

Real activities manipulation by bidders prior to mergers and acquisitions

Javeria Farooqi
Lindenwood University, St. Charles, Missouri, USA

Thanh Ngo
East Carolina University, Greenville, North Carolina, USA, and

Surendranath Jory
University of Sussex, Brighton, UK

Abstract

Purpose – This study aims to examine the ability of investors to process signs of real activities manipulations at bidder firms in the quarters leading to the announcement of a merger. It further provides a supplementary explanation for the post-merger underperformance puzzle.

Design/methodology/approach – Examining a sample of cash-only, stock swap and mixed mergers completed between 1980 and 2011, it was found that bidder firms increase the use of real activities manipulation in the quarters leading up to the merger announcements. Using average abnormal stock return method, it is shown that the short-term positive effect of real activities manipulation on share prices is stronger than accrual-based earnings management.

Findings – While bidders are able to escape investors' scrutiny in the short run, it is not the case in the long run. It was found that bidders' long-run stock performance, measured by matched buy-and-hold stock returns, is inversely related to their pre-announcement level of earnings management. This paper contributes to the literature on earnings management by considering how real activities manipulations affect stock prices in mergers and acquisitions.

Originality/value – This study tests whether real activities manipulation, in addition to accrual-based earnings management, explains the underperformance puzzle of the acquiring firms in M&As. Zang (2012) argues that there is a greater likelihood for firms to engage in real activities manipulation, especially when firms are constrained in their use of accrual-based earnings management owing to heightened scrutiny or overuse in prior years.

Keywords Discretionary accruals, Mergers and acquisitions, Real earnings management

Paper type Research paper



1. Introduction

Past studies on acquiring firms manipulating earnings prior to a merger and/or acquisition (M&A) include those of Erickson and Wang (1999), Louis (2004), Baik *et al.* (2007), Botsari and Meeks (2008) and Gong *et al.* (2008). They find that earnings management by bidder (acquiring) firms using discretionary accruals is prevalent in stock bids as managers attempt to boost their stock prices. For example, Louis (2004) focuses on accrual-based earnings management and finds that bidder firms that engaged in positive accrual earnings management benefited from stock price increases during the merger announcement. Gong *et al.* (2008) find that post-repurchase performance is driven by pre-repurchase earnings management. While these past studies document the impact

of accrual earnings manipulation on stock returns during M&A, they do not take account of real activities manipulations. Recently, an increasing number of firms are engaging in real activities manipulation as well as accrual earnings management and, high accruals are not always indicative of earnings management, as they could be related to firm growth.

We hypothesize that bidders not only manipulate discretionary accruals prior to M&As but they also engage in real activities manipulations. Firms are inclined to use the latter, as they are harder to detect by outsiders. [Louis \(2004\)](#) provides examples that show that even sophisticated investors are unable to detect real earnings management. He also finds that the reversal effects of the pre-merger earnings management are not fully anticipated by financial analysts immediately following a merger announcement.

Besides, a survey of CFOs by [Dichev et al. \(2013\)](#) shows that nondiscretionary factors drive about 50 per cent of earnings quality. Moreover, [Zang \(2012\)](#) argues that there is a greater likelihood of firms to engage in real activities manipulation, especially when firms are constrained in their use of accrual-based earnings management owing to heightened scrutiny or overuse in prior years.

In view of the above, it is important to examine the effects of both real activities manipulation and accrual-based earnings management. We examine whether bidder firms manipulate earnings prior to M&As using both forms of earnings management. More specifically, we investigate whether bidders increase the use of real earnings management prior to M&As by involving stock swaps. We consider US domestic stock swap deals from 1980 to 2011. We compare the changes in earnings management from pre- to post-M&As. In multiple regression models, we regress various measures of earnings management on several dummy variables representing alternative time periods surrounding the M&A announcements.

We find strong evidence that bidders increase their use of real activities manipulation in the quarters preceding a stock swap announcement. We find that the market reaction over the three days surrounding a merger announcement is positively linked to the bidder's use of real activities manipulation. In the long run, though, the relationship between real activities manipulation and bidders' stock performance turns negative. Our findings suggest two things: manipulating earnings can yield short-term benefits to bidder firms in stock-for-stock mergers and investors take time to recognize and respond to the intricacies of earnings management at bidder firms.

The remainder of the paper is organized as follows. We perform a literature review in [Section 2](#). We formulate our hypotheses in [Section 3](#). Data and the sample selection procedures are presented in [Section 4](#). [Section 5](#) discusses the methodology. We present and discuss our findings in [Section 6](#), and conclude the paper in [Section 7](#).

2. Literature review

According to extant literature, the relationship between accruals and stock returns is mixed. [Sloan \(1996\)](#) finds that future stock returns are negatively linked to accruals. Firms with high accruals experience a subsequent decline in cash flows. Abnormally high accruals are consistent with a firm manipulating earnings to show a healthy bottom line. However, other studies have shown high accruals are not always indicative of earnings management. Growing businesses will accrue expenses while they use scarce cash to finance growth. Once the growth potential is reached, they will repay the accrued expenses. Along these lines, [Subramanyam \(1996\)](#) documents a positive relationship between abnormal accruals and stock returns, indicating that high accruals signal that the business prospects and growth potential are strong.

Several studies also find a positive relationship between accruals and stock returns. Demski (1998) argues that high accruals signal managers' expertise and greater future returns. Louis and Robinson (2005) assert that a higher level of accruals prior to a stock split is a signal of managerial optimism, which is further reinforced by the stock split. Xu and Lacina (2009) claim that lower accrual firms tend to experience lower future returns as opposed to higher accrual firms, as they are perceived as less risky firms.

Louis (2004) documents a significantly negative correlation between the abnormal accruals and the abnormal returns of acquiring firms that engage in stock swaps. He further finds that the post-merger underperformance of bidder firms is partly attributable to the reversal of the price effects of earnings management. Erickson and Wang (1999) find that acquirers manage earnings upwards before engaging in a merger agreement. Botsari and Meeks (2008) similarly find evidence consistent with earnings management ahead of share-financed bids. Baik *et al.* (2007) find that firms are more likely to report income-increasing abnormal accruals prior to the acquisitions of privately held targets when shares are used as the M&A currency. Gong *et al.* (2008) find that post-repurchase performance is driven by pre-repurchase earnings management.

We build on the existing literature by testing whether real activities manipulation, in addition to accrual-based earnings management, explains the underperformance puzzle of the acquiring firms in M&As. Because a growing number of firms are involved in real activities manipulation, it is important to include this form of earnings management within the analysis (Dichev *et al.*, 2013).

3. Hypotheses

Bidders in stock swap deals have an incentive to inflate earnings figures prior to an M&A. The theory is that the higher earnings figures will translate into higher stock prices, thus reducing the number of shares to be issued in stock-financed deals. We test whether there is an increase in earnings management in the quarters leading to the M&A announcement:

H1. Earnings management is higher during the pre-M&A announcement for bidder firms compared to post-announcement periods.

In deals that are financed with stock and cash, and where the latter is backed by debt (Bharadwaj and Shivdasani, 2003; Harford *et al.*, 2009), the presence of lending parties inhibits the bidder's ability to manipulate earnings[2]. Because its interest is also at stake, a creditor will verify that earnings manipulation is not driving the bidder's reported profits. Consequently, there will be a lower incidence of earnings management in bids that are partly funded with debt:

H2. Earnings management by bidders before M&A is lower in cash-financed deals.

We further hypothesize that the larger is the deal size relative to the bidder, the more incentivized is the bidder to manipulate earnings. Moreover, the larger is the bidder's firm size, the more intricate is the organization structure. Thus, we should observe a higher incidence of earnings management both in large deals and amongst large bidders:

H3. Earnings management correlates positively with bidder's firm size.

It is likely that the effects of earnings management on shareholders' wealth are more pronounced under real activities manipulation than accrual-based earnings manipulation. Besides impeding the future revenue earnings capability of the business assets, real activities manipulations significantly impair the value of the firm's assets. Consider a

company's decision to postpone refurbishment of its assets; they will become less effective as time goes by. Conversely, accruals-based earnings management does not affect the operations of the business but merely represents alterations in the way accounting information are presented, for instance, a change in inventory valuation or depreciation methods reported:

H4. The effects of real activities manipulations are more detrimental than accruals-based earnings manipulations.

To the extent that the effects of real activities manipulation pan out in the long run and are not immediately recognizable at the time of undertaking, the possibility exists that the market will be misled by them in the short run. Thus, we test whether the short-term market reaction to bidders' announcement of an M&A is directly proportional to their pre-announcement level of earnings manipulation:

H5. Bidders engaged in real activities manipulations are associated with a more favorable market reaction at the time of M&A announcement.

Assuming that investors are unable to detect earnings manipulation at a bidder firm prior to an M&A announcement, they would be "surprised" about the "less-than-perfect" bidder's performance in the future and react more negatively (Richardson *et al.*, 2005). Thus, bidders with higher earnings management prior to M&A announcements should experience lower long-run post-announcement returns:

H6. Bidders with higher earnings management prior to M&A announcements will experience lower long-run post-announcement returns.

4. Sample selection and methodology

4.1 Sample selection

The sample consists of 5,857 USA domestic deals from 1980 to 2011. Deal information is obtained from the Thomson One Banker Deal database; stock price data are obtained from the Center for Research in Security Prices (CRSP) database; accounting data are obtained from the COMPUSTAT database. Bidder firms are US-listed firms; the deal value is at least \$1m; financial and utility firms with SIC codes 6000-6900 and 4900-4999 are excluded, as they are heavily regulated.

Table I shows the sample distribution by various criteria. Starting in 1991, we observe a gradual increase in the number of M&As with a peak in 2000. The numbers decreased drastically in 2001 and 2002; the downward trend continued thereafter and coincided with the subprime mortgage financial crisis of 2007-2009.

Further, 82 per cent of the sample is classified as mergers and the rest as acquisitions of either majority interest, partial interest or remaining interest. We classify the latter two as "partial acquisitions" in the remainder of the paper. High-tech bidders represent 60.94 per cent of the sample; in 34.95 per cent of the deals, the bidder and the target share the same four-digit SIC code; investment banks are present as advisors in 47.35 per cent of the deals; cash-only, stock-only and mixed payment transactions represent 26.23, 26.93 and 46.85 per cent of the sample, respectively; and the percentages of private and public targets are 43.59 and 56.41 per cent, respectively.

