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Purchase versus pooling in stock-for-stock acquisitions: Why do firms care?[☆]

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Abstract

We investigate firms' choices between the purchase and pooling methods in stock-for-stock acquisitions. We find that in acquisitions with large step-ups to targets' net assets, CEOs with earnings-based compensation are more likely to choose pooling and avoid the earnings 'penalty' associated with purchases. We find no association between stock-based compensation and the purchase–pooling choice, suggesting that managers are not concerned about implications of large step-ups for firms' equity values. We also find that the likelihood of purchase increases with debt contracting costs, consistent with its favorable balance sheet effects, and with costs of qualifying for pooling, particularly the restriction of share repurchases. © 2000 Elsevier Science B.V. All rights reserved.

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1. Introduction

Accounting for business combinations has long been one of the most controversial financial reporting issues, generating numerous opinions and interpretations by accounting standard setters and capital market regulators. At the center of the controversy is the principle established in 1970 by Accounting Principles Board Opinion (APBO) No. 16 that both the purchase method and the pooling-of-interests method are acceptable in accounting for business combinations. The distinction between purchase and pooling relates mainly to how the difference between the acquisition price and the book value of the acquired firm's net assets (herein referred to as the 'step-up') is accounted for in the consolidated financial statements. Under the pooling method, the step-up is not recognized and the net assets of the acquired company are combined with those of the acquiring company at their book values. Under the purchase method, the acquiring company recognizes the differential by restating all identifiable assets and liabilities of the acquired company to their fair values, and recording the remaining balance as goodwill. The objective of our paper is to investigate the determinants of firms' choice between the purchase and pooling-of-interests methods.

Conventional wisdom holds that managers favor pooling over purchase because it allows them to avoid the additional depreciation and amortization expense arising from the asset write-up under the purchase method.¹ Consistent with this conjecture, evidence from the prior literature reveals an association between the likelihood of pooling and the magnitude of the step-up, suggesting that managers select the accounting method that leads to higher post-merger earnings.² However, the extant literature provides little insight into possible economic explanations for managers' preference for pooling. In particular, studies find no support for the perception that share prices are favorably affected by the application of the pooling method, suggesting that investors see through the 'window-dressing' effect of pooling.

Unlike most prior studies on the purchase–pooling choice, we examine non-capital-market explanations for managers' preference for pooling, particularly

¹ The business press provides numerous examples of mergers that were either not completed because pooling could not be secured or would not have completed in the absence of a pooling treatment. For example, the February 1999 issue of CFO Magazine quotes Mark McDade, a partner in the corporate finance group at Price Waterhouse LLP, as saying: 'It's becoming more frequent that combinations are contingent on [applying] pooling. Companies walk away from deals all the time if they can't pool, because of the fear of dilution caused by goodwill'.

² The effects of the accounting treatment on the post-merger consolidated income statement can be substantial. For example, the \$19 billion Walt Disney-Capital Cities/ABC 1995 merger resulted in a \$16 billion asset write-up, adversely affecting Disney's net income by more than \$400 million per year.

for acquisitions involving potentially large step-ups to target firms' net assets. We focus on economic benefits derived from accounting-based contracts that are sensitive to the income statement and balance sheet ramifications of the purchase–pooling choice, particularly those related to management compensation plans, job security, and debt covenants. We also investigate whether the purchase–pooling choice relates to cross-sectional variation in the costs of qualifying for pooling. In particular, we predict that managers' preference for pooling decreases with the likelihood that the acquiring company will want to engage in stock repurchase activity and/or divestiture of the target company's assets, two activities severely restricted under pooling.

Our sample comprises 687 stock-for-stock acquisitions of public companies occurring between 1991–1997, 425 (262) of which are accounted for under the pooling (purchase) method. We limit our sample to stock-for-stock acquisitions in order to control for the potentially confounding effects of taxes, liquidity, asymmetric information, ownership dilution, and other factors related to the method of acquisition financing. We find that the likelihood of pooling increases with the size of the difference between the acquisition price and the target firm's book value of equity. It suggests that when the step-up to the target's net assets is large, managers have greater incentives to incur the costs of qualifying for pooling and avoid recording the step-up and its subsequent amortization. This finding is robust to controlling for size differences between firms using the purchase method and those using pooling, and for temporal and cross-industry variation in managers' preference for pooling.

Using hand-collected compensation and shareholding data from acquiring firms' proxy statements, we examine the effects of various accounting-based contracts on the purchase–pooling choice. Consistent with our prediction, we find that CEOs with earnings-based compensation plans are more likely than others to use pooling to account for acquisitions with potentially large step-ups. This finding reflects the notion that earnings-based bonus plans are often based on mechanical formulas that are not modified to compensate managers for the earnings 'penalty' associated with the purchase method. Interestingly, we find no association between stock-based compensation and the purchase–pooling choice, suggesting that top executives are less concerned about the implications of recording large step-ups for their market-based compensation than for their earnings-based compensation. This finding is consistent with the valuation-irrelevancy identified in the prior literature with respect to the purchase–pooling choice. We also find only marginal support for the conjecture that top executives' preference for pooling is greater when their job security is relatively low.

While the purchase method generally leads to lower earnings in post-acquisition periods relative to the pooling method, it typically results in a stronger

post-acquisition balance sheet. Thus, we predict that when managers of acquiring firms have incentives related to balance sheet amounts, they are more inclined to favor the purchase method, all else being equal. In particular, evidence in the prior literature indicates that violations of debt covenants are costly and therefore managers select accounting procedures to avoid technical violation of covenants. Because the debt–equity ratio is often used as a proxy for closeness to covenant constraints, as well as for the expected costs should a violation occur, we predict and find that managers of highly levered firms are more inclined than others to use the purchase method to account for large step-up acquisitions.

In addition to documenting an association between the purchase–pooling choice and economic benefits related to accounting-based contracts, we also find an association between the accounting choice and potential costs related to meeting the pooling criteria. In particular, we find that, all else being equal, firms for which the pooling requirement of no post-acquisition share repurchases appears to be binding (e.g., firms with existing share repurchase plans and/or with a large number of employee stock options) are less likely than other firms to use pooling. However, we find no evidence that firms for which the requirement of no post-acquisition divestiture of the target’s assets may be binding are less likely to use pooling.

To provide further insight into the association between the purchase–pooling choice and the potential step-up to the target’s net assets, we conduct two additional tests. First, we examine a subsample of firms with both purchase and pooling acquisitions. Consistent with our prediction, we find that acquisitions accounted by these firms as poolings would have had significantly greater step-ups than those of their purchase transactions, suggesting our finding that the purchase–pooling choice is associated with the step-up does not reflect omitted firm characteristics. Second, we examine a subsample of acquisitions accounted for under the purchase method where the acquirer and the target are of approximately the same size (‘mergers-of-equals’). Mergers-of-equals allow considerable discretion with respect to identification of an ‘acquirer’ and a ‘target’. Consistent with our prediction, we find that managers structure these mergers so companies with the lower amounts of step-ups are identified as ‘target’ companies.

