Stock Splits as a Manipulation Tool: Evidence from Mergers and Acquisitions

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We document that acquiring firms are more likely than nonacquiring firms to split their stocks before making acquisition announcements, especially when acquisitions are financed by stock and when the deals are large. Our findings support the hypothesis that some acquiring firms use stock splits to manipulate their equity values prior to acquisition announcements. Using earnings quality as a proxy for firms' intention to manipulate, we find that acquirers with low earnings quality (i.e., acquirers that are more likely to use stock splits to manipulate their stock values) have lower long-run stock returns compared with their benchmarks, especially when the deals are financed with stock. In contrast, acquirers with high earnings quality do not show that pattern. Our evidence complements and extends the findings in the literature that some acquirers manipulate their stock prices before stock-swap acquisitions. This study suggests that target shareholders should use information such as earnings quality and stock splits to discriminate among acquirers and ensure that exchanges are conducted on fair terms.

After recent accounting scandals in once high-flying firms like Enron and WorldCom, management behavior has been under close scrutiny by regulators, financial media, and researchers. Jensen (2005) argues that the dramatic increase in corporate scandals around the turn of the century can be explained by agency costs of overvalued equity: when a firm's equity is substantially overvalued, managers are forced to take value-destroying actions (some perhaps fraudulent) to satisfy the market's unrealistic growth expectations. One action that firms often take is to acquire other companies using their overvalued equity.

Recent studies show that some firms engage in certain activities that inflate their equity values or prevent their overvalued prices from falling before acquisitions. For example, Erickson and Wang (1999) and Louis (2004) find that acquiring firms on average overstate their earnings in the quarter preceding a stock-swap acquisition announcement. Efendi, Srivastava, and Swanson (2007) find that the likelihood of an earnings restatement is significantly higher for firms that make one or more sizable acquisitions. Anecdotal evidence also indicates that some firms manipulate their stock prices before large acquisitions financed by stock. For example, the *Wall Street Journal* (November 24, 2004, C1; November 26, 2004, C1) reported that shortly before American International Group (AIG) finalized its acquisition of insurer American General Corporation in

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Figure 1. Stock Splits and Acquisition Announcements of AOL, 1997-2000

This figure includes only stock-swaps with deal values greater than $10 million. The dates for stock splits are effective dates, and the dates for acquisitions are announcement dates.
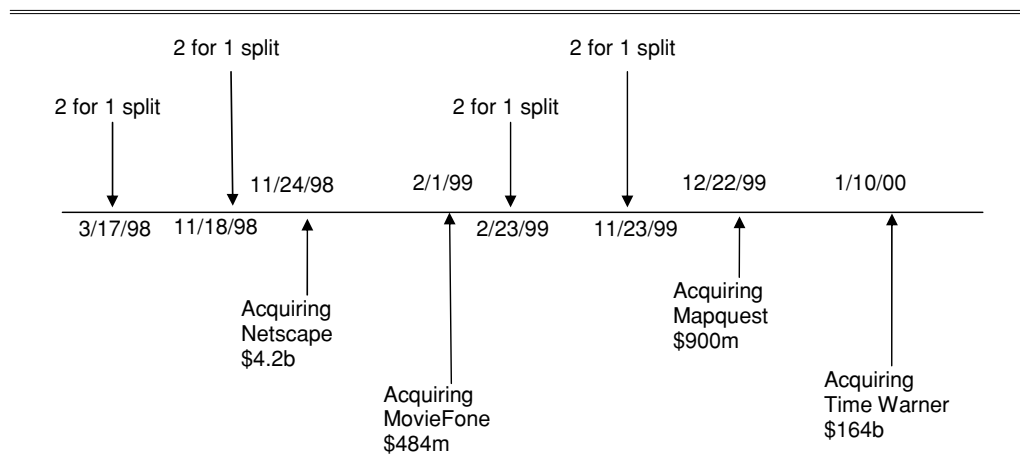
August 2001, AIG Chairman Greenberg called the office of Dick Grasso, then head of the NYSE, to ask him to help bolster AIG's stock price. This later prompted inquiries by the NYSE, the Securities and Exchange Commission (SEC), and federal prosecutors as to whether Greenberg manipulated the huge insurance company's share price to save money on the large acquisition deal.

This paper examines whether some firms use stock splits as another tool to manipulate their stock price before an acquisition. Acquiring firms have two incentives to use stock splits to manipulate their stock prices. First, prior research has documented that the market usually reacts positively to the announcement of a stock split (Grinblatt, Masulis, and Titman, 1984; Conroy and Harris, 1999; Kadiyala and Vetsuypens, 2002). Therefore, managers of acquiring firms may believe that their stock prices will increase following stock splits. Second, the previous literature has documented that stock splits increase the marketability of a firm's stock (Lamoureux and Poon, 1987; Maloney and Mulherin, 1992; Schultz, 2000; Dhar, Goetzmann, Shepherd, and Zhu, 2005).[1] In the context of mergers and acquisitions (M&As), if acquiring firms are concerned that their share prices are overvalued and poised to decline and if they still need time to complete the acquisitions, they may use stock splits to defer market corrections.

Our hypothesis is motivated by the observation that acquisition announcements in the late 1990s were often preceded by stock splits. For instance, AOL executed a two-for-one stock split on March 17, 1998, and another two-for-one stock split on November 18, 1998. Six days later, on November 24, 1998, AOL announced the acquisition of Netscape for $4.2 billion. A little more than two months after that, AOL announced the acquisition of MovieFone for $484 million. In 1999, AOL executed two more two-for-one stock splits before announcing the acquisition of Mapquest. Shortly afterward, AOL announced the acquisition of Time Warner for $164 billion on January 10, 2000, the largest merger in corporate history at that point. Figure 1 provides the chronology of AOL's stock splits and acquisition announcements from 1997 to 2000.

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[1]By examining mutual fund share splits, Fernando, Krishnamurthy, and Spindt (1999) also find that share price levels are related to the marketability of mutual funds.

In this paper, we first examine whether the decision to split before acquisition announcement is a common behavior among firms, or just a coincidence in some isolated cases. If a general pattern indeed exists, we will attempt to further investigate whether this behavior is motivated by acquirers' intentions to manipulate stock prices before acquisition announcements to lower the costs of acquisitions.