Deal and firm financial characteristics are summarized and presented in Table II. The mean deal value is \$565.56m; on average, bidder firms are ten times larger than targets based on market values; the mean value of the premiums paid in acquisitions of public targets is 39 per cent. The number of observations for the target is lower because 46 per cent

Year	<i>N</i>	(%)	Form	<i>N</i>	(%)
1980	15	0.26	Acquisitions of majority interest	243	4.15
1981	51	0.87	Acquisitions of partial interest	563	9.61
1982	65	1.11	Acquisitions of remaining interest	235	4.01
1983	98	1.67	Merger	4,816	82.23
1984	124	2.12			
1985	69	1.18	<i>Exchange</i>		
1986	89	1.52	American	181	3.09
1987	93	1.59	Nasdaq	2,802	47.84
1988	95	1.62	New York	2,874	49.07
1989	90	1.54			
1990	74	1.26	<i>High-tech Bidder</i>		
1991	100	1.71	No	2,288	39.06
1992	124	2.12	Yes	3,569	60.94
1993	153	2.61			
1994	187	3.19	<i>Bidder borrows to fund the deal</i>		
1995	261	4.46	No	5,398	92.16
1996	305	5.21	Yes	459	7.84
1997	355	6.06			
1998	401	6.85	<i>Related target</i>		
1999	438	7.48	No	3,810	65.05
2000	468	7.99	Yes	2,047	34.95
2001	233	3.98			
2002	184	3.14	<i>Bidder uses investment banks</i>		
2003	205	3.5	No	3,084	52.65
2004	215	3.67	Yes	2,773	47.35
2005	245	4.18			
2006	238	4.06	<i>Payment method</i>		
2007	238	4.06	Cash only	1,536	26.23
2008	178	3.04	Stock-only	1,577	26.93
2009	146	2.49	Mixed payment	2,744	46.85
2010	165	2.82			
2011	155	2.65	Public target		
Total	5,857	100	No	2,553	43.59
			Yes	3,304	56.41

Notes: The sample consists of 5,857 US domestic deals between 1980 and 2011. Deals' information is obtained from the Thomson One Deal database; stock price data are obtained from the Center for Research in Security Prices (CRSP) database; accounting data are obtained from the Compustat database. Bidder firms are US-listed firms; the deal value is at least \$1m; financial and utility firms with SIC codes 6000-6900 and 4900-4999, respectively, are excluded

Table I.
Sample distribution

of the sample includes private targets (with no data available in both SDC and COMPUSTAT). In Panel B of [Table II](#), we present size and growth statistics for matching non-bidder firms. A matched firm is one that shares the same industry and size quartile as the bidder firm and is the closest in the market-to-book ratio but has not announced or performed an M&A. The differences in size and market-to-book ratios between the two samples are not statistically significant.

4.2 Methodology

In this section, we describe how we measure accrual-based earnings management and real activities manipulation at bidder firms in the six quarters surrounding the M&A

Variables	<i>N</i>	Mean	Median	SD
<i>Panel A – Deal characteristics and target characteristics</i>				
Deal value	5,857	565.558	74.999	2,956.758
Target Market value 4 weeks prior (\$million)	2,188	1,047.104	165.225	7,663.377
Target total assets (\$million)	3,026	676.076	93.811	2,854.777
Target ROA	2,951	-0.124	0.024	0.996
Premium1 Day	2,020	0.390	0.285	1.469
Number of bidders	5,857	1.028	1.000	0.199
Cash payment (%)	5,857	36.221	0.000	44.297
Shares acquired (%)	5,687	88.952	100.000	25.897
<i>Panel B – Bidders' and matching firms' characteristics</i>				
Bidder market value 4 weeks prior (\$million)	5,857	10,767.17	911.05	32,724.72
Non-bidder matching firms' market value 4 weeks prior (\$million)	4,974	11,369.49	1080.967	40,542.48
Difference		-602.32	-169.92	
<i>t</i> -stat/Wilcoxon-stat		-1.05	-1.12	
Bidder market-to-book ratio	5,857	4.977	2.246	11.202
Non-bidder matching firms' market-to-book ratio	4,974	-5.870	2.120	8.618
Difference		10.847	0.126	
<i>t</i> -stat/Wilcoxon-stat		-1.38	0.52	

Notes: The sample consists of 5,857 US domestic stock swap deals between 1980 and 2011. Premium1Day is the percentage difference between the deal value and the target's market value on the day preceding the M&A announcement date. Values on deal, target and bidder characteristics are obtained from the Thomson One Deals and the Compustat database. Panel A contains descriptive statistics on the deal and target firms; Panel B on sample bidder firms and matching non-bidder firms. A matched firm is one that shares the same industry and size quartile as the bidder firm and is closest in the market-to-book ratio

Table II.
Sample descriptive
statistics

announcement. We follow the methodologies of Roychowdhury (2006), Cohen *et al.* (2008), Cohen and Zarowin (2010) and Zang (2012).

4.2.1 Accruals-based earnings management. We use discretionary accruals to proxy for accrual-based earnings management. Discretionary accrual is measured as the difference between actual and forecasted accruals. We use the following modified Jones' (1991) model to obtain the forecasted values:

$$\frac{Accruals_{i,t}}{Assets_{i,t-1}} = k_0 + k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{\Delta SALES_{i,t}}{Assets_{i,t-1}} + k_3 \frac{PPE_{i,t}}{Assets_{i,t-1}} + \epsilon_{i,t} \quad (1)$$

where, for quarter *t* and firm *i*, *Accruals* represents the total accruals defined as:

$$Accruals_{i,t} = EBXI_{i,t} - CFO_{i,t} \quad (2)$$

where *EBXI* is the earnings before extraordinary items and discontinued operations and *CFO* is the operating cash flows (from continuing operations) taken from the statement of cash flows. *Assets_{it-1}* represents total assets in quarter *t* - 1, $\Delta SALES_{i,t}$ is the change in sales from the preceding quarter and *PPE_{it}* is the gross value of property, plant and equipment. The residual from the regression represents the extent of accruals-based earnings management. We report the results from the regression to obtain discretionary accruals in Panel A of Table III. We use the universe of Compustat firms to estimate the equations.

Independent variables	Production Cost _(t) /Asset _(t-1)		Discretionary expense _(t) /Asset _(t-1)		Discretionary accrual _(t) /Asset _(t-1)	
<i>Panel A - Estimation of the abnormal normal levels of production costs, discretionary expense and discretionary accruals</i>						
Intercept	-0.308	-1.04	-0.124	-1.46	-0.678	-7.810***
1/Asset _(t-1)	0.061	4.59***	0.461	13.15***	0.119	12.210***
Sales _(t) /Asset _(t-1)	0.720	171.33***				
Sales _(t-1) /Asset _(t-1)			0.307	10.35***		
ΔSales _(t) /Asset _(t-1)	-0.011	-1.36			5.674	9.570***
ΔSales _(t-1) /Asset _(t-1)	-0.021	-2.93***				
PPE _(t) /Asset _(t-1)					0.288	8.980***
Mean Adjusted R ² (%)	69.77		39.71		23.86	
Mean # of observations	201.5		191.48		176.5	
# industry-quarters	3,784		3,784		3,894	
Independent variables	Production Cost _(t) /Asset _(t-1)		Discretionary expense _(t) /Asset _(t-1)		Total real earnings management _(t)	
<i>Panel B - Estimation of the unexpected abnormal production costs, discretionary expense and total real earnings management</i>						
Intercept	-0.013	-7.50***	-0.002	-1.23	-0.012	-4.53***
Market share _(t-1)	0.006	5.77***	0.041	37.50***	0.028	26.16***
ZScore _(t-1)	0.001	0.67	-0.006	-5.33***	-0.003	-3.18***
INST _(t-1)	-0.023	-20.64***	0.008	7.54***	-0.009	-8.17***
SOX	-0.003	-3.13***	0.002	1.73***	0.000	0.38
NOA _(t-1)	0.004	4.14***	0.005	4.40***	0.004	3.93***
Cycle _(t-1)	0.011	10.35***	0.018	16.44***	0.018	16.66***
Ln market cap _(t)	0.009	7.64***	-0.009	-7.65***	-0.002	-1.41
R&D expense/sale _(t)	0.033	30.82***	0.007	6.31***	0.025	23.22***
Debt ratio _(t)	0.009	7.75***	-0.010	-8.89***	0.002	1.49
MKBK _(t)	0.000	0.3	-0.003	-2.89***	-0.002	-1.63
ROA _(t)	-0.009	-7.70***	0.015	13.40***	0.005	4.59***
F-stat	162.30***		207.27***		147.58***	
Adjusted R ²	0.23		0.26		0.18	
N	878,263		878,263		878,263	
Variables			N	Mean		Median
<i>Panel C - Summary statistics for real activities manipulation and accrual-based earnings management</i>						
Discretionary accruals			5,316	0.014		-0.003
Abnormal production costs			5,857	-0.067		-0.098
Abnormal discretionary expense			5,857	0.020		0.095
Total real earnings management			5,857	-0.045		-0.015
Unexpected abnormal production costs			5,857	-0.063		-0.097
Unexpected abnormal discretionary expense			5,857	0.010		0.095
Unexpected total real earnings management			5,857	-0.031		-0.006

Table III.
Regression analysis to measure real activities manipulation and accrual-based earnings management

Notes: The regressions are estimated cross-sectionally for each industry-quarter for the period 1980-2011 using the universe of firms in Compustat. The Fama-French 48-industry grouping is used. The reported coefficients are the mean values of the coefficients across industry-quarters. *t*-Statistics are calculated using the standard errors of the coefficients across industry-quarters. The adjusted R² (number of observations) is the mean adjusted R² (number of observations) across industry-quarters. *, ** and *** represent significance at 10, 5 and 1% levels, respectively

4.2.2 Real activities manipulation. We construct the following two measures of real activities manipulations: abnormal level of production costs and abnormal level of discretionary expenditures. Roychowdhury (2006) finds evidence consistent with firms trying to boost sales with generous offers, to lower the cost of goods sold by overproducing and reducing discretionary expenditure to improve margins. To obtain abnormal production costs, we first estimate the normal level of production costs as follows:

$$\begin{aligned} \frac{PROD_{i,t}}{Assets_{i,t-1}} = & k_0 + k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{SALES_{i,t}}{Assets_{i,t-1}} + k_3 \frac{\Delta SALES_{i,t}}{Assets_{i,t-1}} \\ & + k_4 \frac{\Delta SALES_{i,t-1}}{Assets_{i,t-1}} + \epsilon_{i,t} \end{aligned} \quad (3)$$

where $PROD_{i,t}$ is the sum of the cost of goods sold in quarter t and the change in inventory during the quarter for firm i , $Assets_{i,t-1}$ is the total assets in quarter $t - 1$, $SALES_{i,t}$ is the net sales in quarter t and $\Delta SALES_{i,t}$ and $\Delta SALES_{i,t-1}$ represent changes in sales during quarter t and $t - 1$, respectively. The equations are estimated cross-sectionally for each industry-quarter using the Fama and French (1997) 48-sector industry classification on the universe of Compustat firms. The abnormal level of production costs is measured as the estimated residual of the regression.

