Do firms adjust their acquisition strategies in response to changes in financial reporting incentives?

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ABSTRACT

This paper studies the acquisition strategies of firms in response to different financial reporting incentives. We focus on the use of earnouts following changes to the accounting treatment of contingent consideration following the 2008 introduction of SFAS 141(R). The revised standards require earnout fair value to be recorded at acquisition date, while earnouts under the previous standards were only reported if, and when, they were paid. Our results indicate that earnout usage decreases in response to increased financial reporting costs of contingent liabilities. This decrease is strongest among financially constrained bidders, who are also observed to decrease participation in M&A markets. A Heckman probit model is employed to correct for sample selection bias. The implications of these findings for deal design and success are discussed.

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1. Introduction

The motivations, structure and outcomes of mergers and acquisitions (M&A) are widely studied aspects of corporate finance. Firms with greater financial flexibility, cash holdings, and access to credit markets and more likely to pursue acquisitions (Harford, 1999; Almeida, Campello and Hackbarth, 2011). However, there is limited research into the behavior of financially constrained firms in the market for corporate control.

We examine the use of earnout agreements in acquisitions and the effect of regulatory changes that impact their accounting treatment. Earnouts are a contingent payment, conditional on a future outcome, and may form a component of the total deal consideration paid from an acquirer to a target, often in combination with a cash or stock payment. The earnout, therefore, has two primary benefits. Firstly, it can serve to limit the valuation risk of a target firm, and secondly, it defers part of the acquisition payment. When the net benefits of earnouts are high in the overall context of the deal, acquirers have a motivation to include an earnout as part of the deal consideration (although the average size of an earnout in deals which include them is around 30%. Bates et al (2016) find that financially constrained bidder firms are more likely to use earnouts due to the deferral of payment benefit.

Our study contributes to the M&A literature by studying the effect of recent accounting standards changes on the use of earnouts, and the subsequent participation in the market for corporate control by

financially constrained firms. The 2007 adoption of Statement of Financial Accounting Standards (SFAS) 141(R) (FASB, 2007) requires acquirers to record earnouts at the fair value at the closing date of an acquisition. This marks an important shift in the accounting treatment of earnouts.[2] Under the previous SFAS 141 standard, acquirers were permitted to delay reporting of earnouts until such a time as the contingencies for their payment were resolved. In situations where the earnout conditions are not met, acquirers could appear to totally ignore this component of an acquisition purchase.

In SFAS 141(R), the FASB commentary notes that, despite the difficulties of measuring contingent payment fair value, the alternative as permitted under the earlier SFAS 141 rule was worse: "... to delay recognition of, or otherwise ignore, asset or liabilities that are difficult to measure would cause financial reporting to be incomplete and thus diminish its usefulness in making economic decisions" (FASB, 2007: 198).

The ability to obscure a component of an acquisition purchase is an additional benefit of earnouts, particularly to bidders that are financially constrained. The introduction of SFAS 141(R) removes this benefit. As such, we expect that following SFAS 141(R), financially constrained firms make fewer acquisitions, and are less likely to use earnouts.

A focus of this paper over earlier studies of earnout use is adjusting for the role that sample selectivity plays. Earnouts are relatively more beneficial to financially constrained acquirers, and may prove decisive in the firms' ability to pursue M&A. Revisions to business combination accounting that enforce and bring forward the reporting of earnout values may restrict these firms from certain acquisition activities.

[2] Barth (2008) identifies that this standard reflects an accounting principle derived, in turn, from the conceptual framework, "that the [acquirer] entity's statement of financial position should reflect the economic resources it controls and the claims to those resources. If two entities combine then the controlling entity should recognize the assets acquired and liabilities assumed in connection with the acquisition" (Barth, 2008:1164).

Using M&A data for deals announced between 1 January 1988 and 31 December 2016 by U.S. bidders, we find that accounting standards changes affect the types of firms that become acquirers as well as the structure of deals. Financially constrained firms are more likely to use earnouts as part of the M&A consideration. However, increasing financial reporting costs for these contingent liabilities since SFAS 141(R) mean that both earnout usage and the participation of financially constrained firms in the market for corporate control decrease under the stricter reporting standards. This has potential impacts for the structure of deals, and more generally, whether there is a change in the net outcomes of M&A.

Our results provide important evidence that the increasing popularity of earnouts in the early 2000's was, in part, driven by accounting treatment effects. Their growth in popularity after the introduction of SFAS 141 was strongest among financially constrained firms, while the subsequent SFAS 141(R) changes have affected the nature of the M&A market by limiting the participation of financially constrained bidders.

A further line of inquiry we examine is the impact of earnout accounting treatment changes on the total value of consideration paid and the on the choice of alternative methods of payment. Kohers and Ang (2000) report a substantially higher takeover premia in earnout acquisitions over non-earnout acquisitions, after controlling for target firm information asymmetry and other payment consideration factors. This earnout-acquisition premium puzzle is questioned by Barbopoulos and Adra (2016) who contend that the earnout premium may, at least partially, be explained by adverse selection considerations. By contrast, our analysis presents evidence that the accounting treatment may also explain the earnout premium puzzle.

The outcomes of our study provide valuable insight into the impact of changed accounting standards and the link between M&A financing and form of payment. There are implications too for future

accounting and finance research in the correction of endogenous selection bias, particularly in the topic of M&A.

The remainder of this paper is structured as follows. Section 2 provides an overview of earnouts and their accounting treatment, as specified under SFAS 141 and SFAS 141(R). Section 3 discusses the data sources and preliminary analysis. Section 4 considers how accounting standards impact M&A activity and the decision of firms to make acquisitions. In Section 5, the effect of financial reporting standards on the optimality of alternative methods of payment in M&A is studied. Section 6 concludes.

2. Earnouts and their Institutional Setting

a. Earnouts and M&A

Earnouts are a contingent component of deal consideration, meaning that the earnout value paid to the target's owners is conditional on some future, post-acquisition outcome, which is specified in the acquisition agreement.[3] The conditions of the payment (or, possibly, payments) may be either financial outcomes (such as revenue and earnings targets), or non-financial (including successful clinical trials, intellectual property patent award, regulatory approval, and legal defences). In the majority or earnouts, these post-acquisition outcomes are a linear or stepwise function of the performance of the target's assets in the business combination (Cain et al, 2011).

The most commonly studied benefit of earnouts is their role in bridging the valuation gap between bidders and targets where information asymmetry is high. High information asymmetry is common in

[3] There is scope in a merger agreement to include contingent consideration provisions that require a seller to return consideration to the acquirer that has already been paid conditional on future outcomes. Where earnouts are contingent consideration liabilities, these "reverse earnouts" are contingent consideration assets. The focus of our examination is restricted to contingent consideration liabilities (earnouts).

merger negotiations, as the target management is likely more informed about the value of the target's assets and future prospects than the bidder. This leads to targets holding a higher valuation of their standalone worth than bidders. The use of earnouts helps bidders mitigate the adverse selection problem faced in this situation and avoid overpaying.

