquirer types and different payment methods on the short and long-term performances of UK acquiring companies. Their sample covers the period from 1983 to 1995 and consists of 519 UK acquirers. In Table 2, they report the “buy and hold” *percentage* excess returns of acquiring companies using various benchmark models and event windows. They estimate that the MAR of acquirers over the event window (-1, 0, +1) is -1.39%, significant at the one percent level.

Alexandridis et al. (2010) analyze a global sample, including UK takeovers, to determine if public takeovers can benefit the acquiring company’s stockholders. Their M&A sample covers the period from 1990 to 2007. They report that the mean cumulative excess return for UK acquirers is -1.58%, statistically significant at the 1% level, over a two-day event window centered on the announcement day. On the other hand, they report that, over the same event window, the mean cumulative excess return for sellers in Canada, the United Kingdom and the United States is 19.65%, statistically significant at the 1% level.

Andriosopoulos et al. (2016) evaluate the impact of institutional ownership monitoring on acquiring companies’ performance. Their sample consists of takeovers by publicly traded UK firms from 2000 to 2010. They conclude that value buyers generally outperform glamor buyers on the takeover announcement date and during the short-term postannouncement period. Their estimated excess return on the announcement day is 0.487% (t-stat = 5.281) for acquirers in UK domestic M&As.

Chaudary and Mirza (2017) analyze stockholder returns of UK acquiring banks. Their sample includes domestic bank-to-bank takeovers of UK banks and cross-border acquisitions within the European Union from 2006 to 2013. In their Table 2, they report that the average excess return for acquirers on the announcement day (t = 0) in domestic M&As is -14.321% (t-stat = -1.028).

Overall, published studies on M&As in the United Kingdom over several decades appear consistent with the *conventional insight*. However, recent empirical evidence from various countries—mostly from the United States—aligns with the main results of our article, suggesting that, on average, stockholders of target companies also benefit from takeovers. Eckbo (2014) states that “econometric advances suggest that bidder takeover gains, traditionally estimated to be small (insignificantly different from zero after transaction costs), may be much greater when the estimation also accounts for how industry dynamics may alter bidder stand-alone values (absent a takeover).” It is worth noting—as we shall see—that even the more recent articles reviewed below rely on *percentage* excess return (as opposed to *pound* excess returns) as the primary variable of focus.

Masulis et al. (2010) assess the financial gains of takeover bids by examining both buyers and sellers in successful and unsuccessful acquisition attempts. Their dataset covers takeovers in four countries: the United States, the United Kingdom, Canada and Australia, with 2,963 buyers and 4,606 sellers. They calculate excess returns over (1) the initial announcement of a takeover attempt and (2) the announcement day of the offer result (failure or success). They argue that their approach rectifies signaling bias and revelation bias, providing more accurate results. Their findings indicate that acquirers typically benefit from takeovers, retaining 67% of the net value created in cash offers and 91% in stock offers.

