

Equity Issues and Changes in Expectations of Earnings by Financial Analysts

Prem C. Jain
Tulane University

Evidence is provided on an implication of models by Myers and Majluf (1984) and Miller and Rock (1985), which predict that equity issues convey information about firms' future earnings. Consistent with the prediction, the results show that earnings forecast revisions by financial analysts subsequent to the announcement of equity issues are significantly related to announcement period abnormal returns.

Many recent research studies document significant stock price reactions to firm-specific announcements. In spite of the evidence that these announcements convey information, our understanding of the nature of the information conveyed is quite limited. A number of theoretical models have been recently proposed to explain the price reactions to equity issue announcements. Miller and Rock (1985) argue that an increase in outside financing is a signal to investors of a decrease in the firm's current earnings; and, since

I wish to thank Fran Ayres, Randy Beatty, Sanjai Bhagat, Richard Boebel, Greg Clinch, Vic Defeo, Hemang Desai, Dan Elnathan, Pam Erickson, Mark Grinblatt, Mike Hertzel, Gun-Ho Joh, Dave Larcker, Pat O'Brien, Sandeep Panel, Russ Robins, Katherine Schipper, Ross Watts, Larry Weiss, workshop participants at the University of California at Berkeley, the University of California at Los Angeles, Columbia University, Drexel University, Southern Methodist University, and the participants of the annual meetings of the American Finance Association for their helpful comments. Detailed comments from two anonymous referees and editors Richard Green and Chester Spatt are gratefully acknowledged. I also thank Lynch Jones and Ryan, Inc. for supplying data from the Institutional Brokers Estimates System, and Drexel Burnham Lambert, Inc. for providing data on equity issues. This work was initiated while the author was a Peat Marwick Research Faculty Fellow. Address correspondence to Prem C. Jain, A. B. Freeman School of Business, Tulane University, New Orleans, LA 70118-5669.

current earnings serve as the basis for estimating future earnings, financing announcements affect stock prices negatively. Under this scenario, since equity issue announcements convey information about earnings, financial analysts would use the information contained in the announcements to revise their forecasts of future earnings downward.

In the Myers and Majluf (1984) adverse selection model, rational investors presume that, on average, managers approve equity issues when, based on their superior information, they perceive the equity to be overvalued. One reason for the equity to be overvalued is that market participants (including financial analysts) had anticipated higher earnings prior to the announcements. Given the information released in the equity issue announcements, financial analysts would revise their forecasts of earnings downward. Thus, an empirical prediction from this model is the same as that from Miller and Rock (1985).

In this article, I test the implication of these models by examining revisions in forecasts of earnings around equity issue announcements. The results show that earnings forecast revisions by financial analysts subsequent to equity issue announcements are significantly related to announcement period abnormal returns.

The remainder of the article is organized as follows. In Section 1, I survey the theoretical and empirical background that motivates the testable hypothesis. In Section 2, I describe the sample. Results of an event study are reported in Section 3. In Section 4, I explain the nature of the cross-sectional analysis, describe the relevant data, and present the results. Conclusions are presented in Section 5.

1. Background and the Earnings Information Hypothesis

Previous studies [e.g., Mikkelsen and Partch (1986), Asquith and Mullins (1986), Masulis and Korwar (1986), Schipper and Smith (1986), Barclay and Litzenberger (1988), and Lease, Masulis, and Page (1991)] document negative abnormal returns around equity issue announcements. The main purpose of this article is to provide direct evidence of the effect of equity issue announcements on the assessment of earnings. This is referred to as the earnings information hypothesis.

Although the motivation for the earnings information hypothesis comes from the models of Myers and Majluf (1984) and Miller and Rock (1985), certain assumptions and simplifications are necessary to test their implication. First, earnings and cash flows are assumed to be correlated. If equity issue announcements convey information about cash flows but not about earnings, then analysts will not revise their forecasts of earnings. Second, the announcements should con-

vey information about the firm's earnings in the near future. Because of availability constraints, data used in this study are mostly for one-year-ahead forecasts of earnings. If the announcements convey information only about long-term earnings, no information effect will be detected. To the extent that these assumptions are not met, the empirical analysis is less likely to find significant results. In this article, I focus on analysts' forecasts of earnings because several studies [e.g., Brown and Rozeff (1978), Fried and Givoly (1982), and O'Brien (1988)] find analysts' forecasts to be more accurate than forecasts from time-series models of reported earnings.¹

2. Data

An initial sample of 281 seasoned issues of common stock by industrial firms from 1979 to 1983 was obtained from *Public Offerings of Corporate Securities* as compiled by Drexel Burnham Lambert, Inc.² For all the firms in the initial sample, the *Wall Street Journal Index* was read for the year of, and two years prior to, the issues to identify the date of the earliest announcements. The daily stock returns, the price per share, and the number of shares outstanding were obtained from the CRSP (Center for Research in Security Prices) tapes. Monthly data on analysts' forecasts were obtained from the IBES (Institutional Brokers Estimate System) tape.

