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Acquisition profitability and timely loss recognition

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ABSTRACT

We investigate if timely loss recognition is associated with acquisition-investment decisions. Using a Basu (1997) piece-wise linear regression model, we find that firms with more timely incorporation of economic losses into earnings make more profitable acquisitions, measured by the bidder's announcement returns and by changes in post-acquisition operating performance. These firms are also less likely to make post-acquisition divestitures (consistent with better ex ante investment decisions), but act more quickly to divest. We also find that the positive association between timely loss recognition and acquisition profitability is more pronounced for firms with higher ex ante agency costs.

1. Introduction

We examine the association between accounting conservatism and a firm's acquisition-investment decisions.[2] The prediction is that managers of firms with timely loss recognition pursue more profitable acquisitions and make better ex post divestiture decisions. Our study builds on the argument that conservative accounting policies are part of a firm's corporate control structure that constrains opportunistic behavior by managers, particularly their investment decisions (Ball, 2001; Watts, 2003; Ball and Shivakumar, 2005). Accounting has long been viewed as part of the firm's monitoring technology to mitigate agency costs (Watts and Zimmerman, 1983, 1986, p. 197; Ball, 1989). Recent conservatism literature documents that timely loss recognition is an important property of accounting that is associated with stronger governance structures such as independent boards of directors and the use of high-quality external auditors (Basu et al., 2001b; Beekes et al., 2004; Ahmed and Duellman, 2007; Garcia Lara et al., 2009).

Well-governed firms can use timely loss recognition to monitor managerial performance and discipline managers. If managers know ex ante that economic losses will be recognized earlier (rather than later), they are less likely to engage in

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[2] Timely loss recognition refers to the timely incorporation of economic losses into accounting earnings, and the term *accounting conservatism* is used interchangeably in the paper with timely loss recognition (Basu, 1997; Watts, 2003).

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value destroying acquisitions. This is because the negative earnings consequences will reduce earnings-based compensation and threaten job security. Moreover, if economic losses are charged against income earlier, even if managers have not terminated losing projects, there is no additional income penalty to actual project abandonment. Therefore, timely loss recognition encourages managers to terminate projects and limit further value destruction. In contrast, the absence of accounting conservatism allows managers to defer the negative consequences (including abandonment) of unprofitable acquisitions to later generations of managers. To be effective, accounting conservatism requires enforcement by the firm's governance and control system. Enforcement ensures that managers report conservatively, ex post, particularly when acquisitions turn out to have negative net present values. In other words, while timely loss recognition can facilitate governance, it cannot do so alone and must be implemented and enforced within the broader context of a firm's overall control system.

The relation between conservatism and the profitability of investment decisions is salient in the context of acquisitions for two reasons. First, acquisitions are among the largest and most readily observable forms of corporate investments. Second, these investments tend to intensify the agency conflicts between managers and shareholders in large public corporations (Smith, 1776; Berle and Means, 1933; Jensen and Meckling, 1976). For example, Jensen (1986) argues that empire-building managers would rather make acquisitions than increase payouts to shareholders. Therefore acquisitions potentially provide a powerful setting to investigate the governance role of timely loss recognition.

Following Masulis et al. (2007), we measure acquisition profitability as the acquirer's 3-day cumulative abnormal return (CAR) around an acquisition announcement date. This captures the market's expectation of both ex ante investment selection and ex post decision-making. We also examine two ex post measures of profitability: change in post-acquisition operating performance and the likelihood of post-acquisition divestitures. Prior research indicates that an ex post divestiture is evidence of a poor acquisition-investment decision (Kaplan and Weisbach, 1992). In addition, the duration of an acquisition before a subsequent divestiture occurs sheds light on the affect of accounting conservatism on timely abandonment of poorly performing acquisitions.

Timely loss recognition is measured with the Basu (1997) model that regresses current year earnings on returns and allows the return coefficient to vary with the sign of returns. Following Moerman (2008) we assess timely loss recognition in two ways. First, we examine the incremental coefficient on negative returns relative to the coefficient on positive returns, which captures the *relative* timeliness of loss recognition. Second, we consider the sum of the two coefficients which measures the *total* timeliness of loss recognition.

We find that timely loss recognition is associated with larger announcement returns for acquiring firms, based on a sample of 17,202 acquisitions from Security Data Corporation (SDC) over the period 1980–2006. Also, post-acquisition earnings and cash flows are larger for acquiring firms with more timely loss recognition relative to acquiring firms with less conservative accounting. Firms with timely loss recognition are also less likely to make post-acquisition divestitures (suggesting better ex ante decisions), but when they divest they do so more quickly. Finally, we find a stronger association between timely loss recognition and acquisition profitability when a bidding firm has greater ex ante agency costs, and therefore increased benefits from a policy of accounting conservatism (Demsetz and Lehn, 1985; LaFond and Watts, 2008).

Our study makes several contributions. Prior research shows the role of accounting conservatism in mitigating agency costs arising from shareholder–bondholder conflicts (e.g., Ahmed et al., 2002; Ball et al., 2008; Zhang, 2008). Our study suggests that conservative accounting policy can also reduce agency conflicts between shareholder and managers. LaFond and Watts (2008) document that information asymmetry between shareholders and managers leads to more conservative financial statements and the implementation of accounting conservatism reduces information asymmetry. LaFond and Roychowdhury (2008) argue that concentrated managerial ownership mitigates agency costs and thus reduces the demand for accounting conservatism. Our work complements these two studies by demonstrating that accounting conservatism leads to more profitable acquisition decisions in the presence of agency costs arising from information asymmetry. Our study is also related to Chen et al. (2007) who document that institutional investors who are active in monitoring can discipline managers to undertake value-enhancing acquisitions. We find that implementation of accounting conservatism is another mechanism that creates managerial incentives to avoid poor acquisition-investment decisions. Finally, our paper adds to the research by Beekes et al. (2004), Ahmed and Duellman (2007), and Garcia Lara et al. (2009) documenting an association between governance and conservative accounting policies. Consistent with this literature, the acquirers in our sample have more timely loss recognition when they have more independent boards of directors and high-quality external auditors. Thus our finding that accounting conservatism is associated with better acquisition-investment decisions is consistent with well-governed firms employing accounting conservatism as part of their overall monitoring and control structure.

In sum, our evidence suggests that accounting conservatism complements other governance mechanisms to achieve better investment outcomes. However, we cannot rule out the alternative explanation that governance mechanisms are *independently* associated with both accounting conservatism and better acquisition policies, in which case conservatism per se may not have a direct effect on acquisition profitability.

The remainder of the study is organized as follows. The next section reviews prior literature and develops our two hypotheses. Section 3 describes the data, sample, and research design. Section 4 presents the empirical results of using 3-day CAR to measure acquisition profitability. Post-acquisition outcomes with respect to operating performance and divestiture decisions are reported in Section 5. Sensitivity analyses and robustness tests are undertaken in Section 6, and Section 7 concludes the paper.

2. Hypotheses development

Prior research posits that agency problems can lead managers to over-invest in negative net present value (NPV) projects and to delay the abandonment of losing projects. Jensen (1986) argues that managers in firms with abundant cash flow but low growth opportunities engage in empire building at the expense of shareholders. Shleifer and Vishny (1989) model the incentive of managers to make manager-specific investments, and Morck et al. (1990) suggest that acquisitions can yield private benefits to managers such as increasing long term growth, enabling managers to diversify the risk of their human capital, and improving job security. In addition, Kanodia et al. (1989) argue that managers are likely to continue losing projects to avoid adverse reputation effects arising from project abandonment.

Jensen (2000) emphasizes the importance of control systems to curb managerial incentives to over-invest, and prior accounting research argues that conservative accounting reports are part of a firm's control system to reduce over-investment by opportunistic managers (e.g., Watts and Zimmerman, 1986; Ball, 2001; Watts, 2003; Ball and Shivakumar, 2005). Specifically, well-governed firms with conservative accounting policies cause economic losses from poorly performing projects to be recognized quickly. As a result, managers are less likely to make investments in "monuments" that yield personal utility such as unprofitable mergers and acquisitions because the enforcement of timely loss recognition will reduce earnings-based compensation (Ball and Shivakumar, 2005). Timely loss recognition will also provide the board of directors, shareholders, security analysts, and the financial press with a signal to investigate the reasons for losses. Thus the risk of reduced compensation, and fear of job loss or damage to reputation, can deter managers from investing in negative NPV projects.

In addition, when acquisitions turn out to perform poorly, managers have incentives to continue operating these projects to avoid personal costs from abandonment (wealth via bonuses and corporate perquisite). The absence of timely loss recognition gives managers the ability to avoid project abandonment by spreading "small" annual losses from unsuccessful projects over time. While the avoidance of abandonment reduces manager's risk of dismissal and loss of private benefits, it also magnifies the ultimate loss to shareholders. In contrast, the consistent implementation of conservative accounting requires managers to recognize losses earlier on poorly performing acquisitions. The reported losses can be a negative signal to the market and thus discipline managers to make quicker abandonment decisions (Ball, 2001, p. 139). Furthermore, a direct effect of conservatism on managers via reported losses is that their personal wealth tied to reported income is reduced irrespective of project continuance or abandonment. Therefore no incremental income penalty will incur upon actual abandonment and consequently the personal incentive of managers to prolong losing investments is reduced.

In sum, timely loss recognition creates incentives for managers to make better acquisitions in the first place and to accelerate the abandonment of poorly performing investments should that occur. Therefore, we expect timely loss recognition to be positively associated with a bidder's expected acquisition profitability. The first hypothesis is as follows:

H1. A bidder's expected acquisition profitability (measured as a bidder's 3-day CAR around an acquisition announcement date) is positively associated with the bidder's timeliness of loss recognition.

The relative importance of governance systems and accounting conservatism in monitoring investment decisions likely vary with a firm's ex ante agency costs. We consider two settings where ex ante agency costs are likely to be high: firms operating in a volatile environment, and firms with greater inherent information asymmetry. Demsetz and Lehn (1985) argue that it is difficult and costly to evaluate the managerial performance of firms that operate in volatile, unpredictable environments. Demsetz and Lehn (1985, p. 1159) note: "Frequent changes in relative prices, technology, and market shares require timely managerial decisions concerning redeployment of corporate assets and personnel. Disentangling the effects of managerial behavior on firm performance from the corresponding effects of these other, largely exogenous factors is costly." Similarly, for firms with more unverifiable information or greater information asymmetry (e.g., firms with growth options), it is also costly for outsiders to evaluate managers' investment decisions and overall firm performance (Smith and Watts, 1992; Gaver and Gaver, 1993; LaFond and Watts, 2008). Therefore, managers in these firms have greater latitude to indulge their own preferences, regardless of shareholders' interests. Corporate governance and accounting conservatism are thus likely to play an even more important role in reducing managers' incentives to make unprofitable investment decisions or delay project abandonment decisions. These arguments lead to the second hypothesis.

H2. The positive association between timely loss recognition and a bidder's expected acquisition profitability is more pronounced for bidders with high ex ante agency costs (either more volatile operating environment or greater information asymmetry).

3. Sample and research design

3.1. Sample description

The sample of acquisitions and divestitures is extracted from the SDC US Mergers and Acquisitions database. We identify 17,202 acquisitions by 4979 unique firms between January 1, 1980 and December 31, 2006 after requiring that the

bidder have annual financial statement information available from Compustat and stock return data from the CRSP Daily Stock Price and Returns File. Among the 17,202 acquisitions, 15,055 are completed, 904 are withdrawn, and 840 are pending. The status of the remaining 403 is either to be completed or unknown. The test of post-acquisition operating performance is based on two smaller samples of 13,393 and 12,275 acquisitions, respectively. These two samples require bidders to have at least 1 year of return on assets data, and 1 year of cash flow from operations data, in both the 3 years before and the 3 years after an acquisition.

