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Author(s): Dosoung Choi and Robert A. Strong

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The Pricing of When-Issued Common Stock: A Note

DOSOUNG CHOI and ROBERT A. STRONG*

A BASIC POSTULATE of the theory of finance is that two equivalent financial claims will sell at the same price in a competitive financial market. An occasion for testing this single price law of markets arises when new shares created as a result of a stock split are traded on a “when-issued” basis.

Since one old share entitles the holder to the same cash flow stream as a proportional number of when-issued split shares, the price of the old shares should be the same as the price of the when-issued shares adjusted for the stock split factor. However, casual empiricism suggests that these two prices are seldom equal, and that in virtually all cases, the when-issued share sells at a higher price (adjusted for the split factor) than the old share. A possible explanation of this apparent price discrepancy lies in the transaction settlement procedures. The settlement of when-issued trading is not made until six business days after the new shares are distributed, whereas trades in the old shares are settled five business days after the trade date. In this note, we investigate whether the price differential can be explained solely by the different settlement procedures and find that it cannot. Section I describes trading in when-issued securities on the New York Stock Exchange (NYSE) and discusses possible causes of this price discrepancy. Section II describes the data used in this study and presents the empirical results. Additional discussion is in Section III, and Section IV contains concluding remarks.

I. Common Stock Trading on a When-Issued Basis

The NYSE permits investors to trade corporate securities issued in conjunction with a stock split even before these new shares are distributed to existing shareholders.¹ The specialist on the floor of the exchange begins to make a market in the lower-priced split shares shortly after the recapitalization has been approved by the shareholders, and both the new shares and the old shares can be traded simultaneously. The period of simultaneous trading is generally short and ranges from 4 days to 35 days in the sample of this study. These new shares are listed in the financial pages as a firm’s *when-issued* common stock; the code *wi* appears after the name of the firm to designate these securities.

As with a cash dividend, the old shares will go ex-distribution on the fourth business day prior to the date of record. Anyone purchasing the old shares on or

* The University of Tennessee-Knoxville and The Pennsylvania State University, respectively. The authors wish to acknowledge helpful comments and suggestions from Michael Brennan.

¹ The NYSE generally considers it desirable, from the standpoint of public interest, to provide when-issued security trading to investors. (1, p. A-267)

after this date will purchase them *with a due bill* for the additional shares which is reflected on the investor's purchase confirmation. Holders of the due bill are entitled to the new shares.

Although both the old shares and the new shares are proportional claims on the same cash income stream, their adjusted prices may logically differ due to the manner in which trades in when-issued shares are settled. Investors who buy or sell the old shares have their accounts debited or credited for the net amount of the transaction on the fifth business day following the trade. Trades in the when-issued securities, on the other hand, do not settle until six business days after the date of distribution. Thus, the purchase of when-issued securities is analogous to buying the stock on 100 percent margin with no interest charged on the debit balance. Therefore, we should expect the price of when-issued securities to exceed that of the old shares by the value of this interest concession.

II. Empirical Results

A. Data

The data considered are the actual transaction prices of when-issued securities arising from stock splits during the period 1977–80, and the actual transaction prices for the associated “old, non-split” shares. The prices were collected from the *NYSE Daily Stock Price Record*. In the case of some thinly traded firms, there was little trading activity in the when-issued shares, and for many days there were no actual trades; only the stock specialists' bid-ask prices are reported. We do not consider these data in order to concentrate on investor behavior rather than specialist pricing.

There are a few instances in which a firm split its shares more than once during the 1977–80 period. We admitted each set of price data to the sample. Dividends, voting rights, and other events requiring stockholder action are not material to this study since the New York Stock Exchange will not permit the establishment of a date of record for any purpose while when-issued securities are being traded.²

One hundred twenty-eight series of daily when-issued prices met the above conditions, and these prices, together with the daily closing prices of the old shares, comprise our data set. The trading period of the when-issued stocks varies from 4 days to 35 days with a mean of 17.5 days and a median of 18 days. Stock split ratios vary from 1.25 to 4.0 with the mean ratio of 1.95. Sixty-seven when-issued stocks were the results of 2 for 1 splits. The cross-sectional average of the old share price was about \$51.38 while that of the when-issued new share price was about \$26.17.

