Stock Splits and Bond Yields: Isolating the Signaling Hypothesis

David Michayluk*
School of Finance and Economics
University of Technology, Sydney
PO Box 123
Broadway, NSW Australia 2007
+61 2 9514-7761
Fax +61 2 9514-7711
Email: david.michayluk@uts.edu.au

Ruoyun Zhao
School of Finance and Economics
University of Technology, Sydney
PO Box 123
Broadway, NSW Australia 2007
+61 2 9514-7745
Fax +61 2 9514-7711
Email: Ruoyun.Zhao@uts.edu.au

One explanation offered for stock splits is that the split signals positive information by reducing the stock price range in expectation of improved future prospects. Price declines also lead to changes in stock price dynamics, but related securities are not subject to these other changes and therefore can be used to provide a separate assessment of the markets' interpretation of the split. We examine corporate bond issues around stock splits and find a significant decline in the bond yield spread following stock splits, supporting the signaling hypothesis. We also confirm improvements in forecasted and realized earnings subsequent to stock splits.

*Corresponding author. We would like to thank Don Brean, Raymond Kan, Tom McCurdy, Lance Nail and Alan White for helpful suggestions on an earlier draft. We also thank seminar participants at the 2006 Asian Finance Association meeting in Auckland, New Zealand and the 2006 Southern Finance Association meeting in Destin, Florida for their comments and suggestions. Special thanks to an anonymous referee and the editor, Arnie Cowan. All remaining errors are our responsibility.

1. Introduction

Many studies report positive abnormal stock returns around stock split announcements. Two widely examined explanations for the positive market reaction are the liquidity hypothesis and the signaling hypothesis. This study isolates the signaling hypothesis by examining corporate bond yield changes and finds evidence of positive information content of the stock splits. As a confirmation of the information content, we also examine changes in the earnings forecast and actual earnings for splitting firms.

Improved liquidity would not be expected to have any direct impact on corporate earnings or corporate debt in the short run, implying no change in corporate bond yields or in corporate performance. Thus, the examination of bond yields provides a purer test of the signaling hypothesis than is possible using stock-market data alone.

2. Literature review

The empirical literature shows that stock prices typically increase on the announcement of a stock split[1]. Several hypotheses attempt to explain the sources of the price run-up and management's motivation for stock splits: the trading range hypothesis (Baker and Gallagher, 1980), optimal tick size hypothesis (Anshuman and Kalay, 2002; Lin, Singh and Yu, 2009), commission-induced sponsorship hypothesis (Schultz, 2000), and the signaling hypothesis (see, e.g. Brennan and Copeland, 1988; Grinblatt, Masulis and Titman, 1984)[2]. The first three hypotheses broadly relate to the changes in stock liquidity and liquidity risk, while the fourth relates to the fundamental performance and future prospects of the firm.

[1] See Fama, Fisher, Jensen and Roll (1969), Charest (1978), Grinblatt, Masulis and Titman (1984), Ohlson and Penman (1985), Dravid (1987), Lamoureux and Poon (1987), Lakonishok and Lev (1987), Brennan and Copeland (1988a), Han and Suk (1988), Asquith, Healy and Palepu (1989), and many others.

[2] These categories are similar to the ones discussed in Weld, Michael, Thaler and Benartzi (2009).

In the liquidity-related hypotheses, the positive abnormal return is attributed to improved liquidity or lower risk through one of three mechanisms: stock price range, tick size or broker-mediated trading. The trading range hypothesis proposes that a stock split is used to return the stock price to a more affordable range. The optimal tick size hypothesis suggests that stock splits improve liquidity by changing the tick-to-price ratio, thereby attracting traders. The commission-induced sponsorship hypothesis suggests that stock splits may improve liquidity by increasing the profits brokers make per trade, giving brokers an incentive to increase trading in client accounts.

There is some empirical support for higher liquidity following stock splits. Lin, Singh and Yu (2009) find that split announcement returns are correlated with both higher liquidity levels and lower liquidity risk. Dennis (2003) examines the Nasdaq-100 Index Tracking Stock and finds that stock splits improve liquidity for small trades. Kadapakkam, Krishnamurthy and Tse (2005) and Lipson and Mortal (2006) find that the era of decimalization reduced tick sizes, thereby reducing the incentive of brokers to promote newly split stocks.