Table 1 presents summary statistics of the acquisition sample by announcement year. The number of acquisitions is generally increasing until it peaks in 1998, a trend which is consistent with Moeller et al. (2004) and Masulis et al. (2007). The annual percentage of unique acquirers in the Compustat population shows a similar pattern. Table 1 also reports the annual median bidder market value of equity (measured at the end of the fiscal year before acquisition), deal value, and relative size (defined as the ratio of deal value to the bidder's market value of equity). Both bidder market value and deal value are adjusted for inflation by CPI with (FY 1980=100). Bidder market value of equity and deal value both exhibit an increasing trend, though relative deal size is stable over the sample period.

3.2. Timely loss recognition

We use Basu's (1997) model to measure a firm's accounting conservatism in financial reporting. Specifically, Basu (1997) estimates the following pooled cross-sectional model:

$$X_{i,t} = \beta_1 + \beta_2 D_{i,t} + \beta_3 R_{i,t} + \beta_4 D_{i,t} * R_{i,t} + e_{i,t} i = 1 \text{ to } N, t = 1 \text{ to } T \quad (1)$$

where i indexes the firm, t indexes time, X is earnings (Compustat Item 18, scaled by market value of equity at the end of fiscal year), R is 12-month compound returns beginning 9 months prior to fiscal year end, D is a dummy variable equal to 1 when $R<0$ and equal to 0 otherwise, and e is the residual. stock returns (R) are used as a proxy for economic gains and losses. If the verification standard for losses is lower than for gains, earnings will recognize economic losses faster than gains. Therefore, the association between earnings and stock returns should be incrementally higher when stock returns

Table 1
Sample distribution by announcement year.

Year	Number of acquisitions	Percentage of sample	Percentage of Compustat firms	Median acquirer market value of equity (million$)	Median deal value (million$)	Median relative size
1980	28	0.16	0.54	672	127	0.11
1981	166	0.97	3.13	240	26	0.13
1982	262	1.52	4.57	210	17	0.08
1983	305	1.77	5.10	250	21	0.11
1984	389	2.26	6.27	303	23	0.08
1985	251	1.46	4.03	417	59	0.17
1986	314	1.83	4.85	455	54	0.13
1987	282	1.64	4.43	546	47	0.09
1988	319	1.85	5.59	327	53	0.14
1989	432	2.51	7.42	312	32	0.11
1990	349	2.03	6.01	427	20	0.06
1991	337	1.96	5.63	289	19	0.09
1992	492	2.86	7.05	343	20	0.06
1993	621	3.61	7.09	487	25	0.07
1994	759	4.41	8.39	612	29	0.06
1995	841	4.89	9.05	420	36	0.09
1996	1137	6.61	10.70	556	37	0.07
1997	1434	8.34	12.46	695	42	0.07
1998	1516	8.81	12.78	922	51	0.06
1999	1095	6.37	11.45	993	59	0.06
2000	903	5.25	10.36	1654	66	0.05
2001	745	4.33	9.42	1594	76	0.06
2002	784	4.56	9.82	1442	68	0.05
2003	781	4.54	9.75	1420	85	0.06
2004	833	4.84	10.56	1834	89	0.06
2005	903	5.25	10.93	2179	93	0.05
2006	924	5.37	13.12	2292	117	0.06
Total	**17202**	**100.00**	**8.15**	**811**	**51**	**0.08**

This table reports the sample distribution by acquisition announcement year. The sample consists of 17,202 US mergers and acquisitions (listed in SDC) between 1980 and 2006. *Percentage of sample* refers to the proportion of the number of acquisitions each year relative to the total number of acquisitions over the sample period. *Percentage of Compustat firms* refers to the proportion of unique acquirers in the sample relative to the number of firms in Compustat. *Acquirer market value of equity* is the market value of acquirer measured at the fiscal year end prior to acquisition announcements, using COMPUSTAT (item 199*item 25) adjusted for inflation by CPI (FY 1980=100). *Deal value* is from SDC and is adjusted for inflation by CPI (FY 1980=100). *Relative size* is deal value scaled by acquirer's market value of equity.

are negative (Basu, 1997). Hence, the coefficient β_4 on *DR*, also called the Basu coefficient, measures the incremental timeliness of loss recognition in earnings relative to gains. Throughout the paper we follow Moerman (2008) and test the incremental coefficient β_4, as well as the sum of β_3 and β_4. The latter measures the total timeliness of loss recognition. In most of the analyses the two measures yield similar results.[3]

Roychowdhury and Watts (2007) note that the beginning composition of equity value can affect timely loss recognition because the past timeliness of earnings with respect to returns may affect the future timeliness of earnings over short time horizons. They provide evidence that the Basu coefficient measures timely loss recognition with less error than market-to-book measures when the Basu coefficient is estimated over longer estimation intervals. Following Basu (1997) and LaFond and Roychowdhury (2008), we conduct sensitivity tests using a multiple-year specification of Basu model though the main analyses are based on a 1-year specification.

3.3. Expected acquisition profitability measure

We measure expected acquisition profitability by market-adjusted stock returns of bidders around the initial announcement of an acquisition. Announcement dates are obtained from the SDC US Mergers and Acquisitions database. We compute an acquirer's 3-day cumulative abnormal return (*AcqCAR*) centered on the acquisition announcement date and the CRSP value-weighted return is used for market return. Size-adjusted abnormal returns are examined as a robustness test and these results are comparable to those reported in the tables.

Expected acquisition profitability, measured by the market reaction to acquisition announcements, captures both the ex ante investment selection effect and the expected value of ex post decision-making (including project abandonment when appropriate). To corroborate the ex ante market-based measure, we also examine two ex post measures of acquisition profitability. First, following Chen et al. (2007), we use the change in operating performance, measured by *ROA* around the acquisition date, to capture post-acquisition performance. One drawback of using *ROA* is a possible mechanical relation between past accounting conservatism and subsequent *ROA*. Firms with more timely loss recognition will report larger losses in the current period (holding negative returns constant), resulting in a bigger bounce back to normal earnings in the next period (Basu, 1997). To address this concern, we use cash flow from operations scaled by total assets (*CFO*) as an additional proxy for operating performance. A large loss reported as the result of a conservative accounting policy is usually recorded as an accrual (i.e., asset write down) and therefore does not directly affect cash flow.[4] Measurement of the change in *ROA*/*CFO* around acquisition date is discussed in more detail in Section 5.

The second ex post analysis examines divestitures. Prior studies suggest that post-acquisition divestitures indicate poorer acquisition-investment decisions (Mitchell and Lehn, 1990; Kaplan and Weisbach, 1992). Therefore, we measure the ex post success of an acquisition by whether an acquired target is subsequently divested. We expect that firms with greater accounting conservatism are less likely to have ex post divestitures due to better ex ante acquisition-investment decisions.[5]

3.4. Empirical models

3.4.1. Test of Hypothesis 1

We expand the baseline Basu (1997) model in Eq. (1) by including expected acquisition profitability (*AcqCAR*) along with additional firm-level controls in the following regression model:

$$\begin{aligned} X_{i,t-1} = {} & \beta_1 + \beta_2 D_{i,t-1} + \beta_3 R_{i,,t-1} + \beta_4 D_{i,t-1} * R_{i,t-1} + \beta_5 AcqCAR_{i,t} + \beta_6 AcqCAR_{i,t} * D_{i,t-1} + \boldsymbol{\beta_7 AcqCAR_{i,t} * R_{i,t-1}} \\ & + \boldsymbol{\beta_8 AcqCAR_{i,t} * D_{i,t-1} * R_{i,t-1}} + \beta_9 Leverage_{i,t-1} + \beta_{10} leverage_{i,t-1} * D_{i,t-1} + \beta_{11} Leverage_{i,t-1} * R_{i,t-1} \\ & + \beta_{12} Leverage_{i,t-1} * D_{i,t-1} * R_{i,t-1} + \beta_{13} Log(assets)_{i,t-1} \\ & + \beta_{14} Log(assets)_{i,t-1} * D_{i,t-1} + \beta_{15} Log(assets)_{i,t-1} * R_{i,t-1} + \beta_{16} Log(assets)_{i,t-1} * D_{i,t-1} * R_{i,t-1} \\ & + \beta_1 17 MB_{i,t-1} + \beta_{18} MB_{i,t-1} * D_{i,t-1} + \beta_{19} MB_{i,t-1} * R_{i,t-1} + \beta_{20} MB_{i,t-1} * D_{i,t-1} * R_{i,t-1} \\ & + \beta_{21} LIT_{i,t-1} + \beta_{22} LIT_{i,t-1} * D_{i,t-1} + \beta_{23} LIT_{i,t-1} * R_{i,t-1} + \beta_{24} LIT_{i,t-1} * D_{i,t-1} * R_{i,t-1} + e_{i,t} \end{aligned} \quad (2)$$

[3] Ball and Shivakumar (2005) argue that the incremental timeliness of loss recognition (relative to gains) is the more appropriate measure of timely loss recognition. There is less demand for timely gain recognition because the potential moral hazard problem arises from managers undertaking or continuing negative (not positive) NPV projects. The empirical evidence also shows that loss recognition is the prime source of timeliness in US earnings (Basu, 1997). Therefore, the relative timeliness of loss recognition to gain recognition in essence captures the extent to which losses are recognized in a timely fashion. In addition, managers have incentives to recognize gains more quickly than losses. As such the incremental coefficient is appropriate to capture the degree of conservatism that counters managers' incentives to overstate gains and understate losses (LaFond and Roychowdhury, 2008). However, it can also be argued that if a firm is slow in recognizing gains but incrementally timely in recognizing losses, then its overall timeliness of loss recognition may be lower compared to a firm that is faster in recognizing gains but incrementally less timely in recognizing losses. In this case, it might be the total timeliness rather than the incremental timeliness of loss recognition that constrains managers from making bad acquisition decisions. For this reason, it is important to test total timeliness of loss recognition (β_3+β_4) in addition to the incremental timeliness of loss recognition (β_4).

[4] A large reported loss could increase cash flows through tax savings in the current period but decrease future cash flows. In this case, accounting conservatism is negatively associated with future cash flows, which goes against our hypothesized relation.

[5] Although divestitures are likely to indicate unsuccessful acquisitions, there may be other explanations that could explain lower stock returns for acquirers with subsequent divestitures. For example, acquirers might expect synergies with only some segments of a conglomerate, in which case the divestiture of remaining segments may have been planned at the acquisition. Alternatively, the divestiture of some segments could be required to assuage regulators' antitrust concerns.

where the dependent variable X is earnings scaled by market value and *AcqCAR* is expected acquisition profitability measured by 3-day *CAR* as discussed above. This ex ante measure of profitability is supplemented with an analysis of post-acquisition operating performance and the probability of divestitures. We include four additional control variables in the model: leverage (*Leverage*), firm size (*Log* (*assets*)), market to book (*MB*), and litigation risk (*LIT*), plus their interactions with the three terms in the baseline Basu (1997) model in Eq. (1).[6] These control variables have been shown to be associated with timely loss recognition (e.g., Basu, 1997; Basu et al., 2001a, 2001b; LaFond and Roychowdhury, 2008; LaFond and Watts, 2008). *Leverage* is book value of debt (item 34+item 9) over book value of total assets (item 6); *Log*(*assets*) is the natural logarithm of total assets (item 6); *MB* is market value of equity (item 99 × item 25) scaled by book value of equity (item 60). *LIT* is a dummy variable coded 1 if the fiscal year before an acquisition falls in the high litigation risk period as identified in Basu et al. (2001a, 2001b), and 0 otherwise. Specifically, we classify 1980–1981, 1986–1987, and 1992–2001 as low litigation periods and other periods as high litigation periods. The four control variables are all measured at the end of fiscal year $t-1$. All other variables are as previously defined in Eq. (1).