Match	Acquirer	Target	Announcement day
1	PARKMEAD GROUP PLC	LOCHARD ENERGY GROUP LTD	05-23-13
2	PETARDS GROUP PLC	WATER HALL GROUP PLC	07-01-13
3	STANLEY GIBBONS GROUP PUBLIC LIMITED COMPANY	NOBLE INVESTMENTS (UK) PLC	09-26-13
4	FALKLAND OIL & GAS PLC	DESIRE PETROLEUM PLC	10-03-13
5	IP GROUP PLC	FUSION IP PLC	01-23-14
6	BRAEMAR SHIPPING SERVICES PLC	ACM SHIPPING GROUP PLC	05-20-14
7	ROCKHOPPER EXPLORATION PLC	MEDITERRANEAN OIL & GAS PLC	05-23-14
8	GREENE KING PLC	SPIRIT PUB COMPANY PLC	09-23-14
9	INTERNATIONAL PERSONAL FINANCE PLC	MCB FINANCE GROUP PLC	11-18-14
10	AVIVA PLC	FRIENDS LIFE GROUP LTD	11-21-14
11	J SAINSBURY PLC	HOME RETAIL GROUP PLC	01-05-16
12	VECTURA GROUP PLC	SKYEPHARMA PLC	03-16-16
13	RPC GROUP PLC	BRITISH POLYTHENE INDUSTRIES PLC	06-09-16
14	TESCO PLC	BOOKER GROUP LTD	01-27-17
15	LEARNING TECHNOLOGIES GROUP PLC	NETDIMENSIONS (HOLDINGS) LIMITED	02-03-17
16	HANSTEEN HOLDINGS LTD	INDUSTRIAL MULTI PROPERTY TRUST PLC	02-17-17
17	STANDARD LIFE ABERDEEN PLC	ABERDEEN ASSET MANAGEMENT PLC	03-04-17
18	JOHN WOOD GROUP PLC	AMEC FOSTER WHEELER PLC	03-13-17
19	IP GROUP PLC	TOUCHSTONE INNOVATIONS PLC	05-23-17
20	ENTAIN PLC	LADBROKES CORAL GROUP PLC	12-07-17
21	CLINIGEN GROUP PLC	QUANTUM PHARMA PLC	08-16-17
22	MELROSE INDUSTRIES PLC	GKN LTD	01-12-18
23	INFORMA PLC	UBM PLC	01-16-18
24	TT ELECTRONICS PLC	STADIUM GROUP PLC	02-15-18
25	VIRGIN MONEY UK PLC	VIRGIN MONEY HOLDINGS (UK) PLC	05-07-18
26	PRIMARY HEALTH PROPERTIES PLC	MEDICX FUND LTD	01-24-19
27	TREMOR INTERNATIONAL LTD	RHYTHMONE PLC	02-04-19
28	JD SPORTS FASHION PLC	FOOTASYLUM PLC	03-15-19
29	LONDONMETRIC PROPERTY PLC	A & J MUCKLOW GROUP P L C	05-23-19
30	PREMIER MITON GROUP PLC	MITON GROUP PLC	09-04-19
31	MERCIA ASSET MANAGEMENT PLC	NORTHERN VENTURE TRUST PLC	12-03-19
32	ANGLO AMERICAN PLC	SIRIUS MINERALS LTD	01-08-20
33	BAHAMAS PETROLEUM COMPANY PLC	COLUMBUS ENERGY RESOURCES PLC	06-11-20
34	DEEPVERGE PLC	MODERN WATER PLC	08-28-20

Table 1.
Sample of UK companies with takeovers from 2013 to 2020

Source(s): Eikon

Da Graca and Masson (2017) use a dataset of 262 US takeovers from 1990 to 2008 and conclude that acquirers gain twice as much as targets through a structural approach. However, the related reduced-form approach used on the same dataset aligns with the *conventional insight*.