During our sample period (from 1980 to 2003), we find that acquiring firms are more likely than nonacquiring firms to split their common stocks before acquisition announcements. For example, in the six-month period before making an acquisition announcement, the probability of a stock split for an acquiring firm is 9.13%, whereas the probability is 6.24% for a matching firm with similar size, price level, and prior one-year return. Moreover, acquiring firms are more likely to split their stocks *before* acquisition announcements than *after* acquisition announcements. For example, 20.94% of the stock-swap acquiring firms split their stocks in the one-year period *before* the acquisition announcements, compared with 12.22% in the one-year period *after*. The influence of M&As on the likelihood of stock splits is also economically significant: our multivariate analyses show that the increase in the probability of a stock split due to the anticipation of an acquisition announcement in the next six months ranges from 1.4% to 2.4%, after controlling for other factors that may affect a firm's stock-split decision.

Only a firm's management and insiders know the exact motive for a stock split; outsiders cannot observe it directly. To address this challenge, we use earnings quality to proxy for the firm's propensity to engage in manipulative activities. If a firm intends to manipulate its equity value prior to an acquisition, it may not confine itself to stock splits. Another way to achieve this goal is through earnings management, as documented by Erickson and Wang (1999) and Louis (2004). Therefore, we expect that the lower the quality of a firm's earnings before the acquisition announcement, the more likely the acquirer is to use stock splits as a tool to manipulate its equity value. Our empirical evidence supports this prediction. We find that firms with lower earnings quality are more likely to split their stocks before acquisition announcements than firms with higher earnings quality.

Our hypothesis generates the following two predictions. First, if some firms split their stocks to keep their equity value from falling (perhaps to delay a market correction of their overvalued equity), we expect these firms to have poorer long-run stock performance compared with firms that split stocks for nonmanipulative reasons. Given that we use earnings quality as a proxy for firms' intentions to manipulate, we expect splitting acquirers with lower earnings quality to perform worse in stock returns compared with splitting acquirers with higher earnings quality, after controlling for the effect of earnings quality on stock returns. Second, because acquirers benefit more from overvalued equity in stock-swap acquisitions than from non-stock-swap acquisitions, we expect the above prediction on long-run stock performance to be more pronounced for stock-swap acquisitions.

Using 4,782 acquisitions announced from 1980 to 2003, we test our hypothesis that some firms use stock splits to manipulate stock prices prior to acquisition announcements. We find that long-run abnormal stock returns vary across different earnings-quality groups, and between splitting acquirers (defined as acquirers that split their stocks prior to acquisition announcements) and nonsplitting acquirers. Splitting acquirers with low earnings quality significantly underperform their matching firms, whereas those with high earnings quality do not.[2] Among nonsplitting acquirers, we find no relation between earnings quality and long-run abnormal returns. Furthermore, we find that the relation between earnings quality and long-run abnormal returns is more

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[2]One of our matching methods uses earnings quality as a selection criterion. Therefore, the difference in long-run abnormal returns is not driven by different earnings quality between acquiring firms and their matching firms.

pronounced among stock-swap splitting acquirers and less pronounced among non-stock-swap splitting acquirers. In other words, the evidence presented in this paper is consistent with our hypothesis.

This paper contributes to the literature in several ways. Our study is the first to document that firms are more likely to split their stocks before acquisition announcements and the first to attempt to explain why they might do so. This paper also contributes to the literature on managerial opportunistic behaviors. Prior studies identify possible manipulation tools such as earnings management (Erickson and Wang, 1999; Louis, 2004) and share repurchase (Chan, Ikenberry, Lee, and Wang, 2005). Our study shows that some firms appear to use stock splits to manipulate their stock prices, especially when incentives exist for them to do so.[3] This finding offers new insight into managerial ethics, which has become a key social concern after the corporate scandals of the past decade and the recent controversy over stock options backdating that has affected many large US firms like Apple, Home Depot, and Barnes & Noble. Finally, our results suggest that target shareholders should use caution when evaluating proposed merger offers. Information about acquirers, such as whether they have recently conducted a stock split and how high their discretionary accruals are, may be valuable to target firms in discriminating among acquirers and ensuring that acquirers are not manipulating their stock prices, so that exchanges are conducted on fair terms.

The rest of this paper is organized as follows. Section I describes data, sample selection, and some initial findings that motivate our work. Section II formally tests our hypothesis and reports our empirical findings. Section III concludes the paper.

I. Data, Sample Selection, and Some Initial Findings

In this section, we first describe our sample and then report the frequency of stock splits of acquiring firms before acquisition announcements. We compare this frequency with that of nonacquiring firms and examine the effect of deal characteristics on this frequency. Finally, we describe how we calculate discretionary accruals, which we will use later as a proxy for a firm's intention to manipulate its stock value.

A. The Sample

The sample of M&As is collected from the Securities Data Corporation's (SDC) US Mergers and Acquisitions Database. We select both completed and withdrawn domestic M&As with announcement dates between 1980 and 2003, and require both the acquirer and the target to be public firms. We include only acquisitions in which the acquiring firms control less than 50% of the shares of the target firms before acquisition announcements. We further require that 1) deal values are at least $10 million; 2) acquiring firms are listed on the NYSE, AMEX, or NASDAQ when the acquisitions are announced; 3) stock price and return information of acquiring firms are available from Center for Research in Security Prices (CRSP) around acquisition announcements; and 4) acquiring firms are not unit trusts, real estate investment trusts, or American Depository Receipts.

Our final sample consists of 4,782 acquisitions from 1980 to 2003. Panel A of Table I reports the summary statistics on acquiring firms' sizes (one month before acquisition announcements),

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[3]Our evidence seems to be consistent with that in Bradley, Cooney, Dolvin, and Jordan (2006), who find that some IPO firms, together with their underwriters, deliberately set the offer price at a low level (say, below $5 per share) to manipulate the market.

Table I. Summary Statistics and Probability of Stock Splits

Panel A reports summary statistics of M&As announced from 1980 to 2003 with a transaction value of at least $10 million. Both acquirers and targets are public firms. Panel B reports the probability of a stock split for different groups of firms in different time windows. We select two sets of matching firms. The first set is based on industry, market capitalization, and stock price (industry-size-price matching). The second set is based on market capitalization, stock price, and prior one-year stock return (size-price-return matching). In Panel B, Column $[-3, -1]$ ($[1, 3]$) denotes the probability that the firm conducts a stock split in the three-month window before (after) the acquisition announcement. The acquisition announcement month is month 0. Other time windows are defined similarly. The random firms' probability of a stock split is calculated using the CRSP common stock universe from 1980 to 2003.