Cain et al (2011) observe a positive relationship between the size of the earnout, as a proportion of the total deal consideration, and uncertainty in target valuation. This is also consistent with papers that identify an increased likelihood of earnout usage in deals involving private targets (Kohers and Ang, 2000; Datar et al, 2001; Cain et al, 2011), new ventures (Ragozzino and Reuer, 2009) targets that operate in different industries from the bidders, and cross-border acquisitions (Kohers and Ang, 2000).

A further benefit of earnout agreements relating to contract theory is the incentive role they can play in retaining high-performing target managers. In certain acquisitions, the target management may add high idiosyncratic human capital value to the business. Kohers and Ang (2000) describe the use of earnouts in this scenario as a type of 'retention bonus'. As such, earnouts are one contracting mechanism acquirers may use to overcome moral hazard in relation to their continued involvement (Cain et al, 2011).[4]

A more recently studied benefit of earnouts is the deferred payment characteristic. The average earnout term estimated is approximately 2 to 3 years (Cain et al, 2011; Barbopoulos and Adra, 2016) but often cover a period up to five years from the deal completion (Cadman et al, 2014) and may even set an expiration date 20 years after the acquisition (Cain et al, 2011). Bates et al (2016) study the deferral payment nature of earnouts to show that bidders have a motivatation to use earnouts as a form of seller financing. Earnouts provide bidders with additional financial slack, meaning they can invest

[4] Other contracting mechanisms to limit moral hazard in acquisitions include stock options, lock-up periods).

today at their discretion the earnout consideration value until the conditions for its payment are met. Bates et al (2016) show that financially constrained firms derive greater benefit than non-financially constrained firms from earnouts, and empirically demonstrate that they are more likely to include earnouts in their acquisition agreements.

The role of leverage in acquisitions and its impact on acquisition outcomes is a growing focus of the M&A literature. For example, Murray et al (2017) find evidence that the changes in bidder leverage dominate the form of payment effect. Almeida et al (2011) analyse the interplay of firm financial flexibility and the likelihood of being acquired. We build upon this literature in this paper by studying the incentives for bidders to use earnouts when they are financially constrained as well as in the face of changing accounting standards for the reporting of earnouts. We discuss the relevant accounting standards in the next section.

b. SFAS 141 and SFAS 141(R)

The FASB revised the financial reporting requirements for business combinations in 2007, with the SFAS 141(R). Effective from 15 December 2008, the revised standard marked a significant change in the way acquirer firms accounted for earnouts. Under SFAS 141(R), acquirers must recognise the fair value of contingent consideration at the time of acquisition and subsequently re-measure the earnout fair value in each quarterly reporting period. In the case of cash and floating share (fixed share) earnouts, which comprise the majority of earnout contracts, their fair value is reported as a liability (equity) on the acquirer's balance sheet.

Cadman et al (2013) use this natural experiment to study the information content of the periodic earnout fair value adjustments required under SFAS 141(R). Allee and Wangerin (2013) argue that that re-measurement of earnout fair value under SFAS 141(R) increases financial reporting costs. Their results indicate that changes to the accounting treatment of earnouts increased the financial reporting costs of earnout use, and impacted bidders' decision to use an earnout or not.

An issue for financially constrained bidders that arises from the periodic re-measurement of earnout fair value under the revised standards is the increased volatility of acquirer's reported earnings and financial ratios. This occurs as changes to the fair value of earnouts over their life are recorded as gains or losses on the income statement. Financially constrained bidders may increase their risk of debt covenant breaches, default risk, and litigation risk as a result. Consequently, we expect that SFAS 141(R) adversely affects financially constrained bidders more than non-financially constrained bidders.

Furthermore, financially constrained acquirers who are motivated to use earnouts as an alternative to external financing, are required under SFAS 141(R) to immediately record fair value at the acquisition date. Prior to the adoption of SFAS 141(R), acquirers were permitted to defer reporting of earnouts until the resolution of the contingent conditions for payment. When the earnout was paid, the value was recognised as goodwill. Depending on the length of the earnout contract, this could be several years after the acquisition date and, if the conditions for the payment were not met, the acquirer could avoid ever reporting the earnout value. After SFAS 141(R), the increase in an acquirer's reported total liabilities value is no longer able to be deferred. While the earnout still has the advantage of deferring payment, this change to the reporting standards further deteriorates the attractiveness of earnouts as a financing source, especially for firms that are overleveraged, and/or earnings-sensitive (Cadman et al, 2011).

From the discussion above, we expect that following the enactment of SFAS 141(R), earnout use decreased, and that this decline in usage is strongest among financially constrained bidders. We further expect that financially constrained bidders become more limited in their involvement in the market for corporate control following this change.

It is worth noting that while the 2001 adoption of SFAS 141 had little direct implication for the accounting treatment of earnouts, it has relevance for our study due to the changes in the accounting for business combinations. The previous accounting standards incentivised bidding firms to use stock

as the method of payment in order to qualify for the 'pooling of interests' method of accounting.

For the period November 1970 to June 2001 (after which SFAS 141 became effective) the accounting standards for business combinations were contained in Accounting Principles Board (APB) Opinion 16 (APB, 1970). This standard permitted two methods of accounting for business combination, subject to certain criteria. These methods were the 'purchase' method and the 'pooling' method. The purchase method requires revaluation of target assets in the business combination. When the fair value of these assets is higher than their book value (as is typically the case) a positive goodwill value is recorded. Under the pooling method, the business combination reports the sum of the acquirer's and target's book value of assets, and therefore avoids the need to report and subsequently amortise goodwill.

APB Opinion 16 specifies that for the pooling method to apply, the acquirer must issue common stock in exchange for at least 90 percent of target common stock that remains outstanding at the effective date of the acquisition. That is, excluding any pre-bid stakes ('toeholds'), if 90 percent or more of the deal consideration is bidder's stock then the pooling method should be used. Where this condition is not met, acquirers should use the purchase method to account for the acquisition.

Several papers identify the benefits of pooling over purchase method for acquirers. The three main advantages are (i) avoiding the need to regularly amortise goodwill; (ii) avoiding the dampening impact of asset revaluation on performance ratios, and (iii) the 'bootstrapping' effect, where overvalued bidders can appear to inflate their EPS through stock-swap acquisitions of lower EPS targets (see, for example, De Bodt, Cousin and Officer, 2017). The accounting treatment affected the design of mergers. For many offers in the pre-SFAS period, qualifying to use the pooling method was a condition of the acquisition (Nathan, 1988). The value of the pooling method over purchase method is demonstrated by acquirers paying higher premiums in order to qualify for this accounting treatment (Ayers et al, 2002; Robinson and Shane, 1990).