Match	MKTCAP	Acquirers ER %	ER £	MKTCAP	Targets ER %	ER £	Total Synergy £
1	126,341	-0.0134	-1692.9694	14,196	-0.1125	-0.0134	-3290.0194
2	7,479	-0.1273	-952.0767	1,972	0.1747	-0.1273	-607.5683
3	13,448	0.05	672.4	42,168	0.0402	0.05	2367.5536
4	45,350	-0.0266	-1206.31	54,765	0.2841	-0.0266	14352.4265
5	1,228,081	-0.0215	-26403.7415	1,001,35	0.1909	-0.0215	-7287.97
6	70,443	-0.0469	-3303.7767	48,481	0.0266	-0.0469	-2014.1821
7	44,381	-0.0115	-510.3815	27,499	0.1655	-0.0115	4040.703
8	2,649,504	0.0167	44246.7168	762,038	0.1688	0.0167	172878.7312
9	180,059	0.0117	2106.6903	21,670	0.2078	0.0117	6609.7163
10	14,208,032	-0.0005	-7104.016	6,033,929	0.0037	-0.0005	15221.5213
11	5,029,878	-0.0603	-303301.6434	1,299,072	0.3455	-0.0603	145527.7326
12	674,573	0.0346	23340.2258	476,605	0.0445	0.0346	44549.1483
13	3,220,637	0.0386	124316.5882	269,752	0.305	0.0386	206590.9482
14	17,380,875	0.0846	1470422.025	4,026,939	0.1455	0.0846	2056341.65
15	1,205,382	-0.0883	-106435.2306	51,352	0.2115	-0.0883	-95574.2826
16	499,914	0.005	2499.57	26,700	0.2227	0.005	8445.66
17	7,051,719	-0.0085	-59939.6115	4,185,696	0.008	-0.0085	-26454.0435
18	2,048,654	0.0112	22944.9248	2,131,205	0.1079	0.0112	252901.9443
19	1,228,081	-0.0031	-3807.0511	507,793	0.0293	-0.0031	11071.2838
20	9,497,295	0.0484	459669.078	3,286,570	0.255	0.0484	1297744.428
21	949,162	0.0023	2183.0726	142,862	0.1108	0.0023	18012.1822
22	8,059,845	0.0559	450545.3355	8,285,113	0.2317	0.0559	2370206.018
23	8,273,775	0.0023	19029.6825	4,256,152	0.0514	0.0023	237795.8953
24	333,120	0.035	11659.2	46,196	0.3477	0.035	27721.5492
25	2,644,100	-0.0028	-7403.48	1,558,113	0.0155	-0.0028	16747.2715
26	1,999,712	-0.0272	-54392.1664	420,770	0.1065	-0.0272	-9580.1614
27	766,841	0.1189	91177.3949	133,316	0.1342	0.1189	109068.4021
28	8,081,728	0.0156	126074.9568	85,147	0.01	0.0156	126926.4268
29	1,987,431	-0.0058	-11527.0998	405,087	0.1592	-0.0058	52962.7506
30	205,708	0.0051	1049.1108	94,949	0.2226	0.0051	22184.7582
31	105,186	-0.1461	-15367.6746	105,349	-0.0001	-0.1461	-15378.2095
32	37,792,449	-0.0031	-117156.5919	385,409	0.3138	-0.0031	3784.7523
33	13,661	-0.2023	-2763.6203	15,481	-0.1388	-0.2023	-4912.3831
34	35,166	-0.0901	-3168.4566	13,221	0.2063	-0.0901	-440.9643

Source(s): Eikon and authors' own calculations of excess returns

Table 2.
Companies' excess
returns, capitalization
and takeovers'
synergies (in 1,000 £)

Mateev (2017) examines wealth effect differences between the United Kingdom and Continental Europe using a dataset of 2,823 business combinations divulged from 2002 to 2010. By focusing solely on the excess returns of bidding companies, the author concludes that European bidding companies achieve positive excess returns in both cross-border and domestic takeovers, with larger short-term wealth effects in cross-border takeovers.

Wang (2018) employs a "simulated method of moments" in a dataset of US takeovers from 1980 to 2012 to investigate the effects of offer anticipation bias and information revelation bias. The author claims to control for these biases and concludes that takeovers generally create substantial wealth for stockholders of both parties. Acquiring firms' stockholders, rather than target firms' stockholders, captures the majority (about 63%) of the net value created.

Hu *et al.* (2020) examine the wealth effects of "mega-deals," defined as deals with a transaction value exceeding \$500 million in 2016-dollar terms and exceeding 1% of the acquiring firm's market value of equity." Their dataset includes 3,544 successful and unsuccessful US takeovers from 1980 to 2016. Their findings suggest that more experienced acquirers generate a mean excess announcement return from their completed "mega-deals," resulting in a stockholder wealth gain of \$50.6 million.