Panel A. Summary Statistics of the M&A Sample

	# of Deals	% of the Sample	Acquirer's Size ($ mil)	Deal Value ($ mil)	# of Firms with Splits in $[-6,-1]$	% of Splits
	N	*N*/4782	Median	Median	*n*	*n*/*N*
Completed	3,943	82.5%	1,145.88	127.83	357	9.05%
Withdrawn	839	17.5%	507.23	129.48	57	6.79%
Stock-swap	2,817	58.9%	1,068.22	143.60	296	10.51%
Cash-only	1,453	30.4%	990.87	115.00	94	6.47%
Tender offer	845	17.7%	1,195.50	189.55	56	6.63%
All	4,782	100%	972.20	128.33	414	8.66%

Panel B. Probability of Stock Splits

Probability (%) Month	$[-3, -1]$	$[-6, -1]$	$[-12, -1]$	$[1, 3]$	$[1, 6]$	$[1, 12]$	Obs.
Acquiring firms	4.68	9.13	17.61	3.37	6.36	12.28	4,637
Stock-swap	5.97	10.99	20.94	3.40	6.55	12.22	2,765
Cash-only	2.96	6.80	12.73	3.47	6.29	12.87	1,385
Tender offer	3.06	6.86	12.62	3.19	6.74	13.85	816
Deal value ≥ $50 mil	5.16	10.31	19.79	3.49	6.89	13.11	3,357
Deal value ≥ $100 mil	5.75	11.12	21.41	3.54	7.24	13.33	2,626
Matching firms (industry-size-price)	2.85	6.04	13.33	2.98	6.00	10.70	4,637
Matching firms (size-price-return)	2.88	6.24	12.94	2.50	5.33	10.38	4,164
Random firms	1.7	3.4	6.8	1.7	3.3	6.5	—

deal values, and number of firms that split their stocks within the six-month window prior to acquisition announcements. Of the 4,782 transactions, 3,943 are completed and 839 are withdrawn. SDC classifies 2,817 deals (58.9% of the sample) as stock-swap acquisitions, 1,453 (30.4%) as cash-only acquisitions, and 845 (17.7%) as tender offers.[4] The median market value of the acquiring firms before the acquisition announcement is $972.2 million, and the median deal value is $128.33 million. There is no significant difference in acquirers' average size among the following groups: stock-swap acquisitions, cash-only acquisitions, and tender offers. The completed deals, on average, are made by larger acquirers than the withdrawn deals (the median values are $1,145.88 million vs. $507.23 million). The deal values of completed and withdrawn acquisitions are similar according to the medians ($127.83 million vs. $129.48 million). On

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[4]SDC classifies an acquisition as stock-swap if more than 50% of the transaction is paid by equity. Note that stock-swap and cash-only acquisitions are not exhaustive.

average, 8.66% of acquirers make at least one stock split during the six-month period prior to acquisition announcements. The percentage of stock-swap acquirers conducting splits is 10.51%, higher than that of cash-only acquirers (6.47%) or tender-offer acquirers (6.63%).

B. The Matching Sample

To examine whether acquiring firms are more likely to make stock splits before acquisitions, it is not sufficient to compare acquirers with random firms because both the decisions to acquire and the decisions to split are affected by certain common factors such as industry type, firm size, and preacquisition stock performance. We use two methods to select our matching firms: industry-size-price matching and size-price-return matching. All CRSP-listed nonacquiring operating firms (without being an acquirer within the two-year period centered around the acquisition announcement month) are used as a pool of potential matching firms.[5] For industry-size-price matching, the matching firm must have the same three-digit Standard Industrial Classification (SIC) code as the acquiring firm. We select the first matching firm such that the sum of the absolute percentage differences in market value and stock price between the sample firm and the matching firm is minimized.[6] The matching firm's market value and stock price must be within 70% to 130% of those of the acquiring firm's at the end of the matching month. If no such matching firm exists, we use the two-digit SIC code, one-digit SIC code, or no SIC code until we find a matching firm. For no-SIC-code matching, the requirement on market value and stock price difference is relaxed to (50%, 150%). The above matching procedure yields matching firms for 4,637 acquiring firms (3,072, 839, 506, and 220 by three-digit, two-digit, one-digit, and no-SIC-code matching, respectively). The mean and median of the sizes of acquiring firms ($5,717 million and $732 million) are similar to those of matching firms ($5,324 million and $712 million). The mean and median of the stock prices for acquiring firms ($32.4 and $27.0) and matching firms ($31.4 and $26.5) are also similar.

For size-price-return matching, we require the matching firm's market value, stock price, and prior one-year return to be within 70% to 130% of those of the acquiring firm's at the end of month -7. We select the matching firm so that the sum of the absolute percentage differences in market value, stock price level, and prior one-year return between the sample firm and the matching firm is minimized. Following this second matching procedure, we find matching firms for 4,164 acquiring firms.

C. Probability of Stock Splits

We report the frequency of stock splits for both acquiring firms and their matching firms for various symmetric windows of time preceding and following the acquisition announcement month. We obtain all stock splits or stock dividends with a split factor greater than or equal to 0.5 from CRSP.[7] If a firm has more than one split during the one-year period, we keep the one closest to the acquisition announcement date. Only 44 acquiring firms have more than one split (maximum three splits) in the one-year period. We also report the probability of stock splits for

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[5]Using information after acquisition announcements may potentially cause a look-ahead bias. Because we compare the probability of stock splits, not the probability of M&As, this bias may not be a serious concern.

[6]Market value and stock price are measured at the end of month -7, with month 0 being the acquisition announcement month. If information about the acquiring firm is not available in month -7, we use month -4 as the matching month.

[7]Split factor is defined as the number of additional shares per existing share; for example, a three-for-two stock split has a split factor of 0.5. We include all the events with distribution codes of 5523, 5533, 5543, and 5552 and split factor greater or equal to 0.5.

all common stocks in CRSP (we call them random firms) from 1980 to 2003. All results are reported in Panel B of Table I.

The results indicate that acquiring firms are more likely to split their stocks before acquisition announcements than are the matching/nonacquiring firms. Take the probability of stock splits in the three-month period prior to acquisition announcements ($[-3, -1]$ in Panel B of Table I) as an example: 4.68% of acquiring firms split their stocks, and the corresponding figures for industry-size-price matching firms and size-price-return matching firms are 2.85% and 2.88%, respectively. Acquirers are 64% and 63% more likely to split their stocks than are the two sets of matching firms, and the differences are statistically significant at the 1% level.[8] We further break the acquiring firms into several subgroups. Stock-swap acquirers are more likely to split their stocks (5.97%) than cash-only (2.96%) or tender-offer (2.96%) acquirers before acquisition announcements. Results in Table I also demonstrate that the larger the deal, the higher the probability that the acquirer will split its stock. If the deal value is above $50 million or $100 million, the probability of a stock split increases to 5.16% and 5.75%, respectively. The results are similar if other time windows are used. Comparing acquiring firms with random firms yields even stronger results; acquiring firms are at least twice more likely than random firms to split their stocks before acquisition announcements.