To obtain abnormal discretionary expenses, we first estimate its normal level using the following equation:

$$\frac{DISX_{i,t}}{Assets_{i,t-1}} = k_0 + k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{SALES_{i,t-1}}{Assets_{i,t-1}} + \epsilon_{i,t} \quad (4)$$

where $DISK_{i,t}$ is the discretionary expenditures (i.e. the sum of research and development [R & D], advertising and selling and general and administrative [SG & A] expenditures) in quarter t , $Assets_{i,t-1}$ is the total assets in quarter $t - 1$ and $SALES_{i,t-1}$ is the net sales in quarter $t - 1$. We estimate the model for every industry in each quarter using the Fama and French (1997) 48-sector industry classification. The abnormal level of discretionary expenditures is measured as the estimated residual obtained from the regression. We multiply the residuals by -1 such that higher values indicate greater cuts in the amount of discretionary expenditures to inflate earnings. We report the results from the regressions to obtain the abnormal production cost and abnormal discretionary expenditure variables in the first two models in Panel A of Table III. We use the universe of COMPUSTAT firms to estimate the equations.

We derive a composite measure for real activities manipulation as follows:

$$\begin{aligned} \text{Total Real Earnings Management Score} = & \text{Score for Abnormal Production Cost} \\ & + \text{Score for Abnormal Discretionary Expenditure} \end{aligned} \quad (5)$$

The higher the amount of this aggregate measure, the more likely the firm is engaged in real activities manipulation.

4.2.3 Unexpected real activities manipulation. Zang (2012) argues that managers consider the trade-offs between the costs and benefits of real activities manipulation before engaging in such activities. Therefore, we construct measures of unexpected real activities manipulation, which are the estimated residuals (u_i) from the following equation [also see Zang (2012) for an explanation of the model and the contribution of each variable]. We report

the results from the regressions to obtain the measures of “unexpected” earnings management variables in Panel B of [Table III](#).

$$\begin{aligned}
 \text{Real Activities Manipulation}_t = & k_0 + k_1 \text{Market Share}_{t-1} + k_2 \text{ZSCORE}_{t-1} + k_3 \text{INST}_{t-1} \\
 & + k_4 \text{SOX}_t + k_5 \text{NOA}_{t-1} + k_6 \text{Cycle}_{t-1} + k_7 \ln(\text{Market Cap}_t) \\
 & + k_8 \frac{R\&D}{\text{Sale}_t} + k_9 \text{Debt}_t + k_{10} \text{MKBK}_t + k_{11} \text{ROA}_t + u_t
 \end{aligned}
 \tag{6}$$

where, *Real Activities Manipulation* represents abnormal production costs, abnormal discretionary expense and total real earnings management in three separate regressions. *Market Share* is the ratio of a company’s sales-to-total sales of its industry group based on the [Fama and French \(1997\)](#) 48-sector industry classification; *ZSCORE_t* is a modified version of Altman’s Z-score ([Altman 1968, 2000](#)) and acts as a proxy for financial condition. Higher values of *ZSCORE* indicate a healthier financial condition and a lower cost associated with real activities manipulation. The *ZSCORE* is computed as follows:

$$\begin{aligned}
 \text{ZSCORE}_t = & 0.3 \frac{NI_t}{\text{Asset}_t} + 1.0 \frac{\text{Sales}_t}{\text{Asset}_t} + 1.4 \frac{\text{Retained Earnings}_t}{\text{Asset}_t} + 1.2 \frac{\text{Working Capital}_t}{\text{Asset}_t} \\
 & + 0.6 \frac{(\text{Stock Price} \times \text{Shares Outstanding})_t}{\text{Total Liabilities}_t}
 \end{aligned}
 \tag{7}$$

INST_{t-1} is the percentage of institutional ownership at the beginning of the quarter; *SOX_t* is a dummy variable representing fiscal quarters starting in 2003; *NOA_{t-1}* represents net operating assets at the beginning of the quarter and serves as a proxy for the extent of accrual management in previous periods. *NOA_{t-1}* is calculated as:

$$\frac{\text{Shareholders' Equity}_{t-1} - \text{Cash and Marketable Securities}_{t-1} + \text{Total Debt}_{t-1}}{\text{Sales}_{t-1}}
 \tag{8}$$

Cycle_{t-1} is computed as the days receivable *plus* the days inventory *less* the days payable at the beginning of the quarter; *ln(Market Cap_t)* represents the natural logarithm of market capitalization; *R&D/Sale_t* represents the ratio of research and development expenses-to-sales; *Debt_t* is the ratio of long-term liabilities-to-market capitalization; and *ROA_t* represents the return on assets.

We present the results of the above regressions for comparison purposes with previous studies in [Table III](#). Most of the coefficients are significant and comparable to those reported by [Roychowdhury \(2006\)](#) and [Zang \(2012\)](#). The values of the adjusted *R*² range between 18 and 70 per cent. The estimated residuals from the relevant estimation models measure the abnormal levels of production costs, discretionary expenditures and discretionary accruals. Panel C of [Table III](#) reports summary statistics for the proxies of real and accrual earnings management.

4.2.4 Multiple regressions of earnings management. Our objective is to observe the levels of accrual-based earnings management and real activities manipulations by bidders in the quarters preceding and following the M&A announcement. To conduct this analysis, the bidder firms’ levels of accrual-based earnings management and real activities

manipulations are calculated for six quarters preceding and following the M&A announcement and included in the following regression model:

Real activities
manipulation

$$\begin{aligned}
 \text{Earnings Management}_{i,t} = & \alpha_i + \sum_{t=-6}^{+6} \beta_{1,t} \text{Quarter}_{i,t} + \beta_2 \ln(\text{Deal Value})_i \\
 & + \beta_3 \text{Partial Acquisitions}_i + \beta_4 \text{Hightech Bidders}_i \\
 & + \beta_5 \text{Borrowed Funds}_i + \beta_6 \text{Related Target}_i \\
 & + \beta_7 \text{Investment Bank}_i + \beta_8 \% \text{Cash}_i + \beta_9 \text{Private Targets}_i \\
 & + \varepsilon_{i,t}
 \end{aligned} \tag{9}$$

331

where *Quarter* is a dummy variable representing the respective quarter to the quarter of the M&A announcement, which is Quarter 0. $\ln(\text{Deal Value})$ is the natural logarithm of the dollar value of the deal. We use dummy variables to represent partial acquisitions, high-tech bidders, deals financed with borrowed funds, where bidder and target share the same four-digit SIC code, where the services of an investment bank are used, deals where cash is the only form of payment and private targets. Our objective is to observe in which quarter(s) the ratios of production costs-to-total asset, discretionary expenditure-to-total asset and discretionary accruals-to-total assets, i.e. our proxies for earnings management, are abnormally high. Following Petersen (2009), we estimate *p*-values in the regression models based on clustering by firm and time (i.e. quarters) to account for correlations among the error terms among firms and within the quarters.

5. Findings

5.1 Earnings management level at bidder firms

To conduct a univariate analysis of the earnings management levels of bidder firms, we compare them to matching non-bidder firms. A matching firm shares the same industry and size quartile as the bidder firm and is closest in the market-to-book ratio, but has not announced or engaged in an M&A. In Panel A of Table IV, we report the summary statistics of the earnings management variables in each of the 12 quarters surrounding the M&A announcement dates. We present a graph (Figure 1) to better illustrate the trend in real activities manipulation and accrual-based earnings management at bidder firms. There is a gradual but distinct increase in the earnings management measures leading to the quarter of the M&A announcement (i.e. Quarter 0) and a reversal in the trend post-announcement.

The *t*-tests between the mean values in the (−4, −1) window and the (−6, −5) window are highly significant with *t*-statistics ranging from 5.49 for Unexpected Abnormal Production Costs to 15.24 for Abnormal Discretionary Expenses. These results suggest that both accrual earnings management and real activities management are high for bidder firms during the pre-M&A periods. In comparison, non-bidder firms show no abnormal earnings management in either accruals or real activities.

To test *H1* we compare the pre-M&A announcement (−4, −1) abnormal accruals and abnormal real earnings to their corresponding values post-announcement (+1, +6) period. We find the discretionary accruals exhibit a difference between the pre- and post-subperiods

Table IV.
Comparing earnings
management
activities around
M&A
announcements –
whole sample

Relative quarters	Discretionary accruals	Abnormal production costs	Abnormal discretionary expense	Total real earnings management	Unexpected abnormal production costs	Unexpected abnormal discretionary expense	Unexpected total real earnings management
<i>Panel A - Earnings management activities around M&A announcements by sample bidder firms</i>							
-6	-0.1317	-0.2456	-0.2089	-0.3747	-0.1681	-0.1171	-0.1509
-5	-0.0804	-0.1967	-0.1190	-0.2774	-0.1504	-0.0773	-0.1285
-4	-0.0349	-0.1558	-0.0867	-0.2237	-0.1429	-0.0892	-0.1347
-3	0.0011	-0.1118	-0.0327	-0.1359	-0.1047	-0.0457	-0.0872
-2	0.0082	-0.1200	-0.0025	-0.1244	-0.1199	-0.0232	-0.0877
-1	0.0033	-0.1000	0.0223	-0.0784	-0.0988	0.0087	-0.0543
0	0.0142	-0.0669	0.0200	-0.0455	-0.0634	0.0100	-0.0306
1	-0.0019	-0.0368	0.0193	-0.0138	-0.0274	0.0075	-0.0082
2	-0.0223	-0.0677	0.0257	-0.0355	-0.0616	0.0146	-0.0235
3	-0.0398	-0.1000	0.0239	-0.0578	-0.0965	0.0118	-0.0387
4	-0.1028	-0.1534	-0.0178	-0.1367	-0.1569	-0.0330	-0.0930
5	-0.1598	-0.1977	-0.0766	-0.2128	-0.2032	-0.0992	-0.1442
6	-0.2286	-0.2363	-0.1509	-0.3052	-0.2463	-0.1809	-0.2076
Mean (-6, -5)	-0.1061	-0.2212	-0.1640	-0.3260	-0.1592	-0.0972	-0.1397
t-stat	(-9.38***)	(-20.84***)	(-8.07***)	(-14.59***)	(-17.38***)	(-6.63***)	(-12.41***)
Mean (-4, -1)	-0.0056	-0.1219	-0.0249	-0.1406	-0.1166	-0.0373	-0.0910
t-stat	(-0.841)	(-16.53***)	(-3.07***)	(-10.58***)	(-14.81***)	(-4.26***)	(-10.30***)
Mean (+1,+6)	-0.0926	-0.1320	-0.0294	-0.1270	-0.1320	-0.0465	-0.0859
t-stat	(-12.75***)	(-19.40***)	(-3.67***)	(-10.16***)	(-17.86***)	(-5.29***)	(-10.18***)
(-4, -1) minus (-6, -5)	0.1005	0.0993	0.1391	0.1854	0.0427	0.0599	0.0487
t-stat	(11.61***)	(12.02***)	(15.24***)	(14.24***)	(5.49***)	(7.51***)	(6.63***)
(-4, -1) minus (+1,+6)	0.0870	0.0101	0.0045	-0.0136	0.0154	0.0092	-0.0051
t-stat	(10.18***)	(1.62)	(0.69)	(-1.17)	(2.25**)	(1.12)	(-0.66)