The first hypothesis predicts a positive association between timely loss recognition and acquisition profitability, and we expect the coefficient β_8, which captures the incremental timeliness of loss recognition relative to gains, to be positive. We also expect the sum of β_7 and β_8, which captures the total timeliness of loss recognition, to be positive and significantly different from zero. We use an *F*-statistic to evaluate whether the total timeliness of loss recognition is significantly different from zero. Note that we measure X (earnings) and R (returns) at time $t-1$, the fiscal year before acquisition announcements. We estimate Eq. (2) using pooled cross-sectional time-series data with clustered standard errors at the firm level to control for cross-sectional dependence (Petersen, 2009). All significance levels reported in the study are two-tailed *p*-values unless noted otherwise.

3.5. Test of Hypothesis 2

We examine two measures for the test of H2. First, similar to Demsetz and Lehn (1985), we gauge a firm's ex ante agency costs by its operating volatility. The firm's operating volatility is measured as the standard deviation of daily stock returns (*STDRET*) obtained from the CRSP daily stock return file in the fiscal year before acquisition announcements. Second, ex ante agency costs are defined as the degree of information asymmetry between shareholders and managers. Following LaFond and Watts (2008) we measure information asymmetry by a firm's average daily bid-ask spread (*SPREAD*) in the fiscal year before acquisition announcements. We test H2 by estimating the following equation that includes agency cost variables and their interaction terms:

$$\begin{aligned}
X_{i,t-1} = {} & \beta_1 + \beta_2 D_{i,t-1} + \beta_3 R_{i,,t-1} + \beta_4 D_{i,t-1} * R_{i,t-1} + \beta_5 AcqCAR_{i,t} + \beta_6 AcqCAR_{i,t} * D_{i,t-1} + \beta_7 AcqCAR_{i,t} * R_{i,t-1} \\
& + \beta_8 AcqCAR_{i,t} * D_{i,t-1} * R_{i,t-1} + \beta_9 AgencyCost_{i,t-1} + \beta_{10} AgencyCost_{i,t-1} * D_{i,t-1} + \beta_{11} AgencyCost_{i,t-1} * R_{i,t-1} \\
& + \beta_{12} AgencyCost_{i,t-1} * D_{i,t-1} * R_{i,t-1} + \beta_{13} AgencyCost * AcqCAR_{i,t} + \beta_{14} AgencyCost * AcqCAR_{i,t} * D_{i,t-1} \\
& + \beta_{15} AgencyCost_{i,t-1} * AcqCAR_{i,t} * R_{i,t-1} + \beta_{16} AgencyCost_{i,t-1} * AcqCAR_{i,t} * D_{i,t-1} * R_{i,t-1} + \beta_{17} Leverage_{i,t-1} \\
& + \beta_{18} leverage_{i,t-1} * D_{i,t-1} + \beta_{19} Leverage_{i,t-1} * R_{i,t-1} + \beta_{20} Leverage_{i,t-1} * D_{i,t-1} * R_{i,t-1} \\
& + \beta_{21} Log(assets)_{i,t-1} \\
& + \beta_{22} Log(assets)_{i,t-1} * D_{i,t-1} \\
& + \beta_{23} Log(assets)_{i,t-1} * R_{i,t-1} \\
& + \beta_{24} Log(assets)_{i,t-1} * D_{i,t-1} * R_{i,t-1} + \beta_{25} MB_{i,t-1} + \beta_{26} MB_{i,t-1} * D_{i,t-1} + \beta_{27} MB_{i,t-1} * R_{i,t-1} + \beta_{28} MB_{i,t-1} \\
& * D_{i,t-1} * R_{i,t-1} + \beta_{29} LIT_{i,t-1} + \beta_{30} LIT_{i,t-1} * D_{i,t-1} + \beta_{31} LIT_{i,t-1} * R_{i,t-1} + \beta_{32} LIT_{i,t-1} * D_{i,t-1} * R_{i,t-1} + e_{i,t}
\end{aligned} \tag{3}$$

where agency cost is measured as either daily stock return volatility (*STDRET*) or bid-ask spread (*SPREAD*), and all other variables are the same as in Eq. (2). The second hypothesis predicts β_{16} to be positive when incremental timeliness is used to measure timely loss recognition, and the sum of β_{15} and β_{16} to be positive and significantly different from zero when total timeliness is used to measure timely loss recognition.

4. Results

4.1. Descriptive statistics

Table 2 reports descriptive statistics for the sample. The mean (median) 3-day bidder *CAR* is 1.2 (0.4)% which is similar to the mean of 1.1% and median of 0.36% reported in Moeller et al. (2004). The mean of earnings scaled by market value (X) is 0.05 with a median value of 0.06 and is comparable to the mean of 0.04 and median of 0.07 in LaFond and Watts (2008).

[6] Lys and Vincent (1995) and Pandit (2009) suggest that agency costs drive the pooling of interest method for acquisitions because it boosts accounting earnings but leaves cash flows unchanged. Prior literature also suggests that the accounting method (purchase vs. pooling) for acquisitions affects acquisition profit (e.g., Davis, 1990). Therefore, it is likely that the accounting method (pooling vs. purchase) is correlated with both timely loss recognition (e.g., more timely firms in recognizing economic losses tend to use the purchase method because it has lower agency costs) and with acquisition profit. As a result it may create a correlated omitted variable problem. We address this issue by controlling for the accounting method used for acquisitions. Untabulated results show that our results are robust to this additional control variable.

Table 2
Summary statistics.

Variable	Mean	Std. dev.	Q1	Median	Q3
AcqCAR (3-day CAR)	0.012	0.064	−0.019	0.004	0.033
X	0.051	0.103	0.027	0.063	0.098
R	0.258	0.549	−0.057	0.181	0.455
D	0.304	0.461	0.000	0.000	1.000
Total assets (million$)	5450	37308	152	643	2593
Market value of equity (million$)	3474	15744	120	438	1571
Tobin's *q*	1.802	1.521	1.087	1.361	1.920
Leverage	0.253	0.191	0.095	0.223	0.379
Public target (dummy)	0.244	0.429	0.000	0.000	0.000
Subsidiary target (dummy)	0.313	0.464	0.000	0.000	1.000
All cash (dummy)	0.241	0.428	0.000	0.000	0.000
Diversify (dummy)	0.439	0.496	0.000	0.000	1.000
Relative size	0.211	0.418	0.020	0.068	0.204
High tech (dummy)	0.133	0.339	0.000	0.000	0.000
LIT (dummy)	0.349	0.476	0.000	0.000	1.000
MB	2.786	3.013	1.365	2.018	3.122
STDRET	0.027	0.015	0.016	0.022	0.032
SPREAD	0.033	0.089	0.005	0.014	0.031
ROA_{t-3}	1.091	11.683	0.743	2.145	6.433
ROA_{t+3}	−11.649	27.266	−20.161	1.168	4.593
ΔROA_t	−12.740	26.584	−16.621	−1.532	0.571
CFO_{t-3}	7.062	11.323	4.005	8.028	12.557
CFO_{t+3}	6.352	12.010	3.583	7.235	11.557
ΔCFO_t	−0.406	9.124	−4.075	−0.454	2.624

The sample comprises 17,202 US mergers and acquisitions for period 1980–2006 (listed in SDC). All firm characteristics are for bidders and measured at the fiscal year end prior to acquisition announcements. *AcqCAR* (3-day *CAR*) is 3-day market adjusted cumulative stock returns of bidders around initial acquisition announcements (−1,+1). *X* is earnings (item 18 scaled by prior year market value of equity). *R* is 12-month compounded returns starting 9 months before the fiscal year end prior to acquisitions. *D* is a dummy variable coded 1 if *R* is less than 0, and 0 otherwise. *Total assets* are bidder's total assets (item 6). *Market value of equity* is bidder's market value (item 199*item 25). *Tobin's q* is the sum of market value of equity and book value of debt (item 34+item 9) scaled by total assets. *Leverage* is equal to book value of debt (item 34+item 9) scaled by book value of total assets. *Public target* is a dummy variable coded 1 if a target is a public firm, and 0 otherwise. *Subsidiary target* is a dummy variable coded 1 for subsidiary targets, 0 otherwise. *All cash* is a dummy variable coded 1 for purely cash-financed acquisitions, 0 otherwise. *Diversify* is a dummy variable coded 1 if the bidder and the target do not share a two-digit SIC code, 0 otherwise. *Relative size* is equal to deal value scaled by bidder's market value measured at the fiscal year end prior to acquisition announcements. *High tech* is a dummy variable coded 1 if the bidder and the target are both from high tech industries defined by Loughran and Ritter (2004), and 0 otherwise. *LIT* is litigation dummy, coded 0 if the fiscal year prior to an acquisition falls in the following periods: 1980–1981, 1986–1987, and 1992–2001, and 1 otherwise. *MB* is bidder's market value (item 199*item 25) divided by the book value of equity (item 60). *STDRET* is the standard deviation of daily raw return over the fiscal year prior to acquisition announcements. *SPREAD* is the average of daily bid-ask spread measured over the fiscal year prior to acquisition announcements. ROA_{t-3} is the average return on assets (*ROA*) measured from year $t-3$ to $t-1$. ROA_{t+3} is the average return on assets (*ROA*) measured from year $t+1$ to $t+3$. ΔROA_t is equal to $ROA_{t+3}-ROA_{t-3}$, where *ROA* is net income (item 18) scaled by total assets (item 6). CFO_{t-3} is the average cash flow (*CFO*) measured from year $t-3$ to $t-1$. CFO_{t+3} is average cash flow (*CFO*) measured from year $t+1$ to $t+3$. ΔCFO_t is equal to $CFO_{t+3}-CFO_{t-3}$, where *CFO* is cash flow from operations scaled by total assets (item 6). For the years after 1987, cash flow from operations is item 308, and for the years prior to 1987, cash flow from operations is computed as (item 110−(Δitem 4+Δitem 34−Δitem 5−Δitem 1)).

The mean and median returns (*R*) of bidders during the year before acquisitions are 0.26 and 0.18, respectively. These statistics are higher than the mean of 0.15 and median of 0.11 reported in LaFond and Watts (2008) suggesting that bidders perform better in the year before acquisitions. Higher pre-acquisition performance of bidders is consistent with Roll's (1986) hubris conjecture and Jensen's (2005) agency cost theory. It is also consistent with the argument in Shleifer and Vishny (2003) that managers take advantage of market overvaluation (high pre-acquisition returns) to make acquisitions. The mean value of the negative return dummy (*D*) is 0.3 indicating that 30% of firm-years before acquisitions experience negative returns. The means for all deal characteristics are similar to those in Moeller et al. (2004) except that relative deal size is slightly smaller. The mean of the litigation dummy (*LIT*) is 0.35 indicating that 35% of the acquisition sample falls in high litigation periods. Market-to-book ratio has a mean value of 2.79 which again is consistent with Roll (1986), Jensen (2005), and Shleifer and Vishny (2003). Return volatility (*STDRET*) has a mean of 2.7% and median of 2.2%, both of which are smaller than those reported in Moeller et al. (2007) (mean=3.4% and median=2.8%). Bid-ask spread has a mean of 0.033 and is lower than the mean of 0.042 reported in Khan and Watts (2009) suggesting that firms in our acquisition sample have relatively lower information asymmetry than the average Compustat firm.