Comparing the likelihood of stock splits *before* and *after* acquisition announcements, we find that acquirers are more likely to split before the announcements than after. The probabilities of acquirers making stock splits in the 12-month period before versus after acquisition announcements are 17.61% versus 12.28% for the whole sample, 20.94% versus 12.22% for stock-swap acquisitions, and 21.41% versus 13.33% for acquisitions with deal values of at least $100 million. All the differences (before vs. after) are statistically significant at the 1% level. Similar patterns hold for different time windows. In contrast, for cash-only acquisitions and tender offers, acquirers are not more likely to split their stocks before acquisition announcements than after.

To summarize, our preliminary results indicate that acquirers are more likely than nonacquirers to split their stocks and are more likely to split their stocks before than after the acquisition announcements. The probability of a stock split before the acquisition announcement is higher if the deal is larger or if the acquisition is financed by stock.

D. Measurement of Earnings Quality

We use discretionary accruals as a measure of earnings quality (Beneish and Vargus, 2002; Chan, Chan, Jegadeesh, and Lakonishok, 2006). According to the accounting identity, earnings are equal to cash flows plus accruals. Accruals are accounting adjustments designed to better reflect firms' fundamental operations. However, accruals are subject to managers' discretion, which may distort reported earnings. The accrual component of earnings exhibits less persistence than the cash flow component of earnings in predicting future earnings, and investors tend to focus on reported earnings and often ignore the possibility that accruals are less likely to recur in the future (Sloan, 1996). However, some portion of accruals is not subject to managers' discretion and changes with firm growth. Nondiscretionary accruals that reflect firms' operations and business conditions are a normal component of accruals. Discretionary accruals, on the other hand, act as proxies for managed earnings. Therefore, discretionary accruals may serve as an indicator of earnings quality.

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[8]Because there are many comparisons in Panel B of Table I, we omit the statistics associated with the differences in this table. We use Z-test to test the difference in the probability of stock splits between any two groups. Specifically, if the sample sizes of the two groups are n_1 and n_2, and the observed probabilities of stock splits are p_1 and p_2, then the statistic $Z = (p_1 - p_2)/[p_1(1 - p_1)/n_1 + p_2(1 - p_2)/n_2]^{1/2}$ has a standard normal distribution under the null hypothesis that the probabilities of stock splits are the same for the two groups.

To measure the discretionary accruals (DA), we first follow Sloan (1996) and Chan et al. (2006) and calculate accruals as changes in noncash current assets, minus changes in current liabilities excluding short-term debt and taxes payable, and minus depreciation. We then apply the Jones (1991) model as follows to decompose accruals into discretionary accruals and nondiscretionary accruals:

$$\frac{Accruals_i}{TA_i} = a_0 + a_1 \frac{\Delta sales_i}{TA_i} + a_2 \frac{PPE_i}{TA_i} + \varepsilon_i, \tag{1}$$

where accruals are scaled by average total assets (TA) to control for firm size. $\Delta sales$ is the change in sales (Compustat annual item 12), and *PPE* is property, plant, and equipment (Compustat annual item 7). Nondiscretionary accruals (NDA) are the fitted value from the above regression, and DA are the residuals.

To compare earnings quality among firms, we obtain the DA quintile ranking for each acquiring firm in our sample as follows. We first compute DA for all Compustat firms with available accounting data and then obtain the quintile cutoff values for these firms each year. The DA quintile ranking is assigned to each sample firm based on these cutoff values. We define firms in the top two quintiles as high-DA firms and those in the bottom two quintiles as low-DA firms.

II. Empirical Results

A. The Probability of Stock Splits: Multivariate Tests

We first examine whether the likelihood of acquisition affects the firm's decision to split, after controlling for price run-ups and other factors that may influence a firm's stock-split decision. Acquiring firms and their industry-size-price matching firms are pooled for all regressions.[9] We run probit regressions of the *split* dummy variable (equals one if there is a stock split from month -6 to month -1, and zero otherwise) on the *M&A* dummy variable (equals one if the firm is an acquirer, and zero otherwise) and other control variables. If the acquirer intentionally splits its stock in anticipation of an acquisition announcement, we expect the coefficient on the *M&A* dummy to be positive and significant after controlling for other factors that may affect a firm's stock-split decision, especially price run-ups and price levels.

Panel A of Table II reports results from the above probit regressions. Because the magnitudes of the regression coefficients do not have a natural interpretation, we report marginal effects.[10] The results indicate that log(*Stock price*) (level) and *prior one-year return* (roughly the price change) are two important factors affecting firms' stock-split decisions.[11] The coefficients on both variables are positive and statistically significant. The coefficient on log(*Size*) is negative and significant, indicating that larger firms are more likely than smaller firms to keep their stock price at a higher level. More important, the coefficient on the *M&A* dummy is positive and statistically significant at the 1% level, suggesting that firms are more likely to conduct stock splits if they plan to

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[9]Results are similar using size-price-return matching firms.

[10]We calculate the marginal effects as follows. We first calculate the base probability of stock splits using sample means of all continuous independent variables and zeros for all dummy independent variables. We then recompute this probability by adding one standard deviation to a variable if it is continuous or 1 if it is a dummy and holding other variables unchanged. The marginal effect of the variable on the probability of stock splits is the difference between this probability and the base probability.

[11]Prices and returns are measured at the end of month -7.

Table II. Probit Regression of What Determines Firms' Stock-Split Decisions

This table examines whether the likelihood of an acquisition announcement affects a firm's decision to conduct a stock split. Marginal effects are reported. Panel A reports results using ex post announced acquisition as a proxy for the propensity of an acquisition announcement. Acquiring firms and their industry-size-price matching firms are pooled. Panel B presents results using a two-stage procedure. In the first stage, we run a probit regression to determine factors that affect firms' M&A decisions using all firms in Compustat from 1980 to 2002. We use the estimated coefficients to compute the latent variable of M&A propensity of our pooled sample at the end of month -7. The acquisition announcement month is month 0. In the second stage, we use the *predicted M&A propensity* as an independent variable in the probit model of whether a firm conducts a stock split. All independent variables in step 2 are measured at month -7. *Split* dummy takes value one if there is a stock split from month -6 to -1, and zero otherwise. The *M&A* dummy takes value one for acquiring firms, and zero for matching firms. Stock price and return variables are measured at the end of month -7. Accounting variables are measured using the latest available data from Compustat (with the assumption of a three-month reporting lag). *P*-values are in parentheses.