Our study contributes to the accounting literature on business combinations along several dimensions. First, although prior studies examine the association between the purchase–pooling choice and the sign and magnitude of the step-up, they do not provide compelling explanations for why managers favor pooling for large step-up mergers, particularly in the light of the evidence that investors see through the ‘window-dressing’ effect of pooling. Only a few studies investigate the extent to which the purchase–pooling choice is related to managerial incentives derived from accounting-based contracts. Our paper extends these studies by focusing on the compensation structure of the acquiring firm’s CEO

as a potential incentive for the accounting choice, using hand-collected data on cash bonuses and stock options.³

Moreover, prior studies on the purchase–pooling choice consider the magnitude of the step-up and the proxies for firm characteristics hypothesized to be related to the accounting method choice as separate explanatory variables. However, some of these proxies that are intended to capture the hypothesized effects of accounting-based contracts may instead reflect the effects of correlated omitted variables. Thus, our second contribution is that, unlike most prior studies, we focus on the *interaction* between the financial reporting effects of the purchase–pooling choice and the hypothesized firm characteristics. Consistent with our prediction, we find that the accounting method choice is explained *jointly* by the magnitude of the step-up and our proxies for accounting-based compensation and debt contracts.

Our third contribution to the literature is that we investigate the association between the purchase–pooling choice and economic costs related to meeting the pooling criteria, such as those related to the restriction of post-merger share repurchases and asset divestitures. Prior studies largely ignore these costs and/or assume that they are cross-sectionally constant (Fields et al., 2001). Finally, our study also is novel in that we examine a subsample of firms with both purchase and pooling acquisitions, as well as a subsample of ‘mergers-of-equals’, allowing us to further mitigate effects induced by omitted variables.

The paper is organized as follows. Section 2 develops the predictions, while Section 3 describes the sample and provides descriptive statistics. Section 4 presents the estimation equations and reports the empirical findings. Section 5 summarizes and concludes the paper.

2. Institutional background, motivation, and empirical predictions

2.1. Institutional background and motivation

The prior literature suggests that the likelihood of pooling increases with the premium paid over the book value of the target firm, implying that managers favor pooling when it enables them to avoid the additional depreciation expense arising from the asset write-up recorded under the purchase method (Gagnon, 1967; Copeland and Wodjak, 1969; Anderson and Louderback, 1975; Crawford,

³ The only other study we are aware of that looks at management compensation in this context is Crawford (1987). Crawford estimates a firm-specific correlation between CEO cash compensation and reported earnings, and finds, contrary to his prediction, that managers are more likely to select the purchase method when their compensation is closely tied to reported earnings. However, he also finds that the likelihood of pooling increases with the estimated effect of the step-up on compensation. In contrast, we incorporate detailed data on cash bonuses and stock options.

1987; Nathan, 1988). Prior studies also find that firms are willing to pay higher bid premia in pooling transactions (Robinson and Shane, 1990; Ayers et al., 1999), and are often incurring substantial direct and opportunity costs to qualify for pooling (Lys and Vincent, 1995).

The extant literature, however, does not provide much insight into economic explanations for managers' preference for pooling. Although the purchase and pooling methods result in different post-merger reported earnings, the accounting decision in and of itself has no cash flow implications. Therefore, to the extent investors see through this non-cash difference, the accounting choice should not result in firm valuation differences. Consistent with this notion of market efficiency, studies find no evidence that investors react more favorably to announcements of pooling acquisitions than to those of purchase acquisitions (Hong et al., 1978; Davis, 1990). Moreover, recent studies find that the valuation-irrelevancy of the purchase–pooling choice is not limited to the time the deal is announced but also to post-merger periods. For example, Jennings et al. (1996) and Vincent (1997) document a positive relation between goodwill and firm values, and find no evidence that goodwill amortization expense has significant negative effects on share prices. This finding suggests that investors adjust reported numbers for pooling and purchase firms to an approximately equivalent basis, so the accounting method, in and of itself, does not explain cross-sectional variation in firm value.

We therefore investigate non-capital-market explanations for firms' preference for pooling, particularly for mergers involving a large step-up to the target's net assets. Our objective is to identify the determinants of the purchase–pooling choice, focusing on both the economic benefits and costs. In particular, we examine managerial incentives derived from accounting-based contracts that are potentially affected by the purchase–pooling choice, such as those related to compensation plans, job security, and debt covenants. We also investigate whether the accounting choice relates to cross-sectional variation in the costs of qualifying for pooling, such as those related to restrictions on share repurchases and asset divestitures. To the extent managers select the accounting method strategically, they likely assess the relative magnitude of the costs and benefits of using purchase versus pooling. In the next subsection we outline our hypothesized benefits and costs related to this accounting choice.

2.2. Empirical predictions related to the purchase–pooling choice

2.2.1. Hypothesized economic benefits

We hypothesize that the purchase–pooling choice is associated with managerial incentives derived from accounting-based contracts affected by the income statement and balance sheet ramifications of the accounting decision. Because we hypothesize that these economic incentives are particularly pronounced for acquisitions involving a potentially large step-up to the target firm's net assets,

we estimate the amount of the step-up for each sample acquisition. We measure the step-up, denoted as *STEP_UP*, as the difference between the acquisition price and the book value of the target's equity (based on percentage acquired), deflated by the combined market value of the acquired and acquiring firms.⁴ Evidence from the prior literature suggests that the likelihood of pooling increases with the magnitude of the step-up. We predict that the purchase–pooling choice is explained *jointly* by the magnitude of the step-up and the economic benefits related to accounting-based contracts.

The compensation structure of the acquiring firm's top executives is hypothesized to affect the selected accounting treatment of the merger. A number of studies document a significant association between accounting decisions and the existence of performance-based compensation plans (see Healy and Wahlen (1998), for a summary). Because the purchase and pooling methods could differ greatly with respect to reported earnings in post-merger periods, top executives may consider the compensation implications of these differences when structuring the financial reporting strategy for their acquisitions. In particular, we predict that managers whose compensation is primarily performance-based are more likely than others to find the compensation benefits associated with a lesser amount of future depreciation and amortization expense to outweigh the costs associated with qualifying for pooling.⁵

To test the prediction that CEOs with primarily performance-based compensation favor pooling over purchase to account for large step-up mergers, we handcollect compensation data from the acquirer's proxy statements.⁶ Our primary proxy, *BONUS*, is the ratio of cash bonuses to total cash compensation. We focus on cash bonuses because amortization of the step-up directly affects reported earnings. To the extent CEO bonus plans are based on reported earnings, and to the extent compensation committees do not fully adjust for accounting method choices (Healy et al., 1987), we predict that the likelihood

⁴The acquirer's market value of equity is measured immediately prior to the acquisition announcement, while the target's market value is based on the transaction value. Our findings are robust to measuring the target's market value immediately prior to, or, alternatively, three months before the acquisition announcement. These robustness checks are consistent with recent findings that the bid premium does not affect the likelihood of pooling (Ayers et al., 1999). Our findings also are robust to using the acquirer's total assets as a deflator in lieu of market value.

⁵Managers who behave opportunistically in response to the structure of their compensation plans could also incur costs related to adverse reputational effects and/or lower present value of future compensation. Our hypothesis implicitly assumes that these costs are not sufficient to deter managers from behaving opportunistically in their choice of an accounting method for business combinations. However, under the null hypothesis these costs are material and we will not observe a relation between the purchase–pooling choice and our proxies for the hypothesized incentives.