In the last decade, a consistent theme emerging from these reviewed articles, which is greatly reinforced by our findings, is the need to reassess the *conventional insight* concerning the partitioning of synergies in takeovers. These recent articles either employ large pre-event windows to incorporate more information or signals (Eckbo *et al.*, 2020) that might have been communicated to financial market participants before takeovers' announcement or utilize more powerful statistical methods to achieve more precise estimates over event windows, or both. The data intensity of these articles (i.e., typically involving thousands of deals) may impose a restrictive condition when applying these methods in less developed markets with limited data availability, making generalization of the results difficult.

3. Sample and methodology

Our sample contains UK domestic takeovers that occurred between 2013 and 2020. Eikon [2] is used to identify M&A deals that meet the following criteria:

- (1) Both the acquiring and the target companies are based in the United Kingdom
- (2) The stocks of both the acquiring company and the target company are publicly traded on the London Stock Exchange (LSE)
- (3) Market capitalization data for all companies in the sample is available on the day immediately preceding the takeover announcement.

These criteria are applied to ensure that the sampling procedure remains unbiased and does not impose any prior preferences. The sole purpose of these criteria is to gather takeovers for which essential statistics required for the analysis can be obtained. Table 1 presents our sample of takeovers:

Percentage excess returns of the companies on the days of the takeover announcements are estimated using a traditional event study methodology (Campbell *et al.*, 1997; Kothari and Warner, 2007). This methodology aims to assess the impact of specific events, such as takeover announcements, on a company's performance. The underlying assumption is that if an event is expected to influence a company's future performance, its announcement will lead market participants to reconsider their expectations regarding the company's market valuation. In cases of good (bad) news, excess returns or changes in valuation are expected to be positive (negative).

In this context, a company's valuation is expected to respond promptly to the announcement of a significant event in an efficiently functioning financial market. Under this assumption, the *percentage* excess return ($ER\%$) is defined as the difference between the observed *percentage* return ($R\%$) and the predicted *percentage* return excluding the specific event ($\epsilon[R\%]$). In mathematical terms:

$$ER\% = R\% - \epsilon[R\%] \quad (1)$$

A counterfactual estimate of the predicted *percentage* returns on days other than those with takeover announcements ($\epsilon[R\%]$) can be derived using the so-called "market model". This model considers the following components:

- (1) $MR\%$ is the *percentage* return of the market (herein, the daily *percentage* return of the FTSE 100 Index, representing the combined valuation of the top one hundred firms traded on the LSE with the highest capitalization; it serves as the leading stock index in the United Kingdom.
- (2) Parameters a and b can be estimated through a linear regression over an estimation window.

The "Market model" equation is as follows: $\epsilon[R\%] = a + bMR\%$ [2]

The estimation window for the “market model” consists of two hundred and fifty business days, with the last day being the sixth business day before the takeover announcement day, which coincides with the event window in our analysis. Hence, there is a five-business-day gap between the estimation and event windows. Once a and b are estimated and denoted as \hat{a} and \hat{b} , respectively, the *percentage* excess return on the announcement date is determined by substituting [2] into [1] to obtain:

$$ER \% = R \% - \left(\hat{a} + \hat{b}MR \% \right)$$

4. Findings

The *percentage* excess return (ER %) column), as shown in Table 2, represents the difference between the company’s actual *percentage* return and the *percentage* return that would have occurred if the event’s disclosure had not taken place, as calculated by the “market model.” To calculate the *pound* excess return (ER £), you simply multiply the company’s *percentage* excess return by its capitalization on the previous business day, as indicated in Table 2’s ER £ column. In the case of a takeover, the sum of the acquirer’s ER £ and the target’s ER £ provides an estimate of the *pound* value of synergies (found in the Synergy £ column in Table 2) that investors anticipate gaining from the takeover upon its announcement.