	Panel A				Panel B		
	(1)	(2)	(3)	(4)	Step 1	Step 2	
						(1)	(2)
M&A dummy		0.018	0.024	0.014			
		(0.000)	(0.000)	(0.000)			
Predicted MA latent var.						0.016	0.013
						(0.003)	(0.061)
log(*Size*)	−0.021	−0.016	−0.004	−0.013	0.004	−0.029	−0.024
	(0.000)	(0.000)	(0.155)	(0.000)	(0.000)	(0.000)	(0.000)
log(*Stock price*)	0.162	0.136		0.145		0.137	0.143
	(0.000)	(0.000)		(0.000)		(0.000)	(0.000)
B/M	−0.013	−0.010	−0.014	−0.014	−0.000	−0.013	−0.022
	(0.000)	(0.000)	(0.000)	(0.000)	(0.141)	(0.000)	(0.000)
Prior one-year return	0.010	0.008	0.016	0.004	0.000	0.009	0.003
	(0.000)	(0.000)	(0.000)	(0.001)	(0.089)	(0.000)	(0.094)
Stock price			0.038				
			(0.000)				
High DA				0.008			0.012
				(0.059)			(0.079)
One-year sales growth rate					0.000		
					(0.000)		
S&P 500 growth rate					0.007		
					(0.000)		
Asset turnover ratio					−0.002		
					(0.000)		
Leverage					0.002		
					(0.000)		
Return on assets					0.002		
					(0.017)		
Merger intensity					0.083		
					(0.000)		
Observations	7,726	7,726	7,726	4,798	209,652	6,902	4,413
Pseudo R^2	0.193	0.198	0.133	0.239	0.146	0.186	0.232
Base prob.	0.037	0.028	0.047	0.018	−	0.044	0.030

make a subsequent acquisition announcement within the following six months. For example, in Model (3), the marginal effect of the *M&A* dummy is 2.4% and the base probability is 4.7%. This indicates, with other variables at their sample mean, an acquiring firm has a probability of 7.1% to split, whereas the nonacquiring firm has a probability of 4.7% to split. In Model (4), we add the *High DA* dummy into the regression and find that the coefficient is positive and significant, which suggests that low-earnings-quality acquirers are more likely to split their stocks than are high-earnings-quality acquirers. The evidence supports our use of earnings quality as a proxy for the likelihood that a firm splits its stock to manipulate its stock price before the acquisition announcement.

One potential criticism of the above regressions is that acquisition announcements take place after stock splits, and it is unclear whether it is the anticipation of acquisition announcements that leads to splits. To examine whether our results are robust to alternative proxies for the likelihood of acquisition announcements, and to address the causality concerns, we next perform the same analysis using a two-step procedure with the predicted propensity of acquisition announcements instead of the ex post *M&A* dummy as the explanatory variable.

Panel B of Table II presents results from the aforementioned two-stage regressions. In the first stage, we run a probit regression (using all firms in Compustat from 1980 to 2002) to explore what determines firms' acquisition decisions. Each firm year is separated into two half-year observations. The dependent variable in step one is binary, which takes on the value one if the firm announces at least one merger in the following six months (January to June or July to December), and zero otherwise. All the explanatory variables are measured at the beginning of each half-year period, assuming a three-month reporting lag. We then use the estimated coefficients to compute the latent variable of acquisition propensity of our pooled sample (acquiring and matching firms) at the end of month -7. In the second stage, we use the *predicted M&A propensity* as an explanatory variable in the probit regressions of whether firms conduct splits. All explanatory variables in step 2 are measured at month -7. Coefficients on the predicted propensity of acquisition announcements and the *High DA* dummy are positive and statistically significant; these results corroborate those reported in Panel A. Overall, our results indicate that the anticipation of future acquisition announcements is a significant determinant of a firm's split decision.

We also run a probit regression of the *split* dummy on firm and deal characteristics for acquiring firms only. Consistent with results in Panel B of Table I, both the deal value and S*tockswap* dummy have significantly positive effects on the probability of stock splits. The results are not reported in the paper but are available on request.

B. Short-Run Market Reactions to Stock-Splits

The three-day $(-1, +1)$ cumulative abnormal returns (CARs) around stock-split announcement dates are estimated as follows:

$$CAR = \prod_{t=-1}^{1} (1 + r_{acquirer,t}) - \prod_{t=-1}^{1} (1 + r_{vwretd,t}), \qquad (2)$$

where $r_{acquirer}$ is daily return for the acquirer's common stock, and r_{vwretd} is the CRSP value-weighted market daily return. Table III reports results based on the earnings quality of splitting firms. The average CAR of all splitting acquirers is positive and statistically significant, confirming the results documented in the literature that the market reacts positively to stock splits. Consistent with the previous literature, we find that the market does not fully react according to

Table III. Market-Adjusted Abnormal Returns around Stock-Split Announcements

This table reports the means of the three-day (-1 to 1) market-adjusted abnormal returns (CARs) around the announcement of stock splits for firms with different earnings quality. The abnormal return is the three-day compounded return net of the contemporaneous three-day value-weighted CRSP return. *High DA* means that the firm's discretionary accruals are in the top two quintiles (4 and 5), whereas *low DA* means that the firm's discretionary accruals are in the bottom two quintiles (1 and 2). Accruals are defined as changes in noncash current assets, minus changes in current liabilities excluding short-term debt and taxes payable, and minus depreciation. DA are the discretionary accruals based on Jones (1991), which are the residual from the following regression:

$$\frac{Accruals_i}{TA_i} = a_0 + a_1 \frac{\Delta sales_i}{TA_i} + a_2 \frac{PPE_i}{TA_i} + \varepsilon_i.$$

DA Quintile	N	CAR (−1,1)	Size ($ mil)	B/M	Prior One-Year (net) Return	One-Year Sales Growth
All	224	2.38%***	19,617	0.229	128%	56%
1 + 2 (Low DA)	91	2.53%***	20,775	0.222	113%	63%
3	47	1.76%*	9,222	0.218	96%	59%
4 + 5 (High DA)	86	2.54%***	24,071	0.244	161%	46%
High-low		0.01%				

*** Significant at the 0.01 level.
 * Significant at the 0.10 level.

differences in earnings quality when stock splits are announced. High-DA (low earnings quality) firms have an average abnormal announcement return of 2.54%, whereas low-DA firms have an average abnormal announcement return of 2.53%. The difference is not statistically significant. The inability of investors to incorporate information about earnings quality into stock prices is consistent with the notion that low-earnings-quality acquirers may be able to support their stock price by splitting their stocks before acquisitions, at least in the short run.