The signaling hypothesis suggests that a stock split conveys favorable private information about the company. Under this hypothesis, the debt value responds favorably to the signal since improved firm prospects translate to higher future cash flows to ensure debtholders are paid. McNichols and Dravid (1990) study the information in earnings forecast errors for firms that split their stocks. They conclude that stock splits signal some private information, but they conclude that signaling alone is an incomplete explanation. In contrast, Huang, Liano, Manakyan and Pan (2008) find no evidence of improved operating performance for splitting firms.

Asquith, Healy and Palepu (1989) find that earnings improve before stock splits and there are no future earnings increases. Kalay and Kronlund (2009) test liquidity- and information-related theories using analyst forecasts and report evidence mostly consistent with information and inconsistent with liquidity-based theories.

To summarize, tests of the signaling and liquidity hypotheses in the literature are unable to distinguish between the two influences. This paper provides new evidence that we argue is capable of such a distinction.

3. Data and research design

There are 5,750 stock splits by U.S. companies from 1989 through 2006. To avoid an unequal weighting of any single firm, only the first stock split by a company during the sample period is included in the sample.[3] Stock splits are defined as all stock distributions over 1.25 from the Center for Research in Security Prices (CRSP) database. The year and size distributions of all splits are in Table 1.

Insert Table 1 about here

Corporate bond price and yield data come from Bridge, Datastream and Bloomberg. For firms with multiple bond issues, only the most frequently traded issue is used to avoid interdependence of returns. Also, only bond issues with at least 30 trading days' prices available during a 60 trading-day interval around the stock split announcement are retained. Firms with simultaneous announcements of important corporate events, such as earning announcements that are within three trading days of the stock split announcement date are not included in the final sample. Bonds with convertible features are not used. After this

[3] Including only the first occurrence of a stock split by an individual firm is important since Pilotte and Manuel (1996) find that multiple stock splits may convey different information and Huang, Liano, Manakyan and Pan (2008) find that firms that frequently split their stocks have the best operating performance. This indicates we may be understating any significance by excluding multiple stock splits. A total of 1,080 multiple splits are removed from the original 5,750 splits.

filtering, we have bond data for 136 companies. Stock price and return data as well as announcement dates come from CRSP, while analysts' EPS forecast and realized earnings data are from the Thomson I/B/E/S database.

Insert Table 2 about here

Table 2 reports that stock volatility, the EPS forecast and realized EPS all increase following stock splits and the post-split corporate bond yield spread decreases compared to the pre-split level. Stock volatility is calculated using simple returns in separate 180-day windows before and after the splits. The mean stock volatility increases from 0.0293 to 0.0305 and the median increases from 0.0267 to 0.0275.[4] The bond yield spread significantly decreases from 1.661 to 1.379 in mean and from 1.418 to 1.237 in median after stock splits. Both EPS forecasts and actual earnings significantly increase after stock splits. The mean EPS forecasts increase from 0.2743 to 0.3457 and actual earnings increase from 0.2229 to 0.2436. The median EPS forecasts increase from 0.2464 to 0.3084 and actual earnings increase from 0.1967 to 0.2273. These simple statistics indicate that bond risk declines and earnings forecasts increase after stock splits.

We examine these simple statistics through regression analysis on bond yields and forecasted and realized earnings. We use the least squares dummy variable (LSDV) model of panel data: $y_j = X_j\beta + j\alpha + \varepsilon_j$ or $y = X\beta + D\alpha + \varepsilon$, where X is a k by NT matrix and has K regressors in it; D is an NT by n matrix and has N dummy variables with each variable d_j indicating the jth firm. This amounts to running an OLS regression using the transformed data $X^* = M_D X$ and $y^* = M_D y$, where $M_D = I - D(D'D)^{-1}D'$. The least

[4] The percentage of the total stocks that experience a volatility increase is approximately 69%.

squares estimator of β is $b = [X'M_D X]^{-1}[X'M_D y]$.[5]