Since SFAS 141, pooling has not been applicable to business combinations. This has led to what some researchers have observed as the "marginalization" of full stock payment in M&A transactions (De Bodt, Cousin and Roll, 2017). We expect that with the increase (decrease) in cash (stock) mergers, earnout usage will increase as a way acquirers can share their risk in mergers.

3. Data

M&A data is obtained from Thomson Reuters SDC Mergers and Acquisitions database (SDC) for all deals announced between 1 January 1988 and 31 December 2016 that meet the following requirements:

- The bidder is a U.S. listed firm;
- The bidder holds a non-controlling stake in the target prior to announcement (less than 50%);
- Targets may be public, private or subsidiary firms;
- The total deal value is at least $1 million;
- The deal is not classified as a repurchase, restructure, spin-off, split-off, equity carve-out, recapitalization, privatization or minority stake purchase;
- Data is available on the status of the deal (those marked as 'unknown' are excluded);
- Accounting, stock price and returns data is available for the bidder.

Accounting data is obtained from Compustat while stock price and return data is sourced from the Centre for Research in Security Prices (CRSP) database. For each announcement, the bidding firms' most recent prior quarter's accounting data is matched to the M&A sample data. Observations with missing data are removed, and accounting variables[5] are winsorized at the 1% level.

Table 1 reports descriptive statistics for the acquisition sample. Our sample consists of 42,689 M&A

[5] Winsorized variables include: book value of debt; earnings before interest, tax, depreciation and amortization (EBITDA) scaled by book assets; property, plant and equipment (PPE) scaled by book assets; selling, general and administrative expense (SGA) scaled by net sales; R&D scaled by net assets; firm-level M/B ratio; and market leverage.

announcements, of which 3,366 comprised an earnout as part of the deal consideration.[6] Deals with earnouts are, on average, smaller in value, and more likely to be paid in acquisitions of private, high industry[7] volatility and R&D-spend targets (consistent with the information asymmetry motivation). Earnouts are also more (less) likely to be associated with stock (cash) payment deals, and where the acquirer is smaller and demonstrating evidence of financial constraint. These statistics support the deferred financing motivation. Surprisingly, the univariate results do not support the findings of prior research of an association between earnout use and cross-industry or cross-border targets.

[Insert Table 1 about here]

Table 1 also reports the differences in firm and acquisition characteristics for financially constrained and non-financially constrained bidders. Bidders are categorised into either subsample based on their Whited-Wu Index (WWI) value (Whited and Wu, 2006), as calculated at the time of the acquisition. The WWI measures the external financing constraints of firms across six factors: cash-flow ratio, dividend payment, debt ratio, and industry- and firm-level sales growth.[8]

Figure 1 shows that the proportion of announced deals which included an earnout agreement has varied over time. In the years prior to 2001, the year in which SFAS 141 became effective, earnouts were used in 5.6% of M&A deals. Since 2001, the proportion of deals with earnouts in any given year has ranged from 8.5% (2016) to 14.4% (2008).[9] The increased use of earnouts during the 2007-2008

[6] Appendix 1 contains a summary of variables used in this paper covering deal and firm characteristics.

[7] Industry, unless otherwise noted, refers throughout this paper to the two-digit Standard Industrial Classification (SIC) code.

[8] We achieve similar results using alternative proxies of financial constraint, including internal financing constraints such as predicted cash needs and the firm's overleverage estimate.

[9] While the SFAS 141(R) effective date is 15 December 2008, this does not mark the date at which firms needed to record contingent liabilities on their financial statements. FASB (2007) specifies that the rules apply to acquisitions commenced since the start of the first reporting period of a firm after 15

period may be explained by the tightening of credit markets, and increased use of earnouts as a form of seller financing, as well as the increased uncertainty and information asymmetry of the extreme market conditions.

[Insert Figure 1 about here]

Consistent with prior literature, deals with earnouts are associated with a significantly higher likelihood of successfully closing.[10] Figure 2 charts the difference in proportion of successful deals and unsuccessful (withdrawn or pending) deals which include earnouts by year. On average, the proportion of deals which successfully close is 3.4% higher when an earnout is involved. The association between earnouts and deal completion is higher since the stricter accounting treatment for earnouts was introduced in the post-SFAS 141(R) period.

[Insert Figure 2 about here]

4. The Impact of SFAS 141 and SFAS 141(R) on M&A Activity

To study the effect of accounting treatment of business combinations and earnouts on the M&A decisions of firms, we first analyze the characteristics of M&A deals under different accounting standards. Specifically, we consider the period during which the following three standards applied: APB No. 16 (January 1988[11] to June 2001), SFAS 141 (July 2001 to November 2008), and SFAS 141 (R) (December 2008 to December 2016). A summary of deal and acquirer characteristics in each of the three periods is presented in Table 2. Consistent with de Bodt, Cousin and Roll (2017) we observe

December 2008. For the majority of firms this means 1 January 2009. However, for firms with financial years that do not align with calendar years, there is some adjustment required. Appendix 2 presents the statistics relating todeals requiring this adjustment.

[10] Statistical tests available from the authors on request.

[11] APB No. 16 became effective in October 1970. We consider the period from the start of our sample, that is, 1988.

a marked increase (decrease) in cash (equity-based) method of payments from pre-2001 (the period of APB No.16) to 2001-2008 (SFAS 141). We also observe this trend continuing into the post-2008 (SFAS 141(R)) period.

[Insert Table 2 about here]

The proportion of deals with earnouts increased substantially at the introduction of SFAS 141. This is consistent with our expectation that once the incentive to use stock as consideration was removed and acquirer firms responded by increasing their use of cash as a method of payment, earnouts became a relatively more attractive way to share valuation risks with the target. Interestingly, the average earnout ratio (calculated as the earnout value divided by the total deal consideration) is relatively stable over the three periods. However, the increase in the average earnout dollar amount has exceeded the increase in average deal value, indicating that earnouts are increasingly being used as a way to part finance larger acquisitions.

The characteristics of acquirers too have shifted in response to accounting policy. Since 2001, there are significantly fewer overleveraged bidders. We attribute this also to the removal of the incentives to use stock payment which would have further advantage for these firms by increasing their financial flexibility. This is supported by the consistent proportion of overleveraged firms under SFAS 141 and SFAS 141(R). Using the broader financial constraint proxy of Whited-Wu, we find a decrease in the proportion of financially constrained acquirers after 2001, from 59.79% to 45.81%, which contracts further following the revised standards for earnout reporting in 2008, down to 29.45%.