Certain descriptive statistics for the sample of firms are presented in Table 1. There are 269 announcements for which data are available on the various tapes. The mean issue size of \$50.0 million on average amounts to 11.7 percent of the market value of shares outstanding. Out of 269 issues, 217 issues were for primary shares only, while 52 issues included some secondary issues (combination issues).³

3. Stock Price Effects of the Equity Issue Announcements

In this section, I examine stock price behavior around the equity issue announcements. Since the event study methodology is well

¹ Also, since monthly data on financial analysts' forecasts are available, changes in analysts' forecasts are more timely and hence more precise than changes in reported earnings. For an examination of reported accounting earnings around announcements, see Lakonishok and Lev (1987) and Healy and Palepu (1990). Masulis (1988) discusses various reasons behind equity issue announcement effects.

² For a firm to be included in the sample, data on forecasts of earnings must be available on the IBES (Institutional Brokers Estimate System) tape with at least three analysts following the firm. A detailed description of data on the IBES tape is provided by Brown, Foster, and Noreen (1985).

³ A primary offering is for new shares of common stock issued by the company. A secondary offering is for shares owned by a present stockholder, offered to others in a manner similar to primary offerings.

Table 1
Summary statistics for common equity issue announcements

Distribution of announcements according to calendar years

Year	No. of equity issues in sample	Amount of primary shares issued (\$millions)		Issue amount as % of market value of common equity	
		Mean	SD	Mean	SD
1978-1979	18	\$33.2	\$23.5	11.8	5.8
1980	61	48.8	40.5	12.3	5.7
1981	35	53.2	56.5	12.3	5.7
1982	41	55.6	35.9	9.9	5.9
1983	114	50.3	47.5	11.8	6.5
	269	50.0	44.4	11.7	6.1

Distribution according to number of issues by firms

No. of issues	No. of firms	Amount of primary shares issued (\$millions)		Issue amount as % of market value of common equity	
		Mean	SD	Mean	SD
1	208	\$53.3	\$57.1	12.2	6.3
2	41	52.2	34.8	10.5	5.1
3	13	67.6	69.9	9.6	4.4
4	4	55.6	18.3	6.9	4.0
5	3	89.8	10.8	7.4	2.5
	269	50.0	44.4	11.7	6.1

Distribution according to the type of issue

Type of issue	No. of issues	Amount of primary shares issued (\$millions)		Issue amount as % of market value of common equity	
		Mean	SD	Mean	SD
Primary only	217	54.2	46.4	11.5	5.9
Primary and secondary (combination)	52	32.3	29.7	12.4	6.7
	269	50.0	44.4	11.7	6.1

known, the description will be brief. For the results presented, abnormal returns for common stocks of firms in the sample are defined as raw returns adjusted for market returns.⁴ Day 0 is the day the news of an announcement is first published in the *Wall Street Journal*.

Abnormal returns, cumulative abnormal returns, and various test statistics around equity issue announcements are presented in Table 2. There are two important results. First, on average, equity issue

⁴ See Brown and Warner (1985) for details on the event study methodology. The qualitative results are the same when the market model is used to compute abnormal returns. The exact computational procedure for both the parametric and the nonparametric test statistics are the same as those in Jain (1985, 1986).

Table 2
Abnormal returns around the common equity issue announcements

Day	No. of firms	Abnormal return (%)	t-statistic	Cumulative abnormal return (%)	Positive abnormal return (%)	z-statistic
-120	263	-0.13	-0.86	-0.13	43.0	-2.2**
-80	264	-0.08	-0.51	4.14	47.7	-0.7
-60	266	0.17	1.13	7.55	51.9	0.6
-40	266	0.23	1.55	11.37	48.5	-0.5
-30	267	-0.01	-0.08	13.31	48.3	-0.5
-20	267	0.04	0.25	15.05	46.4	-1.1
-10	267	0.15	1.02	16.96	50.9	0.3
-5	268	0.06	0.42	17.62	46.6	-1.1
-4	269	0.07	0.46	17.68	49.1	-0.3
-3	269	0.03	0.22	17.72	46.5	-1.1
-2	269	-0.21	-1.41	17.51	46.1	-1.2
-1	269	-2.16	-14.60***	15.35	19.7	-9.7***
0	269	-0.52	-3.48***	14.83	37.2	-4.1***
1	269	0.23	1.56	15.06	49.4	-0.2
2	269	-0.11	-0.75	14.95	44.2	-1.8*
3	269	0.22	1.51	15.18	54.6	1.5
4	269	0.12	0.79	15.29	48.3	-0.5
5	269	0.08	0.51	15.37	47.6	-0.8
10	269	0.02	0.13	15.61	45.0	-1.6
20	269	0.02	0.15	16.04	45.7	-1.4
30	269	0.19	1.29	16.40	52.0	0.7
40	269	0.02	0.16	15.60	49.4	-0.2
60	269	-0.16	-1.07	15.30	44.6	-1.7
80	269	0.07	0.48	15.52	48.7	-0.4
120	269	-0.13	-0.88	14.27	45.0	-1.6