4. Results

4.1 Corporate bond analysis

To compare the performance of corporate bonds around stock split announcements, corporate bond yield spreads are used as dependent variables in regressions and results are reported in Table 3.[6] The spread is not as influenced by any interest rate changes or inflation rate changes compared to the bond price or bond yield. The spread is calculated as the difference between the yield to maturity from the corporate bonds over the yield to maturity of the Treasury bond with the closest maturity: $\text{Spread} = Y_t^{Corporate} - Y_t^{Treasury}$, where $Y_t^{Corporate}$ is the corporate bond yield to maturity at period t, $Y_t^{Treasury}$ is the Treasury bond yield to maturity. The current interest rate, corporate bond market movement, the time to maturity and the credit risk of the company are not all directly observable, so three variables are used as proxies. The long-term Treasury bond yield is used as a proxy for interest rate changes, the BAA corporate bond index proxies for the overall corporate bond market movements, and the stock price proxies for the credit risk of the firm.[7] Control variables are also included in the regressions.[8] The regression specifications are:

Model A (Intercept change):

$$Yieldspread_{jt} = a + b*TBond_t + c*MIndex_t + d*Stockprice_{jt} + e*Maturetime_{jt} + f*Eventdum_{jt} + \varepsilon_{jt} \quad (1A)$$

Model B (Intercept and slope change): $Yieldspread_{jt} = a + b*TBond_t + c*MIndex_t$

[5] A partitioned regression approach is employed to improve the computational efficiency. According to the Theorem 3.3 fixed-effects approach in Greene (2003), the regression coefficients from the transformed data will be equivalent to those from the LSDV model.

[6] Using bond yields produces similar results; using the effective date instead of the announcement date produces similar but less significant results. These are available from the authors.

[7] We also use stock volatility as a proxy for credit risk in the regression of bond yield spreads. These results are similar to using the stock price as the proxy and are available upon request.

[8] See Fama and French (1993), Duffee (1998), Campbell and Taksler (2003) and Longstaff, Mithal and Neis (2005) for a discussion of these variables that explain corporate bond yields.

$$+ d * Stockprice_{jt} + e * Maturetime_{jt} + f * Eventdum_{jt} + g * TBond_t * Eventdum_{jt}$$
$$+ h * MIndex_t * Eventdum_{jt} + i * Stockprice_{jt} * Eventdum_{jt} + j * Maturetime_{jt} * Eventdum_{jt} + \varepsilon_{jt}$$
(1B)

where $Yieldspread_{jt}$ is the corporate bond yield spread for firm j at time t; $TBond_t$ is the yield of long-term treasury bonds at time t; $MIndex_t$ is the BAA Moody corporate bond index level at time t; $Stockprice_{jt}$ is the stock price of firm j at time t; $Maturetime_{jt}$ is the time to maturity of the bond for firm j at time t; $Eventdum_{jt}$ is a dummy variable equal to 1 after the stock split; ε_{jt} is a disturbance term. Model B has similar independent variables as Model A and also adds four extra interaction variables between the event dummy variable and the four independent variables.

Insert Table 3 about here

The regressions are estimated using data one year before and after the stock splits[9]. Table 3 reports that t-statistics in both Model A and Model B are significantly negative. These results indicate that corporate bond yield spreads significantly decrease after stock splits, supporting the idea that bond investors take stock splits as a positive signal about the future prospects or risk of the company. The event dummy variable and the interaction dummy variables are all significant, indicating that not only is there an immediate shift in coefficient, but there is also a shift in the influence of the control variables. These results are robust to inclusion of the interaction variables.

4.2 Forecasted and actual earnings analysis

To examine the effect of stock splits on earnings, we run regressions of the earnings forecasts and realized earnings of split firms. The first regressions, which use

[9] We also estimate the regressions one month and three month horizons and the regression results demonstrate a similar pattern and statistical significance.

earnings per share forecasts as the dependent variable as these forecasts are a proxy for investors' earning expectations, are:

Model A (Intercept change): $EPSForecast_{jt} = a_j + b * Estimationdate_{jt}$

$+ c * Periodenddate_{jt} + d * Eventdum_{jt} + \varepsilon_{jt}$ (2A)

Model B (Intercept and Slope change): $EPSForecast_{jt} = a_j + b * Estimationdate_{jt}$

$+ c * Periodenddate_{jt} + d * Eventdum_{jt} + e * Estimationdate_{jt} * Eventdum$