(continued)

Relative quarters	Discretionary accruals	Abnormal production costs	Abnormal discretionary expense	Total real earnings management	Unexpected abnormal production costs	Unexpected abnormal discretionary expense	Unexpected total real earnings management
<i>Panel B – Earnings management activities around M&A announcements by non-bidder matching firms</i>							
-6	-0.0818	-0.1119	0.0430	-0.1761	-0.1525	-0.0685	-0.0873
-5	-0.0744	-0.1216	0.0330	-0.1973	-0.1572	-0.0513	-0.0626
-4	-0.0703	-0.1183	0.0268	-0.1914	-0.1296	-0.0395	-0.0753
-3	-0.0723	-0.1140	0.0298	-0.1827	-0.1476	-0.0475	-0.0793
-2	-0.0737	-0.1242	0.0394	-0.1961	-0.1585	-0.0525	-0.0714
-1	-0.0689	-0.1171	0.0391	-0.1691	-0.1389	-0.0524	-0.0528
0	-0.0704	-0.1134	0.0438	-0.1722	-0.1404	-0.0446	-0.0665
1	-0.0878	-0.1107	0.0130	-0.1746	-0.1454	-0.0433	-0.0848
2	-0.0812	-0.1134	0.0359	-0.1751	-0.1592	-0.0521	-0.0858
3	-0.0819	-0.1101	0.0312	-0.1805	-0.1568	-0.0590	-0.0850
4	-0.0890	-0.1101	0.0331	-0.1756	-0.1349	-0.0633	-0.0826
5	-0.0809	-0.1171	0.0440	-0.1821	-0.1423	-0.0678	-0.0800
6	-0.0904	-0.1170	0.0389	-0.1800	-0.1449	-0.0396	-0.0652
Mean (-6, -5)	-0.0781	-0.1167	0.0380	-0.1867	-0.1548	-0.0599	-0.0749
<i>t</i> -stat	(-9.42***)	(-17.49***)	(6.15***)	(-12.42***)	(-15.65***)	(-5.22***)	(-11.40***)
Mean (-4, -1)	-0.0713	-0.1184	0.0338	-0.1848	-0.1437	-0.0530	-0.0697
<i>t</i> -stat	(-7.24***)	(-15.82***)	(3.68***)	(-6.68***)	(-14.97***)	(-1.95***)	(-7.17***)
Mean (+1, +6)	-0.0852	-0.1131	0.0327	-0.1780	-0.1472	-0.0575	-0.0806
<i>t</i> -stat	(-16.07***)	(-21.09***)	(6.98***)	(-13.44***)	(-20.40***)	(-8.63***)	(-7.18***)
(-4, -1) minus (-6, -5)	0.0068	-0.0017	-0.0042	0.0018	0.0112	0.0069	0.0052
<i>t</i> -stat	(0.73)	(-0.01)	(-0.067)	(0.35)	(0.80)	(0.48)	(0.69)
(-4, -1) minus (+1, +6)	0.0139	-0.0053	0.0011	-0.0068	0.0036	0.0045	0.0109
<i>t</i> -stat	(0.37)	(-0.19)	(0.49)	(-0.28)	(0.44)	(0.11)	(0.75)

Notes: The table reports trends in earnings management at bidder firms surrounding M&A announcements. The type of earnings management is indicated in the header row. Quarter 0 represents the quarter of the M&A announcement. Models from Table III are used to measure real activities manipulation and accrual-based earnings management. Panel A contains statistics on sampled bidder firms; Panel B on matching non-bidder firms. A matched firm is one that shares the same industry and size quartile as the bidder firm and is closest in the market-to-book ratio. *, ** and *** represent significance at 10, 5 and 1% levels, respectively

Table IV.

of 5.67 per cent. Similarly, the unexpected abnormal production costs difference between the two subperiods equals 1.54 per cent. The *t*-statistics are significant and equal at 10.18 and 2.25, respectively, for the discretionary accruals and the unexpected abnormal production costs. No statistical differences between the two subperiods are found for the non-bidder firms. These results provide some supporting evidence for *H1*, implying that pre-M&A earnings manipulations are higher than post-M&A earnings manipulations.

While bidder firms increase earnings management prior to the announcement and decrease it post-announcement, this characteristic is not exhibited by the matched non-bidder firms. In Panel B of Table IV, the non-bidder firms exhibit no discernable pattern in their earnings management variables both before and after the M&A announcement. Thus, bidder firms manage earnings differently from non-bidder firms.

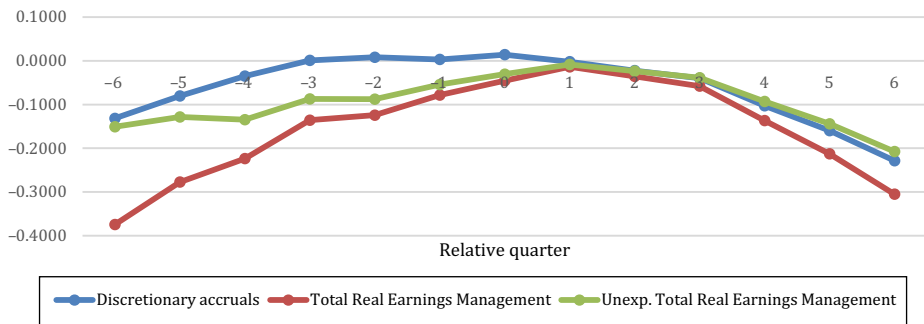
In Table V, we provide similar summary statistics for subsamples of cash-only vs other forms of payment, and private vs public targets. The *t*-test between the mean earnings management variables in the (-4, -1) window and the (-6, -5) window is significant for both cash bids and deals including stock payment. Thus, bidders increase earnings management prior to M&A announcements irrespective of the method of payment. Figures 2 to 5 demonstrate the trend in real activities manipulation and accrual-based earnings management at bidder firms for the various subsamples.

5.2 Multiple regressions of earnings management

We present the regressions of the various earnings management variables in Table V. Included amongst the independent variables are two dummy variables representing Quarters (-6 to -5) and Quarters (-4 to -1), with the M&A announcement in Quarter 0. The intercept term captures the effects of the remainder quarters. The coefficient of the dummy variables representing the relative Quarters (-4, -1) is positive and larger than the coefficient representing Quarters (-6, -5) in the regression of discretionary accruals. The coefficients representing Quarters (-6, -5) are consistently negative and significant in the regressions presented, unlike those representing Quarters (-4, -1). Taken together, the evidence suggests that bidders increase the use of earnings management as they approach the M&A deal providing evidence in support of *H1*.

In other results, the coefficient of $\ln(\text{Deal Value})$ is negative in the regression of discretionary accruals but positive in the remainder regressions where measures of real activities manipulations are the dependent variables. In fact, the real earnings manipulations coefficients are statistically significant at the 1 per cent level, and positively related to size as measured by $\ln(\text{Deal Value})$, providing support for *H3*.

Figure 1.
Trend in earnings management by bidders around merger announcements for the whole sample



Independent variables	Discretionary accruals	Abnormal production cost	Abnormal discretionary expense	Total real earnings management	Unexpected total real earnings management
Intercept	0.125 (3.199***)	0.018 (0.488)	-0.071 (-1.809*)	-0.018 (-0.269)	-0.020 (-0.448)
Quarter (-6, -5)	-0.012 (-1.955*)	-0.047 (-8.590***)	-0.062 (-8.996***)	-0.060 (-9.818***)	-0.027 (-5.212***)
Quarter (-4, -1)	0.045 (8.404***)	0.000 (0.106)	-0.001 (-0.289)	-0.009 (-1.924*)	-0.007 (-1.478)
ln(Deal Value)	-0.053 (-3.396***)	-0.001 (-0.091)	0.071 (5.721***)	0.041 (2.829***)	0.037 (2.578***)
Partial acquisitions	-0.053 (-4.200***)	-0.013 (-1.114)	0.040 (3.776***)	0.019 (1.629)	0.013 (1.121)
High-tech bidders	-0.077 (-4.703***)	-0.117 (-7.655***)	-0.068 (-4.753***)	-0.113 (-7.032***)	-0.106 (-6.519***)
Borrowed funds	0.013 (1.292)	0.023 (2.549**)	0.018 (2.163**)	0.026 (2.825***)	0.025 (2.642***)
Related target	-0.033 (-2.868***)	-0.037 (-3.358***)	-0.014 (-1.264)	-0.031 (-2.615***)	-0.027 (-2.222**)
Investment bank	0.026 (1.710*)	0.012 (0.914)	-0.040 (-3.171***)	-0.016 (-1.161)	-0.015 (-1.098)
Cash only	-0.003 (-0.208)	-0.004 (-0.311)	0.054 (4.748***)	0.031 (2.399**)	0.028 (2.159**)
Private target	0.005 (0.322)	-0.019 (-1.556)	-0.058 (-4.739***)	-0.043 (-3.330***)	-0.036 (-2.748***)
Private × Cash only	-0.005 (-0.357)	0.004 (0.328)	0.008 (0.603)	0.008 (0.535)	0.006 (0.421)
F-stat	22.32***	20.52***	25.80***	22.58***	11.72***
Adjusted R ²	0.0132	0.0183	0.0243	0.0245	0.0183
Clustered SE by firm	Yes	Yes	Yes	Yes	Yes
N	69,890	76,105	76,105	76,105	76,127

Notes: The table reports regression estimates of earnings manipulation at bidder firms. The dependent variable is a measure of earnings management as indicated in the header row. We include two dummy variables representing Quarters (-6 to -5), Quarters (-4 to -1), with the M&A announcement in Quarter 0. The effect of Quarters (+1, +6) is captured by the intercept. ln(Deal Value) is the natural logarithm of the dollar value of the deal; we use dummy variables to represent partial acquisitions, high-tech bidders, deals financed with borrowed funds, where bidder and target share the same four-digit SIC code, where the services of an investment bank is used, deal where cash is the only form of payment and private targets, respectively. The *t*-Statistics are given in parentheses and are adjusted for heteroskedasticity and for clustering by firm. *, **, and *** represent significance at 10, 5 and 1% levels, respectively

Table V.
Cross sectional
analyses of earnings
management
activities

Deals financed with debt exhibit high earnings management scores (i.e. the coefficient of the dummy variable representing borrowed funds is positive); bidders are less likely to manage earnings upwards in acquisitions of related targets (the coefficient of the dummy variable representing related targets is negative); and, bidders buying private targets are less likely to manage earnings upwards (the coefficient of the variable representing private targets is negative).