We further our analysis of the impact of business combination accounting standards parametrically. Specifically, we estimate the likelihood of a firm making an acquisition during different accounting standards regimes using a set of discrete choice probit models. The results of these estimations are reported in Table 3.

[Insert Table 3 about here]

Our approach is similar to Arikan and Stulz (2016) and Owen and Yawson (2010) in using discrete choice models to predict a firm's likelihood of making an acquisition. Model 1 and 2 measure the likelihood of a firm making an acquisition offer in a given year. We control for known predictors of a firm's acquisitiveness including firm size (total assets), market-to-book ratio, sales growth, dividend decision, and financing constraints. In Model 1 financial constraint is proxied by the Whited-Wu index, with firms with a WWI estimate above the sample median in a given year classified as financially constrained. In Model 2 financial constraint is measured by the leverage ratio of the firm. The results are consistent under both approaches.

We find that financially constrained firms are both less likely to engage in acquisitions, and further discouraged following the introduction of SFAS 141(R) relative to non-financially constrained firms. Control variables have the expected signs. Firms with larger total assets, higher market-to-book ratios, sales growth and non-cash working capital are more likely to also be acquirers.

The relationship between a firm's financial constraints and its likelihood to enter into an acquisition is further explored in Models 3 and 4. Firms in the Compustat universe are classified as financially constrained or non-financially constrained annually, and split into one of two subsamples.[12] Here we analyse a further set of acquisition determinants the extant literature has identified. In line with previous findings we find that dividends, capital expenditure and Tobin's Q (firm size) are negatively (positively) related to the likelihood of a firm being an acquirer in a given year. We also support our earlier finding of a negative impact on the merger market from the adoption of SFAS 141(R).

[12] Our definition of a firm being financially constrained in this part of the analysis is based on a firm having a Whited-Wu Index value above the median in a given year. We perform our analysis using other measures of financial constraint and achieve consistent results. For brevity these are omitted from the present paper.

5. Optimal method of payment under different accounting standards and financial constraints

A concern in this study is the endogenous relationship between the incentives to use particular methods of payment and the participation of bidding firms in the market for corporate control. If firms respond to changes in the relative benefit of earnouts, particularly from a deferred financing reporting cost to an immediate and increased financial reporting cost under SFAS 141(R), then the analysis of deal design is exposed to sample selectivity. In the following analysis we will develop a model to measure the determinants of earnout usage and whether changes to accounting treatment has an impact. As such, 'earnout' is a treatment effect in a sample of deals that are may not be randomly distributed across bidder firms in different periods.

To determine how selectivity may impact our study, we calculate earnout usage in different accounting regimes and in different types of deals. As reported in Table 4, it can be seen that earnouts are persistently more likely to be used by financially constrained acquirers than non-financially constrained acquirers, although this gap has narrowed since SFAS 141(R). Specifically considering the subsample of bids made by financially constrained acquirers (Panel B, Table 4), earnout usage is lower in cash deals, but not significantly different in acquisitions of private, diversifying or cross border targets. This implies that for financially constrained firms, the financing benefits of earnouts are lower post-SFAS 141(R) while the benefit of earnouts in mitigating moral hazard when there is higher target information asymmetry persist. This is consistent with our a priori expectation.

[Insert Table 4 about here]

To control for endogeneity, we apply a two-stage discrete choice Heckman correction model. Where the standard Heckman correction model employs a discrete choice model in the first stage and a linear regression in the second stage, the discrete choice Heckman model (sometimes referred to as the Heckman probit, or Heck-it model) is characterized by having a binary dependant variable in both the first and second stage (Heckman, 1974; Heckman, 1979; Dubin and Rivers, 1989). Our model for

testing the determinants of earnout usage is given by the form in Equation 1:

$$Earnout = \alpha + \beta_1 FinCon + \beta_2 SFAS141R + \beta_3 FinCon * SFAS141R + \sum_{k=1}^{K} \gamma_k X_k + \varepsilon \quad (1)$$

where *Earnout* is a dummy variable, equal to 1 if the acquisition consideration includes an earnout component; *FinCon* is a dummy variable, equal to 1 if the acquirer is defined as financially constrained; *SFAS141R* is a dummy variable equal to 1 during the SFAS141(R) accounting standard period (post-December 2008); *and X* is a vector of additional *K* control variables including deal, bidder and target characteristics.

Table 5 reports our results from fitting Equation 5. Column (1) uses the Whited-Wu Index to classify bidders as financially constrained, while columns (2), (3) and (4) classify financially constrained using the estimate of Overleveraged. In Columns (1) and (2), Heckman correction is not applied. The results are inconsistent across models in respect to our primary variables of interest, namely the effect of SFAS 141(R), financially constrained firms' earnout usage, and the interaction of these variables. In columns (3) and (4) we present the results of Equation (1) as the second stage from a Heckman correction model, with (column 3) and without (column 4) year fixed effects. We find that financially constrained firms are less likely to use earnouts following the introduction of SFAS 141(R). That is, in line with our hypothesis, earnout usage decreased as the financial reporting cost associated with their use increased.

[Insert Table 5 about here]

The first stage Heckman probit model fitted estimates used to estimate the above results are presented in Table 6. We adapt the model of Harford (1999) in specifying the determinants of a firm being an acquirer. These results demonstrate the impact of sample selectivity, with financially constrained firms both less likely to make acquisitions in general, and less likely to make acquisitions when earnout costs are higher, post SFAS-141(R).

[Insert Table 6 about here]

A final consideration in this paper is the relationship between earnout use and the deal's primary method of payment. In Figure 3, earnout usage is plotted over the sample period by the method of payment and bidder's financial constraint. Earnout usage appears marginally higher in deals with financially constrained bidders ('Fcon') in both the stock or cash method of payment subsamples. Earnout popularity after SFAS 141 in 2001 appears to have been concentrated in deals which are equity-financed, regardless of whether the bidder is financially constrained or not. This may be explained by bidders in cash deals wanting to maximise the signal value of the offer to relatively more attractive targets, thus lowering the likelihood of counterbidders (Fishman, 1989). In line with this argument, the widening (contracting) gap between earnout usage in stock and cash deals since SFAS 141 (SFAS 141(R)) may reflect the shift to earnouts when they are relatively inexpensive compared to stock and subsequent shift away when earnout costs increase.