$+ f * Periodenddate_{jt} * Eventdum + \varepsilon_{jt}$ (2B)

where $EPSForecast_{jt}$ is an individual analyst's current-year or one year ahead annual earnings forecast for firm j at time t. We include earnings forecasts made from two years before to two years after the stock split announcement. $Estimationdate_{jt}$ and $Perioddnddate_{jt}$ are the number of days between the earnings forecast date or fiscal period end date and the split announcement date (negative when the split announcement is later). Previous studies on analysts' earnings forecasts, such as Richardson, Teoh and Wysocki (2004), Brown (2001) and Diether, Malloy and Scherbina (2002), report that analysts tend to make optimistic earnings forecasts near the beginning of the fiscal year and adjust their forecasts downward as the end of the fiscal year approaches.

Insert Table 4 about here

The results are in Table 4. EPS forecasts for split companies significantly increase after the stock split in both Model A without interaction variables and Model B when there are interaction variables. The negative coefficient for the estimation date is consistent with the downward adjustments that analysts tend to make to their earnings forecasts towards the fiscal year end, as reported in previous literature on earnings forecasts. The positive

coefficient for the estimation period ending date indicates that the earnings performance for split firms improves over time. After controlling for the upward time trend of earnings, the stock split event dummy variable is still significantly positive, supportive of the positive information content from the signaling hypothesis.

The significantly positive coefficients of the stock-split event dummy variable indicate that stock splits affect on analysts' earnings forecasts. This pattern is consistent with analysts and investors treating stock splits as a positive signal, which is consistent with the larger forecast revisions reported in the literature for split firms compared to non-split firms.

The second regression uses realized earnings. The dependent variable is the quarterly EPS reported within two years before and two years after the split announcement date, giving sixteen observations per stock split.

Model A (Intercept change):

$$Earnings_{jt} = a_j + b * Periodenddate_{jt} + c * reportdate_{jt} + d * Eventdum_{jt} + \varepsilon_{jt} \qquad (3A)$$

Model B (Intercept and Slope change): $Earnings_{jt} = a_j + b * Periodenddate_{jt}$

$$+ c * Periodenddate_{jt} + d * Eventdummy_{jt} + e * Periodenddate_{jt} * Eventdum$$

$$+ f * \quad reportdaate_{jt} * Eventdum \quad + \varepsilon_{jt} \qquad (3B)$$

where $Earnings_{jt}$ is the quarterly actual earnings per share for firm j at time t; $Periodenddate_{jt}$ is the ending date of the fiscal period for reported earnings; $reportdate_{jt}$ is the date when the actual earnings are reported. $Periodenddate_{jt}$ on May 31, 1999 indicates that the fiscal quarter of the reported earnings in the dependent variable ends on the date of May 31, 1999. $Periodenddate_{jt}$ and $reportdate_{jt}$ are also calculated as

the relative number of days prior to or after the stock split announcement date.

The results using realized earnings are in Table 5. In this regression, the quarterly actual earnings are regressed on a split event dummy variable and two time variables: the ending date of the fiscal quarter reported and the announcement date of the earnings. The coefficient of the stock split dummy is significantly positive. This finding supports the prediction that stock splits signal favorable future earnings performance.

Insert Table 5 about here

4.3. Bond event study

To further investigate the information content of splits for bond investors, we perform a bond event study using the Handjinicolaou and Kalay (1984) approach. We calculate the adjusted return of each bond each day that it trades as its trade-to-trade holding period return minus the return over the same period on the Treasury bond with the closest maturity. The abnormal return for a bond on the stock-split announcement day and each of the three following trading days is calculated as the difference between its adjusted return that day and the mean of its adjusted returns from a comparison period. The comparison period consists of the 15 trading days preceding the announcement day. We calculate t-statistics based on standardized abnormal returns, using each bond's time-series standard deviation of abnormal returns. Further details are available from the authors.

Table 6 reports the results. The bonds of splitting companies have significant positive abnormal returns on the announcement day 0 and the following day, as well as significant positive cumulative abnormal returns for the four-day window starting on day 0. The results are consistent with bond investors inferring positive information content from stock splits on average, consistent with the signaling hypothesis.