C. Long-Run Stock Performance of Acquiring Firms

1. Matching Firm Approach

We use two matching methods to measure long-run abnormal returns. First, we match size, book-to-market ratio, and prior one-year stock return, following Lyon, Barber, and Tsai (1999) and Datta, Datta, and Raman (2001).[12] We select matching firms to minimize the sum of the absolute percentage differences in size, book-to-market ratio, and prior one-year stock return between the sample firm and the matching firm (hereafter, size-BM-return matching). As in Spiess and Affleck-Graves (1999), the set of potential matching firms is constrained so that matching firms are no more than 10% smaller than the sample firm. We retain the three closest matching firms for each sample firm. If a matching firm is delisted within three years or before the merged firm's delisting date, we use the next matching firm. If all three matching firms are delisted, the CRSP value-weighted market return is used as the return of the matching firm for the remaining period.

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[12] We select the matching firm in the month before the completion or withdrawal of the acquisition.

Firms with low earnings quality tend to underperform firms with high earnings quality in the stock market in the long run (e.g., Chan et al., 2006). To ensure that our results are not driven by the differences in earnings quality between acquiring firms and their matching firms, we choose a second set of matching firms using an alternative matching method. For each acquiring firm, we select matching firms based on the following criteria: the matching firm must 1) be in the same Fama and French (1997) 48 industry as the acquiring firm, 2) be in the same DA quintile as the acquiring firm, and 3) have the closest market capitalization to the acquiring firm before the acquisition announcement (hereafter, industry-DA-size matching). We require that the matching firm's size should be within 40% to 250% of the acquiring firm's size.[13] We keep no more than three matching firms for each acquiring firm. Similarly, the CRSP value-weighted market return is substituted as the return of the matching firm for the remaining period if all three matching firms are delisted.

2. Long-Run Buy-and-Hold Abnormal Returns

Table IV presents the three-year *net* buy-and-hold returns (BHRs) of acquiring firms (with accrual data available) after the completion or withdrawal of the acquisitions and those of the matching firms. In the overall sample (Panel A), acquiring firms on average underperform their benchmarks during the three-year period, consistent with previous studies (e.g., Rau and Vermaelen, 1998).[14] In Panel B, we examine the long-run abnormal stock returns of *splitting acquirers* with different earnings quality. High-DA splitting acquirers significantly underperform their matching firms by 37% based on the size-BM-return matching and by 26% based on the industry-DA-size matching. In contrast, low-DA splitting acquirers do not significantly underperform their matching firms. The difference in the three-year buy-and-hold abnormal returns (BHARs) between high-DA and low-DA splitting acquirers is −32% with the size-BM-return matching and −35% with the industry-DA-size matching, and is statistically significant at the 5% level for both matching methods. Panel C shows no significant difference in BHARs between high-DA and low-DA *nonsplitting acquirers* using either matching method.

We further divide splitting acquirers into *stock-swap splitting acquirers* and *non-stock-swap splitting acquirers*. Panel D shows that the difference in BHARs between high-DA and low-DA stock-swap splitting acquirers is more pronounced: −39% using the size-BM-return matching and −45% using the industry-DA-size matching. In contrast, we find no significant difference in BHARs between high-DA and low-DA non-stock-swap splitting acquirers, as shown in Panel E. Furthermore, we report the BHARs for stock-swap nonsplitting acquirers in Panel F. The difference in the three-year BHARs between high-DA and low-DA stock-swap nonsplitting acquirers is −17% with the size-BM-return matching and is statistically significant at the 10% level. However, the difference becomes insignificant once the accrual effect is controlled for with the industry-DA-size matching.

In addition, comparisons of size, B/M, preacquisition one-year return, and sales growth rate between splitting acquirers and nonsplitting acquirers reveal that splitting acquirers are more likely to be highly valued and fast-growing firms. Splitting acquirers, on average, are three times larger than nonsplitting acquirers, have lower B/M ratio than nonsplitting acquirers (0.23 vs. 0.48), and show extraordinary preacquisition stock performance (124% vs. 25%). Panel D shows that the average prior one-year return of high-DA stock-swap splitting acquirers is 227%, much larger

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[13]This relatively loose restriction yields more matches for our sample firms. Our results do not change qualitatively if we tighten the restriction on the size difference.

[14]The difference in the number of observations between Table I and Table IV occurs because all acquirers in Table IV must have accruals information, whereas we do not impose this requirement on acquirers in Table I.

Table IV. Long-Run Buy-and-Hold Abnormal Returns of Acquirers

This table presents equal-weighted three-year *net* BHRs and BHARs for acquiring firms (A) and their matching firms (M) from 1980 to 2000. Subsamples of splitting acquirers, nonsplitting acquirers, stock-swap splitting acquirers, non-stock-swap splitting acquirers, and stock-swap nonsplitting acquirers are also reported. Each panel is further divided based on earnings quality. We calculate three-year BHARs for each acquiring firm, using two matching methods. One is based on size, B/M ratio, and prior one-year return, and the other is based on industry, DA, and size. Splitting acquirers are defined as acquirers that have a stock split in the six-month period before the acquisition announcement. Abnormal returns are winsorized at the 0.5% and 99.5% levels.

DA Quintile	Size-BM-Return Matching			Industry-DA-Size Matching			Sample Firm Characteristics				
	A's BHR	M's BHR	BHAR	A's BHR	M's BHR	BHAR	Size ($ mil)	B/M	One-Year Ret.	Sales Gr.	N
Panel A. All Acquirers											
All	0.23	0.37	−0.13***	0.21	0.29	−0.07***	8,279	0.45	0.35	0.40	2,263
1 + 2 (Low)	0.22	0.32	−0.10**	0.21	0.25	−0.04	8,465	0.45	0.35	0.52	856
3	0.32	0.41	−0.09**	0.29	0.36	−0.07*	7,150	0.47	0.27	0.30	585
4 + 5 (High)	0.18	0.39	−0.21***	0.16	0.27	−0.11***	8,890	0.44	0.41	0.36	822
High-low			−0.11**			−0.07	−425	−0.01	0.06	−0.16**	
Panel B. Splitting Acquirers											
All	0.11	0.32	−0.20***	0.10	0.13	−0.03	22,496	0.23	1.24	0.47	221
1 + 2 (Low)	0.12	0.17	−0.05	0.19	0.09	0.09	26,507	0.23	1.07	0.43	91
3	0.29	0.50	−0.20	0.30	0.18	0.12	10,054	0.22	0.92	0.57	47
4 + 5 (High)	0.00	0.37	−0.37***	−0.11	0.14	−0.26**	25,144	0.25	1.61	0.47	83
High-low			−0.32**			−0.35**	−1,363	0.02	0.54*	0.04	
Panel C. Nonsplitting Acquirers											
All	0.25	0.37	−0.13***	0.22	0.30	−0.08***	6,741	0.48	0.25	0.40	2,042
1 + 2 (Low)	0.23	0.33	−0.10**	0.21	0.27	−0.06	6,319	0.48	0.26	0.53	765
3	0.33	0.41	−0.08*	0.29	0.38	−0.09**	6,896	0.50	0.21	0.28	538
4 + 5 (High)	0.20	0.39	−0.19***	0.19	0.28	−0.09**	7,065	0.46	0.27	0.34	739
High-low			−0.09			−0.03	745	−0.02	0.01	−0.19**	