[Insert Figure 3 about here]

6. Conclusion

In this paper, we analyse the impact of financial accounting standards on firms' M&A activities. Specifically, we develop and empirically test a framework in which accounting standards provide incentives for acquirers to prefer particular methods of payment. We observe that when these accounting standards and their related incentives change, so to does acquirer behaviour. Prior to SFAS 141, adopted mid-2001, consideration that was cash or included earnouts was relatively limited owing to the benefits acquirers could access by structuring equity-consideration deals. Since then, both cash deals and earnout usage have increased significantly, though more recent changes to reporting standards have dampened the growth in earnout usage.

A focus of this paper is on the relationship between financial reporting, method of payment, and the financial constraints of prospective bidders. We employ selectivity correction techniques, specifically the Heckman two-stage probit model, to analyse the impact of SFAS 141(R) on earnout usage as well as on the likelihood that financially constrained bidders will participate in the market for corporate

control. Our results indicate that such firms that would face higher costs in financing an acquisition are more likely to use earnouts, but also are less likely to be acquirers when the cost of earnout reporting increase.

There is a wide scope for research that builds on these findings to better understand the implications of policy and regulatory standards on the incentives and behaviors of firms. An unresolved issue in this paper is the role that contemporaneous changes to international financial accounting standards had, particularly on cross border deals.

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Table 1: Descriptive statistics

	All M&A announcements (1)	Non-earnout announcements (2)	Earnout announcements (3)	Difference (2) - (3)		Non-constrained acquirers (4)	Constrained acquirers (5)	Difference (4) – (5)	
Observations	42,689	39,323	3,366			19,473	19,474		
Deal value ($m)	369.739	390.767	124.082	266.685	***	696.416	60.501	635.915	***
Equity financing	0.174	0.186	0.025	0.161	***	0.146	0.19	-0.044	***
Hybrid equity	0.019	0.019	0.017	0.003		0.02	0.017	0.003	**
Lockup	0.022	0.024	0.001	0.023	***	0.032	0.009	0.023	***
Tender	0.048	0.052	0.002	0.05	***	0.056	0.04	0.016	***
Cash deal	0.276	0.293	0.083	0.209	***	0.316	0.245	0.071	***
Private	0.488	0.465	0.749	-0.284	***	0.397	0.576	-0.179	***
Termination	0.036	0.039	0.008	0.031	***	0.045	0.026	0.018	***
Cross industry	0.429	0.429	0.439	-0.01		0.438	0.409	0.028	***
Toehold	0.02	0.021	0.01	0.011	***	0.026	0.014	0.012	***
Competing bidder	0.014	0.015	0.001	0.014	***	0.019	0.01	0.009	***
Completed	0.902	0.899	0.933	-0.034	***	0.91	0.9	0.011	***
Cross Border Deal	0.149	0.148	0.157	-0.009		0.168	0.139	0.029	***
Target Industry Volatility	0.145	0.144	0.151	-0.006	***	0.148	0.142	0.007	***
Target Industry Median MB	1.721	1.717	1.76	-0.043		1.703	1.796	-0.093	
Target Ind Med RD Sale	0.032	0.03	0.051	-0.021	***	0.027	0.04	-0.013	***
No Dividend	0.808	0.802	0.88	-0.078	***	0.712	0.912	-0.2	***
C&I Spread	2.159	2.149	2.276	-0.127	***	2.241	2.077	0.164	***
No rating	0.966	0.965	0.978	-0.013	***	0.947	0.982	-0.035	***
Whited-Wu	-0.282	-0.286	-0.239	-0.048	***	-0.369	-0.196	-0.172	***
Predicted cash needs	0.099	0.096	0.126	-0.03	***	0.078	0.115	-0.038	***
Leverage deficit	-0.078	-0.078	-0.086	0.008	**	-0.089	-0.07	-0.018	***
Market equity value	6383.109	6560.698	4343.501	2217.197	***	12911.883	557.434	12354.449	***
Overleveraged	0.304	0.307	0.28	0.026	***	0.287	0.315	-0.028	***
Book Assets (quarterly)	5608.242	5826.182	3062.172	2764.01	***	10751.14	281.122	10470.018	***
Percentage paid by cash	80.244	82.486	62.443	20.043	***	84.178	77.034	7.145	***
Deals with earnouts						723 (3.71%)	1,607 (8.25%)	-0.045	***
Earnout amount						72.096	12.905	59.19	***
Earnout ratio (%)						29.3%	3.39%	-0.046	***

This table presents the descriptive statistics for the sample of M&A announcements. (1) presents summary means for all announcements, while (2) and (3) report for the non-earnout and earnout subsamples. Difference in means for the earnout and non-earnout announcement subsample is then presented, with statistical significance at the 1, 5, and 10% levels represented as ***, **, and *, respectively. (4) and (5) presents summary means for the subsample of non-constrained and financially constrained acquirers. Difference in means between constrained and non-constrained bidders is presented for each variable.

Table 2: Merger characteristics under different accounting standards

	APB No. 16	SFAS 141	SFAS 141(R)
Observations	22472	11929	8288
Deal value ($m)	265.38	356.02	672.42
Equity financing	0.2603	0.0917	0.0562
Hybrid equity	0.0174	0.0153	0.0293
Lockup	0.0382	0.0060	0.0035
Tender	0.0514	0.0472	0.0402
Cash deal	0.2063	0.3550	0.3526
Private	0.4927	0.4797	0.4861
Termination	0.0285	0.0414	0.0492
Cross industry	0.4232	0.4181	0.4622
Toehold	0.0206	0.0194	0.0176
Competing bidder	0.0160	0.0140	0.0105
Completed	0.8974	0.9012	0.9131
Cross Border Deal	0.1208	0.1727	0.1900
Target Industry Volatility	0.1332	0.1599	0.1547
Target Industry Median M-B	1.8285	1.6087	1.5893
Target Industry Median R&D/Sale	0.0257	0.0403	0.0362
No Dividend	0.7900	0.8399	0.8094
C&I Spread	1.8676	2.2453	2.8231
No rating	0.9671	0.9678	0.9599
Whited-Wu	-0.2602	-0.2930	-0.3279
Predicted cash needs	0.0899	0.1108	0.1041
Leverage deficit	-0.0584	-0.1001	-0.0988
Market equity value	4293.38	7494.07	10559.87
Overleveraged	0.3517	0.2528	0.2546
Financially constrained (WWI) (%)	0.5979	0.4581	0.2945
Deals with earnouts	0.0562	0.1033	0.1052
Earnout amount	16.2659	25.3234	59.6762
Earnout ratio (%)	0.3342	0.3226	0.3241
Termination_fee	25.1857	31.7647	49.8776
Toehold_percentage	0.4503	0.5276	0.4932

This table presents the characteristics of mergers in each of the three accounting standards: APB NO. 16, which covers the period of our sample prior to July 2001; SFAS 141 which covers the period July 2001 to December 2008; and SFAS 141(R) which covers the period after December 2008.