⁶There is empirical evidence that CEO compensation increases if the acquisition increases shareholder's wealth (see Lambert and Larcker, 1987; Kroll et al., 1990). Thus, our compensation and ownership data are collected from the proxy statement for the year prior to the acquisition.

that large step-up acquisitions will be accounted for under the pooling-of-interest method increases with *BONUS*.⁷

Evidence in the extant literature does not support the notion that the purchase method has adverse valuation effects relative to pooling. Yet, anecdotal evidence from the business press suggests that many top executives believe otherwise.⁸ Therefore, in addition to earnings-based compensation, we also examine whether market-based compensation incentives are associated with the accounting choice. Following recent findings that managers make financial disclosure decisions that maximize their stock option compensation (Aboody and Kasznik, 2000), we investigate whether CEOs with large amounts of stock options are more likely than others to use pooling to account for large step-up acquisitions. Our measure of CEO stock option compensation, *OPTIONS*, is the value of options granted during the year deflated by total compensation (total cash and stock option compensation).

The perceived earnings ‘penalty’ associated with the purchase method also could increase managers’ preference for pooling when their job security may be threatened. For example, prior studies indicate that CEOs exercise accounting discretion to improve reported earnings during proxy contests (DeAngelo, 1988) and in the years immediately before they are replaced (Dechow and Sloan, 1991). These findings are consistent with managers using their accounting discretion to improve their job security, even if such behavior may involve inefficient allocations of corporate resources. Although it is difficult to measure job security directly, we presume that it increases with ownership rights (see, e.g., Shivdasani, 1993). We predict that a CEO with little or no ownership rights would be more inclined than a CEO-owner to incur the costs of qualifying for pooling when the merger involves a potentially large step-up. Our measure of ownership rights, *OWN*, is the percentage of outstanding shares held by the CEO.

While the purchase method has adverse income effects, it typically results in a more favorable post-merger balance sheet than pooling (e.g., higher book value of equity). Thus, we conjecture that when managers have incentives related

⁷ Although the prior literature (e.g., Healy, 1985) demonstrates the importance of the details of the bonus plan parameters in understanding the association between management compensation and accounting choices, our tests do not consider the details of these parameters for several reasons. First, these details are not available for many of our sample firms. Second, the earnings implications of the purchase–pooling choice extend to many future periods (e.g., the amortization of goodwill could extend to 40 years). Therefore, the relevant question becomes whether the bonus plan would be ‘in the money’ in subsequent periods rather than just in the acquisition year. Third, measurement error resulting from omission of bonus plan details likely is relatively small (Smith and Watts, 1982).

⁸ For example, the February 1997 issue of CFO Magazine quotes Christopher Paisley, CFO of 3Com Corp., as saying: ‘While it shouldn’t matter that much if we book goodwill, or whether we write it off now or over time, to the market it does. The fact is, EPS plays a huge role in the market’s valuation of our stock. I’d be nervous that our market cap would be adversely affected if we didn’t pool.’

to balance sheet amounts, they are more inclined to favor the purchase method, all else being equal. One such incentive stems from debt covenants, which are often specified as restrictions on leverage and net equity. Prior studies find that violation of debt covenants is costly and therefore managers select accounting procedures to avoid technical violation of covenants (DeFond and Jiambalvo, 1994; Sweeney, 1994). Thus, we predict that managers of firms with binding covenant constraints are more inclined to use the purchase method. The debt–equity ratio is a proxy for closeness to covenant constraints (Duke and Hunt, 1990; Press and Weintrop, 1990), as well as for the expected costs should a violation occur (Beneish and Press, 1993). We therefore predict that the higher the acquirer’s debt–equity ratio, the greater the likelihood that it will use the purchase method to account for a large step-up acquisition. We measure the ratio of long-term debt to sum of long-term debt and shareholders’ equity, *LEVERAGE*, using data obtained from the most recent pre-merger balance sheet.⁹

2.2.2. Hypothesized economic costs

We hypothesize that the purchase–pooling choice is also associated with costs related to meeting the pooling criteria. As outlined in APBO No. 16, to qualify for pooling, the merger must satisfy all 12 requirements related to the structure of the transaction and the history of the acquiring and acquired firms; failing any of the provisions requires use of the purchase method. Thus, relative to the default treatment, the pooling-of-interests method imposes costs on the acquiring firm, and the incremental costs of complying with the pooling requirements vary across firms.

As described below, our sample comprises stock-for-stock acquisitions in which the stock provided to the target company’s shareholders was at least 90% of transaction value, and the acquirer purchases at least 90% of the target’s outstanding shares. These two conditions are necessary (albeit not sufficient) conditions for pooling. There is, therefore, no variation within our sample firms with respect to these two provisions of APBO No. 16; all firms have self-selected into the sample by meeting these conditions. Instead, we focus on pooling requirements for which there is a greater likelihood of identifying cross-sectional variation with respect to related direct and opportunity costs. In particular, we examine the following two provisions: (1) restriction of changes in equity interests of the voting common stock within two years of the merger, and, (2) no post-acquisition divestitures of the target’s assets.

⁹ To get a more direct measure of costs related to debt covenants, we searched the *Moody’s Manuals (Industrial, OTC Industrial, and Bank & Finance)* for information related to the existence and types of covenant restrictions for each acquirer in our 687 sample acquisitions. However, of the 586 firms for which we found *Moody’s* coverage, detailed description of debt covenants was available for only 193 firms, and only 71 of them had information sufficient to compute proximity to covenant limits. Because of the relatively small number of firms with sufficient data to measure closeness to the covenant constraints, we do not incorporate such measures in our tests.

The requirement that equity interests of voting stock not be materially changed restricts the acquirer and target firms from, among other things, repurchasing their own stock within two years of the merger. This requirement can be binding for firms having already initiated a share repurchase plan prior to the acquisition. Although companies can remedy this flaw by reissuing the treasury stock, they would have to incur the costs of a security offering, as well as forgoing the underlying benefits that have prompted them to repurchase the stock in the first place (see Barth and Kasznik, 1999). Thus, our first proxy for costs related to this pooling provision, *REPURCHASE*, is the percentage of outstanding shares of common stock the acquirer announces it plans to repurchase. Share repurchase announcements are collected from Securities Data Company (SDC) for the two-year period preceding the acquisition announcement. We conjecture that, all else being equal, firms that have initiated a share repurchase plan in the pre-merger period are less likely than others to use pooling-of-interest in business combinations.

The prohibition against changes in equity interests of the voting stock also restricts the acquiring and acquired firms from adopting new and/or making material changes to existing employee stock option plans. Although it is difficult to identify firms for which this restriction is binding, we presume that it is more likely to affect firms with a large number of stock options. We conjecture that these firms also are more likely to find the restriction of share repurchases to be binding, as these firms often repurchase their stock to counter the dilution created by option exercises (Barth and Kasznik, 1999). Thus, our second proxy for the costs related to qualifying for pooling, *OPTIONS_OUT*, is the acquirer's outstanding stock options plus number of options available for grant in future periods, deflated by the number of outstanding shares.

The second pooling provision we consider is the prohibition of divestiture of the target firm's assets. Obviously, requiring the acquirer to delay plans to purge 'unwanted' assets can result in direct and opportunity costs. While it is difficult to predict ex ante which firms are more likely to be affected by this requirement, we presume that the restriction is more binding when the target is a multi-segment firm, and potentially has divisions the acquirer would have liked to dispose of. Our proxy for these costs, *SEGMENTS*, is the number of industries (based on 4-digit SIC codes) in which the target firm is classified. We conjecture that when the target operates in many different industries, the acquirer is less likely to use the pooling method.¹⁰

¹⁰ The recently announced stock-for-stock merger of America Online Inc. and Time Warner Inc. as a purchase transaction despite a whopping \$150 billion in goodwill illustrates the effect of costs related to the restrictive pooling criteria on the accounting choice. An article in the 11 January 2000 issue of the *Wall Street Journal* (C22) indicates that '[u]nder a purchase, AOL Time Warner can swiftly dump unproductive assets, plus do stock buybacks to preserve its share price. Under a pooling, the union would have to wait two years after the deal was completed to make these moves. The purchase route gives more flexibility, they did not want the restrictions.'