The last six rows show summary statistics of average *ROA* and *CFO* in the 3 years before acquisitions (ROA_{t-3}, CFO_{t-3}), the 3 years after acquisitions (ROA_{t+3}, CFO_{t+3}), and average change in *ROA* (ΔROA_t) and average change in *CFO* (ΔCFO_t) over the two periods. *ROA* is measured as net income (item 18) scaled by total assets (item 6). For the years after 1987, *CFO* is measured as cash flow from operations (item 308) scaled by total assets (item 6). For the years before 1987, following Givoly and Hayn (2000), we measure cash flow from operations as item 110—(Δitem 4+Δitem 34−Δitem 5−Δitem 1), scaled by total assets (item 6). The mean (median) *ROA* is about 12 (2)% lower after acquisitions, which is consistent with

Table 3
Pearson and spearman correlation matrix.

Variable	*AcqCAR*	*Log (assets)*	Tobin's *q*	*Leverage*	*Public target*	Subsidiary target	All cash	*Diversify*	*Relative size*	*High tech*	*LIT*	*MB*	*STDRET*	*SPREAD*	*ΔROA*	*ΔCFO*
AcqCAR	**1.000**	−0.116	0.003	0.010	−0.063	0.041	0.006	−0.028	0.107	−0.005	−0.005	−0.02	0.089	0.121	0.005	0.000
Log(assets)	−0.173	**1.000**	0.292	−0.009	0.080	0.062	0.131	0.036	−0.560	0.036	0.084	0.348	−0.521	−0.727	0.113	−0.030
Tobin's *q*	−0.009	0.205	**1.000**	−0.131	−0.117	0.028	0.073	0.014	−0.279	0.289	−0.044	0.823	0.212	−0.039	−0.061	−0.055
Leverage	0.010	−0.048	−0.195	**1.000**	−0.071	0.123	−0.025	0.093	0.063	−0.226	−0.004	−0.06	−0.118	0.035	0.068	0.100
Public target	−0.037	0.087	−0.050	−0.078	**1.000**	−0.383	0.005	−0.114	0.130	0.000	−0.011	−0.06	−0.084	−0.097	−0.006	−0.028
Subsidiary target	0.028	0.053	−0.038	0.117	−0.383	**1.000**	0.090	0.028	−0.019	−0.060	0.058	−0.01	−0.009	−0.031	0.045	0.029
All cash	−0.014	0.136	0.010	−0.024	0.005	0.090	**1.000**	0.016	−0.113	0.052	0.095	0.049	0.001	−0.131	0.020	−0.025
Diversify	−0.036	0.035	−0.013	0.088	−0.114	0.028	0.016	**1.000**	−0.067	−0.032	0.007	−0.02	−0.103	−0.045	0.037	0.003
Relative size	0.144	−0.413	−0.118	0.103	0.103	0.007	−0.084	−0.029	**1.000**	−0.096	−0.014	0.291	0.152	0.378	−0.051	0.013
High tech	0.013	0.052	0.289	−0.201	0.000	−0.060	0.052	−0.032	−0.052	**1.000**	0.029	0.214	0.244	0.019	−0.004	0.012
LIT	−0.029	0.075	−0.075	−0.009	−0.011	0.058	0.095	0.007	−0.013	0.029	**1.000**	−0.08	−0.139	−0.463	0.105	−0.029
MB	−0.019	0.234	0.771	−0.032	−0.033	−0.032	0.007	−0.013	−0.121	0.221	−0.084	**1.000**	0.121	−0.188	−0.034	−0.048
STDRET	0.132	−0.516	0.213	−0.065	−0.087	−0.019	−0.03	−0.063	0.187	0.224	−0.137	0.129	**1.000**	0.314	−0.136	0.033
SPREAD	0.078	−0.368	−0.046	0.049	−0.009	−0.018	−0.05	−0.024	0.195	−0.021	−0.118	−0.07	0.169	**1.000**	−0.099	0.044
ΔROA	−0.008	0.111	−0.033	0.015	0.013	0.037	0.021	0.036	−0.023	0.005	0.113	−0.018	−0.098	−0.026	**1.000**	0.351
ΔCFO	−0.004	−0.043	0.013	0.050	−0.023	0.016	−0.023	0.000	−0.003	0.043	−0.012	0.005	0.073	0.061	0.287	**1.000**

Pearson and Spearman correlations are reported below (above) the diagonal. Correlation coefficients greater than 0.012 are significant at the 0.10 level; those greater than 0.015 are significant at the 0.05 level; and those greater than 0.019 are significant at the 0.01 level.

The sample comprises 17,202 US mergers and acquisitions for period 1980–2006 (listed in SDC). All firm characteristics are for bidders and measured at the fiscal year end prior to acquisition announcements. *AcqCAR* (3-day *CAR*) is 3-day market adjusted cumulative stock returns of bidders around initial acquisition announcements (−1, +1). *Log(assets)* is the logarithm of bidder's total assets (item 6). *Tobin's q* is the sum of market value of equity and book value of debt (item 34+item 9) scaled by total assets. *Leverage* is equal to book value of debt (item 34+item 9) scaled by book value of total assets. *Public target* is a dummy variable coded 1 if a target is a public firm, and 0 otherwise. *Subsidiary target* is a dummy variable coded 1 for subsidiary targets, 0 otherwise. *All cash* is a dummy variable coded 1 for purely cash-financed acquisitions, 0 otherwise. *Diversify* is a dummy variable coded 1 if the bidder and the target do not share a two-digit SIC code, 0 otherwise. *Relative size* is equal to deal value scaled by bidder's market value measured at the fiscal year end prior to acquisition announcements. *High tech* is a dummy variable coded 1 if the bidder and the target are both from high tech industries defined by Loughran and Ritter (2004), 0 otherwise. *LIT* is litigation dummy, coded 0 if the fiscal year prior to an acquisition falls in the following periods: 1980–1981, 1986–1987, and 1992–2001, and 1 otherwise. *MB* is bidder's market value (item 199*item 25) divided by the book value of equity (item 60). *STDRET* is the standard deviation of daily raw return over the fiscal year prior to acquisition announcements. *SPREAD* is the average of daily bid-ask spread measured over the fiscal year prior to acquisition announcements. ΔROA_t is equal to $ROA_{t+3}-ROA_{t-3}$, where *ROA* is net income (item 18) scaled by total assets (item 6), ROA_{t-3} is the average return on assets measured from year $t-3$ to $t-1$, and ROA_{t+3} is the average return on assets measured from year $t+1$ to $t+3$. ΔCFO_t is equal to $CFO_{t+3}-CFO_{t-3}$, where *CFO* is cash flow from operations scaled by total assets (item 6). For the years after 1987, cash flow from operations is item 308, and for the years prior to 1987, cash flow from operations is computed as (item 110−(Δitem 4+Δitem 34−Δitem 5−Δitem 1)); CFO_{t-3} is the average cash flow measured from year $t-3$ to $t-1$, and CFO_{t+3} is average cash flow measured from year $t+1$ to $t+3$.

the pattern previously documented (e.g., Schmidt and Fowler, 1990). The mean (median) *CFO* is 0.4 (0.5)% lower after acquisitions.

Table 3 shows Pearson correlations below the diagonal and Spearman correlations above the diagonal. Consistent with previous studies, the market perceives acquisitions to be less profitable for larger bidders but more profitable when deal value is larger. Further, acquisitions are also perceived to be more profitable for bidders with potentially high ex ante agency costs measured by stock return volatility and bid-ask spread.

4.2. Test of hypothesis H1

Table 4 reports the multivariate test of H1 based on the estimation of Eq. (2) with a 1-year specification of earnings and returns data before acquisitions. We begin with model (1) which is the baseline Basu (1997) model in Eq. (1). The

Table 4
OLS regression analysis of the association between bidder announcement returns and timely loss recognition.
One-year returns data based on Eq. (2), dependent variable *X* is earnings scaled by market value of equity

$$
\begin{aligned}
X_{i,t-1} = {} & \beta_1 + \beta_2 D_{i,t-1} + \beta_3 R_{i,t-1} + \beta_4 D_{i,t-1} * R_{i,t-1} + \beta_5 AcqCAR_{i,t} + \beta_6 AcqCAR_{i,t} * D_{i,t-1} + \boldsymbol{\beta_7 AcqCAR_{i,t} * R_{i,t-1}} + \boldsymbol{\beta_8 AcqCAR_{i,t} * D_{i,t-1} * R_{i,t-1}} \\
& + \beta_9 Leverage_{i,t-1} + \beta_{10} Leverage_{i,t-1} * D_{i,t-1} + \beta_{11} Leverage_{i,t-1} * R_{i,t-1} + \beta_{12} Leverage_{i,t-1} * D_{i,t-1} * R_{i,t-1} \\
& + \beta_{13} Log(assets)_{i,t-1} \\
& + \beta_{14} Log(assets)_{i,t-1} * D_{i,t-1} \\
& + \beta_{15} Log(assets)_{i,t-1} * R_{i,t-1} \\
& + \beta_{16} Log(assets)_{i,t-1} * D_{i,t-1} * R_{i,t-1} + \beta_{17} MB_{i,t-1} + \beta_{18} MB_{i,t-1} * D_{i,t-1} + \beta_{19} MB_{i,t-1} * R_{i,t-1} + \beta_{20} MB_{i,t-1} * D_{i,t-1} * R_{i,t-1} + \beta_{21} LIT_{i,t-1} \\
& + \beta_{22} LIT_{i,t-1} * D_{i,t-1} + \beta_{23} LIT_{i,t-1} * R_{i,t-1} + \beta_{24} LIT_{i,t-1} * D_{i,t-1} * R_{i,t-1} + e_{i,t}
\end{aligned}
$$

Variable	Pred. Sn.	Model (1)		Model (2)		Model (3)	
		Coeff.	*p*-Value	Coeff.	*p*-Value	Coeff.	*p*-Value
Intercept	?	0.072	<.0001	0.072	<.0001	0.093	<.0001
D	+	−0.014	0.000	−0.014	0.000	−0.026	0.076
R	+	−0.008	0.088	−0.007	0.127	−0.005	0.797
*D*R*	+	0.174	<.0001	0.163	<.0001	0.285	<.0001
AcqCAR	?			−0.059	0.151	−0.024	0.543
AcqCAR	?			0.040	0.564	0.019	0.786
*AcqCAR*R*	?			−0.055	0.448	−0.109	0.121
AcqCAR*DR	+			0.491	0.015	0.385	0.042
Leverage	?					−0.069	<.0001
*Leverage*D*	?					−0.029	0.226
*Leverage*R*	?					−0.003	0.888
*Leverage*DR*	+					−0.118	0.123
Log(assets)	?					0.002	0.063
*Log(assets)*D*	?					0.005	0.012
*Log(assets)*R*	?					0.003	0.192
*Log(assets)*DR*	−					−0.022	0.002
MB	?					−0.013	<.0001
*MB*D*	?					−0.005	0.012
*MB*R*	?					−0.002	0.088
*MB*DR*	−					−0.008	0.188
LIT	?					−0.002	0.596
*LIT*D*	?					−0.001	0.851
*LIT*R*	−					0.006	0.512
*LIT*DR*	+					−0.004	0.903
F-test: $\beta_7+\beta_8=0$				0.435	0.002	0.276	0.058
N		17,202		17,202		17,202	
Adj-R^2 (%)		7.27		7.79		14.47	

This table uses 1-year earnings and returns data prior to acquisition announcements to test the association between acquisition profitability and bidder's timely loss recognition. Timely loss recognition is measured with both the incremental coefficient on negative stock returns (β_7) and the sum of the coefficients on positive and negative stock returns ($\beta_7+\beta_8$). OLS regression is estimated with clustered standard errors at the firm level to derive *p*-values (Petersen, 2009). The sample comprises 17,202 US mergers and acquisitions for period 1980–2006 (listed in SDC). *AcqCAR* is 3-day market-adjusted cumulative stock returns of bidders around initial acquisition announcements. The dependent variable *X* is earnings (item 18 scaled by prior year market value of equity). *R* is 12-month compound returns beginning 9 months before the fiscal year end. Both *X* and *R* are measured for the fiscal year prior to acquisition announcements. *D* is a dummy variable coded 1 if *R* is less than 0, and 0 otherwise. *Leverage* is equal to book value of debt (item 34+item 9) scaled by book value of total assets. *Log*(*assets*) is the logarithm of bidder's total assets (item 6). *MB* is bidder's market value (item 199*item 25) divided by the book value of equity (item 60). *LIT* is litigation dummy, coded 0 if the fiscal year prior to an acquisition falls in the following periods: 1980–1981, 1986–1987, and 1992–2001, and 1 otherwise.

incremental coefficient on negative returns, *DR*, is 0.174 and statistically significant at the 0.01 level, indicating that on average sample firms report losses in a more timely fashion than gains. The total timeliness coefficient is +0.166 (the sum of 0.174 and −0.008). An *F*-test rejects the null that the sum equals zero indicating that sample firms incorporate economic losses in a timely manner. These results are consistent with the argument in footnote 2 that incremental timeliness of loss recognition (0.174) in essence captures the total timeliness of loss recognition (0.166).