Table 3: The likelihood of a firm making an acquisition

Variable	All sample		Non-constrained	Constrained
	(1)	(2)	(3)	(4)
Ln(total assets)	0.0609 ***	0.0981 ***	0.2159 ***	0.2340 ***
	(472.24)	(2584.18)	(4890.76)	(1802.38)
Market-book	0.0048 ***	0.005 ***		
	(72.97)	(82.21)		
Sales growth	0.0113 ***	0.0112 ***		
	(19.21)	(19.43)		
Net working capital	0.0809 ***	0.0748 ***		
	(62.13)	(53.16)		
Dividend			-0.1188 ***	-0.2305 ***
			(97.58)	(78.55)
Tobin's Q			-0.0516 ***	-0.0327 ***
			(202.45)	(83.26)
Capex			-2.3309 ***	-0.7940 ***
			(413.60)	(39.18)
SFAS 141			-0.3397 ***	-0.4224 ***
			(390.07)	(275.33)
SFAS 141(R)	-0.0378	-0.0934 **	-0.6877 ***	-0.7379 ***
	(0.95)	(6.05)	(1445.72)	(626.22)
Fincon	-0.2211 ***	-0.0220 ***		
	(257.74)	(221.59)		
FinCon*SFAS141				
FinCon*SFAS141R	-0.1871 ***	-0.0102 ***		
	(63.15)	(6.66)		
Merger wave			0.0877 ***	-0.1338 ***
			(27.85)	(36.07)
GFC			-0.0488 ***	-0.1236 ***
			(6.65)	(11.36)
Constant	-1.5392 ***	-1.8437 ***	-2.5302 ***	-2.6217 ***
	(2210.44)	(4307.49)	(6818.02)	(8077.47)
Year fixed effects	Yes	Yes	No	No
N observations	158,068	162,564	105,883	105,883
Log-likelihood	-50147.0	-51448.9	-31691.6	-12432.7

This table presents the coefficient estimates of estimating a probit model for all U.S. listed firms with the dependent variable equal to 1 if the firm makes an acquisition in a given year. Model (1) and (2) are estimated using data for the full sample where (1) defines financial constraint using the Whited-Wu index and (2) defines financial constraint using overleverage estimates. Models (3) and (4) are estimated using the Whited-Wu defined non-constrained and financially constrained subsamples. Chi-square statistics are reported in parentheses below each coefficient estimate. Coefficient statistical significance at the 1, 5, and 10% levels represented as ***, **, and *, respectively.

Table 4: Earnout usage in different accounting regimes

	APB No. 16			SFAS 141			SFAS 141(R)		
	No earnout	Earnout	E/O(%)	No earnout	Earnout	E/O (%)	No earnout	Earnout	E/O (%)
Panel A: All deals									
Number of deals	21210	1262	5.62	9715	1066	9.89	8411	1025	10.86
Financially constrained bidders	9311	685	6.85	3904	526	11.87	3704	462	11.09
Cash deals	4554	81	1.75	3649	117	3.11	3306	83	2.45
Private targets	10151	921	8.32	4330	812	15.79	3828	781	16.95
Diversifying acquisition	8877	633	6.66	4112	435	9.57	3866	405	9.48
Cross-border acquisition	2564	150	5.53	1664	169	9.22	1598	204	13.58
Panel B: Financially constrained bidders									
Financially constrained bidder, and:									
- Cash deals	2020	39	1.89	1444	67	4.43	1390	40	2.80
- Private targets	4816	510	9.58	1888	394	17.27	1951	355	15.39
- Diversifying acquisition	4693	392	7.71	2014	242	10.73	2189	227	9.40
- Cross-border acquisition	1052	61	5.48	614	70	10.23	598	72	10.75

This table presents summary statistics describing earnout usage in the three accounting reporting standards periods,: APB No. 16 (the period from the start of our sample to June 2001); SFAS 141 (July 2001 to December 2008); and SFAS 141(R) (the period post December 2008). Panel A reports statistics for all deals, while Panel B presents statistics for the subsample of firms defined as financially constained using the Whited-Wu index value estimates.

Table 5: The determinants of deals with earnouts

Variable	(1)	(2)	(3)	(4)
High50_WW	0.3660 ***			
High50_WW*Post_R	0.0594			
Overleveraged		0.0495	-0.0039	0.0083
Overleveraged*Post_R		-0.1388 **	-0.0248 **	-0.0340 ***
Post_R	-0.0671	-0.0608	0.0589 ***	0.0117
Lockup	-0.7273 ***	-0.4850 *	-0.0398	-0.0217
Toehold	-0.1918 **	-0.2690 **	-0.0173	-0.0206
Tender	-0.7803 ***	-0.8130 ***	-0.0013	0.0090
Private	0.4320 ***	0.5172 ***	0.0881 ***	0.0840 ***
Cash_deal	-0.7964 ***	-0.8974 ***	-0.1048 ***	-0.1221 ***
Termination	-0.7205 ***	-0.5871 ***	-0.0571 ***	-0.0539 ***
Cross_industry	0.0303	0.0441 ***	0.0035	0.0033
Cross_Border_Deal	-0.0555 *	-0.1533 ***	-0.0210 ***	-0.0294 ***
Transaction_Value	-0.0144 **	-0.0537 ***	-0.0000	-0.0068 ***
Competing_bidder	-0.3930 **	-0.4515 *	-0.0202	-0.0181
Completed	0.1935 ***	0.1968 ***	0.0302 ***	0.0260 ***
Target_Industry_volatility	-0.5162 ***	-0.4932 ***	-0.0271	-0.1273 ***
Median_M_B	0.1156 ***	0.0751 *	-0.0010	0.0116 *
Median_RD_SALE	2.6261 ***	2.5645 ***	0.5670 ***	0.4285 ***
Intercept	-2.2390 ***	-6.7591	-0.0775	0.0890
Heckman correction	No	No	Yes	Yes
Heckman lambda			0.0744 ***	0.2867 ***
Year fixed effects	Yes	Yes	No	Yes
N observations	38863	23486	17347	17347
Log-likelihood	-9263.3	-6275.8	-3053.0	-2944

This table presents the estimates of fitting the probit model given in Equation 1. Models (1) and (2) do not include a Heckman correction for sample selectivity. Model (1) defines financially constrained using the Whited-Wu index, and Model (2) defines bidders as financially using the overleverage variable. Models (3) and (4) do include the Heckman two-stage probit correction technique. Year fixed effects are included in Models (1), (2), and (4). Coefficient statistical significance at the 1, 5, and 10% levels represented as ***, **, and *, respectively.