B. Price Difference and Time-Value of Money Consideration

For each stock in the sample, the when-issued share prices series is adjusted for the split factor F :

$$P_{wt}^* = P_{wt} \cdot F \quad (1)$$

² We are grateful to the Office of Business Research at the New York Stock Exchange for their assistance in confirming the technical features of when-issued trading.

where P_{wt}^* and P_{wt} denote adjusted and unadjusted when-issued share prices on any trading day t , respectively, and F denotes the number of new shares to be issued for each old share. The absolute and proportional differences between the prices of the old share and the when-issued share are computed:

$$D_t = P_{wt}^* - P_{0t} \quad (2.1)$$

$$d_t = D_t/P_{0t} \quad (2.2)$$

where P_{0t} denotes the price of the old share on any day t . In order to examine the behavior of the when-issued share prices, the proportional differences are averaged cross-sectionally for each day τ relative to the distribution date ($\tau = 0$) when the old shares are no longer traded. The summary statistics of the proportional differences (raw price differences before the time-value of money adjustment) are reported in Table I. For the purpose of examining the impact of the discontinuous nature of stock prices, for each day τ relative to the distribution date, the proportion of the cases where the when-issued share price exceeds $[(P_{0\tau} + 1/8)/F]$ is calculated.

Table I reveals that the when-issued shares sell at a price higher than the old

Table I
Proportional Difference between Prices of
Old and When-Issued Shares (128 Stocks)
(Before adjustment for time-value of money)

Day Relative to Distribu- tion Date	d_τ				N_τ^a	Proportion of Positive d_τ	Modified Proportion of Positive d_τ^b
	Mean	Median	Standard Deviation	T -Statistic			
-20	0.0118	0.0116	0.0118	6.67*	45	0.93	0.73
-19	0.0116	0.0090	0.0117	6.85*	48	0.98	0.79
-18	0.0119	0.0088	0.0118	7.76*	59	0.86	0.75
-17	0.0110	0.0104	0.0079	11.54*	68	0.96	0.82
-16	0.0121	0.0115	0.0102	10.16*	74	0.93	0.84
-15	0.0130	0.0136	0.0108	10.65*	78	0.96	0.85
-14	0.0134	0.0116	0.0114	10.68*	83	0.93	0.84
-13	0.0141	0.0128	0.0118	11.59*	93	0.92	0.84
-12	0.0135	0.0132	0.0125	10.47*	93	0.95	0.85
-11	0.0113	0.0104	0.0134	8.43*	100	0.92	0.73
-10	0.0130	0.0120	0.0104	12.73*	103	0.91	0.85
-9	0.0114	0.0111	0.0102	11.52*	107	0.90	0.79
-8	0.0114	0.0113	0.0138	8.69*	110	0.96	0.77
-7	0.0110	0.0092	0.0120	9.53*	109	0.85	0.72
-6	0.0113	0.0096	0.0122	10.21*	123	0.91	0.77
-5	0.0124	0.0112	0.0109	12.34*	117	0.94	0.79
-4	0.0118	0.0120	0.0150	8.65*	120	0.95	0.81
-3	0.0099	0.0100	0.0123	8.97*	124	0.94	0.76
-2	0.0105	0.0089	0.0117	10.10*	126	0.90	0.75
-1	0.0100	0.0074	0.0116	9.67*	126	0.87	0.68

* Significant at 0.01 level (two-tailed test).

^a N_τ denotes total number of when-issued shares traded in the day τ relative to the distribution date.

^b This column reports the proportion of the cases where $P_{w\tau}$ exceeds $[P_{0\tau} + 1/8]/F$.

shares by over one percent, on average. Although the magnitude of the difference is small, the mean difference is positive for each day and significant at the 1 percent level according to the t -test. The proportions do not show any consistent pattern or trend over the trading period, except that they are larger than 0.5 and there is a slight decline during the time close to the distribution date.

In order to examine the time-value of money consideration more rigorously, the when-issued share price series was further adjusted for the split factor F and the period of deferred settlement:

$$P_{wt}^a = P_{wt} \cdot F \cdot (1 + r)^{-(\tau+1)/252}, \quad (3)$$

where P_{wt}^a denotes adjusted (for time-value of money) when-issued share prices on any trading day t with τ days left till distribution³ assuming 252 trading days a year.⁴ For each security, the prevailing broker loan rate was used as the discount rate. The proportional difference adjusted for time-value of money was then computed:

$$\hat{d}_t = \frac{P_{wt}^a - P_{0t}}{P_{0t}} \quad (4)$$

The summary statistics of $\hat{d}_t$'s reported in Table II reinforce the previous findings. The time-value of money consideration does not completely account for the observed price discrepancy: the proportionate difference, on average, is still positive and statistically significant, although smaller in magnitude. The results indicate that even after adjusting for the deferment of the cash payment, when-issued shares have been more highly priced than the equivalent old shares. One may consider arbitrage trading by buying old shares and selling them on a when-issued basis. Although the profit potential is negligible due to transaction costs, it is still a puzzle that a consistent price discrepancy exists.