2.3. Control for non-accounting differences

Any attempt to provide explanations for the accounting choice should control for potential economic differences between acquisitions accounted for as purchase and those accounted for as pooling. In particular, pooling acquisitions are always financed with stock, while purchase acquisitions are often financed with cash. To the extent managers of acquiring firms take into account non-accounting incentives when deciding whether to use cash or stock for acquisition financing, failing to control for such factors may confound our investigation of the purchase–pooling choice. Moreover, because the two decisions are closely linked, it is difficult to draw inferences from many prior studies about factors affecting the accounting choice independent of the financing choice. We control for the financing choice by limiting the sample to stock-for-stock acquisitions (that may be accounted for as pooling or purchase, depending on compliance with the remaining pooling criteria).

The extant literature provides at least three explanations with respect to the choice between cash versus stock for acquisition financing. The first explanation concerns the tax effects of the acquisition. A cash acquisition always constitutes a taxable event, whereas an exchange of shares usually is not taxable until the shares are sold. This difference in tax consequences leads to the prediction that managers would be more inclined to use stock financing for corporate acquisitions, particularly when the expected capital gains to target shareholders are substantial.¹¹ However, empirical studies do not find a consistent association between the tax-paying circumstances of the target firm's shareholders and the financing method (Auerbach and Reishus, 1988; Erickson, 1998).¹²

The second explanation advanced in the finance literature relates to agency costs associated with debt (e.g., Barnea et al., 1981) or from information asymmetry

¹¹ Following the 1986 tax reform, the tax consequences are less favorable for taxable (cash) acquisitions than before, because individual capital gains rates increased and taxes on corporate capital gains on the target's assets could no longer be avoided if the assets were marked to market. Therefore, stock-for-stock acquisitions have more favorable tax consequences than cash-based transactions in most cases.

¹² Although the tax status of the merger generally does not depend on the accounting treatment and is primarily determined by the cash–stock choice, limiting the sample to stock-for-stock acquisitions does not necessarily eliminate confounding effects related to tax considerations. Therefore, to examine the income tax consequences of our sample acquisitions, we collected the tax status of each acquisition from the Capital Changes Reports (published by Commerce Clearing House Inc.), which discloses the tax consequences for the target firm's shareholders. Of the 485 stock-for-stock acquisitions for which we could identify the tax status, only five are taxable. The fact that nearly all the stock-for-stock acquisitions are non-taxable suggests that the tax status of the deal is not a correlated omitted variable in our analysis. Removal of the five taxable acquisitions does not affect any of our findings.

between managers of the acquiring firm and outside investors. Following Myers and Majluf (1984), if managers are better informed than outside investors about the true underlying value of their firm, they will prefer stock financing if they believe that their firm is overvalued, and shareholders of the target company would therefore expect a higher price for their stock.¹³

The third explanation for the financing choice focuses on managerial ownership in the acquiring firm. It is argued that managers with significant ownership who wish to retain control in their firm would favor cash over stock as a way to finance acquisitions (Amihud et al., 1990; Petry and Settle, 1991). This prediction is in the same direction as our prediction that managers' preference for pooling decreases with their ownership percentage. By focusing exclusively on stock-based acquisitions, we mitigate the need to consider these and other non-accounting factors identified in the prior literature, thereby allowing us to focus on the economic determinants of the accounting decision.

3. Sample selection and descriptive statistics

We collect a sample of stock-for-stock acquisitions of public companies occurring in the 1991–1997 period from the SDC Worldwide Merger and Acquisitions database. Our sample period begins in 1991 because this is the first year for which the acquisition data provided by SDC are complete. The sample period ends in 1997, the last year for which we have company proxy statements and other financial reporting data.

Table 1 describes the sample selection process and presents descriptive statistics for stock-based acquisitions. As shown by Panel A, the SDC database contains 2,204 acquisitions in which the acquirer purchases at least 90% of the target's common stock. We apply the 90% requirement because it is a necessary condition for pooling. Untabulated statistics indicate that most sample acquisitions involve all outstanding shares of the target company (mean percentage shares acquired is 99). Because our focus is on stock-for-stock acquisitions, we eliminate 780 observations in which the stock provided to target company's shareholders was less than 90% of transaction value. To ensure availability of proxy statements and stock price data, we also impose the requirement that the acquirer and target are both U.S. companies, resulting in the elimination of 361 acquisitions, 263 of which are due to a non-U.S. target company. Finally, we exclude 376 acquisitions due to data availability, including 229 acquisitions for which we could not reconcile SDC and CRSP data, 135 acquisitions with one or

¹³ Another explanation for the higher purchase price associated with stock-for-stock acquisitions is the delay that stock issuance often causes in the offer process, enabling competitors to enter the bidding process (Gilson, 1986).

Table 1
Sample selection and description

Panel A: Sample selection

	Acquisitions
Acquisitions of 90% or more of outstanding shares between 1991 and 1997	2,204
(Less) acquisitions financed with less than 90% stock	(780)
(Less) acquirer or target not a U.S. company	(361)
(Less) acquirer or target has missing <i>CRSP</i> or <i>COMPUSTAT</i> data	(376)
Final sample of stock-for-stock acquisitions	687

Panel B: Accounting treatment of the acquisition

Accounting treatment	Acquisitions	
	<i>N</i>	%
Purchase	262	38.1
Pooling-of-interests	425	61.9
Total	687	100.0

Panel C: Frequency distribution of pooling and purchase acquisitions across fiscal years

Fiscal year	Purchase (<i>n</i> = 262)		Pooling (<i>n</i> = 425)	
	<i>N</i>	%	<i>N</i>	%
1991	23	54.8	19	45.2
1992	19	38.0	31	62.0
1993	18	36.0	32	64.0
1994	53	45.3	64	54.7
1995	45	30.8	101	69.2
1996	61	40.4	90	59.6
1997	43	32.8	88	67.2

$\chi^2 = 12.77$ (p -value = 0.05) for test of equality of pooling frequency across years.

Panel D: Frequency distribution of 1-digit SIC code of target firm

SIC code of target firm	Purchase (<i>n</i> = 262)		Pooling (<i>n</i> = 425)	
	<i>N</i>	%	<i>N</i>	%
1000–1999	18	54.5	15	45.5
2000–2999	13	37.1	22	62.9
3000–3999	31	29.2	75	70.8
4000–4999	22	44.9	27	55.1
5000–5999	15	38.5	24	61.5
6000–6999	129	45.3	156	54.7
7000–7999	22	26.2	62	73.8
8000–8999	12	21.4	44	78.6

$\chi^2 = 26.12$ (p -value < 0.01) for test of equality of pooling frequency across SIC codes.

more necessary data items missing, and 12 acquisitions we considered outliers.¹⁴ Thus, the final sample comprises 687 stock-for-stock acquisitions by 471 companies. Panel B indicates that 262 (38.1%) of the 687 acquisitions are recorded as a purchase, and 425 (61.9%) as a pooling.