4.1 Percentage excess return

From Table 2, the average *percentage* excess return of the acquirers is -1.03% , with a standard error of 1.09% and a p -value of 0.3521 . These results indicate that we cannot reject the null hypothesis that the acquirer’s excess return is zero, even at the 10% significance level. However, the average *percentage* excess return of the targets is 13.52% , with a standard error of 2.11% and an extremely low p -value (3×10^{-7}). As such, we strongly reject the null hypothesis that the *percentage* excess return of the target is zero at the 1% significance level. These results broadly support the *conventional insight* and, more specifically, align with the research on the United Kingdom reviewed in Section 2.

A crucial point to note here is that these results endorse the view that there is nothing abnormal in our data. Indeed, in terms of the statistical behavior of the takeovers’ *percentage* excess returns, the data behave in a manner that is not different from numerous articles addressing this subject in the United Kingdom and elsewhere. Nonetheless, as we will argue, these *percentage* excess return results do not necessarily support the *conventional insight*.

4.2 Pound excess return

To directly compare the *pound* synergies of the acquirers and the targets, we apply a statistical test that compares the acquirer’s *pound* excess returns to the target’s *pound* excess returns in pairs. This approach accounts for the relationship between the participants (acquirer and target) in each takeover. A paired t -test is used to assess if there exists a significant difference between these two related groups. Herein, a “paired t -test” is more appropriate than the common “two-sample t -test” (aka “independent or uncorrelated t -test”), which is designed for statistical independence. The “paired t -test” is better suited when dealing with data in the form of matched pairs, which is exactly the feature of our dataset under examination.

The null hypothesis for the “paired t -test” is that “targets’ *pound* excess returns are equal to acquirers’ *pound* excess returns,” that is, Target ER £ = Acquirer ER £. In this context, the *conventional insight* serves as the basis for the alternative hypothesis, which posits that targets’ *pound* excess returns are greater than acquirers’ *pound* excess returns, that is, Target ER £ > Acquirer ER £.

The results of the “paired *t*-test” challenge the accuracy of the *conventional insight*, as the *t*-statistics equals 1.45 and its associated *p*-value is 0.156. This *p*-value is not statistically different from zero, even at a 10% significance level. In other words, we cannot reject the null hypothesis that, on average, the acquirer’s *pound* excess return is equal to that of the targets.

This initial finding diverges remarkably from the *conventional insight*, warranting further investigation. Figure 1 visualizes the data from Table 2, plotting the *pound* excess returns of the acquirers and the targets on the vertical axis and the total synergies of the takeovers on the horizontal axis.

The figure above displays the fitted straight lines passing through the origin, with their slopes representing the partitioning of synergies between acquirers (40.09%) and targets (59.91%). Table 3 reports the parameter estimates and related statistics of the regressions conducted on the sample.

The estimates and statistics in Table 3 strongly support the following conclusions:

- (1) The average share of synergies for acquirers (α) is positive and significantly different from zero. In other words, acquirers not only avoid losses but also gain some synergies from takeovers.
- (2) The average share of synergies for targets (τ) is positive and statistically less than one, indicating that targets retain a portion of the synergies but entirety.
- (3) The hypothesis that α and τ are equal is rejected at the 5% significance level but not at the 1% significance level, suggesting that the extent to which acquirers and targets share synergies in UK takeovers depends on the chosen significance level.
- (4) The hypothesis that $\alpha = 0.4$ and $\tau = 0.6$ cannot be rejected.