Insert Table 6 about here

5. Summary and conclusion

We examine bond yield changes around stock split announcements and find support for the signaling hypothesis. We find that average corporate bond yield spreads significantly decrease after split announcements. The stock liquidity hypothesis in the stock-split literature does not apply to splitting firms' bonds, so the decrease in yields is uniquely consistent with the idea that bond investors perceive positive stock splits as a favorable signal of firm expected cash flows or risk. Changes in realized earnings and earnings forecasts around stock splits are also found to be consistent with the signaling hypothesis. In the two years following a stock split, analyst earnings forecasts increase, on average. Actual earnings subsequent to stock splits also increase, validating the positive signal of future performance inferred from the stock-split announcement. A bond event study finds significant positive bond-price reactions to split announcements. We conclude that stock-split announcements reduce investor uncertainty about future performance, reducing the required rate of return and resulting in an increase in the bond price and a decrease in the bond yield.

References

Anshuman, V. Ravi and Avner Kalay, 2002. Can splits create market liquidity? Theory and evidence, *Journal of Financial Markets* 5, 83-125.

Asquith, Paul, Paul Healy and Krishna Palepu, 1989. Earnings and stock splits, *The Accounting Review* 44, 387-403.

Baker, H. Kent and Patricia L. Gallagher, 1980. Management's view of stock splits, *Financial Management* 9, 73-77.

Brennan, Michael J. and Thomas E. Copeland, 1988. Stock splits, stock prices, and transaction costs, *Journal of Financial Economics* 22, 83-101.

Brown, Lawrence D., 2001. A temporal analysis of earnings surprises: Profits versus losses, *Journal of Accounting Research* 39, 221-241.

Campbell, John Y. and Glen B. Taksler, 2003. Equity volatility and corporate bond yields, *Journal of Finance* 58, 2321-2350.

Chan, Louis K.C. and Josef Lakonishok, 1992. Robust measurement of beta risk, *Journal of Financial and Quantitative Analysis* 27, 265-282.

Charest, Guy, 1978. Split information, stock returns and market efficiency, *Journal of Financial Economics* 6, 265-296.

Dennis, Patrick, 2003. Stock splits and liquidity: The case of the Nasdaq-100 index tracking stock, *The Financial Review* 38, 415-433.

Diether, Karl B., Christopher J. Malloy and Anna Scherbina, 2002. Differences of opinion and the cross-section of stock returns, *Journal of Finance* 57, 2113-2141.

Dravid, Ajay R., 1987. A note on the behavior of stock returns around ex-dates of stock distributions, *Journal of Finance* 42, 163-168.

Duffee, Gregory R., 1998. The relation between treasury yields and corporate bond yield spreads, *Journal of Finance* 53, 2225-2241.

Fama, Eugene F., Lawrence Fisher, Michael C. Jensen and Richard Roll, 1969. The adjustment of stock prices to new information, *International Economic Review* 10, 1-22.

Fama, Eugene F., and Kenneth R. French, 1993. Common risk factors in the returns on stocks and bonds, *Journal of Financial Economics* 33, 3-56.

Greene, William H., 2003. *Econometric Analysis*, 5th Edition. (Pearson Education, Inc., Upper Saddle River, New Jersey).

Grinblatt, Mark, Ronald W. Masulis and Sheridan Titman, 1984. The valuation effects of stock splits and stock dividends, *Journal of Financial Economics* 13, 461-490.

Han, Ki C., David Y. Suk, 1998. Insider ownership and signals: Evidence from stock split announcement effects, *The Financial Review* 33, 1-24.

Handjinicolaou, George and Avner Kalay, 1984. Wealth redistributions or changes in firm value: An analysis of returns to bondholders and stockholders around dividend announcements, *Journal of Financial Economics* 13, 35-63.

Huang, Gow-Cheng, Kartono Liano, Herman Manakyan, Ming-Shiun Pan, 2008. The information content of multiple stock splits, *The Financial Review* 43, 543-567.

Kadapakkam, Palani-Rajan, Srinivasan Krishnamurthy and Yiuman Tse., 2005. Stock splits, broker promotion, and decimalization, *Journal of Financial and Quantitative Analysis* 40, 873-895.

Kalay, Alon and Mathias Kronlund, 2009. Stock splits – Information or liquidity? *Working paper*, University of Chicago.