Table 1 (Panel C) provides frequency distribution of sample observations across fiscal years. The frequency of pooling acquisitions ranges from a low of 45.2% in 1991 to a high of 69.2% in 1995 (p -value of a chi-square test is 0.05). Panel D presents frequency distribution across the target's 1-digit SIC code. Interestingly, the frequency of pooling acquisitions varies significantly across industries; it ranges from a low of 45.5% in mining and construction (SIC codes 1000-1999) to a high of 78.6% in the service sector (SIC codes 8000-8999); p -value of a chi-square test is less than 0.01.¹⁵ We control for these temporal and industry variations in the multivariate tests described below.

Table 2 presents descriptive statistics by accounting for the variables on which our analyses are based, and provides p -values from t -tests and Wilcoxon Z-tests for differences in means and medians between purchase and pooling acquisitions. Although we have no prediction with respect to size differences, Table 2 reveals that, relative to acquisitions accounted for under the purchase method, pooling acquisitions involve larger firms. Because size may be correlated with some of our proxies for the economic benefits and costs related to the purchase–pooling choice, we control for size in the multivariate tests. Table 2 also reveals that the size difference between the acquiring and acquired firms is smaller in pooling transactions than it is in purchases; the median ratio of market capitalization of the target firm to that of the acquiring firm is 0.223 in pooling transactions and 0.129 in purchase acquisitions.

Consistent with our prediction, Table 2 indicates that the difference between the acquisition price and the target's book value of equity is significantly higher for pooling acquisitions than for purchase acquisitions. Specifically, the mean (median) *STEP_UP* is 0.127 (0.099) for the 425 pooling acquisitions, and 0.081 (0.037) for the 262 purchase acquisitions; both differences are significant at p -values less than 0.01.¹⁶ This finding is consistent with the notion that

¹⁴ We consider the upper and lower percentiles of *STEP_UP*, 12 observations in total, as outliers. Inclusion of these outliers in the regression estimations has no material effect on our findings.

¹⁵ The most frequent industry in the sample is the financial institution sector (SIC codes 6000-6999), mostly banks, with 285 acquisitions, or 41.5% of the sample; the second largest concentration is in the manufacturing sector (SIC code 3000-3999) with 106 acquisitions, or 15.4%. In comparison, financial institutions and manufacturing firms represent 20% and 24%, respectively, of Compustat population.

¹⁶ Similarly, an untabulated test reveals a significant difference in the frequencies of purchase and pooling acquisitions conditional on whether the acquisition resulted in a write-down or write-up of the target's net assets. Specifically, among the 35 acquisitions with a negative step-up, 71.4% are accounted for under the purchase method, a frequency that is significantly greater than the 36.3% observed for the 652 acquisitions with a positive step-up (p -value of a chi-square test less than 0.01).

Table 2

Descriptive statistics by accounting method for 687 stock-for-stock acquisitions between 1991 and 1997. Sample includes 262 acquisitions accounted for under the purchase method and 425 acquisitions accounted for as pooling-of-interests^a

	Purchase (<i>n</i> = 262)			Pooling (<i>n</i> = 425)			<i>p</i> -value	
	Mean	Median	Std dev.	Mean	Median	Std dev.	<i>t</i> -test	Wilcoxon
MV_T/MV_A	0.301	0.129	0.465	0.347	0.223	0.394	0.23	0.01
<i>MV</i>	3,950	1,314	7,939	4,644	1,857	9,398	0.32	0.01
<i>SIZE</i>	7.050	7.181	1.734	7.438	7.527	1.469	0.01	0.01
<i>STEP_UP</i>	0.081	0.037	0.120	0.127	0.099	0.117	0.01	0.01
<i>BONUS</i>	0.367	0.375	0.235	0.402	0.429	0.209	0.05	0.02
<i>OPTIONS</i>	0.407	0.475	0.200	0.440	0.471	0.233	0.73	0.96
<i>OWN</i>	3.918	0.491	9.674	2.823	0.532	6.440	0.08	0.96
<i>LEVERAGE</i>	0.340	0.326	0.229	0.280	0.239	0.229	0.01	0.01
<i>REPURCHASE</i>	0.041	0.000	0.073	0.028	0.000	0.058	0.03	0.07
<i>OPTIONS_OUT</i>	0.029	0.000	0.085	0.017	0.000	0.071	0.01	0.01
<i>SEGMENTS</i>	2.000	1.990	1.311	2.160	2.000	1.467	0.16	0.19

^a*MV* is market value of the combined entity, calculated as market value of the acquirer immediately prior to the acquisition announcement (MV_A) plus implied market value of the acquired company based on the terms of the transaction (MV_T). *MV* is in million \$. *SIZE* is the logarithm of *MV*. *STEP_UP* is the difference between the implied market value of the acquired company based on the terms of the transaction and its book value of equity at the end of the fiscal year prior to the announcement, deflated by market value of the combined entity. *BONUS* is the ratio of CEO's bonus to total cash compensation (sum of bonus and salary). *OPTIONS* is the ratio of CEO's stock option compensation (based on value of stock options granted during the year) to total compensation (sum of cash and stock option compensation). *OWN* is percentage of outstanding shares owned by the CEO. *BONUS*, *OPTIONS*, and *OWN* are handcollected from the acquirer's proxy statement for the year prior to the acquisition. *LEVERAGE* is the acquirer's long-term debt divided by book value of equity, measured as of the fiscal year-end prior to the acquisition. *REPURCHASE* is percentage of outstanding shares of common stock the acquiring firm announces it plans to repurchase. Share repurchase announcements are collected for the two-year period preceding the acquisition announcement. *OPTIONS_OUT* is the acquiring firm's outstanding stock options plus number of options available for grant in future periods, deflated by number of shares outstanding. *SEGMENTS* is number of industries (based on 4-digit SIC codes) in which the target firm is classified. Reported *p*-values are based on two-tailed significance levels.

when the step-up is relatively large, the incentives to use pooling and avoid recording the step up and its subsequent depreciation and amortization are stronger.¹⁷

¹⁷ As an additional test, we compute *STEP_UP* for financial institutions, the largest sector in our sample, separately from other sample firms. We expect financial institutions to have, on average, a smaller step-up than firms in other industries because a larger portion of banks' recorded assets

Regarding the proxies for the economic benefits and costs related to the purchase–pooling choice, the focus of our study, we observe several differences between the purchase and pooling acquisitions that are consistent with our predictions. In particular, mean and median *BONUS* are significantly greater, mean and median *LEVERAGE* are significantly smaller, and mean *OWN* is significantly smaller, for pooling acquisitions compared to purchase acquisitions. Mean and median *OPTIONS* are statistically indistinguishable between purchase and pooling acquisitions. Also consistent with our prediction, *REPURCHASE* and *OPTIONS_OUT* are both significantly greater for purchase acquisitions than for pooling acquisitions. However, both mean and median *SEGMENTS* are statistically indistinguishable between the two acquisition types.