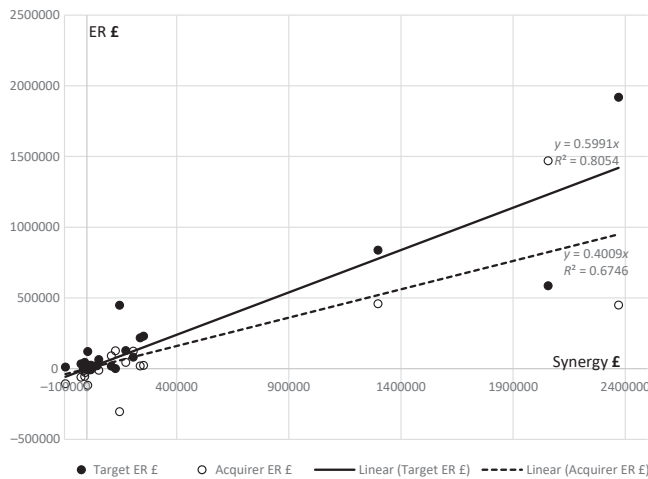


Figure 1.
Pound excess return vs
pound synergy

Source(s): Authors’ own calculations of excess returns

Table 3.
Regression analysis

Equation	Parameter	Parameter estimate	Std. error	<i>t</i> Stat	<i>p</i> -value
Acquirer ER £ = α × Synergy £	α	0.4009	0.0467	8.5778	7E-10
Target ER £ = τ × Synergy £	τ	0.5991	0.0467	12.820	2E-14

Source(s): Authors’ own calculations

The statistical tests rely on *t*-distributions, which have heavier tails for lower degrees of freedom (sample size – 1, herein) compared to the normal distribution. Consequently, rejections of the null hypothesis under *t*-distributions are less likely to occur under normal distributions, addressing any concerns about sample size from a statistical perspective.

Examining the *pound* excess returns of participants in UK takeovers offers a significantly different perspective on the distribution of takeover synergies between acquirers and targets compared to the *conventional insight*. By considering the pairs of participants in UK takeovers, we directly address the question of synergy distribution, which can be only indirectly examined, if at all, in studies where this pairing is not the primary focus.

The crux of the argument is that while excess returns expressed as *percentages* may align with the *conventional insight*, expressing the same excess returns in *pounds* leads to an inference in line with recent emerging literature that challenges the *conventional insight*. This argument also suggests a path to reconcile these seemingly opposing views. More importantly, this article highlights that analyzing the partitioning of synergies between takeover participants is incomplete or inadequate when relying solely on unpaired *percentage* excess returns or conducting partial analyses (i.e., examining only the results of targets or acquirers separately, but not both simultaneously). This point is further examined in the next section.

5. Discussion

This section elaborates on how—from the same dataset—divergent perspectives on a single issue can emerge. Three key factors merit attention: pairwise (acquirer-target) analysis, the comparison between *pound* and *percentage* excess returns, and the consideration of the relative sizes of the parties involved in these pairs.

5.1 Pairwise analysis

The fundamental premise for the *ratio methodology* to function effectively is to account for the pairs of parties in a deal, ensuring that both the acquirer and the target of a given transaction are included in the sample. This may not be the case in many previous studies that examined this issue. These earlier studies focused on the *percentage* excess returns of a sample of acquirers and/or targets, without necessarily pairing them in the same deals. A disadvantage of sampling only transactions that estimate the excess returns of both firms in the pair is that it reduces the sample size compared to what could be achieved without this requirement.

5.2 Pound excess returns vs percentage excess returns

Despite the reduction in potential sample size, the significant advantage of the *ratio methodology* lies in its ability to directly estimate (and test) the distribution of *pound* gains between the parties involved, which is the central focus of our discussion. For instance, consider the following scenario:

- (1) The acquirer's *percentage* excess returns are only one-tenth of the target's *percentage* excess returns and
- (2) The acquirer's market capitalization is tenfold that of the target.

Due to point 1, when relying on the *default procedure*, which focuses on *percentage* excess returns, one might conclude that the targets' stockholders predominantly benefit from M&A synergies. Let us examine the conclusion reached by the *ratio methodology*, which estimates the sharing of *pound* gains. Let a be the *percentage* excess return of the acquirer, t be the *percentage* excess return of the target, MC_{acq} be the market capitalization of the acquirer and MC_{tgt} be the market capitalization of the target. Then, the ratio of the *pound* gain of the acquirer (r) can be expressed as:

$$r = a \times MC_{acq} / (a \times MC_{acq} + t \times MC_{tgt})$$

Due to points 1 and 2, we can write:

$$r = (0.1 \times t) (10 \times MC_{tgt}) / [(0.1 \times t) (10 \times MC_{tgt}) + t \times MC_{tgt}]$$

This simplifies to:

$$r = t \times MC_{tgt} / (2 \times t \times MC_{tgt})$$

Hence, $r = 1/2$.