Table 5
Ex ante agency costs and the association of bidder returns and timely loss recognition based on Eq. (3).

$$
\begin{aligned}
X_{i,t-1} = {} & \beta_1 + \beta_2 D_{i,t-1} + \beta_3 R_{i,t-1} + \beta_4 * D_{i,t-1} R_{i,t-1} + \beta_5 AcqCAR_{i,t} + \beta_6 AcqCAR_{i,t} D_{i,t-1} + \beta_7 AcqCAR_{i,t} * R_{i,t-1} + \beta_8 AcqCAR_{i,t} * D_{i,t-1} * R_{i,t-1} \\
& + \beta_9 \text{Agency Cost}_{i,t-1} + \beta_{10} \text{Agency Cost}_{i,t-1} * D_{i,t-1} + \beta_{11} \text{Agency Cost}_{i,t-1} * R_{i,t-1} + \beta_{12} AgencyCost_{i,t-1} * D_{i,t-1} * R_{i,t-1} \\
& + \beta_{13} AgencyCost\, AcqCAR_{i,t} + \beta_{14} AgencyCost * AcqCAR_{i,t} * D_{i,t-1} + \boldsymbol{\beta_{15}\, AgencyCost_{i,t-1} * AcqCAR_{i,t} * R_{i,t-1}} + \boldsymbol{\beta_{16}\, AgencyCost_{i,t-1} * AcqCAR_{i,t} * D_{i,t-1} * R_{i,t-1}} + \beta_{17} Leverage_{i,t-1} + \beta_{18} Leverage_{i,t-1} * D_{i,t-1} + \beta_{19} Leverage_{i,t-1} * R_{i,t-1} + \beta_{20} Leverage_{i,t-1} * D_{i,t-1} * R_{i,t-1} \\
& + \beta_{21} Log(assets)_{i,t-1} \\
& + \beta_{22} Log(assets)_{i,t-1} * D_{i,t-1} \\
& + \beta_{23} Log(assets)_{i,t-1} * R_{i,t-1} \\
& + \beta_{24} Log(assets)_{i,t-1} * D_{i,t-1} * R_{i,t-1} + \beta_{25} MB_{i,t-1} + \beta_{26} MB_{i,t-1} * D_{i,t-1} + \beta_{27} MB_{i,t-1} * R_{i,t-1} + \beta_{28} MB_{i,t-1} * D_{i,t-1} * R_{i,t-1} + \beta_{29} LIT_{i,t-1} \\
& + \beta_{30} LIT_{i,t-1} * D_{i,t-1} + \beta_{31} LIT_{i,t-1} * R_{i,t-1} + \beta_{32} LIT_{i,t-1} * D_{i,t-1} * R_{i,t-1} + e_{i,t}
\end{aligned}
$$

Variable	Pred. Sn.	Model (1) *AgencyCost =STDRET*		Model (2) *AgencyCost =SPREAD*	
Intercept	?	0.158	<.0001	0.104	<.0001
D	+	−0.009	0.249	−0.012	0.074
R	+	0.034	0.000	0.016	0.026
*D*R*	+	0.127	<.0001	0.189	<.0001
AcqCAR	?	−0.100	0.003	−0.013	0.456
*AcqCAR*D*	?	0.032	0.574	0.034	0.282
*AcqCAR*R*	?	0.039	0.424	−0.020	0.456
*AcqCAR*DR*	+	−0.270	0.101	0.092	0.340
AgencyCost	?	−1.354	<.0001	0.001	0.901
*AgencyCost*D*	?	−0.058	0.698	−0.012	0.291
*AgencyCost*R*	?	−0.027	0.858	−0.005	0.729
*AgencyCost*DR*	+	−0.690	0.063	−0.046	0.571
*AgencyCost*AcqCAR*	?	3.599	0.002	−0.138	0.234
*AgencyCost*AcqCAR*D*	?	−0.456	0.784	0.577	0.010
*AgencyCost*AcqCAR*R*	?	−2.197	0.097	0.365	0.230
AgencyCost*AcqCAR*DR	+	11.687	0.001	2.010	0.060
Leverage	?	−0.059	<.0001	−0.051	<.0001
*Leverage*D*	?	0.027	0.001	0.014	0.138
*Leverage*R*	?	0.009	0.247	0.001	0.897
*Leverage*DR*	+	−0.034	0.227	−0.065	0.034
Log(assets)	?	−0.005	<.0001	−0.001	0.086
*Log(assets)*D*	?	0.001	0.139	0.001	0.141
*Log(assets)*R*	?	−0.001	0.289	0.000	0.828
*Log(assets)*DR*	−	−0.010	0.000	−0.013	<0.0001
MB	?	−0.007	<0.0001	−0.011	<0.0001
*MB*D*	?	−0.002	0.008	−0.002	0.003
*MB*R*	?	−0.001	0.201	0.000	0.642
*MB*DR*	−	−0.006	0.006	−0.008	0.001
LIT	?	0.002	0.200	0.003	0.143
*LIT*D*	?	−0.009	0.003	−0.009	0.010
*LIT*R*	−	−0.003	0.391	0.001	0.812
*LIT*DR*	+	0.007	0.522	−0.006	0.628
F-test: $\beta_{15}+\beta_{16}=0$		9.490	0.003	2.375	0.084
N		17,202		15,108	
Adj-R^2 (%)		28.12		20.77	

This table reports the results of testing the association between the effect of bidder's timely loss recognition on acquisition profitability and ex ante agency costs based on Eq. (3). Timeliness loss recognition is measured with both the incremental coefficient on negative stock returns (β_{15}) and the sum of the coefficients on positive and negative stock returns ($\beta_{15}+\beta_{16}$). OLS regression is estimated with clustered standard errors at the firm level to derive *p*-values (Petersen, 2009). *AcqCAR* is 3-day market-adjusted cumulative stock returns of bidders around initial acquisition announcements. *X* is earnings (item 18 scaled by prior year market value of equity). *R* is 12-month compound returns beginning 9 months before the fiscal year end. Both *X* and *R* are measured for the fiscal year prior to acquisition announcements. *D* is a dummy variable coded 1 if *R* is less than 0, and 0 otherwise. *Agency cost* is ex ante agency costs measured by either the standard deviation of daily stock returns or the average of daily bid-ask spread over the fiscal year prior to acquisition announcements. *Leverage* is equal to book value of debt (item 34+item 9) scaled by book value of total assets. *Log(assets)* is the logarithm of bidder's total assets (item 6). *MB* is bidder's market value (item 199*item 25) divided by the book value of equity (item 60). *LIT* is litigation dummy, coded 0 if the fiscal year prior to an acquisition falls in the following periods: 1980–1981, 1986–1987, and 1992–2001, and 1 otherwise.

Model (2) reports the results of estimating Eq. (2) without additional firm-level control variables. Consistent with model (1), the coefficient estimate on negative returns (*DR*) is significantly positive. The adjusted-R^2 increases by about 1/2% from 7.27% in model (1) to 7.79% in model (2). More importantly, the coefficient on the main variable of interest (*AcqCARDR*), the expected acquisition profitability interacted with negative returns (β_8), is 0.491 and statistically significant at the 0.05 level. The sum of β_7 and β_8 equals 0.435, and the null hypothesis that the sum is equal to zero is rejected at the 0.01 level, indicating that total timeliness of loss recognition is increasing in perceived acquisition profitability.

Model (3) shows results of estimating Eq. (2). The coefficient of interest on *AcqCAR DR* (β_7) continues to be positive and significant at the 0.05 level. Again the sum of β_7 and β_8 is positive (0.276) and the null that the two coefficients sum to zero is rejected at the 0.10 level. Coefficients on the interaction of negative returns with leverage, firm size, market-to-book, and litigation risk are all negative, but only firm size is statistically significant. Overall the results in Panel A support H1: firms that report economic losses in a more timely fashion make acquisitions that the market expects to be more profitable.

The economic magnitude of timely loss recognition on a bidder's perceived acquisition profit is assessed using a bootstrapping method to obtain a distribution of the Basu coefficient (β_4) in Eq. (1). Specifically, Eq. (1) is estimated 500 times based on randomly selected samples (with replacement) in which sample size equals 10% of the full sample. The distribution of the Basu coefficient has a mean of 0.172, a median of 0.168, and a standard deviation of 0.029. A one standard deviation increase in the Basu coefficient leads to an increase in expected acquisition profitability by a magnitude of 7.5% based on the results of model (3) in Panel A of Table 4 ($100 \times 0.029/0.385$). Similarly, we estimate a distribution of the total timeliness coefficients ($\beta_3+\beta_4$) in Eq. (1). A one standard deviation increase in the total timeliness coefficient (0.028) leads to an increase in expected acquisition profitability in the magnitude of 9.96%, based on model (3) in Panel A of Table 4 ($100 \times 0.028/(0.385-0.109)$).

4.3. Test of hypothesis H2

H2 predicts that the association between timely loss recognition and expected acquisition profitability is stronger for firms with greater ex ante agency costs. To test H2, we estimate Eq. (3) using stock return volatility and bid-ask spread to measure ex ante agency costs. Table 5 reports the results of this analysis. Model (1) tests return volatility and model (2) is based on bid-ask spread (which has fewer observations due to missing values of bid-ask spread). Both measures yield similar results. Specifically, the coefficient on the interaction of the two ex ante agency cost measures and *AcqCAR DR* is positive and statistically significant at the 0.01 level for model (1) and the 0.06 level for model (2). These results indicate that the positive association between timely loss recognition and perceived acquisition profitability is stronger when ex ante agency costs are greater. The sum of β_{15} and β_{16} is positive for both models. The *F*-test that $\beta_{15}+\beta_{16}$ equals zero is rejected at the .01 level for model (1) and the 0.10 level for model (2). Thus both measures of ex ante agency costs, and both measures of timely loss recognition, support H2. Coefficients on the other control variables are similar to those reported in Table 4.

5. Post-acquisition analysis

The previous section documents that firms with greater accounting conservatism make more profitable acquisitions based on ex ante market perceptions and that this relation is stronger for firms with greater ex ante agency costs. In this section, we examine post-acquisition operating performance and also determine if timely loss recognition is associated with divestiture decisions.

5.1. Post-acquisition operating performance

We expect that acquiring firms with timely loss recognition will have better post-acquisition operating performance. Based on the study's second hypothesis, we also predict that the association between timely loss recognition and post-acquisition performance is stronger for acquiring firms with greater ex ante agency costs.