Table IV. Long-Run Buy-and-Hold Abnormal Returns of Acquirers (*Continued*)

DA Quintile	Size-BM-Return Matching			Industry-DA-Size Matching			Sample Firm Characteristics				
	A's BHR	M's BHR	BHAR	A's BHR	M's BHR	BHAR	Size ($ mil)	B/M	One-Year Ret.	Sales Gr.	N
Panel D. Stock-Swap Splitting Acquirers											
All	0.02	0.17	−0.15*	−0.02	0.05	−0.06	24,900	0.16	1.64	0.63	141
1 + 2 (Low)	0.10	0.06	0.04	0.10	−0.01	0.11	32,624	0.13	1.39	0.52	58
3	0.24	0.40	−0.16	0.25	0.14	0.11	13,023	0.19	1.07	0.75	32
4 + 5 (High)	−0.20	0.16	−0.36***	−0.31	0.04	−0.35***	23,569	0.18	2.27	0.68	51
High-low			−0.39**			−0.45**	−9054	0.05	0.87*	0.16	
Panel E. Non-Stock-Swap Splitting Acquirers											
All	0.26	0.56	−0.30***	0.35	0.30	0.05	18,258	0.36	0.53	0.20	80
1 + 2 (Low)	0.16	0.37	−0.21	0.34	0.27	0.07	15,755	0.39	0.49	0.26	33
3	0.40	0.69	−0.30	0.40	0.25	0.15	3,721	0.29	0.59	0.19	15
4 + 5 (High)	0.31	0.71	−0.40**	0.32	0.37	−0.05	27,653	0.36	0.56	0.14	32
High-low			−0.19			−0.12	11,898	−0.03	0.07	−0.12	
Panel F. Stock-Swap Nonsplitting Acquirers											
All	0.18	0.32	−0.14***	0.15	0.29	−0.14***	7,224	0.40	0.33	0.47	1,019
1 + 2 (Low)	0.16	0.25	−0.09	0.13	0.25	−0.12*	6,647	0.39	0.36	0.61	369
3	0.25	0.30	−0.05	0.23	0.33	−0.10	8,156	0.42	0.27	0.32	274
4 + 5 (High)	0.15	0.40	−0.26***	0.12	0.31	−0.18***	7,112	0.38	0.35	0.45	376
High-low			−0.17*			−0.06	465	−0.01	−0.01	−0.16	

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

than that of low-DA stock-swap splitting acquirers (139%). In contrast, the difference between high-DA and low-DA firms is not significant among nonsplitting acquirers, non-stock-swap splitting acquirers, or stock-swap nonsplitting acquirers. Coupled with our findings on long-run stock performance, the evidence seems to show that some firms have benefited from using stock splits to support their overvalued equity.

In summary, we find that splitting acquirers with low earnings quality (in particular those engaging in stock-swap acquisitions) underperform their benchmarks in the long run, whereas those with high earnings quality do not. In contrast, we find no such relation between earnings quality and long-run stock return performance among nonsplitting acquirers. The evidence is consistent with the hypothesis that some acquirers use stock splits to manipulate their stock prices before acquisitions. Our results are robust to different matching methods and still hold after controlling for the accrual effect.

3. Multivariate Regression Analyses of Long-Run Post-acquisition Stock Performance

We next coduct a multivariate regression analysis to examine whether earnings quality and splitting behavior can explain the long-run abnormal returns of acquiring firms after controlling for various factors that are related to postacquisition stock performance. Following Lee (1997), the dependent variable, *LAR*, is defined as $\ln(1 + \text{sample firm's three-year BHR}) - \ln(1 + \text{matching firm's three-year BHR})$. We control for size, book-to-market ratio, and prior one-year return of the acquirer, and whether the acquisition is financed by stock. Results are reported in Table V.

First, we report the results with the size-BM-return matching. The coefficient of the *Split* dummy is not statistically significant. The coefficients on the *high DA* dummy and the interaction term *Split*HighDA* are both negative and statistically significantly at the 5% level. The results indicate that high-DA acquirers perform worse compared with low-DA acquirers. Moreover, the underperformance is even greater if high-DA acquirers have a stock split before acquisitions. In Model (2), we use an alternative interaction term *Split*HighDA*stock*. The magnitude and statistic significance level of the coefficient on this interaction term indicate that the long-run underperformance is most pronounced for high-DA stock-swap splitting acquirers.

Second, we measure long-run abnormal returns using the industry-DA-size matching firms. The results are even stronger compared with the size-BM-return matching. Not surprisingly, we find that the coefficient on *High DA* dummy is no longer significant. This may be because we now select our matching firms based on DA, and this matching method controls for the accrual effect. In Models (3) and (4) we find that the coefficients on *Split*HighDA* and *Split*HighDA*stock* are both negative and statistically significant at the 1% level, indicating that the high-DA splitting acquirers and high-DA stock-swap splitting acquirers perform significantly worse than other acquiring firms. The results are consistent with those based on the size-BM-return matching.

Overall, the results from multivariate analysis confirm our findings from the univariate test, and support our hypothesis that some acquirers use stock splits to manipulate their stock prices prior to acquisition announcements, especially when the acquisitions are financed by stock.

III. Conclusion

In this paper we document that acquiring firms are more likely than nonacquiring firms to split their stocks prior to acquisition announcements, especially when the acquisitions are financed by stock and when the deals are large. We find evidence supporting the hypothesis that some acquiring firms use stock splits to manipulate their equity values before acquisition announcements.

Table V. Multivariate Regressions of Long-Run Abnormal Returns

The regression is to estimate the effects of earnings quality and splitting behavior of acquiring firms on firms' stock performance using all acquisitions with accruals data available. The dependant variable, *LAR*, is defined as ln(1 + sample firm's three-year buy-and-hold return (BHR)) − ln(1 + matching firm's three-year BHR). Two matching methods are used. The first matching algorithm we use is the size, B/M ratio, and prior one-year return matching. The second is the industry, DA quintile, and size matching. *Split* dummy takes value of one if there is a stock split from month −6 to −1 (month 0 is the acquisition announcement month); otherwise it takes value of zero. *High DA* takes value of one if the firm's discretionary accrual is in the top two quintiles. *Stock* takes value of one if the acquisition is a stock-swap acquisition. Year dummies are included in the estimation to control for time trends in all models. Abnormal returns are winsorized at the 0.5% and 99.5% levels. *P*-values are in parentheses.