Table 6: First stage Heckman probit estimates

Variable	(1)	(2)
Overleveraged	-0.2857***	0.1069***
Overleveraged*Post_R	-0.1936***	-0.45212***
SFAS 141(R)	-0.0863***	2.8647***
Acquirer size	0.0731***	0.0352***
Average abnormal return	5.2775***	0.4467
Deviation in cash holdings	0.0002	0.0039***
Market-to-book	0.0056***	0.0019*
Sales growth	0.0098***	-0.032***
Non-cash WC/Assets	0.3721***	0.578***
Leverage	-0.0330***	-0.0059**
Price earnings	0.0010***	0.007
Intercept	-1.4774***	-5.2248***
Year fixed effects	No	Yes
N observations	109632	109632
Log-likelihood	-20689.4	-15606

This table presents the results of the first-stage of the Heckman two-stage probit model. Bidders are defined as financially constrained using the overleveraged variable. Model (1) does not include fixed effects, while Model (2) does include year fixed effects. Coefficient statistical significance at the 1, 5, and 10% levels represented as ***, **, and *, respectively.

Figure 1: M&A announcement and earnouts

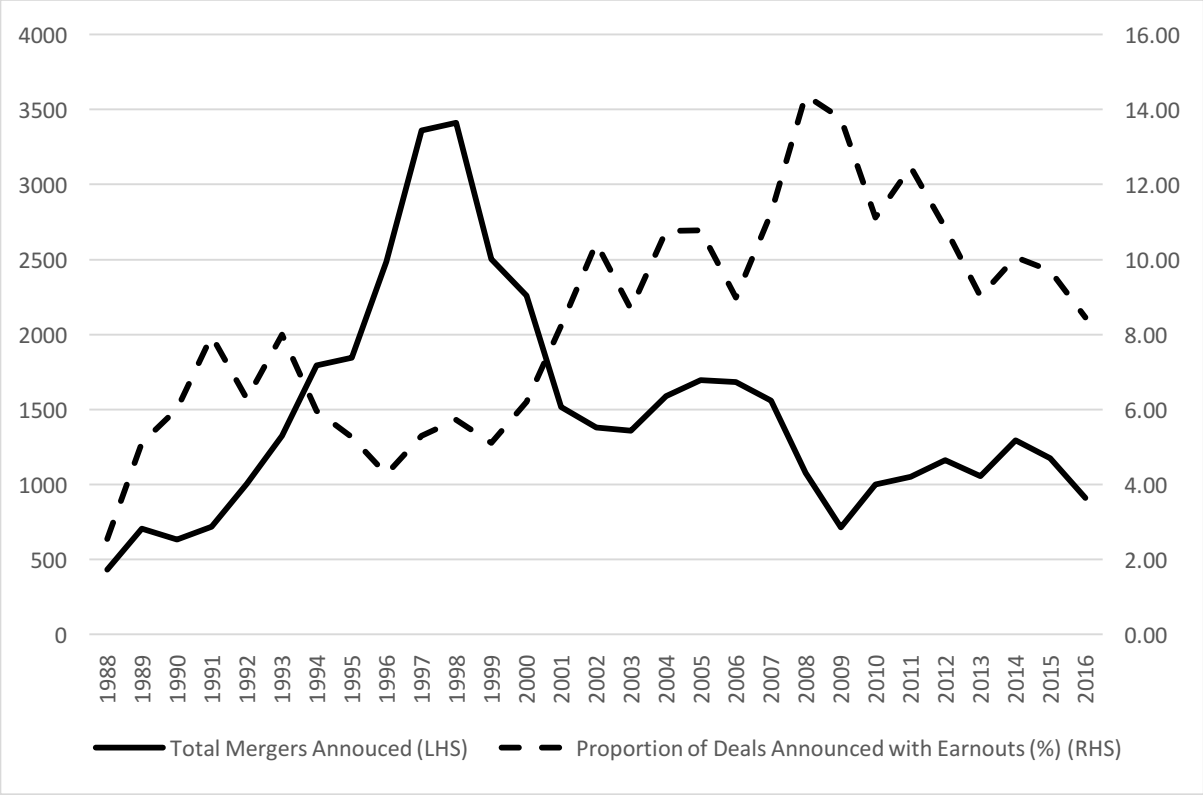


Figure 2: Are deals with earnouts more likely to complete?