To evaluate post-acquisition performance, we re-estimate Eq. (2) by replacing 3-day CAR (*AcqCAR*) with change in operating performance ($\Delta PERFORM$) measured by change in *ROA* (ΔROA) and change in *CFO* (ΔCFO) around acquisition dates. Table 6 reports the results of these estimations.[7] The sample size is reduced to 13,393 and 12,275, respectively, due to the requirement of all acquisitions being completed and having at least 1 year of *ROA* or *CFO* data in each of the pre- and post-periods. Consistent with our expectation, in model (1) the coefficient on the interaction of ΔROA and negative returns (β_7) is positive and statistically significant at the 0.01 level. The interaction of ΔROA and the total timeliness coefficient ($\beta_7+\beta_8$) is also positive, and the *F*-test rejects the null that $\beta_7+\beta_8$ equals zero at the 0.01 level. In model (2), where ΔCFO serves as the measure of post-acquisition operating performance, the coefficient of the interaction of ΔCFO and negative returns (β_7) is positive and statistically significant at the 0.05 level. The interaction of ΔCFO and the total timeliness

[7] We also use annual industry-adjusted change in *ROA* and industry-adjusted change in *CFO* as an alternative measure by subtracting the annual industry median value of the two variables from their corresponding raw values in the regression. We define industry group using two-digit SIC codes and the results are robust to these alternative measures.

Table 6
Timely loss recognition and post-acquisition change in operating performance. OLS regression based on Eq. (2), where dependent variable X is earnings scaled by market value of equity

$$
\begin{aligned}
X_{i,t-1} = {} & \beta_1 + \beta_2 D_{i,t-1} + \beta_3 R_{i,t-1} + \beta_4 D_{i,t-1} * R_{i,t-1} + \beta_5 \Delta PERFORM_{i,t} + \beta_6 \Delta PERFORM_{i,t} * D_{i,t-1} + \boldsymbol{\beta_7 \Delta PERFORM_{i,t} * R_{i,t-1}} + \boldsymbol{\beta_8 \Delta PERFORM_{i,t} * D_{i,t-1} * R_{i,t-1}} + \beta_9 Leverage_{i,t-1} + \beta_{10} Leverage_{i,t-1} * D_{i,t-1} + \beta_{11} Leverage_{i,t-1} * R_{i,t-1} + \beta_{12} Leverage_{i,t-1} * D_{i,t-1} * R_{i,t-1} \\
& + \beta_{13} Log(assets)_{i,t-1} \\
& + \beta_{14} Log(assets)_{i,t-1} * D_{i,t-1} \\
& + \beta_{15} Log(assets)_{i,t-1} * R_{i,t-1} \\
& + \beta_{16} Log(assets)_{i,t-1} * D_{i,t-1} * R_{i,t-1} + \beta_{17} MB_{i,t-1} + \beta_{18} MB_{i,t-1} * D_{i,t-1} + \beta_{19} MB_{i,t-1} * R_{i,t-1} + \beta_{20} MB_{i,t-1} * D_{i,t-1} * R_{i,t-1} + \beta_{21} LIT_{i,t-1} \\
& + \beta_{22} LIT_{i,t-1} * D_{i,t-1} + \beta_{23} LIT_{i,t-1} * R_{i,t-1} + \beta_{24} LIT_{i,t-1} * D_{i,t-1} * R_{i,t-1} + e_{i,t}
\end{aligned}
$$

Variable	Pred. Sn.	Model (1) $\Delta PERFORM$=ΔROA		Model (2) $\Delta PERFORM$=ΔCFO	
		Coeff.	p-Value	Coeff.	p-Value
Intercept	?	0.092	<.0001	0.080	<.0001
D	+	0.014	0.511	0.012	0.580
R	+	−0.050	0.061	−0.048	0.055
*D*R*	+	0.628	<.0001	0.514	<.0001
ΔPERFORM	?	0.005	0.695	−0.165	0.001
*ΔPERFORM*D*	?	0.013	0.589	0.098	0.166
*ΔPERFORM*R*	?	−0.043	0.164	−0.062	0.397
ΔPERFORM*DR	+	0.267	0.003	0.226	0.020
Leverage	?	−0.081	0.002	−0.049	0.030
*Leverage*D*	?	0.012	0.770	0.008	0.813
*Leverage*R*	?	−0.001	0.981	−0.011	0.783
*Leverage*DR*	+	0.173	0.237	0.295	0.024
Log(assets)	?	0.004	0.040	0.004	0.030
*Log(assets)*D*	?	0.001	0.780	0.001	0.861
*Log(assets)*R*	?	0.008	0.044	0.006	0.061
*Log(assets)*DR*	−	−0.061	<.0001	−0.045	0.000
MB	?	−0.016	<.0001	−0.014	<0.0001
MBD	?	−0.010	0.015	−0.006	0.003
*MB*R*	?	0.000	0.826	0.000	0.840
*MB*DR*	−	−0.027	0.002	−0.028	<0.0001
LIT	?	0.010	0.082	0.008	0.196
*LIT*D*	?	−0.014	0.201	−0.012	0.252
*LIT*R*	−	−0.020	0.237	−0.020	0.198
*LIT*DR*	+	0.023	0.668	0.044	0.399
F-test: $\beta_7+\beta_8$=0		0.224	0.008	0.164	0.055
N		13,393		12,275	
Adj-R^2 (%)		14.68		13.78	

Change in *ROA* is not in percentage.
This table reports the results of testing the association between post-acquisition operating performance and bidder's timely loss recognition based on two samples. Timely loss recognition is measured with both the incremental coefficient on negative stock returns (β_7) and the sum of the coefficients on positive and negative stock returns ($\beta_7+\beta_8$). OLS regression is estimated with clustered standard errors at the firm level to derive p-values (Petersen, 2009). The two samples comprise 13,393 and 12,275 US mergers and acquisitions with available data for period 1980–2006 (listed in SDC), respectively. All firm characteristics are for bidders and are measured at the fiscal year end prior to acquisition announcements. ROA_{t-3} is the average return on assets measured from year $t-3$ to $t-1$. ROA_{t+3} is the average return on assets measured from year $t+1$ to $t+3$. ΔROA_t is equal to $ROA_{t+3}-ROA_{t-3}$. *ROA* is net income (item 18) scaled by total assets (item 6). CFO_{t-3} is the average cash flow measured from year $t-3$ to $t-1$. CFO_{t+3} is average cash flow measured from year $t+1$ to $t+3$. ΔCFO_t is equal to $CFO_{t+3}-CFO_{t-3}$, where *CFO* is cash flow from operations scaled by total assets (item 6). For the years after 1987, cash flow from operations is item 308, and for the years prior to 1987, cash flow from operations is computed as (item 110 – (Δitem 4+Δitem 34−Δitem 5−Δitem 1)). OLS regression results are reported with clustered standard errors at the firm level to derive *p*-values (Petersen, 2009). The dependent variable *X* is earnings (item 18 scaled by prior year market value of equity). *R* is 12-month compound returns beginning 9 months before the fiscal year end. Both *X* and *R* are measured for the fiscal year prior to acquisition announcements. *D* is a dummy variable coded 1 if *R* is less than 0, and 0 otherwise. *ΔPERFORM* is change in operating performance measured with either *ΔROA* or *ΔCFO*. *Leverage* is equal to book value of debt (item 34+item 9) scaled by book value of total assets. *Log*(*assets*) is the logarithm of bidder's total assets (item 6). *MB* is bidder's market value (item 199*item 25) divided by the book value of equity (item 60). *LIT* is litigation dummy, coded 0 if the fiscal year prior to an acquisition falls in the following periods: 1980–1981, 1986–1987, and 1992–2001, and 1 otherwise. *Leverage*, *Log*(*assets*), *MB*, and *LIT* are measured at the end of fiscal year prior to acquisition announcements.

coefficient ($\beta_7+\beta_8$) is again positive, and the *F*-test rejects the null that $\beta_7+\beta_8$ equals zero at the 0.10 level. The coefficients on the interaction of other control variables and negative returns are consistent with previous results.

In sum, the results in Table 6 indicate that acquirers with greater accounting conservatism have higher post-acquisition operating performance. This result holds for both measures of timely loss recognition and is not driven by a mechanical relation between past conservatism and subsequent higher earnings. Based on the distribution of the Basu coefficient

Table 7
Ex ante agency costs and the association of timely loss recognition and post-acquisition operating performance based on Eq. (3), where dependent variable X is earnings scaled by market value of equity.

$$
\begin{aligned}
X_{i,t-1} = {} & \beta_1 + \beta_2 D_{i,t-1} + \beta_3 R_{i,t-1} + \beta_4 D_{i,t-1} * R_{i,t-1} + \beta_5 AcqCAR_{i,t} + \beta_6 AcqCAR_{i,t} * D_{i,t-1} + \beta_7 AcqCAR_{i,t} * R_{i,t-1} + \beta_8 AcqCAR_{i,t} * D_{i,t-1} * R_{i,t-1} \\
& + \beta_9 AgencyCost_{i,t-1} + \beta_{10} AgencyCost_{i,t-1} * D_{i,t-1} + \beta_{11} AgencyCost_{i,t-1} * R_{i,t-1} + \beta_{12} AgencyCost_{i,t-1} * D_{i,t-1} * R_{i,t-1} + \beta_{13} AgencyCost \\
& * \Delta PERFORM_{i,t} + \beta_{14} AgencyCost * \Delta PERFORM_{i,t} * D_{i,t-1} + \boldsymbol{\beta_{15}\, AgencyCost_{i,t-1} * \Delta PERFORM_{i,t} * R_{i,t-1}} + \boldsymbol{\beta_{16}\, AgencyCost_{i,t-1} * \Delta PERFORM_{i,t} * D_{i,t-1} * R_{i,t-1}} \\
& + \beta_{17} Leverage_{i,t-1} + \beta_{18} Leverage_{i,t-1} * D_{i,t-1} + \beta_{19} Leverage_{i,t-1} * R_{i,t-1} + \beta_{20} Leverage_{i,t-1} * D_{i,t-1} * R_{i,t-1} \\
& + \beta_{21} Log(assets)_{i,t-1} \\
& + \beta_{22} Log(assets)_{i,t-1} * D_{i,t-1} \\
& + \beta_{23} Log(assets)_{i,t-1} * R_{i,t-1} \\
& + \beta_{24} Log(assets)_{i,t-1} * D_{i,t-1} * R_{i,t-1} + \beta_{25} MB_{i,t-1} + \beta_{26} MB_{i,t-1} * D_{i,t-1} + \beta_{27} MB_{i,t-1} * R_{i,t-1} + \beta_{28} MB_{i,t-1} * D_{i,t-1} * R_{i,t-1} + \beta_{29} LIT_{i,t-1} \\
& + \beta_{30} LIT_{i,t-1} * D_{i,t-1} + \beta_{31} LIT_{i,t-1} * R_{i,t-1} + \beta_{32} LIT_{i,t-1} * D_{i,t-1} * R_{i,t-1} + e_{i,t}
\end{aligned}
$$