4. Empirical tests

4.1. Primary tests and findings

To test the prediction that the purchase–pooling choice is associated with economic benefits and costs, we estimate the following logit regression equation, using the Maximum Likelihood Estimation technique:

$$\begin{aligned}
 POOLING_j = & \sum_{Y=91}^{97} \beta_{0Y} YEAR_{Yj} + \sum_{I=1}^8 \beta_{0I} INDUSTRY_{Ij} + \beta_1 SIZE_j \\
 & + \beta_2 STEP_UP_j + \beta_3 BONUS_j + \beta_4 (BONUS * STEP_UP)_j \\
 & + \beta_5 OPTIONS_j + \beta_6 (OPTIONS * STEP_UP)_j \\
 & + \beta_7 OWN_j + \beta_8 (OWN * STEP_UP)_j \\
 & + \beta_9 LEVERAGE_j + \beta_{10} (LEVERAGE * STEP_UP)_j \\
 & + \beta_{11} REPURCHASE_j + \beta_{12} OPTIONS_OUT_j \\
 & + \beta_{13} SEGMENTS_j + \varepsilon_j.
 \end{aligned} \tag{1}$$

The dependent variable, *POOLING*, equals one (zero) for acquisitions classified as a pooling-of-interests (purchase). *SIZE* is logarithm of market value of the combined entity, calculated as market value of the acquirer immediately prior to the acquisition plus the implied value of the acquired company based on terms of

and liabilities is already stated at fair values, and they also are less likely to have unrecorded intangibles. Consistent with this assertion, the mean (median) *STEP_UP* for the 285 acquisitions of financial institutions is 0.069 (0.043), significantly less than the 0.138 (0.103) measured for the remaining 402 observations. This finding may explain the lower frequency of pooling transactions in the financial institution sector; only 156 (54.7%) of the 285 stock-for-stock acquisitions of financial institutions are accounted for as poolings, compared with 269 (66.9%) of the remaining 402 acquisitions (*p*-value of a chi-square test is less than 0.01). Our findings are robust to excluding financial institutions from the sample.

the transaction; we use log values to capture potential nonlinearities in the relation between the accounting method choice and the firm size. $YEAR_Y$ equals one for fiscal year Y , and zero otherwise. $INDUSRY_I$ equals one for firms with 1-digit SIC code I , and zero otherwise.¹⁸ All other variables are as defined above.

Regarding the hypothesized economic benefits, our focus is on the interaction between $STEP_UP$ and $BONUS$, $OPTIONS$, OWN , and $LEVERAGE$, the proxies for the compensation, job security, and debt covenant incentives. We focus on the interaction between the step-up and these firm characteristics because we presume that the effects of the purchase–pooling choice depend jointly on the magnitude of the step-up and the benefits related to accounting-based contracts. Qualifying for pooling is not costless, and we therefore conjecture that any managerial preference for pooling is more pronounced for acquisitions involving large step-ups. Also, by focusing on the interaction between the financial reporting effects of the purchase–pooling choice and proxies for the economic benefits, we mitigate the possibility that our findings reflect spurious relations rather than the hypothesized factors.¹⁹ We predict that the coefficients on $BONUS*STEP_UP$ and $OPTIONS*STEP_UP$ are positive, and the coefficients on $OWN*STEP_UP$ and $LEVERAGE*STEP_UP$ are negative. Because the coefficients on $BONUS$, $OPTIONS$, OWN and $LEVERAGE$ may reflect correlated omitted variables (if any), we do not form any predictions for the signs of these coefficients. Regarding the hypothesized costs associated with qualifying for pooling, we predict that the coefficients on our three proxies, $REPURCHASE$, $OPTIONS_OUT$, and $SEGMENTS$, are negative.

Table 3 presents summary statistics from estimating Eq. (1).²⁰ As expected from the descriptive statistics in Tables 1 and 2, the coefficients on $SIZE$ and many of the (untabulated) $YEAR$ and $INDUSTRY$ indicator variables are statistically significant. Also consistent with the univariate tests, the coefficient on $STEP_UP$ is significantly positive (p -value 0.02), indicating that when the step-up associated with a stock-for-stock acquisition is large, managers are more likely to use pooling and avoid recording the asset write-up. The fact that the

¹⁸ We use 1-digit SIC codes to define industries because 38 observations are in 2-digit SIC codes where all sample observations have the same accounting treatment. Our inferences are not sensitive to using 2-digit SIC codes to define industries.

¹⁹ Specifically, many of the measures of firm characteristics designed to capture the hypothesized contracting costs may instead capture the effect of omitted variables (see Ball and Foster, 1982; Watts and Zimmerman, 1990; Ali and Kumar, 1994). It is therefore difficult to draw inferences from prior studies that include the magnitude of the step-up and the hypothesized firm characteristics as separate explanatory variables.

²⁰ For 20 observations we could not identify the CEO's shareholding, and for 33 observations we have incomplete compensation data. Thus, our logit analysis is based on 634 of the 687 sample acquisitions.

Table 3

Summary statistics from logit regression of indicator variable denoting whether the business combination is accounted for as a purchase or pooling-of-interests. Sample of 687 stock-for-stock acquisitions between 1991 and 1997^a

$$\begin{aligned}
 POOLING_j = & \sum_{Y=91}^{97} \beta_{0Y} YEAR_{Yj} + \sum_{I=1}^8 \beta_{0I} INDUSTRY_{Ij} + \beta_1 SIZE_j + \beta_2 STEP_UP_j \\
 & + \beta_3 BONUS_j + \beta_4 (BONUS * STEP_UP)_j + \beta_5 OPTIONS_j \\
 & + \beta_6 (OPTIONS * STEP_UP)_j + \beta_7 OWN_j + \beta_8 (OWN * STEP_UP)_j \\
 & + \beta_9 LEVERAGE_j + \beta_{10} (LEVERAGE * STEP_UP)_j \\
 & + \beta_{11} REPURCHASE_j + \beta_{12} OPTIONS_OUT_j + \beta_{13} SEGMENTS_j + \varepsilon_j
 \end{aligned}$$

	Prediction	Coefficient estimate	Z-statistic	p-value
SIZE	?	0.143	1.85	0.06
STEP_UP	+	4.595	2.14	0.02
BONUS	?	-0.745	-1.15	0.25
BONUS * STEP_UP	+	8.392	1.98	0.02
OPTIONS	?	0.740	1.37	0.17
OPTIONS * STEP_UP	+	1.128	0.30	0.38
OWN	?	-0.016	-1.17	0.24
OWN * STEP_UP	-	-0.055	-0.80	0.21
LEVERAGE	?	-0.196	-0.35	0.73
LEVERAGE * STEP_UP	-	-9.749	-2.47	0.01
REPURCHASE	-	-0.027	-1.90	0.03
OPTIONS_OUT	-	-4.076	-2.74	0.01
SEGMENTS	-	0.004	0.06	0.48
N		634		
Pseudo R ²		0.12		

^aPOOLING is an indicator variable taking the value of one (zero) for acquisitions classified as pooling-of-interests (purchase). SIZE is logarithm of market value of the combined entity, calculated as market value of the acquirer immediately prior to the acquisition announcement plus implied market value of the acquired company based on the terms of the transaction. STEP_UP is the difference between the implied market value of the acquired company based on the terms of the transaction and its book value of equity at the end of the fiscal year prior to the announcement, deflated by market value of the combined entity. BONUS is the ratio of CEO's bonus to total cash compensation (sum of bonus and salary). OPTIONS is the ratio of CEO's stock option compensation (based on value of stock options granted during the year) to total compensation (sum of cash and stock option compensation). OWN is percentage of outstanding shares owned by the CEO. BONUS, OPTIONS, and OWN are handcollected from the acquirer's proxy statement for the year prior to the acquisition. LEVERAGE is the acquirer's long-term debt divided by book value of equity, measured as of the fiscal year-end prior to the acquisition. REPURCHASE is percentage of outstanding shares of common stock the acquiring firm announces it plans to repurchase. Share repurchase announcements are collected for the two-year period preceding the acquisition announcement. OPTIONS_OUT is the acquiring firm's outstanding stock options plus the number of options available for grant in future periods, deflated by number of outstanding shares. SEGMENTS is the number of industries (based on 4-digit SIC codes) in which the target firm is classified. YEAR_Y equals one for fiscal year Y, and zero otherwise. INDUSRY_I equals one for firms with 1-digit SIC code I, and zero otherwise. Year- and industry-specific intercepts are untabulated.