Lakonishok, Josef and Baruch Lev, 1987. Stock splits and stock dividends: Why, who, and when? *Journal of Finance* 42, 913-932.

Lamoureux, Christopher G. and Percy Poon, 1987. The market reaction to stock splits, *Journal of Finance* 42, 1347-1370.

Lin, Ji-Chai, Ajai K. Singh, and Wen Yu, 2009. Stock splits, trading continuity, and the cost of equity capital, *Journal of Financial Economics* 93, 474-489.

Lipson, Marc L., and Sandra Mortal, 2006. The effect of stock splits on clientele: Is tick size relevant?, *Journal of Corporate Finance* 12, 878-896

Longstaff, Francis A., Sanjay Mithal, and Eric Neis, 2005. Corporate yield spreads: Default risk or liquidity? New evidence from the credit default swap market, *Journal of Finance* 60, 2321-2349.

McNichols, Maureen and Ajay Dravid, 1990. Stock dividends, stock splits, and signaling, *Journal of Finance* 45, 857-879.

Ohlson, James A. and Stephen H. Penman, 1985. Volatility increases subsequent to stock splits: An empirical aberration, *Journal of Financial Economics* 14, 251-266.

Pilotte, Eugene and Timothy Manuel, 1996. The market's response to recurring events: The case of stock splits, *Journal of Financial Economics* 41, 111-127.

Richardson, Scott, Siew Hong Teoh and Peter D. Wysocki, 2004. The walk-down to beatable analysts forecasts: The role of equity issuance and insider trading incentives, *Contemporary Accounting Research* 21, 885-924.

Schultz, Paul, 2000. Stock splits, tick size, and sponsorship, *Journal of Finance* 55, 429-450.

Weld, William C., Roni Michaely, Richard H. Thaler and Shlomo Benartzi, 2009. The nominal share price puzzle, *Journal of Economic Perspective* 23, 121-142.

Table 1

Yearly and size distribution of U.S. stock split sample

Stock splits are defined as stock distributions over 1.25 from the CRSP. Only the first stock split by a company during 1989–2006 is included in the sample.

	Years	Number of stock splits	Percentage
	1989–1991	768	13.4%
	1992–1994	1,115	19.4%
	1995–1997	1,302	22.6%
	1998–2000	1,109	19.3%
	2001–2003	534	9.3%
	2004-2006	922	16.0%
	Size	**Number of stock splits**	**Percentage**
	1.25-1.4	544	9.5%
	1.5-1.9	1,960	34.1%
	2-2.5	2,883	50.1%
	Above 2.5	363	6.3%
Total	1989–2006	5,750	100.0%

Table 2

Descriptive statistics for firms with stock splits during 1990–2006

Daily stock return volatility is from 180-day windows before and after stock splits. Bond yields are calculated as the yields to maturity over the year before and year after stock splits. Bond spreads are calculated as the difference between the bond yield to maturity and Treasury bond with the same maturity over one year periods before and after stock splits. Earnings per share forecasts and realized earnings changes are from two years before to two years after stock splits.

	Mean			Median		
	Pre-event	Post-event	t-stat	Pre-event	Post-event	Signed-rank test
Stock Volatility	0.0293	0.0305	2.611**	0.0267	0.0275	3.88**
Bond Yield	5.907	5.875	-0.498	5.981	5.984	0.959
Yield Spread	1.661	1.379	-5.663**	1.418	1.237	-13.524**
EPS Forecast	0.2743	0.3457	18.62**	0.2464	0.3084	78.79**
Realized Earning	0.2229	0.2436	3.023**	0.1967	0.2273	56.25**

** and * indicate statistical significance at the 0.01 and 0.05 levels.

Table 3

Corporate bond yield spread regression

This table presents the following regressions to explain the corporate bond yield spreads of companies that split their stocks during the period 1999 to 2006: The sample size is 136 firms. The dependent variable is the corporate bond yield spread. TBond is the yield to maturity of long-term Treasury bonds at time t; MIndex is the BAA Moody Corporate bond index level at time t; Stockprice is the share price of firm j at time t; Maturetime is the time to maturity of the bond; Eventdum is the stock split indicator variable.