Nonetheless, not all the coefficient estimates of the control variables are consistent with our expectations. For instance, we expect to find that bidders manipulate earnings upwards in industries characterized by greater information asymmetry and high-tech industries.

Figure 2.
Trend in earnings management by bidders around merger announcements for the cash-only subsample

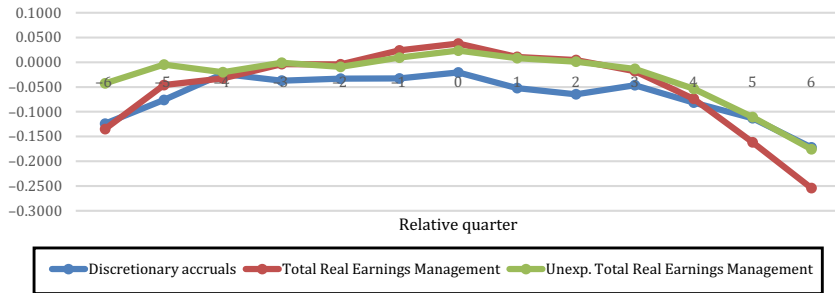


Figure 3.
Trend in earnings management by bidders around merger announcements for the stock-only and stock-cash subsample

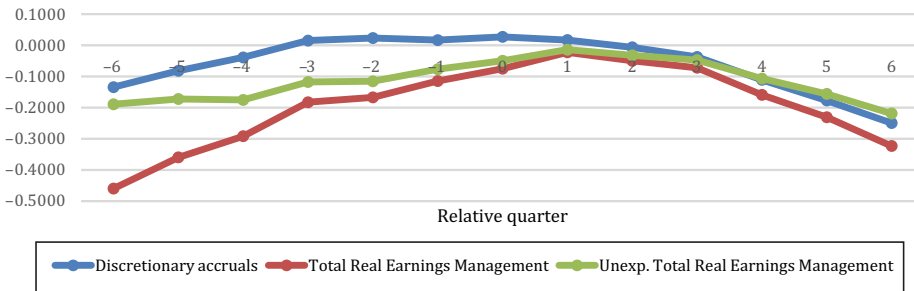
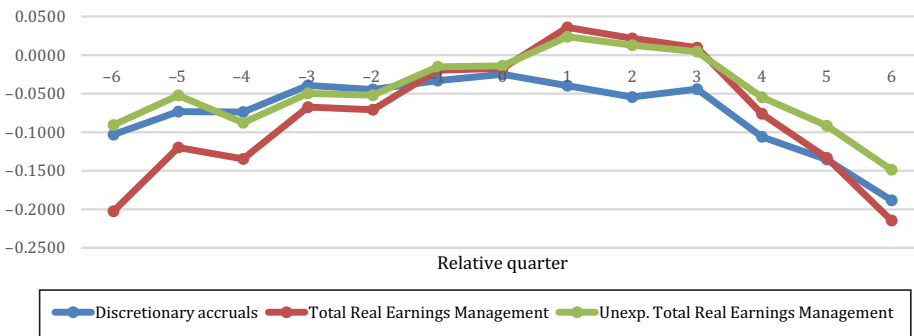


Figure 4.
Trend in earnings management by bidders around merger announcements for public target subsample



Instead, the coefficient of the dummy variable representing high-tech bidders is negative. Similarly, we expect that bidders that will pay a part of the consideration in cash are not as motivated to manage earnings to inflate stock prices. Rather, the coefficient of the variable representing the cash-only deals is positive.

In Table VI, we split the sample between cash-only deals vs other deals. The results are qualitatively the same, i.e. there is an increase in discretionary accruals in the quarters surrounding the M&A announcement among the bidder firms. In terms of real earnings management, the coefficient of the dummy variable representing Quarter $(-4, -1)$ is consistently larger than the coefficient of the dummy variable representing Quarter $(-6, -5)$ and is highly significant. Our results reveal the existence of high levels of earnings management in the quarters immediately preceding the M&A announcements and surrounding the deal effective dates.

5.3 Stock price reaction upon M&A announcement

To test the stock market's assessment of earnings management at bidder firms, we calculate average abnormal returns (AARs) using two models, i.e. the market model and the Fama–French three-factor model. We estimate the parameters of the models using daily returns in the $(-8, -5)$ quarter window, with Day 0 representing the day of the M&A announcement. Average abnormal return is the average of the difference between the daily return of the bidder firm and the predicted daily return of the firm from either the market model or the Fama–French three-factor model, alternatively. AAR represents the average of daily abnormal returns over the $(-4, -1)$ quarters preceding the quarter of the M&A announcement.

We present our findings in Table VII. In Panel A, average abnormal returns are presented both for the whole sample and various subsamples. In the remaining panels, we break the sample into quartiles with the first representing low values and the fourth representing high values of earnings management. We then compare the mean AAR of the fourth quartile with the first one.

The mean bidder AAR over the window $(-4, -1)$ of the fourth quartile always exceeds that of the first quartile, and the difference is statistically significant in five out of the six panels. The findings suggest that the AAR of the quartile representing bidders that more aggressively manage earnings is larger than the AAR of the quartile representing bidders that manage earnings less. It would be consistent with *H5*, stating that the short-term market reaction to bidders' announcement of an M&A is directly proportional to the bidders' pre-announcement level of earnings manipulation.

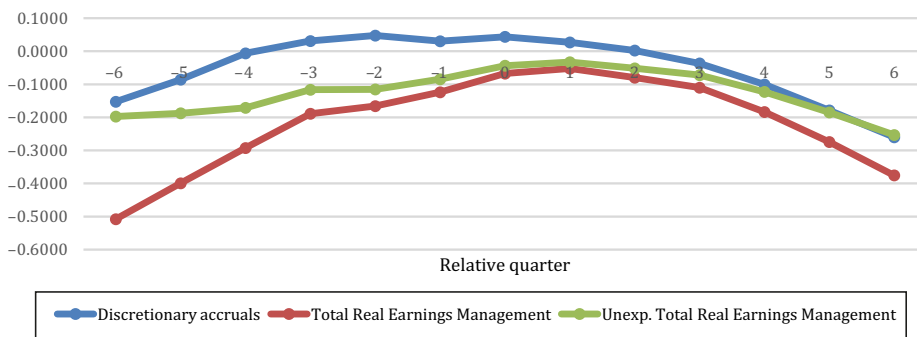


Figure 5. Trend in earnings management by bidders around merger announcement for private target subsample

Table VI.
Cross-sectional
analyses of earnings
management
activities by
subsamples based on
the methods of
payment

Independent variables	Panel A – Discretionary accruals		Panel B – Total real earnings management		Panel C – Unexpected total real earnings management	
	Stock-only and		Stock-cash		Stock-cash	
	Stock-cash	Cash only	Stock-cash	Cash only	Stock-cash	Cash only
Intercept	0.173 (3.737***)	-0.010 (-0.214)	0.017 (0.239)	-0.022 (-0.232)	0.003 (0.066)	-0.027 (-0.435)
Quarter (-6, -5)	-0.012 (-1.763*)	-0.011 (-1.104)	-0.076 (-10.462***)	-0.009 (-0.986)	-0.038 (-6.185***)	0.011 (1.576)
Quarter (-4, -1)	0.049 (8.043***)	0.033 (3.627***)	-0.020 (-3.445***)	0.026 (3.723***)	-0.017 (-2.955***)	0.026 (3.623***)
ln(Deal Value)	-0.071 (-3.905***)	-0.001 (-0.030)	0.041 (2.602***)	0.028 (1.126)	0.037 (2.345**)	0.026 (1.045)
Partial acquisitions	-0.048 (-3.418***)	-0.062 (-3.096***)	0.018 (1.562)	0.026 (1.026)	0.012 (0.993)	0.023 (0.894)
High-tech bidders	-0.090 (-5.087***)	-0.042 (-1.671*)	-0.131 (-7.817***)	-0.051 (-1.771*)	-0.124 (-7.273***)	-0.044 (-1.520)
Borrowed funds	0.019 (1.774*)	0.002 (0.088)	0.034 (3.669***)	0.019 (0.883)	0.033 (3.454***)	0.017 (0.800)
Related target	-0.033 (-2.492**)	-0.033 (-1.678*)	-0.034 (-2.634***)	-0.017 (-0.803)	-0.031 (-2.323**)	-0.010 (-0.487)
Investment bank	0.036 (2.063**)	-0.003 (-0.140)	-0.008 (-0.523)	-0.035 (-1.474)	-0.008 (-0.518)	-0.031 (-1.339)
Private Target	0.002 (0.128)	0.004 (0.200)	-0.037 (-2.954***)	-0.044 (-1.793*)	-0.030 (-2.427**)	-0.036 (-1.479)
F-stat	25.18***	5.58***	28.04***	4.65***	15.40***	2.50***
Adjusted R ²	0.0168	0.00657	0.0295	0.00714	0.0224	0.00505
Clustered SE by firm	Yes	Yes	Yes	Yes	Yes	Yes
N	51,078	18,812	56,142	19,963	56,164	19,963

Notes: The table reports regression estimates of earnings manipulation at bidder firms. We present the results by methods of payments: mixed (stock and cash) and stock-only. The dependent variable is a measure of earnings management as indicated in the header row. We include two dummy variables representing Quarters (-6 to -5), Quarters (-4 to -1), respectively, with the M&A announcement in quarter 0. The effect of Quarters (+1, +6) is captured by the intercept. ln(Deal Value) is the natural logarithm of the dollar value of the deal; we use dummy variables to represent partial acquisitions, high-tech bidders, deals financed with borrowed funds, where bidder and target share the same four-digit SIC code, where the services of an investment bank is used, deal where cash is the only form of payment and private targets, respectively. The *t*-statistics are given in parentheses and are adjusted for heteroskedasticity and for clustering by firm. *, **, and *** represent significance at 10, 5 and 1% levels, respectively.