The Z-statistic is an asymptotically standard normal test statistic for the hypothesis that the coefficient estimate is zero. The reported p-values are based on two-tailed significance levels, and on one-tailed levels when the prediction is directional.

coefficient on *STEP_UP* is significantly positive incremental to the interactive terms suggests that there may be additional managerial incentives to use pooling for large step-up acquisitions.

Consistent with our predictions regarding the compensation, job security, and debt covenant incentives, the estimated coefficients on all four interactive terms have the predicted sign, although only those on *BONUS*STEP_UP* and *LEVERAGE*STEP_UP* are significant. Specifically, the coefficient on *BONUS*STEP_UP* is significantly positive (p -value 0.02), consistent with our prediction that managers whose compensation plans are sensitive to reported earnings are more inclined than others to incur the costs of qualifying for pooling for large step-up acquisitions.²¹ In contrast, the coefficient estimate on *OPTIONS*STEP_UP* is statistically insignificant (p -value 0.38), suggesting that managers are less concerned about the implications of recording large step-ups for their market-based compensation than for their earnings-based compensation. This finding is consistent with the valuation-irrelevancy identified in the prior literature with respect to the purchase–pooling choice.

The coefficient estimate on *OWN*STEP_UP* is negative, though statistically insignificant (p -value 0.21), providing little support for our prediction that top executives' preference for pooling is greater when their job security is relatively low. Finally, consistent with our prediction, the coefficient on *LEVERAGE*STEP_UP* is significantly negative (p -value 0.01), suggesting that when the firm's leverage is high, and debt covenant constraints, to the extent there are any, are more likely to be binding, managers are more inclined to use the purchase method to account for large step-up acquisitions. None of the four proxies for the hypothesized incentives is significant incremental to its interactive term.

Consistent with our predictions regarding the potential costs related to qualifying for pooling, the estimated coefficients on *REPURCHASE* and *OPTIONS_OUT* are both significantly negative (p -values 0.03 and 0.01, respectively). This finding suggests that firms for which the pooling restriction of changes in equity interests of the voting stock appears to be binding (firms that have already announced a share repurchase plan in the two-year period prior to the acquisition, as well as firms with a large number of employee stock options) are less likely than other firms to use pooling. However, the estimated coefficient on *SEGMENTS* is statistically insignificant (p -value 0.48), suggesting that firms for which the requirement of no post-acquisition divestiture of the target firm's

²¹ Although we interpret *BONUS* as a measure of the extent to which CEO compensation depends on reported earnings, it could instead capture variation across sample firms with respect to their performance in the year prior to acquisition. To investigate the sensitivity of our findings to potential differences in firm performance between firms with purchase and pooling acquisitions, we include the return-on-asset (measured for the pre-acquisition year), *ROA*, as an additional explanatory variable in Eq. (1). Untabulated results reveal that the coefficients on *ROA* and *ROA*STEP_UP* are both statistically insignificant (p -values 0.62 and 0.53, respectively), and inferences from all other coefficient estimates are very similar to those in Table 3 (e.g., p -value on *BONUS*STEP_UP* is 0.01).

assets may be binding do not favor purchase over pooling. However, it is also plausible that our proxy for the costs associated with this pooling restriction, i.e., number of industries in which the target operates, is too noisy a measure of the underlying cost. Finally, regarding overall explanatory power, the pseudo- R^2 shows that the independent variables explain about 12% of the variation in purchase–pooling choice.

Overall, our findings suggest that, controlling for the costs of qualifying for pooling, firms' preference for pooling is associated with the effect of recording the step-up on accounting-based contracts. As an additional test, we investigate whether economic benefits similar to those associated with the purchase–pooling choice also explain the variation within purchase acquisitions with respect to how the step-up is allocated between identifiable and non-identifiable assets. In particular, because goodwill is typically amortized over a longer period than other depreciable assets (often over a 40-year period), we expect a positive association between CEO earnings-based compensation and the portion of the step-up allocated to goodwill.

To test this prediction, for the 262 purchase acquisitions in our sample, we handcollect from the acquirer's annual report for the post-acquisition year, footnote disclosure of the allocation of the acquisition price to the target's assets and liabilities. For the 114 acquisitions for which we could identify the exact allocation of the step-up (all other firms either provided no allocation of the acquisition price or provided data aggregated across multiple acquisitions), we calculate the ratio of recorded goodwill to total step-up, *GOODWILL*. The mean (median) *GOODWILL* for our sample of purchase acquisitions is 19.4% (7.9%). We then estimate a Tobit model with *GOODWILL* as a dependent variable and a set of independent variables similar to those in Eq. (1).²² Consistent with our prediction, the untabulated findings indicate that the coefficient estimate on *BONUS* is significantly positive (p -value 0.05); all other variables are statistically insignificant, except for *OPTIONS* which is marginally significantly positive (p -value 0.11). This finding suggests that, in acquisitions accounted for under the purchase method, CEOs with earnings-based compensation plans have a greater portion of the step-up allocated to goodwill, relative to other assets, with a presumably faster depreciation schedule.

4.2. Additional analyses

4.2.1. Firms with multiple acquisitions

Limiting the sample to stock-for-stock acquisitions allows us to control for factors related to the financing choice. However, it is still possible that there are

²² Because of the small number of observations, our Tobit analysis is conducted without the year and industry indicator variables. We also exclude the interactive terms; our inferences are robust to including them.

omitted differences between firms that use purchase and those that use pooling, and that firms that favor pooling also are more likely to have accounting-based contracts. Although this possibility is unlikely to explain the significant coefficients on the interactive terms in Eq. (1), we provide further control for omitted firm-differences by comparing purchase and pooling acquisitions by the same firms.

To do that, we first examine the frequency distribution of the number of acquisitions made by each sample firm. As Panel A of Table 4 reveals, the 687 stock-for-stock sample acquisitions relate to 471 different firms. While 363 of the 471 firms have only one acquisition during the sample period, 108 have multiple acquisitions. 59 of these 108 firms accounted for all of their stock-for-stock acquisitions as either purchase or pooling (8 and 51, respectively), while 49 firms (with 173 acquisitions) have used both methods.²³

We compare the step-ups associated with the 80 purchase and 93 pooling acquisitions made by the 49 firms that use both methods.²⁴ We first calculate a firm-specific mean *STEP_UP* separately for pooling and purchase acquisitions. This process results in 49 pairs of firm-specific step-ups, one for poolings and one for purchases. We then compare the two step-ups.²⁵ Consistent with our prediction, panel A of Table 4 reveals a significant difference between the step-ups associated with pooling and purchase acquisitions made by these 49 firms. In particular, the mean (median) *STEP_UP* for pooling acquisitions is 0.099 (0.078), significantly greater than the 0.052 (0.021) measured for purchase acquisitions (*p*-value 0.01 (0.01)). This finding indicates that the accounting decision is acquisition-specific, in that the purchase–pooling choice is associated with the step-up to the target's net assets.²⁶

²³ Interestingly, the frequency of pooling-of-interests is significantly greater among firms with multiple acquisitions (51 (86%) of the 59 firms with multiple acquisitions that are accounted for as either all purchases or all poolings) than among firms with a single acquisition (200 (55%) of 363 firms); *p*-value of an untabulated chi-square statistic is less than 0.01. As a robustness check, we re-estimate Eq. (1) after including an indicator variable taking the value of one for firms with multiple acquisitions, and zero otherwise. Untabulated estimation results reveal that, consistent with the chi-square test, the coefficient on the indicator variable is significantly positive (*p*-value less than 0.01). However, all other coefficient estimates are nearly identical to those in Table 3.