	LAR Based on Size-BM-Return Matching		*LAR* Based on Industry-DA-Size Matching	
	(1)	(2)	(3)	(4)
Constant	−0.409	−0.416	−0.282	−0.298
	(0.000)	(0.000)	(0.019)	(0.014)
ln(*Size*)	0.042	0.042	0.035	0.036
	(0.001)	(0.001)	(0.016)	(0.014)
B/M	0.023	0.026	0.012	0.016
	(0.727)	(0.697)	(0.854)	(0.805)
Prior one-year return	−0.102	−0.095	−0.117	−0.108
	(0.000)	(0.001)	(0.000)	(0.000)
Split	0.002	−0.032	0.140	0.101
	(0.981)	(0.729)	(0.219)	(0.333)
Stock	−0.056	−0.041	−0.171	−0.151
	(0.247)	(0.409)	(0.001)	(0.005)
High DA	−0.103	−0.111	−0.031	−0.039
	(0.048)	(0.029)	(0.588)	(0.486)
Split*high DA	−0.367		−0.581	
	(0.027)		(0.002)	
Split*high DA*stock		−0.482		−0.738
		(0.011)		(0.000)
Observations	2,262	2,262	2,020	2,020
R^2	0.021	0.022	0.028	0.029

Using earnings quality as a proxy for firms' intention to manipulate, we find that splitting acquirers with low earnings quality (i.e., those that are more likely to use stock splits to manipulate their stock values) have poorer long-run stock performance. The underperformance is more pronounced when the deal is financed by equity, a result consistent with the manipulation hypothesis.

This study complements and extends findings in the literature that some acquiring firms manipulate their stock prices before stock-swap acquisitions to lower the costs of acquisitions. Stock splits can be used as a manipulation tool in addition to other means of price manipulation such as earnings management. Our findings shed new light on a timely issue, managerial ethics, which has become a key social concern after the corporate scandals of the past several years and the ongoing controversy over stock options backdating that has recently dominated newspaper headlines. Finally, our results suggest that target shareholders should use caution when evaluating proposed merger offers. Target firms may consider such information when discriminating among

acquirers—whether they have recently conducted a stock split and how high their discretionary accruals are—to ensure that stock prices are not being manipulated and that exchanges are conducted fairly. ∎

References

Beneish, M.D. and M.E. Vargus, 2002, "Insider Trading, Earnings Quality, and Accrual Mispricing," *Accounting Review* 77, 755-791.

Bradley, D.J., J.W. Cooney, S.D. Dolvin, and B.D. Jordan, 2006, "Penny Stock IPOs," *Financial Management* 35, 5-29.

Chan, K., L.K.C. Chan, N. Jegadeesh, and J. Lakonishok, 2006, "Earnings Quality and Stock Returns," *Journal of Business* 79, 1041-1082.

Chan, K., D.L. Ikenberry, I. Lee, and Y. Wang, 2005, "Share Repurchases as a Tool to Mislead Investors: Evidence from Earnings Quality and Stock Performance," *AFA 2006 Boston Meetings Paper.* Available at: http://ssrn.com/abstract=686567. (accessed March 20, 2005).

Conroy, R.M. and R.S. Harris, 1999, "Stock Splits and Information: The Role of Share Price," *Financial Management* 28, 28-40.

Datta, S., M.I. Datta, and K. Raman, 2001, "Executive Compensation and Corporate Acquisition Decisions," *Journal of Finance* 56, 2299-2336.

Dhar, R., W.N. Goetzmann, S. Shepherd, and N. Zhu, 2005, "The Impact of Clientele Changes: Evidence from Stock Splits," Yale ICF Working Paper 03-14.

Efendi, J., A. Srivastava, and E.P. Swanson, 2007, "Why Do Corporate Managers Misstate Financial Statements? The Role of in-the-Money Options and Other Incentives," *Journal of Financial Economics* 85, 667-708.

Erickson, M. and S.W. Wang, 1999, "Earnings Management by Acquiring Firms in Stock for Stock Mergers," *Journal of Accounting and Economics* 27, 149-176.

Fama, E.F. and K.R. French, 1997, "Industry Costs of Equity," *Journal of Financial Economics* 43, 153-193.

Fernando, C.S., S. Krishnamurthy, and P.A. Spindt, 1999, "Is Share Price Related to Marketability? Evidence from Mutual Fund Share Splits," *Financial Management* 28, 54-67.

Grinblatt, M.S., R.W. Masulis, and S. Titman, 1984, "The Valuation Effects of Stock Splits and Stock Dividends," *Journal of Financial Economics* 13, 461-490.

Jensen, M.C., 2005, "Agency Costs of Overvalued Equity," *Financial Management* 34, 5-19.

Jones, J.J., 1991, "Earnings Management During Import Relief Investigations," *Journal of Accounting Research* 29, 193-228.

Kadiyala, P. and M.R. Vetsuypens, 2002, "Are Stock Splits Credible Signals? Evidence from Short-Interest Data," *Financial Management* 31, 31-50.

Lamoureux, C.G. and P. Poon, 1987, "The Market Reaction to Stock Splits," *Journal of Finance* 42, 1347-1370.

Lee, I., 1997, "Do Firms Knowingly Sell Overvalued Equity?" *Journal of Finance* 52, 1439-1466.

Louis, H., 2004, "Earnings Management and the Market Performance of Acquiring Firms," *Journal of Financial Economics* 74, 121-148.

Lyon, J.D., B.M. Barber, and C.L. Tsai, 1999, "Improved Methods for Tests of Long-Run Abnormal Stock Returns," *Journal of Finance* 54, 165-201.

Maloney, M.T. and J.H. Mulherin, 1992, "The Effects of the Splitting on the Ex: A Microstructure Reconciliation," *Financial Management* 21, 44-59.

Rau, P.R. and T. Vermaelen, 1998, "Glamour, Value and the Post-Acquisition Performance of Acquiring Firms," *Journal of Financial Economics* 49, 223-253.

Schultz, P., 2000, "Stock Splits, Tick Size, and Sponsorship," *Journal of Finance* 55, 429-450.

Sloan, R.G., 1996, "Do Stock Prices Fully Reflect Information in Accruals and Cash Flows about Future Earnings?" *Accounting Review* 71, 289-315.

Spiess, D.K. and J. Affleck-Graves, 1999, "The Long-Run Performance of Stock Returns Following Debt Offerings," *Journal of Financial Economics* 54, 45-73.