So, the *ratio methodology* correctly concludes that the stockholders of both the acquirer and the target equally share the *pound* gains from the takeover. This is in stark contrast to the conclusion one might reach by applying the *default procedure*, which underlies the *conventional insight* when working with the same dataset.

5.3 Relative size

While the *ratio methodology* accounts for the “relative size” effect between participants and focuses on *pound* synergies, the methodology behind the *conventional insight* often does not [3].

Assumptions 1 and 2 above imply a negative correlation between firms’ market capitalization and their excess returns, given a certain level of synergies. This is consistent with business reality: for instance, a windfall of £ 1 million represents a 10% *percentage* excess return for a £10-million firm, but only a 1% *percentage* excess return for a £100-million firm [4]. Moeller *et al.* (2004) and Oswal and Goel (2020) corroborate this by reporting that larger acquirers obtain lower excess returns than smaller acquirers.

The issue of relative size also affects the precision of excess return estimates. To illustrate this point, consider the following example:

- (1) The acquirer’s capitalization is £1 billion, and the target’s capitalization of the target is £100 million.
- (2) The *percentage* excess return of the acquirer is 0.1%, and the *percentage* excess return of the target is 1%.
- (3) The standard deviation of the *percentage* excess return is 0.1% for both cases.

In this example, the acquirer’s excess return is not statistically different from zero (t-stat = 1), while the target’s excess return is highly statistically significant and positive (t-stat = 10), aligning with the *conventional insight*, supporting the perception that target stockholders gain while the acquirers break even.

However, when multiplying the *percentage* excess returns by the corresponding market capitalization, both parties realize estimated gains of £1 million each. That implies a total estimated synergy of £ 2 million, with both parties equally sharing the gains. The ratio of the gains of the acquirers’ stockholders is 50%, statistically significant at the 1% significance level (t-stat = 1.99). Indeed, da Graca and Masson (2017) refer to this effect as the *signal-to-noise ratio*, which can impact the inferences drawn from the data, depending on whether one fully exploits the data’s efficiency.

The main point of this discussion is to illustrate how the results presented herein can reconcile with the *conventional insight*: (1) using pairs of takeover parties, (2) computing *pound* excess returns from *percentage* excess returns, as estimated in papers adhering to the *conventional insight*, by multiplying the latter by market capitalizations and (3) to directly estimate the distribution of *pound* synergies in M&As. The contention is that if some of the papers that support the *conventional insight* had applied these steps (1, 2 and 3), they would likely have reached conclusions similar to those reported in this study.

5.4 M&A motivation

Beyond their direct implications, our new results and insights may have far-reaching consequences, particularly in the ongoing debate surrounding the underlying motivations for corporate takeovers. The “hubris hypothesis” posits that takeovers occur when acquiring company managers are excessively optimistic about their ability to create and build up synergies, resulting in overbidding for their targets (Roll, 1986). This hypothesis implies, at best, negligible net gains for the acquiring company. As a general proposition, the “hubris hypothesis” posits that the target’s valuation should increase, while the acquirer’s valuation should remain stagnant, or even decrease, due to managerial miscalculation, essentially representing a wealth reallocation. The *conventional insight* and the “hubris hypothesis” share a close relationship.

Our new insights and empirical results, when considered alongside recent empirical literature, compel a re-assessment of the “hubris hypothesis” as a driving force behind takeovers. This is because our evidence indicates that, in reality, both the acquirers’ and targets’ stockholders roughly share the value generated by UK takeovers. In other words, the findings from the *ratio methodology* applied to this UK sample reject the occurrence of significant wealth transfer from acquirers’ stockholders to targets’ stockholders. This contradicts a central tenet of the “hubris hypothesis” and diminishes its explanatory power. On the other hand, these *ratio methodology* findings align with the hypothesis that rational criteria, such as net present value analysis (NPV), influence acquirers’ decision-making processes in UK takeovers. In this context, the impetus for takeovers lies in their positive NPV propositions (Ahern and Weston, 2007).