Subsamples	Variables	Mean (%)	Median (%)	<i>t</i> -stat	Wilcoxon-stat
<i>Panel A - Summary statistics of AARs</i>					
Whole sample	Market model AAR	0.308	0.100	1.77*	1.42
	Fama-French three-factor model AAR	0.205	-0.126	1.22	0.58
Cash only	Market model AAR	0.729	0.454	2.97***	2.68***
	Fama-French three-factor model AAR	0.491	0.097	2.03**	2.39**
Stock-only and					
Stock-cash	Market model AAR	0.158	-0.131	0.72	-0.21
	Fama-French three-factor model AAR	0.103	-0.229	0.49	-0.09

Quartiles	Total real earnings management				Unexpected total real earnings management	
	Discretionary accruals		Market		Fama-French	
	Market model AAR	Fama-French three-factor model AAR	model AAR	Fama-French three-factor model AAR	Market model AAR	Fama-French three-factor model AAR

Panel B - Bidders AARs by quartiles of earnings management in Quarters (-4, -1) - whole sample

1 (%)	0.302	0.206	-0.520	-0.484	-0.543	-0.522
2 (%)	-0.114	-0.116	-0.001	-0.009	0.062	0.078
3 (%)	-0.054	-0.044	0.697	0.439	0.762	0.467
4 (%)	1.053	0.741	1.058	0.877	0.950	0.797
(4) minus (1)	0.751	0.534	1.578	1.362	1.493	1.319
<i>t</i> -stat	1.3	0.97	2.92***	2.62***	2.77***	2.55***
Wilcoxon stat	1.79*	1.49	3.09***	2.75***	2.82***	2.59***

Panel C - Bidders AARs by quartiles of earnings management in Quarters (-4, -1) - cash-only subsample

1 (%)	0.521	0.314	0.074	-0.016	0.372	0.246
2 (%)	0.708	0.532	0.309	0.112	0.143	-0.004
3 (%)	-0.063	-0.331	1.210	0.811	1.279	0.839
4 (%)	1.688	1.346	1.082	0.886	1.001	0.817
(4) minus (1)	1.167	1.031	1.007	0.902	0.629	0.571
<i>t</i> -stat	1.36	1.46	2.41**	2.11**	2.33**	2.07**
Wilcoxon stat	1.57	1.12	2.33**	1.94*	2.18**	1.82*

Panel D - Bidders AARs by quartiles of earnings management in Quarters (-4, -1) - stock-only and stock-cash subsample

1 (%)	0.230	0.171	-0.647	-0.584	-0.739	-0.687
2 (%)	-0.474	-0.400	-0.135	-0.061	0.027	0.114
3 (%)	-0.051	0.082	0.472	0.275	0.537	0.306
4 (%)	0.875	0.571	1.050	0.874	0.932	0.790
(4) minus (1)	0.646	0.401	1.696	1.458	1.671	1.477
<i>t</i> -stat	0.91	0.61	2.69***	2.42**	2.53**	2.34**
Wilcoxon stat	1.46	1.19	2.76***	2.45**	2.42**	2.31**

Notes: The table reports mean values for bidders' average abnormal returns for the whole sample in Panel A and each of the subsamples in Panels B through E. AAR is the average of the difference between the daily return of the bidder firm and the predicted daily return of the firm from either the market model or the Fama-French three-factor model, alternatively. We estimate the parameters of the models using daily returns in the (-8, -5) quarters window, with Day 0 representing the quarter of the M&A announcement. AAR represents the average of daily abnormal returns over the (-4, -1) quarters preceding the quarter of the M&A announcement. We break the sample into quartiles with the first representing low values and the fourth representing high values of earnings management. ***, ** and * stand for statistical significance at the 1, 5, and 10% levels, respectively

Table VII. Analysis of bidder AAR (-1, +1) by quartiles based on bidder level of earnings management

In the following section, we perform a multiple regression of the AARs using the following model:

$$\begin{aligned}
 AAR_{i,t} = & \alpha_i + \beta_1 \text{Average discretionary accruals}_{i,t} + \beta_2 \text{Total real management}_{i,t} \\
 & + \beta_3 \text{Unexpected total real earnings management}_{i,t} + \beta_4 \ln(\text{Deal value})_{i,t} \\
 & + \beta_5 \text{Partial acquisitions}_{i,t} + \beta_6 \text{Related target}_i + \beta_7 \text{Cash only}_{i,t} \\
 & + \beta_8 (\text{Cash only} \times \text{Private targets}_{i,t}) \\
 & + \beta_9 \left(\frac{\text{Industry adjusted operating cashflows}}{\text{assets}} \right)_{i,t} \\
 & + \beta_{10} \text{Industry adjusted mtb}_{i,t} \\
 & + \beta_{11} \text{Industry adjusted debt ratio}_{i,t} + \varepsilon_{i,t}
 \end{aligned} \tag{10}$$

where AAR is average abnormal returns using two models, i.e. the market model and the Fama–French three-factor model in alternate regressions. $\ln(\text{Deal Value})$ is the natural logarithm of the dollar value of the deal. We use dummy variables to represent partial acquisitions, related target (i.e. where the bidder and the target share the same four-digit SIC code), deal where cash is the only form of payment and private targets. Following [Baik et al. \(2007\)](#), we include a dummy variable representing private targets as a control variable. The remaining independent variables include: industry-adjusted operating cash flows divided by assets, industry-adjusted market-to-book value and industry-adjusted debt ratio. We present our results in [Table VIII](#). The dependent variable is the bidder firm's AAR. The coefficients representing real earnings management in Quarters -4 to -1 are positive and significant (see Models 2 and 5), suggesting that the short-run market reaction and bidder's use of real earnings management prior to the M&A announcements are positively related. However, the coefficient representing abnormal levels of discretionary accruals is negative and not statistically significant (see Models 1 and 4). Thus, the ability of real activity manipulation to sway market opinion is superior to accrual-based earnings management.

We repeat the multivariate analysis for the four subsamples based on the method of payment and present our findings in [Table IX](#). The coefficients representing real earnings management in Quarters -4 to -1 are positive and significant only for stock-only and stock-cash, suggesting that the short-run market reaction and bidder's use of earnings management techniques prior to the M&A announcements are positively related. The findings suggest that real activity manipulation only works for mixed payment deals. Conversely, the coefficient representing abnormal levels of discretionary accruals is either negative, not statistically significant, or both (see Models 1 and 3).

5.4 Long-run stock price performance

We expect the practice of manipulating earnings to adversely affect the bidders' performance in the long run. Thus, in addition to the short-term market reaction, we also consider the bidders' long-run stock performance in the 12-, 24- and 36-month post-announcement buy-and-hold returns (BHRs).

We report the raw BHRs of the bidders, the market-adjusted buy-and-hold returns (e.g. the firm's BHR minus the CRSP value-weighted BHR) and the match-firm-adjusted buy-and-hold returns (e.g. the firm's BHR minus the match firm's BHR). A matched firm is a non-

Independent variables	Panel A – Market model AARs			Panel B – Fama–French three-factor model AARs		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	-0.022 (-1.291)	-0.041 (-2.017**)	-0.041 (-2.009**)	-0.037 (-2.215**)	-0.044 (-2.208**)	-0.043 (-2.195**)
Average discretionary accruals in Quarters (-4, -1)	-0.003 (-0.167)			-0.007 (-0.425)		
Total real earnings management in Quarters (-4, -1)		0.037 (2.164**)			0.032 (1.932*)	
Unexpected total real earnings management in Quarters (-4, -1)			0.035 (2.013**)			0.032 (1.863*)
ln (Deal Value)	-0.055 (-2.960***)	-0.057 (-3.272***)	-0.057 (-3.262***)	-0.060 (-3.276***)	-0.063 (-3.695***)	-0.063 (-3.684***)
Partial acquisitions	-0.022 (-1.762*)	-0.019 (-1.664*)	-0.019 (-1.677*)	-0.003 (-0.249)	-0.002 (-0.185)	-0.002 (-0.213)
Related target	0.006 (0.411)	0.008 (0.615)	0.008 (0.610)	0.003 (0.241)	0.006 (0.414)	0.006 (0.415)
Cash only	0.061 (3.749***)	0.054 (3.549***)	0.054 (3.556***)	0.056 (3.438***)	0.048 (3.173***)	0.048 (3.177***)
Private targets	0.085 (4.619***)	0.077 (4.438***)	0.077 (4.419***)	0.095 (5.209***)	0.084 (4.895***)	0.084 (4.877***)
Cash Only × Private targets	0.053 (3.193***)	0.046 (2.979***)	0.046 (2.970***)	0.059 (3.506***)	0.051 (3.216***)	0.050 (3.207***)
Industry-adjusted operating cash flows/assets	0.017 (0.355)	0.018 (0.386)	0.018 (0.382)	0.040 (0.829)	0.041 (0.855)	0.040 (0.852)
Industry-adjusted market-to-book	0.136 (1.810*)	0.135 (1.840*)	0.135 (1.839*)	0.150 (2.071 **)	0.148 (2.105**)	0.148 (2.104**)
Industry-Adjusted Debt Ratio	-0.063 (-3.886***)	-0.054 (-3.543***)	-0.055 (-3.586***)	-0.078 (-4.878***)	-0.070 (-4.638***)	-0.070 (-4.654***)
F-stat	3.93***	3.73***	3.72***	3.86***	3.61***	3.60***
Adjusted R ²	0.0356	0.0354	0.0352	0.0418	0.0408	0.0407
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm clustered standard errors	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,222	5,772	5,773	5,222	5,772	5,773