²⁴ Because we examine purchase and pooling transactions by the same firms, we cannot use any of our firm-specific proxies for hypothesized benefits and costs related to the accounting choice. Instead, we focus on the magnitude of the step-up, which is acquisition-specific.

²⁵ Our findings are not sensitive to comparing the 80 purchase and 93 pooling acquisitions without first calculating a firm-specific average.

²⁶ This test also mitigates concerns that the *Z*-statistics in Table 3 are overstated because of serial correlation in the error structure due to the appearance of some sample firms more than once. Another sensitivity check we conduct to address this econometric issue involves estimating Eq. (1) using only the 363 firms with a single acquisition. Inferences from this test are consistent with those for the full sample.

Table 4

Additional analyses of the effect of the *STEP_UP* on the purchase–pooling accounting choice. Sample of 687 stock-for-stock acquisitions between 1991 and 1997^a

Panel A: Comparison of purchase and pooling for firms with multiple acquisitions

Frequency distribution of number of acquisitions made by each firm

Number of acquisitions	Number of firms	Firms with acquisitions accounted as		
		Purchase only	Pooling only	Both
1	363	163	200	–
2	60	6	34	20
3	22	1	11	10
4	13	1	2	10
5 +	13	0	4	9
Subtotal	108	8	51	49
Total	471	171	251	49

Purchase and pooling by the 49 firms with both accounting treatments

	Purchase (<i>n</i> = 49)		Pooling (<i>n</i> = 49)		<i>p</i> -value	
	Mean	Median	Mean	Median	t-test	Wilcoxon
<i>STEP_UP</i>	0.052	0.021	0.099	0.078	0.01	0.01

Panel B: Mergers of equals accounted for under the purchase method

	Acquirer (<i>n</i> = 21)		Target (<i>n</i> = 21)		<i>p</i> -value	
	Mean	Median	Mean	Median	t-test	Wilcoxon
<i>STEP_UP</i>	0.262	0.324	0.134	0.168	0.02	0.33

^a*STEP_UP* is the difference between the implied market value of the acquired company based on the terms of the transaction and its book value of equity at the end of the fiscal year prior to announcement, deflated by market value of the combined entity.

We define acquisitions as mergers of equals when the acquiring and acquired companies have market values of equity within 25% of each other.

The reported *p*-values are based on two-tailed significance levels.

4.2.2. 'Mergers-of-equals'

We further examine whether top executives behave opportunistically with respect to the purchase–pooling choice, by examining acquisitions where the acquirer and the target are of approximately the same size ('mergers-of-equals').

These mergers involve considerable discretion with respect to the identification of an ‘acquirer’ and a ‘target’. This is particularly so for stock-for-stock acquisitions with little or no cash involved, because it is usually the company paying the cash that is classified as the ‘acquirer’. While identification of an ‘acquirer’ and a ‘target’ is irrelevant for pooling acquisitions, where the book values of the two companies’ net assets are simply added together, it is important for acquisitions accounted for under the purchase method. Specifically, if the difference between the market and book values of net assets is not the same across the two companies (e.g., when one company has more unrecorded intangible assets), identifying an ‘acquirer’ and a ‘target’ could affect the amount of asset write-up recorded on the consolidated balance sheet. Therefore, we conjecture that in ‘mergers-of-equals’ accounted for under the purchase method, managers would structure the deal so that the company with the lower amount of step-up is identified as a ‘target’.

Table 4 (Panel B) reports the results of this test, using a subsample of 21 purchase acquisitions where the two companies have market values of equity within 25% of one another. Consistent with our prediction, the step-up to the net assets of the company designated as the ‘target’ is nearly half the amount that would have been recorded had the other company been identified as a ‘target’. Specifically, the mean (median) *STEP_UP* associated with the net assets of the ‘targets’ is 0.134 (0.168), while the mean (median) *STEP_UP* associated with the ‘acquirers’ is 0.262 (0.324); the difference in means is significant at the 0.02 level. The difference in medians is statistically insignificant (p -value 0.33), although nonparametric tests are not suitable for small samples such as this (21 acquisitions). We interpret this finding as evidence consistent with managers adopting opportunistic financial reporting strategy for business combinations. This result also suggests that even if the FASB further restricts the use of pooling, firms engaged in stock-for-stock acquisitions could still take advantage of their discretion with respect to the identification of an ‘acquirer’ and a ‘target’ to minimize the amount of asset write-up recorded on the consolidated balance sheet.

5. Summary

We investigate firms’ financial reporting policies with respect to business combinations, particularly the choice between the purchase and pooling-of-interests methods. To control for potentially confounding effects related to the method of acquisition financing, we focus on a sample of stock-for-stock acquisitions. We provide evidence that the accounting method choice is jointly determined by the size of the step-up, i.e., the premium paid over the book value of the acquired firm and which is recognized under the purchase method, and proxies for economic benefits derived from accounting-based compensation and debt contracts.

Specifically, we find that, when the business combination involves a large step-up to the target's net assets, CEOs with earnings-based compensation plans are more likely than others to incur the costs of qualifying for pooling and avoid the earnings 'penalty' associated with the purchase method. However, we find no association between stock-based compensation and the purchase–pooling choice. We also find no support for the prediction that top executives' preference for pooling is greater when their job security is relatively low. Finally, consistent with the favorable balance sheet effects of the purchase method, we find that the likelihood of pooling decreases with the acquirer's debt–equity ratio, a proxy for debt contracting costs.

In addition to investigating economic incentives derived from accounting-based contracts, we also predict and find an association between the purchase–pooling choice and potential costs related to meeting the restrictive pooling criteria. In particular, we find that, all else being equal, firms for which the pooling requirement of no post-acquisition share repurchases appears to be binding (firms that have already announced a share repurchase plan and/or have a large number of outstanding employee stock options) are less likely than others to use pooling. However, we do not find that firms for which the requirement of no post-acquisition divestitures of the target's assets may be binding are less likely to use pooling.

Our findings may be relevant to the on-going debate regarding the appropriateness of using pooling for stock-for-stock acquisitions. The FASB has recently issued an exposure draft proposing that pooling be disallowed for all business combinations (FASB, 1999). Overall, our findings may be interpreted as evidence that managers act opportunistically in structuring the financial reporting strategy of their firms' business combinations. Furthermore, we document a significant deadweight cost of complying with the restrictive pooling requirements. If accounting standard setters view this deadweight cost as undesirable, they can mitigate it by mandating a single method for business combinations. Our study is silent, however, on whether the purchase or pooling method is preferable. Moreover, any policy implications should be made cautiously because the association between the purchase–pooling choice and accounting-based contracts could reflect an efficient relation among firms' investment opportunity sets, financial policies, and their set of accounting methods (Watts and Zimmerman, 1990).

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