	Model A			**Model B**		
Regressor	**Coef**	**T-stat**	**P-value**	**Coef**	**T-stat**	**P-value**
Constant	-0.0953	-4.39**	0.00	-0.009	-0.41	0.68
TBond	-0.0535	-5.61**	0.00	-0.237	-18.18**	0.00
MIndex	0.238	35.74**	0.00	0.259	34.77**	0.00
Stockprice	-0.0048	-18.66**	0.00	-0.0023	-6.66**	0.00
Maturitytime	0.00031	8.08**	0.00	0.0006	14.28**	0.00
Eventdum	-0.191	-22.94**	0.00	-0.191	-29.22**	0.00
TBond * eventdum				0.28	16.20**	0.00
MIndex * eventdum				0.081	6.81**	0.00
Stockprice * eventdum				-0.0028	-6.49**	0.00
Maturitytime * eventdum				-0.00087	-14.9**	0.00
F-statistics		628.6			418.96	
R-square		0.228			0.226	
No of obs		93066			93066	

** and * indicate statistical significance at the 0.01 and 0.05 levels, respectively.

Table 4

Earnings forecast regression

Regressions of EPS forecasts of 2254 firms that split their stocks during 1990–2006. The data for the dependent variable are current-year and one-year ahead annual EPS forecasts within two years before to two years after each stock split. Estimationdate is the estimation date of the EPS forecast and Periodenddate is the ending date of the period being forecast, both expressed as the number of days from the stock-split announcement date; Eventdum is 0 before and 1 after the stock split.

	Model A			Model B		
Regressor	**Coef**	**T-stat**	**P-value**	**Coef**	**T-stat**	**P-value**
Constant	0.906	123.32**	0.00	0.879	87.88**	0.00
Periodenddate	0.057	28.93**	0.00	0.067	19.75**	0.00
Estimationdate	–0.026	–15.29**	0.00	–0.036	-12.67**	0.00
Eventdum	0.267	25.12**	0.00	0.307	22.19**	0.00
Periodenddate* eventdum				–0.014	–3.65**	0.00
Estimationdate* eventdum				0.015	4.47**	0.00
F	2034.73			1224.89		
R^2	0.01			0.01		
N	509,030			509,030		

** and * indicate statistical significance at the 0.01 and 0.05 levels, respectively.

Table 5

Realized earnings regression

Regressions of realized earnings of 3505 firms that split their stocks during 1990–2006. The data for the dependent variable are the quarterly earnings within two years before through two years after the split; Periodenddate is the ending date of the reported quarter and Reportdate is the earnings announcement date, both expressed as the number of days relative to the split announcement date; Eventdum is 0 before and 1 after the stock split.

		Model A			Model B	
Regressor	**Coef**	**T-stat**	**P-value**	**Coef**	**T-stat**	**P-value**
Constant	0.255	51.86**	0.00	0.270	39.11**	0.000
Periodenddate	0.012	13.60**	0.00	0.004	3.21**	0.006
Reportdate	-0.011	-13.24**	0.00	-0.003	-2.35*	0.02
Eventdum	0.044	6.05**	0.00	0.063	7.11**	0.00
Periodenddate * eventdum				0.011	6.46**	0.00
Reportdate * eventdum				-0.012	-7.28**	0.00
F		143.03			114.02	
R^2		0.0030			0.0044	
N		57,676			57,676	

** * indicate statistical significance at the 0.01 and 0.05 levels, respectively.

Table 6

Corporate bond event study

The sample contains 136 bonds of firms that split their stocks during 1999–2006. Day 0 is the stock-split announcement date. The adjusted return of a corporate bond is the difference between its trade-to-trade holding period return and that of the Treasury bond with the closest maturity. A bond's abnormal return is the adjusted return minus the mean of the bond's adjusted returns from trading days –15 through –1. Abnormal returns are standardized using the bond's time-series standard deviation of abnormal returns and presented in decimal, not percentage.

Event time	Mean standardized abnormal return	t
[Day 0]	0.223	2.631**
[Day 1]	0.288	3.397**
[Day 2]	-0.007	-0.079
[Day 3]	0.069	0.8186
[Days 0-1]	0.374	4.408**
[Days 0-3]	0.226	2.660**

** and * indicate statistical significance at the 0.01 and 0.05 levels, respectively.