Notes: The table reports the cross-sectional analyses of acquirer's average abnormal returns (AARs) calculated over the quarter preceding announcement quarter. AAR is the average of the difference between the daily return of the bidder firm and the predicted daily return of the firm from either the market model or the Fama–French three-factor model, alternatively. We estimate the parameters of the models using daily returns in the (-8, -5) quarters window, with Day 0 representing the quarter of the M&A announcement. AAR represents the average of daily abnormal returns over the (-4, -1) quarters preceding the quarter of the M&A announcement. Industry-adjusted implies that the median industry score for the quarter is subtracted from the firm's score. The *t*-statistics are given in parentheses and are adjusted for heteroskedasticity and for clustering by firm. ***, ** and * stand for statistical significance at the 1, 5 and 10% levels, respectively

Table VIII.
Cross-sectional analyses of bidders' AARs

Table IX.
Cross-sectional
analyses of bidders'
AARs by
subsamples

Variables	Panel A – Cash only			Panel B – Stock-only and Stock-cash	
	Model 1	Model 2	Model 3	Model 3	Model 4
Intercept	-0.028 (-1.447)	-0.040 (-2.138**)	-0.026 (-1.011)	-0.043 (-1.983***)	
Average discretionary accruals in Quarters (-4, -1)	0.015 (0.567)		-0.014 (-0.782)		
Total real earnings management in Quarters (-4, -1)					
In (Deal Value)	-0.008 (-0.287)	0.008 (0.273)	-0.066 (-3.016****)	0.033 (1.761*)	
Partial acquisitions	-0.028 (-1.048)	-0.014 (-0.505)	0.003 (0.229)	-0.070 (-3.435****)	
Related target	0.032 (1.152)	-0.026 (-1.044)	0.004 (0.337)	0.004 (0.337)	
Private targets	0.015 (0.519)	0.036 (1.350)	-0.004 (-0.270)	-0.003 (-0.177)	
Industry-adjusted operating cash flows/assets	-0.018 (-0.633)	0.011 (0.376)	0.086 (5.007****)	0.075 (4.642****)	
Industry-adjusted market-to-book	0.035 (2.458**)	-0.014 (-0.487)	0.047 (0.846)	0.047 (0.859)	
Industry-adjusted debt ratio	-0.012 (-0.381)	0.073 (3.320****)	0.161 (2.075***)	0.160 (2.091***)	
F-statistics	1.59***	-0.014 (-0.454)	-0.089 (-4.857****)	-0.079 (-4.569****)	
Adjusted R ²	0.0113	1.63***	3.90***	3.64***	
Year-fixed effects	Yes	0.0119	0.0495	0.0477	Yes
Firm-clustered SEs	Yes	Yes	Yes	Yes	Yes
Observations	1,411	1,522	3,811	4,250	

Notes: The table reports the cross-sectional analyses of acquirer's average abnormal returns (AARs) calculated over the 4 quarters preceding announcement quarter for each subsample. AAR is the average of the difference between the daily return of the bidder firm and the predicted daily return of the firm from the Fama–French three-factor model. We estimate the parameters of the model using daily returns in the (-8, -5) quarters window, with Day 0 representing the quarter of the M&A announcement. AAR represents the average of daily abnormal returns over the (-4, -1) quarters preceding the quarter of the M&A announcement. Industry-adjusted implies that the median industry score for the quarter is subtracted from the firm's score. The *t*-statistics are given in parentheses and are adjusted for heteroskedasticity and for clustering by firm. ***, **, and* stand for statistical significance at the 1, 5 and 10% levels, respectively

Windows	BHR measures	Median (%)	Median (%)	t-stat	Sign-ranked z statistics			
<i>Panel A – Whole Sample</i>								
(+1,+12) months	Raw BHR	7.487	1.977	10.11***	5.05***			
	Market-adjusted BHR	-2.447	-7.948	-3.60***	-11.37***			
	Match-adjusted BHR	-1.366	-2.828	-1.30***	-3.03***			
(+1,+24) months	Raw BHR	14.528	4.350	14.28***	7.80***			
	Market-adjusted BHR	-5.740	-14.418	-6.04***	-14.17***			
	Match-adjusted BHR	-3.605	-4.615	-2.42***	-3.74***			
(+1,+36) months	Raw BHR	25.298	7.485	19.34***	12.02***			
	Market-adjusted BHR	-5.351	-19.220	-4.39***	-14.27***			
	Match-adjusted BHR	-4.202	-9.673	-2.26***	-5.37***			
Earnings management measures	Windows	Quartile 1 (%)	Quartile 2 (%)	Quartile 3 (%)	Quartile 4 (%)	Quartile (4) minus (1) (%)	t-stat	Wilcoxon stat
<i>Panel B – By quartiles of earnings management measures – whole sample</i>								
Discretionary accruals	(+1,+12)	4.076	-3.873	-3.664	-2.347	-6.422	-1.87*	-1.04
	(+1,+24)	6.228	-7.541	-5.791	-8.988	-15.216	-3.08***	-2.03**
	(+1,+36)	8.713	-11.995	-4.148	-9.046	-17.759	-2.94***	-1.75*
Total real earnings management	(+1,+12)	3.070	2.592	-5.461	-5.620	-8.690	-2.15**	-1.67*
	(+1,+24)	-0.455	-1.746	-3.591	-8.753	-8.298	-2.28**	-2.38**
	(+1,+36)	0.911	-2.948	-4.521	-10.586	-11.497	-2.68***	-2.55***
Unexpected total real earnings management	(+1,+12)	2.662	2.529	-5.334	-5.264	-7.926	-2.04**	-1.71**
	(+1,+24)	-0.057	-1.665	-4.007	-8.774	-8.717	-2.34**	-2.29**
	(+1,+36)	1.660	-2.914	-6.659	-9.138	-10.798	-2.87**	-2.39**
<i>Panel C – By quartiles of earnings management measures – cash-only subsample</i>								
Discretionary accruals	(+1,+12)	5.506	-0.991	-2.199	-2.162	-7.668	-1.29	-0.92
	(+1,+24)	12.748	-2.926	-2.616	-8.223	-20.970	-2.40**	-2.32**
	(+1,+36)	20.881	-6.085	-1.901	-2.847	-23.728	-2.03**	-2.02**
Total real earnings management	(+1,+12)	7.215	3.589	-4.497	-2.487	-9.703	-1.67*	-1.82*
	(+1,+24)	7.409	0.837	-1.644	-3.420	-10.828	-2.27**	-2.38**
	(+1,+36)	5.973	0.697	1.753	-0.227	-6.200	-2.04**	-2.45**
Unexpected total real earnings management	(+1,+12)	7.781	2.859	-4.201	-2.611	-10.392	-1.91*	-1.76*
	(+1,+24)	9.244	0.007	-1.477	-4.089	-13.333	-2.13**	-2.18**
	(+1,+36)	9.463	0.098	-1.167	1.017	-8.446	-2.21**	-2.19**
<i>Panel D – By quartiles of earnings management measures – stock-only and stock-cash subsamples</i>								
Discretionary accruals	(+1,+12)	3.584	-5.252	-4.307	-2.399	-5.983	-1.45	-1.67*
	(+1,+24)	3.988	-9.748	-7.183	-9.204	-13.191	-2.24**	-2.23**
	(+1,+36)	4.544	-14.822	-5.133	-10.791	-15.335	-2.16**	-2.23**
Total real earnings management	(+1,+12)	2.162	2.213	-6.131	-6.843	-9.005	-2.01**	-1.78*
	(+1,+24)	-2.178	-2.728	-4.477	-11.231	-9.053	-2.10**	-2.24**
	(+1,+36)	-0.195	-4.333	-7.376	-15.401	-15.205	-2.63***	-2.42**
Unexpected total real earnings management	(+1,+12)	1.526	2.404	-5.848	-6.497	-8.023	-2.03**	-1.96**
	(+1,+24)	-2.123	-2.297	-5.153	-10.952	-8.829	-2.23**	-2.23**
	(+1,+36)	-0.069	-4.052	-9.148	-13.860	-13.791	-2.61***	-2.56***

Notes: The table reports mean values of bidders' long-run stock performance in the 12-, 24- and 36-month post-announcement. Buy-and-hold abnormal returns (BHARs) is measured as the difference between the buy-and-hold return of the bidding firm and a matching firm's buy-and-hold return. A matched firm is a non-bidder that is in the same-size quartile and is closest in the market-to-book ratio as the bidder firm in the quarter preceding the M&A announcement date. We break the sample into quartiles based on the bidders' earnings management scores in the four quarters leading up to the M&A announcement. Quartile 4 represents firms with the highest scores of earnings manipulations and Quartile 1 representing firms with the lowest scores. ***, ** and * stand for statistical significance at the 1, 5 and 10% levels, respectively

Table X.
Univariate analyses
of bidders' BHARs
by quartiles of
earnings
management
measures

acquirer that is in the same-size quartile and is closest in the market-to-book ratio as the bidder firm in the quarter preceding the M&A announcement date. We winsorize the BHRs at the 1 and 99 per cent percentiles. We present our findings in [Table X](#). In Panel A, the BHRs of the manipulating firms are consistently and significantly lower than the benchmarked ones. In Panel B, the BHRs of the most manipulating firms (i.e. Quartile 4) are consistently and significantly lower than the BHRs of the least manipulating firms (i.e. Quartile 1). The findings persist irrespective of the type of earnings management. The differences persist upon dividing the sample by the methods of payment in Panels C and D.

We run multiple regressions on bidders' BHARs (i.e. the difference between the BHR of the acquiring firm and the BHR of its matched counterpart) to determine the effect of pre-announcement earnings manipulation activities on post-announcement stock performance and present our findings in [Table XI](#).

The dependent variable in [Table XI](#) is the bidder's BHARs. We use several proxies for earnings management including matched-adjusted discretionary accruals, matched-adjusted total real activities manipulation and matched-adjusted unexpected total real activities manipulation. The coefficients representing the various proxies for earnings manipulation in the Quarters -4 to -1 are always negative; however, they are only significant for matched-adjusted total real activities manipulation and matched-adjusted unexpected total real activities manipulation. Thus, consistent with the univariate findings in [Table XI](#), we find that bidders' long-run stock performance is inversely related to the degree of real earnings manipulations prior to the M&A announcements. We also find that bidders' long-run stock performance is positively related to acquisitions of high-tech targets, cash-only financed deals, acquisitions of private targets and bidders' ratio of operating cash flows-to-total assets. Thus, in support of past studies on M&A, we find that cash payment exhibits a statistically significant positive effect on stock returns.