III. Additional Discussion

It is a surprising result that the time-value of money price adjustment is unable to fully explain the consistent premium associated with when-issued shares. In perfect capital markets stock splits should have a neutral affect upon shareholder wealth. Market imperfections such as transaction costs or behavioral considerations such as investor preference for lower priced shares may have some influence on the relative prices of the old and new shares.

To investigate this further, we grouped the securities in the sample by the price level of the when-issued shares and also by the stock split factor. We find that there continues to be a statistically significant premium associated with when-issued shares regardless of the relative price level, and that lower priced shares carry a greater premium than higher priced shares.

³ Since all settlements of the stock trading contracts are made on the fifth business day, the net deferment period for the settlement of the when-issued contract should be the number of days left till distribution plus one (or the number of days left till settlement minus five).

⁴ This figure is the average number of trading days per year from 1977 to 1980 (our sampling period).

Table II
Proportional Difference between Prices of
Old and When-Issued Shares (128 Stocks)
(Adjusted for Time-Value of Money; Brokers' Loan Rates Were Used)

Day Relative to Distribu- tion Date	d_t				N_t^a	Proportion of Positive d_t	Modified Proportion of Positive d_t^b
	Mean	Median	Standard Deviation	T -Statistic			
-20	0.0048	0.0054	0.0119	2.71*	45	0.91	0.64
-19	0.0050	0.0028	0.0112	3.09*	48	0.77	0.52
-18	0.0057	0.0031	0.0116	3.77*	59	0.86	0.54
-17	0.0051	0.0050	0.0076	5.53*	68	0.79	0.62
-16	0.0065	0.0054	0.0101	5.54*	74	0.81	0.66
-15	0.0078	0.0091	0.0104	6.62*	78	0.86	0.71
-14	0.0085	0.0060	0.0111	6.98*	83	0.83	0.69
-13	0.0096	0.0090	0.0115	8.05*	93	0.90	0.75
-12	0.0093	0.0090	0.0123	7.29*	93	0.90	0.75
-11	0.0074	0.0063	0.0133	5.56*	100	0.86	0.65
-10	0.0095	0.0083	0.0102	9.45*	103	0.78	0.72
-9	0.0082	0.0086	0.0102	8.32*	107	0.79	0.69
-8	0.0086	0.0082	0.0138	6.54*	110	0.85	0.73
-7	0.0085	0.0071	0.0119	7.46*	109	0.82	0.69
-6	0.0091	0.0075	0.0122	8.27*	123	0.80	0.71
-5	0.0106	0.0099	0.0108	10.62*	117	0.87	0.75
-4	0.0104	0.0107	0.0149	7.65*	120	0.90	0.81
-3	0.0088	0.0088	0.0122	8.03*	124	0.87	0.75
-2	0.0098	0.0083	0.0116	9.48*	126	0.87	0.75
-1	0.0097	0.0071	0.0116	9.39*	126	0.79	0.68

* Significant at 0.01 level (two-tailed test).

^a See Footnote a of Table I.

^b See Footnote b of Table I. P_{wt} is adjusted for the deferment of settlement.

^b See Equation (3).

We also find a higher premium associated with stock splits likely to result in the creation of odd lots (such as a five-for-three split). Odd lot transactions carry higher trading fees, and it is likely that both buyers and sellers are aware of this fact. Since the seller has the option to sell old shares *or* when-issued shares, he will not voluntarily incur higher trading fees by selling an odd lot unless he is compensated by a higher selling price. The buyer with limited capital who cannot afford a round lot of old shares may be willing to pay a slight premium in order to buy a round lot of when-issued shares (thereby avoiding the odd-lot markup).⁵ This scenario may help explain the larger premium associated with odd-lot generating splits, but it is not helpful in explaining the basic results of this research.

⁵ For when-issued stocks priced below \$25, the range of the time-adjusted differential (d_t) for the ten days prior to distribution was from 1.06% to 1.54%. For prices of \$25 or above, the range was 0.57% to 0.89%.

For stock split factors less than 2.0, the differential ranged from 0.96% to 1.38%. For factors greater than or equal to 2.0, the range was 0.75% to 1.00%.

IV. Concluding Remarks

This note examines the pricing of when-issued stock. We find a significant price difference between the old shares and the new when-issued shares, and also find that this significant difference persists even after accounting for the timing difference in the settlement procedure. It is likely that market imperfections such as odd lot trading fees influence the pricing of these securities, but further analysis is necessary to discover more about how the market assigns value to these curious securities.

REFERENCES

1. *NYSE Company Manual*. Room 616, Eleven Wall Street, New York, NY 10005.
2. *NYSE Daily Stock Price Record*, Volume 1-4, 1977-80.