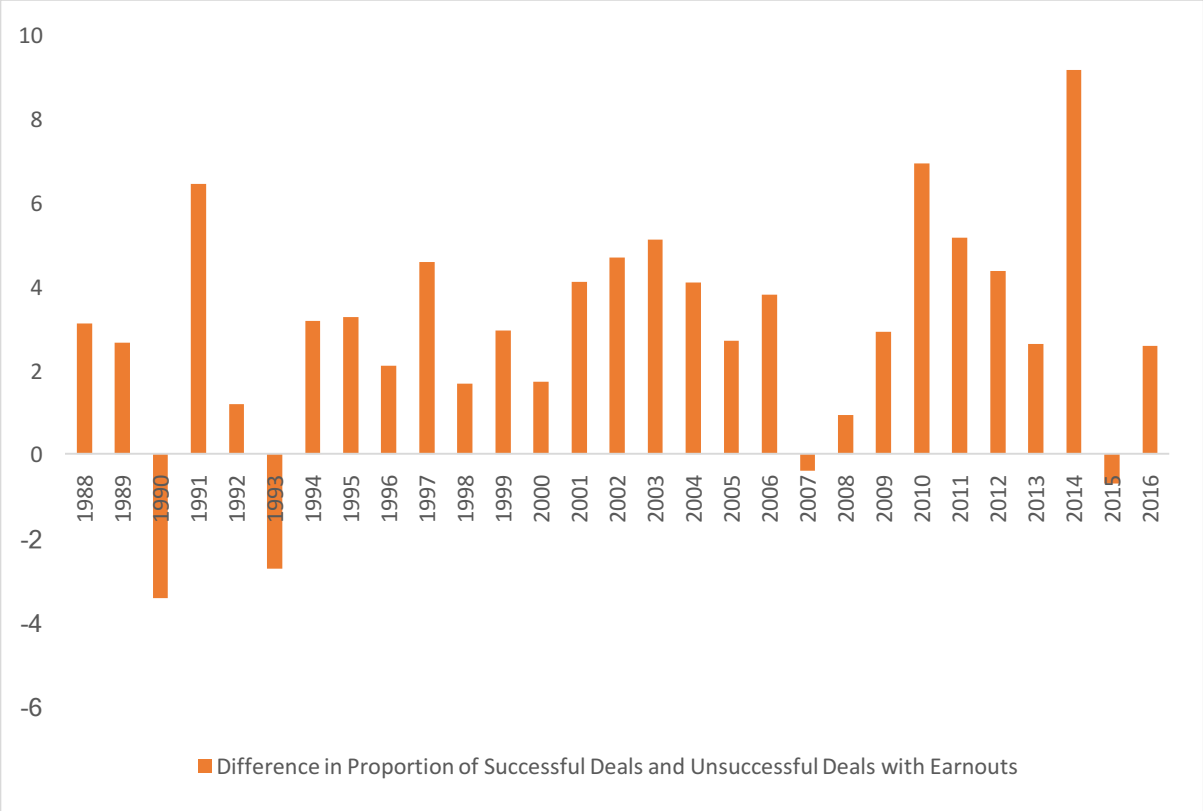
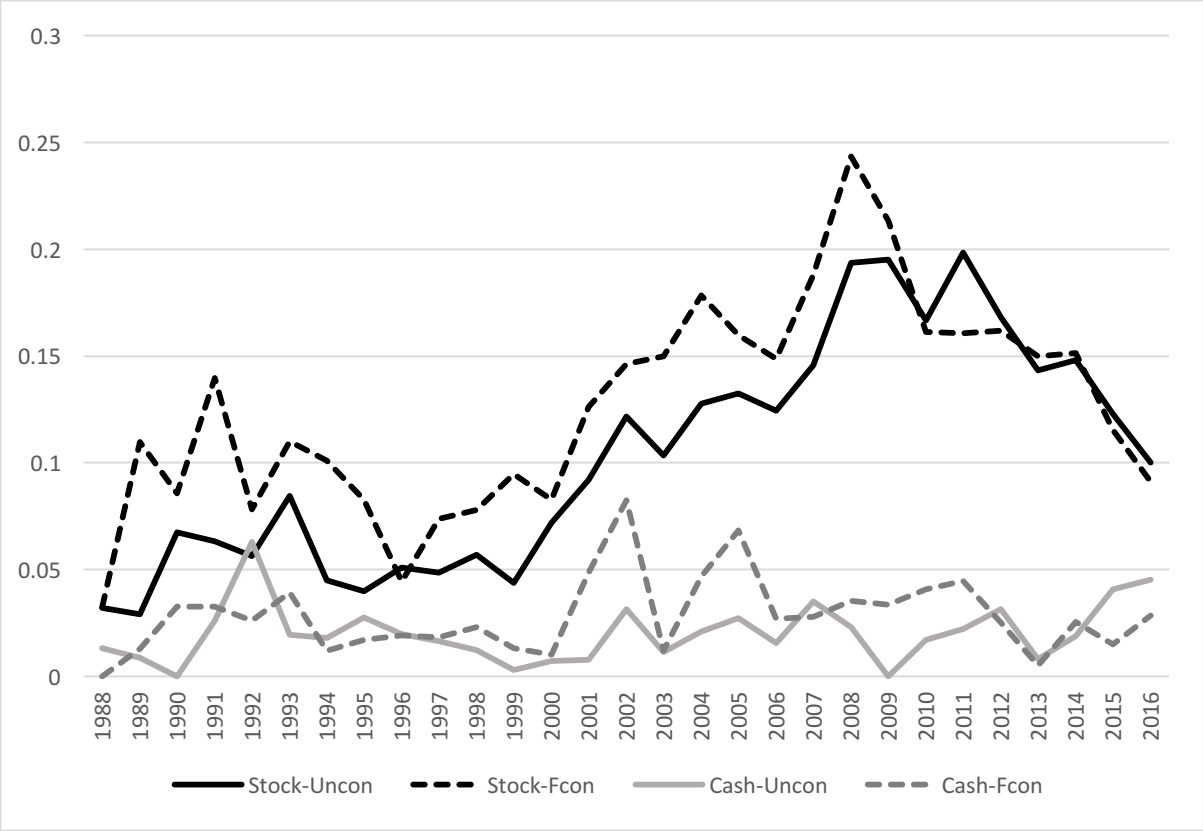


Figure 3: Earnouts and method of payment



Appendix 1: Table of variables

Variable	Definition
Panel A: Firm Characteristics	
Firm size	Firm total assets (log)
Tobin's *q*	*q* ratio of the firm
Capex	Firm level capital expenditure
Dividend	Indicator variable equal to 1 if the firm pays dividends and 0 otherwise
No Dividend	Indicator variable equal to 1 if the firm pays no dividends and 0 otherwise
C&I Spread	Indicator variable equal to 1 if the average difference in borrowing rate on commercial and industrial (C&I) loans over the federal funds rate is above its trailing median, and 0 otherwise
No rating	Indicator variable equal to 1 if the firm has no credit rating coverage and 0 otherwise
Whited-Wu	Whited-Wu index value
Leverage deficit	Difference from predicted leverage target following Kayhan and Titman (2007)
Overleveraged	Indicator variable equal to 1 if a firm has higher leverage than predicted by the Uysal (2011) optimal leverage ratio model.
Industry CF risk	Standard deviation of industry cashflow-to-asset ratio over 10 years prior to announcement
Panel B: Deal Characteristics	
Deal value	The total value of deal consideration paid ($ million)
Lockup	Indicator variable equal to 1 if the acquisition agreement includes a lockup period and 0 otherwise
Tender	Indicator variable equal to 1 if the acquisition is a tender offer and 0 otherwise
Cash deal	Indicator variable equal to 1 if the form of payment (excluding any earnout payment) is 100% cash
Private	Indicator variable equal to 1 if the target is a private firm and 0 otherwise
Termination fee	Indicator variable equal to 1 if the deal includes a target termination fee and 0 otherwise
Cross industry	Indicator variable equal to 1 if bidder and target are in the same industry and 0 otherwise
Toehold	The percentage of target stock controlled by the bidder at the time of announcement
Competing bidder	Indicator variable equal to 1 if the deal involved multiple bidders and 0 otherwise
Completed	Indicator variable equal to 1 if the deal successfully closed and 0 otherwise
Cross Border Deal	Indicator variable equal to 1 if the target is located ex-U.S. and 0 otherwise
Target Industry Volatility	The value-weighted annualized return standard deviation of the target industry estimated 100 days prior to announcement
Target Industry Median MB	The median target industry market-to-book ratio
Target Ind Med RD Sale	The median target industry ratio of R&D expense-to-sales
Earnout amount	The maximum absolute value of the earnout contract assuming all conditions are met
Earnout ratio	The ratio of earnout amount to total deal consideration value

Appendix 2: SFAS 141(R) adjustment for non-calendar year effective date

	Number	Percentage
Total Deals in 2009	712	100%
Deals Adjusted without Earnouts	60	8.43%
Deals Adjusted with Earnouts	10	1.40%
Deals Unadjusted without Earnouts	557	78.23%
Deals Unadjusted with Earnouts	85	11.94%