6. Conclusion

We analyze the extent of both real activities manipulation and accrual-based earnings management at bidder firms in the quarters leading to a stock swap announcement in M&A transactions. Our sample consists of 5,857 US domestic deals between 1980 and 2011. We observe a marked increase in real activities manipulations amongst bidders in the quarters leading to an M&A announcement. This would be consistent with the hypothesis that bidders manipulate earnings prior to M&A announcements. In regression analysis of earnings management, the coefficient of the dummy variable representing Quarters $(-4, -1)$ – with Quarter 0 representing the M&A announcement – is always positive.

We contribute to the existing literature on the relationship between the M&A underperformance puzzle and earnings management. We examine the level of real activities' manipulations, in addition to accrual-based earnings management, at bidder firms before the merger. Our findings are consistent with bidders inflating earnings by engaging in real activities' manipulations to boost their share price.

Furthermore, we document a direct relationship between bidders' earnings management level prior to the M&A and the market reaction to their stock price on the day of the M&A announcement. We find that the short-term positive effect of real activities manipulation on bidders' share prices is stronger than accrual-based earnings management. Though, our evidence suggests that the portfolios of earnings manipulators underperform relative to the portfolios of non-manipulators in the long run. The post-M&A long-run stock returns of bidder firms are inversely related to their level of earnings management prior to the M&A announcement.

Variables	Panel A – Whole sample			Panel B – Cash only			Panel C – Stock-only and stock-cash		
	Model 1	Model 2	Model 3	Model 5	Model 6	Model 7	Model 8		
Constant	-0.032 (-0.250)	0.171 (1.123)	0.171 (1.127)	0.123 (1.060)	0.464 (4.805***)	-0.150 (-0.659)	0.139 (0.834)		
matched-adjusted discretionary accruals in Quarters (-4, -1)	0.009 (0.346)			-0.087 (-2.075**)		-0.006 (-0.197)			
Matched-adjusted discretionary accruals in Quarters (+1, +4)	-0.043 (-1.582)			0.072 (1.731*)		-0.027 (-0.833)			
Matched-adjusted total real activities manipulation In Quarters (-4, -1)		-0.036 (-1.839*)							
Matched-adjusted total real activities manipulation In Quarters (+1, +4)		0.025 (1.271)							
Matched-adjusted unexpected total real activities manipulation in Quarters (-4, -1)			-0.047 (-1.660*)			-0.091 (-2.974***)	-0.022 (-1.960**)		
Matched-adjusted unexpected total real activities manipulation in Quarters (+1, +4)			0.032 (1.120)			0.063 (1.932*)	0.019 (1.840*)		
Partial acquisitions	0.003 (0.407)	0.006 (0.801)	0.006 (0.799)	0.009 (0.743)	0.011 (0.958)	0.001 (0.143)	0.003 (0.400)		
High-tech target	-0.024 (-0.691)	-0.025 (-0.761)	-0.024 (-0.729)	-0.061 (-1.202)	-0.061 (-1.235)	-0.011 (-0.242)	-0.014 (-0.337)		
Related target	0.034 (2.384***)	0.037 (2.534***)	0.037 (2.542***)	-0.050 (-1.463)	-0.044 (-1.317)	0.059 (1.892*)	0.062 (2.050**)		
Cash only	0.017 (0.719)	0.018 (0.786)	0.018 (0.791)	0.019 (0.526)	0.024 (0.697)	0.021 (0.688)	0.020 (0.693)		
Private targets	0.022 (1.675*)	0.024 (1.791*)	0.024 (1.791*)	0.072 (1.907*)	0.072 (1.938*)	0.005 (2.137**)	0.010 (2.296**)		
Cash only × Private targets	0.041 (1.919*)	0.037 (1.859*)	0.037 (1.859*)	3.772 (6.971***)	3.763 (6.981***)	2.955 (9.526***)	2.965 (9.618***)		
Matched-adjusted operating cash flow/asset	3.074 (10.696***)	3.065 (10.771***)	3.067 (10.776***)	-0.001 (-0.012)	-0.001 (-0.008)	0.009 (0.128)	0.005 (0.062)		
Matched-adjusted debt ratio	0.009 (0.147)	0.006 (0.093)	0.006 (0.093)	4.07***	3.95***	4.94***	4.87***		
F-statistics	5.70***	5.59***	5.55***	0.113	0.120	0.091	0.091		
Adjusted R ²	0.088	0.089	0.089	Yes	Yes	Yes	Yes		
Year-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Firm-clustered SEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Observations	4,303	4,695	4,696	1,190	1,266	3,113	3,429		

Notes: The table reports coefficient estimates of acquirer buy-and-hold abnormal returns (BHARs), which are calculated over the 12 months following the M&A announcement. Buy-and-hold abnormal returns (BHARs) is measured as the difference between the buy-and-hold return of the bidding firm and a matching firm's buy-and-hold return. A matched firm is a non-bidder that is in the same-size quartile and is closest in the market-to-book ratio as the bidder firm in the quarter preceding the M&A announcement date. The t-statistics are given in parentheses and are adjusted for heteroskedasticity and clustering by firm. All regressions include year dummies. ***, ** and * stand for statistical significance at the 1, 5 and 10% levels, respectively

Table XI.
Cross-sectional analyses of bidders' BHARs by subsamples

The implication for market participants is that firms engage in earnings management prior to M&As. While there may be a temporary benefit in the short-term stock price of bidders engaging in earnings management, yet such practices end up costing their shareholders dearly in the long run. The stock performance of firms engaging in earnings management underperform that of various matching control firms in the months following the M&A. The adverse effect of earnings management is more pronounced among firms undertaking real activities manipulations than accruals-based earnings management. It could be due to the more severe long-term cash flow consequences of real earnings management. To assist investors in their assessments of real earnings manipulations in M&As, future research should consider other ways to detect earnings manipulations at bidder firms, for instance, auditors' reports, accounting restatements, targeting by the SEC and Public Company Accounting Oversight Board (PCAOB), among others.

Note

1. A similar argument can be made for the presence of investment banks as M&A advisors.

References

- Altman, E. (1968), "Financial ratios, discriminate analysis and the prediction of corporate bankruptcy", *Journal of Finance*, Vol. 23 No. 4, pp. 589-609.
- Altman, E. (2000), "Predicting financial distress of companies: revisiting the Z-Score and ZETA models", Working Paper, New York University.
- Baik, B., Kang, J.K. and Morton, R.M. (2007), "Earnings management in takeovers of privately held targets (August 2007)", available at: <http://ssrn.com/abstract=1013639> or <http://dx.doi.org/10.2139/ssrn.1013639>
- Bharadwaj, A. and Shivdasani, A. (2003), "Valuation effects of bank financing in acquisitions", *Journal of Financial Economics*, Vol. 67 No. 1, pp. 113-148.
- Botsari, A. and Meeks, G. (2008), "Do acquirers manage earnings prior to a share for share bid?", *Journal of Business Finance & Accounting*, Vol. 35 Nos 5/6, pp. 633-670.
- Cohen, D. and Zarowin, P. (2010), "Accrual-based and real earnings management activities around seasoned equity offerings", *Journal of Accounting and Economics*, Vol. 50 No. 1, pp. 2-19.
- Cohen, D., Dey, A. and Lys, T. (2008), "Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley period", *The Accounting Review*, Vol. 83 No. 3, pp. 757-787.
- Demski, J. (1998), "Performance measure manipulation", *Contemporary Accounting Research*, Vol. 15 No. 3, pp. 261-285.
- Dichev, I.D., Graham, J.R., Harvey, C.R. and Rajgopal, S. (2013), "Earnings quality: evidence from the field", *Journal of Accounting and Economics*, Vol. 56 Nos 2/3, pp. 1-33.
- Erickson, M. and Wang, S. (1999), "Earnings management by acquiring firms in stock for stock mergers", *Journal of Accounting and Economics*, Vol. 27 No. 2, pp. 149-176.
- Fama, E.F. and French, K.R. (1997), "Industry costs of equity", *Journal of Financial Economics*, Vol. 43 No. 2, pp. 153-193.
- Gong, G., Louis, H. and Sun, A.X. (2008), "Earnings management and firm performance following open-market repurchases", *The Journal of Finance*, Vol. 63 No. 2, pp. 947-986.
- Harford, J., Klasa, S. and Walcott, N. (2009), "Do firms have leverage targets? Evidence from acquisitions", *Journal of Financial Economics*, Vol. 93 No. 1, pp. 1-14.
- Jones, J. (1991), "Earnings management during import relief investigations", *Journal of Accounting Research*, Vol. 29 No. 2, pp. 193-228.

-
- Louis, H. (2004), "Earnings management and the market performance of acquiring firms", *Journal of Financial Economics*, Vol. 74 No. 1, pp. 121-148.
- Louis, H. and Robinson, D. (2005), "Do managers credibly use accruals to signal private information? Evidence from the pricing of discretionary accruals around stock splits", *Journal of Accounting and Economics*, Vol. 39 No. 2, pp. 361-380.
- Petersen, M. (2009), "Estimating standard errors in finance panel data sets: comparing approaches", *Review of Financial Studies*, Vol. 22 No. 1, pp. 435-480.
- Richardson, S., Sloan, R., Soliman, M. and Tuna, I. (2005), "Accrual reliability, earnings persistence and stock prices", *Journal of Accounting and Economics*, Vol. 39 No. 3, pp. 437-485.
- Roychowdhury, S. (2006), "Earnings management through real activities manipulation", *Journal of Accounting and Economics*, Vol. 42 No. 3, pp. 335-370.
- Sloan, R.G. (1996), "Do stock prices fully reflect information in accruals and cash flows about future earnings?", *Accounting Review*, Vol. 71 No. 3, pp. 289-315.
- Subramanyam, K. (1996), "The pricing of discretionary accruals", *Journal of Accounting and Economics*, Vol. 22 Nos 1/3, pp. 249-281.
- Xu, R. and Lacina, M. (2009), "Explaining the accrual anomaly by market expectations of future returns and earnings", *Advances in Accounting, incorporating Advances in International Accounting*, Vol. 25 No. 2, pp. 190-199.
- Zang, A.Y. (2012), "Evidence on the trade-off between real activities manipulation and accrual-based earnings management", *Accounting Review*, Vol. 87 No. 2, pp. 675-703.

Corresponding author

Surendranath Jory can be contacted at: sjory@sussex.ac.uk

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com