Variable	Pred. Sn.	Model (1) Agency cost=STDRET		Model (2) Agency cost=SPREAD	
Panel A: ΔROA is the measure of change in operating performance (ΔPERFORM)					
Intercept	?	0.203	<.0001	0.124	<.0001
D	+	−0.004	0.918	0.033	0.313
R	+	0.029	0.621	0.079	0.126
DR	+	0.121	0.331	0.140	0.216
ΔROA	?	0.008	0.810	−0.055	0.053
*ΔROA*D*	?	−0.102	0.083	0.024	0.641
*ΔROA*R*	?	−0.031	0.441	0.089	0.013
*ΔROA*DR*	+	−0.232	0.147	−0.273	0.062
AgencyCost	?	−3.039	<.0001	−1.404	0.001
*AgencyCost*D*	?	0.453	0.521	−0.592	0.300
*AgencyCost*R*	?	−0.511	0.358	−1.911	0.003
*AgencyCost*DR*	+	−0.228	0.835	1.039	0.246
*AgencyCost*ΔROA*	?	3.348	0.075	3.308	0.023
*AgencyCost*ΔROA*D*	?	3.596	0.049	0.288	0.835
*AgencyCost*ΔROA*R*	?	0.310	0.641	−1.769	0.017
AgencyCost*ΔROA*DR	+	9.661	0.007	8.001	0.003
Leverage	?	−0.059	0.015	−0.038	0.102
Leverage*D	?	−0.017	0.699	−0.041	0.322
*Leverage*R*	?	−0.013	0.831	−0.054	0.333
*Leverage*DR*	+	0.181	0.186	0.240	0.076
Log(assets)	?	−0.007	0.007	−0.001	0.507
*Log(assets)*D*	?	0.002	0.671	0.003	0.371
*Log(assets)*R*	?	0.000	0.938	0.003	0.440
*Log(assets)*DR*	−	−0.029	0.033	−0.034	0.008
MB	?	−0.005	0.048	−0.007	0.008
*MB*D*	?	−0.005	0.040	−0.007	0.087
*MB*R*	?	0.000	0.948	0.001	0.540
*MB*DR*	−	−0.016	0.019	−0.017	0.010
LIT	?	0.004	0.664	0.004	0.544
*LIT*D*	?	−0.017	0.151	−0.015	0.173
*LIT*R*	−	−0.019	0.348	−0.012	0.499
*LIT*DR*	+	0.034	0.035	0.007	0.889
F-test: $\beta_{15}+\beta_{16}$=0		9.971	0.000	6.232	0.016
N		13393		13075	
Adj-R^2 (%)		23.37		23.11	
Panel B: ΔCFO as the measure of change in operating performance (ΔPERFORM)					
Intercept	?	0.188	<.0001	0.076	<0.0001
D	+	−0.026	0.433	0.038	0.073
R	+	0.048	0.237	−0.027	0.265
*D*R*	+	0.072	0.542	0.518	<0.0001
ΔCFO	?	−0.078	0.337	−0.107	0.115
*ΔCFO*D*	?	0.013	0.923	0.020	0.808
*ΔCFO*R*	?	0.066	0.533	0.068	0.603
*ΔCFO*DR*	+	−0.325	0.201	−0.255	0.242
AgencyCost	?	−2.622	<.0001	0.053	0.802
*AgencyCost*D*	?	0.600	0.283	−0.899	0.002
*AgencyCost*R*	?	−0.775	0.121	−0.730	0.009
*AgencyCost*DR*	+	−1.108	0.536	−1.987	0.079
*AgencyCost*ΔCFO*	?	3.453	0.022	−0.786	0.371
*AgencyCos*ΔCFO D*	?	0.874	0.731	1.606	0.173
*Agency Cost*ΔCFO R*	?	−2.417	0.130	−1.780	0.318
AgencyCost*ΔCFO*DR	+	**7.702**	**0.004**	**6.206**	**0.001**

Leverage	?	−0.076	0.002	−0.043	0.043
*Leverage*D*	?	0.028	0.445	−0.016	0.639
*Leverage*R*	?	−0.004	0.923	−0.037	0.349
*Leverage*DR*	+	0.330	0.011	0.269	0.024
Log(assets)	?	−0.005	0.012	0.003	0.040
*Log(assets)*D*	?	0.002	0.601	0.003	0.320
*Log(assets)*R*	?	−0.002	0.692	0.009	0.003
*Log(assets)*DR*	−	−0.026	0.067	−0.040	0.000
MB	?	−0.008	0.000	−0.014	<.0001
*MB*D*	?	−0.004	0.025	−0.006	0.004
*MB*R*	?	0.001	0.504	0.001	0.580
*MB*DR*	−	−0.024	0.000	−0.029	<.0001
LIT	?	0.000	0.950	0.007	0.245
*LIT*D*	?	−0.003	0.752	−0.018	0.071
*LIT*R*	−	−0.021	0.173	−0.018	0.190
*LIT*DR*	+	0.110	0.022	0.020	0.656
F-test: $\beta_{15}+\beta_{16}=0$		5.284	0.049	4.426	0.001
N		12275		12110	
Adj-R^2 (%)		21.39		16.48	

This table reports the results of the testing the association between the effect of bidder's timely loss recognition on post-acquisition operating performance and bidder's ex ante agency costs. Timely loss recognition is measured with both the incremental coefficient on negative stock returns (β_{15}) and the sum of the coefficients on positive and negative stock returns ($\beta_{15}+\beta_{16}$). OLS regression is estimated with clustered standard errors at the firm level to derive *p*-values (Petersen, 2009). The dependent variable *X* is earnings (item 18 +scaled by prior year market value of equity). *R* is 12-month compound returns beginning 9 months before the fiscal year end. Both *X* and *R* are measured for the fiscal year prior to acquisition announcements. *D* is a dummy variable coded 1 if *R* is less than 0, and 0 otherwise. *AgencyCost* is ex ante agency costs measured by either the standard deviation of daily stock returns (*STDRET*) or the average of daily bid-ask spread (*SPREAD*) over the fiscal year prior to acquisition announcements. All firm characteristics are for bidders and are measured at the fiscal year end prior to acquisition announcements. *Leverage* is equal to book value of debt (item 34+item 9) scaled by book value of total assets. *Log(assets)* is the logarithm of bidder's total assets (item 6). *MB* is bidder's market value (item 199* Item 25) divided by the book value of equity (item 60). *LIT* is litigation dummy, coded 0 if the fiscal year prior to an acquisition falls in the following periods: 1980–1981, 1986–1987, and 1992–2001, and 1 otherwise. Panel A reports results of using *ROA* as the measure of operating performance. ΔROA_t is equal to $ROA_{t+3}-ROA_{t-3}$, where *ROA* is net income (item 172) scaled by total assets (item 6). Panel B reports results of using *CFO* as the measure of operating performance. ΔCFO_t is equal to $CFO_{t+3}-CFO_{t-3}$, where *CFO* is cash flow from operations scaled by total assets (item 6). For the years after 1987, cash flow from operations is item 308, and for the years prior to 1987, cash flow from operations is computed as (item 110−(Δitem 4+Δitem 34−Δitem 5−Δitem 1)).

obtained from bootstrapping, we calculate that a one standard deviation increase in the Basu coefficient (0.29) leads to an increase in *ROA* in the magnitude of 10.8% ($100\times 0.029/0.267$) and an increase in *CFO* in the magnitude of 12.8% ($100\times 0.029/0.226$).[8] Similarly, a one standard deviation increase in the total timeliness coefficient ($\beta_3+\beta_4$) in Eq. (1) leads to an increase in *ROA* in the magnitude of 12.5% ($100\times 0.028/(0.267-0.043)$) and an increase in *CFO* in the magnitude of 17.1% ($100\times 0.028/(0.226-0.062)$). We conclude that the post-acquisition results are both economically and statistically significant.

Table 7 reports the test of H2 using ΔROA and ΔCFO to measure post-acquisition performance. In Panel A, when we use *ROA* to measure operating performance H2 is supported: the interaction between stock return volatility (*STDRET*) and $\Delta ROA\,DR$ is positive and statistically significant at the 0.01 level. It is also positive and statistically significant at the 0.01 level for bid-ask spread regression (*SPREAD*). Furthermore, the sum of β_{15} and β_{16} is positive for both measures of ex ante agency cost. The *F*-test that $\beta_{15}+\beta_{16}$ equals zero is rejected at the 0.01 for the return volatility regression (*STDRET*) and the 0.05 level for the bid-ask spread regression (*SPREAD*).

Panel B reports the results when we use ΔCFO to measure post-acquisition operating performance. The coefficients on the interaction between both ex ante agency cost measures and $\Delta CFO\,DR$ are positive and statistically significant at the 0.01 level. The sum of β_{15} and β_{16} is positive for both measures of ex ante agency costs, and the *F*-test that $\beta_{15}+\beta_{16}$ equals zero is rejected at the 0.05 level for return volatility regression (*STDRET*) and the 0.01 for bid-ask spread regression (*SPREAD*). In conclusion, H2 is supported by both measures of post-acquisition operating performance, both measures of timely loss recognition, and both measures of ex ante agency costs.

5.2. Subsequent divestitures

Assuming that post-acquisition divestitures are indicative of poorer acquisition-investment decisions, we expect that targets acquired by firms with greater accounting conservatism are less likely to have subsequent divestitures. In addition, we expect that firms with more timely loss recognition will abandon losing projects more quickly. That is, firms with more conservative accounting are less likely to have divestitures, but when they divest they will do so more quickly.

We link an acquisition to a subsequent divestiture by merging the acquisition sample with a divestiture sample obtained from SDC. We define an acquisition as having a subsequent divestiture if the acquired target has the same

[8] Though sample size reduces when ΔROA (ΔCFO) serves as the proxy for acquisition profit, the Basu coefficient distribution remains similar.

Table 8
Bidder timely loss recognition and subsequent divestitures (dependent variable is *X* which is earnings scaled by market value of equity).

Variable	Pred. Sn.	Coeff.	*p*-Value
Panel A: timely loss recognition and the likelihood of subsequent divestitures $X_{i,t-1} = \beta_1 + \beta_2 D_{i,t-1} + \beta_3 R_{i,t-1} + \beta_4 D_{i,t-1} * R_{i,t-1} + \beta_5 Divestiture_{i,t} + \beta_6 Divestiture_{i,t} * D_{i,t-1} + \boldsymbol{\beta_7 Divestiture_{i,t} * R_{i,t-1}} + \boldsymbol{\beta_8 Divestiture_{i,t} * D_{i,t-1} * R_{i,t-1}} + e_{i,t}$			
Intercept	?	0.079	<0.0001
D	+	−0.007	0.025
R	+	−0.019	<0.0001
*D*R*	+	0.276	<.0001
Divestiture	?	−0.023	<0.0001
*Divestiture*D*	?	0.012	0.053
*Divestiture*R*	+	0.021	<0.0001
Divestiture*DR	−	**−0.067**	**0.038**
F-test: $\beta_7+\beta_8=0$	−	−0.046	0.079
N		17202	
Adj-R^2 (%)		8.57	
Panel B: timely loss recognition and the timing of subsequent divestitures			
Intercept	?	0.082	<.0001
D	+	−0.015	0.563
R	+	−0.112	<0.0001
*D*R*	+	0.475	<0.0001
LAPSE	?	−0.004	0.254
*LAPSE*D*	?	0.005	0.517
*LAPSE*R*	+	0.027	<0.0001
LAPSE*DR	−	**−0.051**	**0.042**
F-test: $\beta_7+\beta_8=0$		−0.024	0.215
N		3082	
Adj-R^2 (%)		8.22	

This table presents results of subsequent divestiture analysis. Panel A reports the results of testing the probability of post-acquisition divestiture and bidder firm's timely loss recognition using Eq. (2). Timely loss recognition is measured with both the incremental coefficient on negative stock returns (β_7) and the sum of the coefficients on positive and negative stock returns ($\beta_7+\beta_8$). The sample consists of 17,202 acquisitions, of which 3082 targets are subsequently divested, 11,973 targets are not divested, and 2147 acquisitions are not completed. We define a divestiture if the acquired target has the same three-digit SIC code as the subsequently divested target. The mean and median values of divestiture are 258 million$ and 54 million$, respectively. Panel B reports results of testing the timely loss recognition and the duration between the announcement of an acquisition announcement and its subsequent divestiture based on the 3082 divestitures. The dependent variable *X* is earnings (item 18 scaled by prior year market value of equity). *R* is 12-month compound returns beginning 9 months before the fiscal year end. Both *X* and *R* are measured for the fiscal year prior to acquisition announcements. *D* is a dummy variable coded 1 if *R* is less than 0, and 0 otherwise. *LAPSE* is natural log of the number of months between an acquisition announcement and its subsequent divestiture.

three-digit SIC code as the divested firm over a 7-year post-acquisition window. Results are comparable if the definition of divestitures is narrowed to four-digit SIC codes. Among the 17,202 acquisition bids in our sample, 15,055 are completed.[9] Of these completed acquisitions, 3082 of the acquired targets are subsequently divested, and 11,973 are not, which represents a 20.7% divesture rate.[10] The mean (median) value of divestitures is 258 (54) million$.