6. Conclusion

This article uses a sample of domestic takeovers in the United Kingdom spanning from 2013 to 2020 to estimate the distribution of synergies between acquiring company stockholders and target company stockholders. The main finding is that acquirers receive a share of the synergies in pounds nearly equal to that of target stockholders. This original result is both surprising and compelling for two reasons.

First, the *conventional insight*, which remains prevalent in the literature, including articles on the United Kingdom, is that, on average, synergies are completely absorbed by the targets to the detriment of acquirers, who at best do not suffer losses. Therefore, the main finding could potentially instigate a paradigm shift in the takeover literature or, at the very least, prompt a critical review of this *conventional insight*.

Second, the *percentage* excess returns obtained from this UK sample are consistent with previous findings that support the *conventional insight*. This alignment serves as validation for the sample and our preliminary results. Furthermore, given the article’s main finding, this aspect necessitates a reexamination of the standard approach that underpins the *conventional insight*.

The *ratio methodology* proposed here, which is innovative in this context, is based on the excess returns *in pounds*, calculated by multiplying the *percentage* of excess returns by the firm’s market capitalization. The sum of the *pound* excess returns of the acquirer and the target estimates the total synergy expected from the takeover. Dividing the *pounds* excess return of one party by the total synergy *in pounds* directly and unequivocally estimates the fraction of synergy held by that party. This highlights a weakness in the approach underpinning the *conventional insight*, which inappropriately infers, as we have seen, the distribution of synergies from the *percentage* excess returns of each group (acquirers and targets) separately.

Compared to recent approaches that have also challenged the *conventional insight*, the *ratio methodology* is technically less demanding and provides a direct inference about

the distribution of synergies from smaller samples, suggesting its high statistical power. In our sample, the article demonstrates an impressive yet credible reversal of conclusions using a narrow event window and a number of takeovers smaller than those used in recent approaches critical of the conventional insight. This leads us to propose the following research sequence: Initiate the investigation with the *ratio methodology*. If the *conventional insight* is not rejected, proceed with the inquiry using more data-intensive approaches and statistical techniques proposed by recent approaches critical of the *conventional insight*. This road map, starting with the *ratio methodology* and extending to transactions in other countries and different time intervals, could support the generalization of the article's results.

Finally, the novel results presented here suggest a careful re-examination of the *conventional insight* in the United Kingdom and elsewhere, which could have profound implications. For example, it could shift the equilibrium of takeover dynamics from the "hubris hypothesis" (Roll, 1986) to a neoclassical theory in which acquirer managers make takeover decisions that benefit their shareholders as much as the shareholders of target companies.

Notes

1. More broadly, studies examining the extent to which managerial procedures contribute to favorable takeover outcomes (Tampakoudis *et al.*, 2022; Delis *et al.*, 2022) and investigations into the impact of a country's economic policies on takeover gains (Shams *et al.*, 2022) typically rely on *percentage* excess returns as their dependent variables. These papers might reach different conclusions if their focal variables were based on the monetary (*pound*, in the UK context) excess returns acquired by the M&A parties instead.
2. Eikon is a suite of software products provided by Refinitiv, offering access to a wide range of tools, including market data, news and fundamental data, among others.
3. In some conventional studies, size variables appear as explanatory (or independent) variables in regressions where *percentage* excess returns are the dependent variables. This approach fundamentally differs from the one proposed here. Instead of elucidating the phenomenon, the sizes of the parties are inherent components of the definition of variable of interest in this context, namely, the ratio of the M&A *pound* synergy accumulated to the parties.
4. The size effect could also be affected by differences in the information environments between small and large acquirers (Bhushan, 1989; Dempsey, 1989).

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Further reading

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