Panel A of Table 8 reports the results of examining the association between accounting conservatism and the likelihood of divestures. We estimate an equation similar to Eq. (2) by replacing *AcqCAR* with a divestiture dummy, *Divestiture*, coded 1 if an acquisition has a subsequent divestiture and 0 otherwise. Firm characteristics and their interaction terms with returns (*R*), negative return dummy (*D*) and negative returns (*DR*) are omitted for brevity; however, the results are similar when these variables are included in the regression. Confirming our expectation, in the first column the coefficient on *Divestiture DR* is negative and significant at the 0.05 level. The interaction of divestiture and the total timeliness coefficient ($\beta_7+\beta_8$) is also negative, and the *F*-test that $\beta_7+\beta_8$ equals zero is rejected at the 0.10 level. The evidence indicates that acquisitions made by firms with timely loss recognition are less likely to be divested.

For those acquisitions with divestitures the time or duration before a divestiture occurs is further investigated. An equation similar to Eq. (2) is estimated by replacing *AcqCAR* with *LAPSE*, defined as the natural logarithm of the number of months between an acquisition announcement and the divestiture. Again firm characteristics and their interaction terms are omitted for brevity, although the results are similar when these variables are included. Panel B of Table 8 reports this analysis. There is a negative and statistically significant coefficient at the 0.05 level on the interaction term of *LAPSE* with negative returns, which suggests that managers in firms with timely loss recognition act more quickly to abandon negative

[9] Among the remaining firms, 904 are withdrawn, 840 are pending, and 403 are either intended to be completed or their status is unknown.
[10] The 20.7% divestiture rate is comparable to 20.2% documented in Mitchell and Lehn (1990), but is lower than 43.9% documented in Kaplan and Weisbach (1992).

NPV investments. However, the *F*-test that $\beta_7+\beta_8$ equals zero cannot be rejected at the .10 level. Therefore, we do not find evidence that timely loss recognition is associated with timely project abandonment when total timeliness is used to measure accounting conservatism.

In sum, acquirers are less likely to divest when they have greater accounting conservatism, which is evidence of more successful ex ante acquisition-investment decisions. However, if acquirers do divest there is evidence that they are likely to do so more quickly. The economic significance is evaluated based on the first column of Panel A in Table 8, and the distribution of the Basu coefficient from bootstrapping. A one standard deviation increase in the Basu coefficient (0.29) leads to a decrease in the probability of divestiture by a magnitude of 43% ($100 \times 0.029/0.067$), which translates into an avoidance of divestiture value of 110 million$ ($258 \times 43\%$).[11] Similarly, a one standard deviation increase in the total coefficient ($\beta_3+\beta_4$) in Eq. (1) leads to a decrease in the probability of divestiture by a magnitude of 59% ($100 \times 0.028/(0.067-0.021)$), which translates into an avoidance of divestiture value of 154 millionmillion$. The economic impact of timely loss recognition on abandonment timing is evaluated using the results in Panel B of Table 8. When the Basu coefficient of an acquirer increases by one standard deviation, the acquirer undertakes an earlier abandonment by a magnitude of 44 months ($e^{(0.195/0.051)}$).[12] Since there is not a statistically significant result based on the total timeliness measure of loss recognition, we do not evaluate its economic effect.

6. Sensitivity analysis

6.1. Relation between timely loss recognition and governance structure

We argue in Section 1 that conservative accounting requires other mechanisms to enforce its implementation because managers have incentives to deviate from its consistent application over time. Recent studies provide evidence consistent with this view. Garcia Lara et al. (2009) document a positive relation between accounting conservatism and a composite measure of corporate governance. Similar conclusions are reached by Ahmed and Duellman (2007) and Beekes et al. (2004). In addition, Basu et al. (2001a, 2001b) argue that high-quality external auditors enforce accounting conservatism to protect their reputations and avoid litigation.

We examine whether the positive relation between accounting conservatism and governance structures documented in the above studies is born out in our acquisition sample. The acquisition sample is merged with data on directors from RiskMetrics resulting in a reduced sample of 4687 observations. Following Ahmed and Duellman (2007) and Basu et al. (2001a, 2001b) we measure governance by board independence and auditor quality.[13] We expand the Basu model in Eq. (1) and interact each of the two governance variables (one at a time) with the other variables in the model. In untabulated results, we find evidence consistent with prior literature that firms have more timely loss recognition in the presence of stronger governance. These results are consistent with our argument that governance mechanisms in place facilitate the implementation of conservative accounting policies and ensure their continuity over time.

6.2. Estimation issues

The Basu (1997) model is used to measure timely loss recognition throughout the paper. As a robustness check we also estimate the model in Ball and Shivakumar (2005). Specifically, in Eq. (2) accruals are substituted for earnings (*X*), cash flows are substituted for returns (*R*), and the dummy variable, *D*, is based on the sign of cash flows. We find a positive and statistically significant coefficient on the interaction of negative cash flows and three-day CAR, which is consistent with the results based on Basu's measure. Khan and Watts (2009) propose C-SCORE as a firm-year measure of accounting conservatism. All results continue to hold based on this measure. Therefore, we conclude that our results are robust to alternative estimations of accounting conservatism.

Following Basu (1997) and LaFond and Roychowdhury (2008), we test the association between timely loss recognition and acquisition profitability over a 4-year horizon. Specifically, the variables *X* (earnings) and *R* (stock returns) in Eq. (1) are accumulated over four fiscal years before acquisitions, and *Leverage*, *Log*(*assets*), *MB*, and *LIT* are measured at the beginning of the 4-year estimation period. Untabulated results show that firms which incorporate economic losses in a timely manner have higher acquisition profitability. These results hold for using both relative timeliness and total timeliness of loss recognition. In addition, results are qualitatively the same if we measure *X* and *R* over a 3- or 5-year horizon.

Throughout the paper we calculate returns (*R*) in the Basu (1997) model compounded over the period 9 months before fiscal year end through 3 months after fiscal year end. However, one could argue that timely loss recognition depends on auditors having the news information (stock returns) available to them at the time of the audit, in which case fiscal year

[11] The mean of divestiture value is $258 million as shown previously.

[12] The distribution of the Basu coefficient for the divestiture sample (*N*=3082) has a mean of 0.308, median of 0.241, and standard deviation of 0.195. The time between an acquisition and subsequent divestiture has a mean of 32 months, median of 28 months, and standard deviation of 23 months.

[13] Board independence is measured as the percentage of board members who are neither hired by the current CEO nor have a past or current affiliation with the company. Audit quality is based on whether the auditor is an industry expert. Following Francis et al. (2005) an audit firm is defined as an industry expert if it has the largest market share in a given industry in a given year. Industry is based on two-digit SIC code, and market share is based on the percentage of industry assets audited by each audit firm.

returns may be more appropriate (Easton, 1999; Ryan and Zarowin, 2003). When we recalculate the returns variable (*R*) using compounded returns over the fiscal year, we find comparable results as those reported in Tables 4 and 5.

The association between timely loss recognition and early abandonment could be driven by political costs associated with potential antitrust scrutiny, i.e., acquirers report conservatively to mitigate political costs and divest more quickly in response to political scrutiny. To address this concern, we obtain a list of acquisitions challenged by the US Federal Trade Commission and the Antitrust Division of Department of Justice for years 2000, 2004 and 2006. There are only two acquisitions in our sample that were challenged and which resulted in divestitures.[14] Therefore, it seems unlikely political costs drive the results for divestitures.

All models are estimated using robust standard errors clustered at the firm level to address the potential concern for serial dependence due to multiple acquisitions by individual firms, and the results reported in the tables are based on this estimation procedure (Petersen, 2009). As an additional robustness test, for firms with multiple acquisitions, we undertake three separate analyses using only the first acquisition, only the last acquisition, and only those acquisitions that are at least 3 years apart. The study's results are robust to these three alternative samples.

A related concern is that non-operating events such as prior or concurrent acquisitions may confound our analysis. Specifically, the measurement of timely loss recognition and the independent variables in Eq. (2), as well as other control variables in Eq. (2) (i.e., *Leverage*, *Log(assets)*, *MB*, *LIT*), could be affected by prior and concurrent mergers, restructurings and other major non-recurring transactions (Hribar and Collins, 2002). However, the above analysis using only the first acquisition for multiple acquirers, or acquisitions that are at least 3 years apart, demonstrates that the results are not affected by prior and concurrent acquisitions.

6.3. Alternative explanation based on managerial skill

If managers are skilled at making good acquisition and abandonment decisions, the observed positive relation between past timely loss recognition and expected acquisition profitability could be unrelated to accounting conservatism per se and may simply reflect superior managerial ability. However, there is no reason to believe an association exists between managerial talent and ex ante agency costs. Therefore based on the evidence in Table 5, we conclude that the governance role of accounting conservatism rather than managerial skill better predicts the study's results for H2.

7. Conclusion

We investigate whether timely loss recognition is associated with a firm's acquisition-investment decisions. We find that firms with greater accounting conservatism make more profitable acquisitions as evidenced by ex ante market perceptions (larger announcement returns), higher post-acquisition operating performance, and fewer but more timely divestiture decisions. The association between timely loss recognition and acquisition profitability is stronger for firms with greater ex ante agency costs measured by stock return volatility and bid-ask spread. Results are robust to using both the incremental timeliness of loss recognition relative to gains and the total timeliness of loss recognition.

Thus we provide evidence consistent with conservative accounting being part of a firm's monitoring technology to address agency problems and to improve the efficiency of investments with respect to acquisitions (Bushman et al., 2004). Our results also have implications for accounting research examining the economic consequences of timely loss recognition. Prior work focuses on the demand for accounting conservatism (e.g., Givoly and Hayn, 2000; Ahmed et al., 2002; LaFond and Roychowdhury, 2008; Beatty et al., 2008). Our study adds to this literature by examining the economic consequences and demonstrating that firms with greater timeliness of loss recognition make more profitable investments.

Finally, as noted throughout the paper, the implementation of conservatism requires consistent enforcement through other governance mechanisms such as independent boards of directors and high-quality external auditors. As a consequence, we cannot rule out the possibility that other governance mechanisms are associated with both accounting conservatism and better acquisition policies, and that accounting conservatism per se may not necessarily affect acquisition decisions.

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[14] The list of challenged acquisitions that were settled with a divestiture consent decree was obtained from the Annual Reports to Congress Pursuant to the Hart-Scott-Rodino Antitrust Improvements Act of 1976 (Jointly With The Antitrust Division of the United States Department of Justice) at the Federal Trade Commission website (http://www.ftc.gov/bc/anncompreports.shtm). One challenged acquisition in our sample is made by Boston Scientific Corporation who acquired Guidant Incorporation. The acquirer was required to divest Guidant's vascular business. The other challenged acquisition was made by McClathy Corporation in 2006 who acquired Knight Ridder Inc. The merged company was required to divest the St. Paul Pioneer Press.

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