Time series r-statistics for various intervals		
Interval (days)	Cumulative abnormal return (%)	t-statistic
-120 to -61	7.38	6.44***
-60 to -31	5.94	7.32***
-30 to -11	3.49	5.27***
-10 to -3	0.91	2.17**
-2 to 0	-2.89	-11.25***
1 to 10	0.78	1.66**
11 to 30	0.80	1.21
31 to 60	-1.10	-1.36
61 to 120	-1.03	-0.90

Day 0, date of the first publication of the news in the *Wall Street Journal*.

* Significant at 10% level of significance (two-tailed test).

** Significant at 5% level of significance (two-tailed test).

*** Significant at 1% level of significance (two-tailed test).

announcing firms experience an abnormal return of -2.89 percent (*t-statistic* of -11.25) during the three-day announcement period (day -2 to day 0). Second, the average large positive preannouncement period (day -120 to day -3) abnormal return of + 17.72 percent indicates that equity issues are made after firms experience relatively "good times."

4. Cross-sectional Analysis

4.1 Cross-sectional relation to be studied

Given the models of Myers and Majluf (1984) and Miller and Rock (1985), the equity issue announcements signal changes in expected earnings. From an empirical perspective, a positive association between the revisions in earnings forecasts (Δ EPS) and the announcement period abnormal returns (ABEVT) would be consistent with the signaling hypothesis. In order to increase the power of statistical tests, other relevant explanatory variables should also be included. First, the evidence in Table 2 and prior empirical research [Asquith and Mullins (1986) and Masulis and Korwar (1986)] show that the equity issuing firms experience significant abnormal returns in the preannouncement period. This implies that abnormal returns prior to the announcement (ABPRE) should be used in explaining Δ EPS. Second, analysts revise their forecasts periodically and not always immediately after the equity issue announcements. Since the earnings forecast revision period also covers some period after the announcement day, abnormal returns after the announcement (ABPOST) should also be included as an explanatory variable. Finally, at the time of the equity issue announcement, the size of the issue is also known. This can be used by financial analysts in inferring the signal. To capture this, the issue amount as a fraction of the value of shares outstanding (FRACISSUED) is used as an explanatory variable. Overall, the cross-sectional regression takes the following form:

$$\Delta \text{ EPS} = f(\text{ABEVT}, \text{ABPRE}, \text{ABPOST}, \text{FRACISSUED}). \quad (1)$$

The dependent variable Δ EPS represents the net revision by financial analysts in earnings per share forecasts attributed to the information in the equity issue announcements. To compute this, the total revision in analysts' forecast as reported in the IBES tape is defined as Δ EPSTOT. This amount potentially also incorporates the mechanical revision (Δ EPSMEC) due to an increase in the number of shares outstanding, which should be subtracted from Δ EPSTOT. Thus, Δ EPS is defined as Δ EPSTOT $-$ Δ EPSMEC. Computational and other details on all the variables used are provided in the next subsection.

4.2 Linear regression form for estimation

The announcement period is defined as the three-day period from day -2 to day 0 .⁵ The overall preannouncement period consists of a 120-day period from day -3 to day -122 . Similarly, the overall postan-

⁵ Since day -1 and day 0 constitute most of the abnormal performance of the three-day announcement period, the cross-sectional analysis of the article was replicated using the two-day abnormal returns. The results are essentially the same as those reported using a three-day period.

nouncement period consists of a 120-day period from day + 1 to day + 120. To control for the possibility that the different subperiods have different effects, the overall 120-day pre- and the postannouncement periods are further divided into four 30-day subperiods. The subperiods are defined as follows:

ABPRE1:	abnormal returns from day -3 to -32,
ABPRE2:	abnormal returns from day -33 to -62,
ABPRE3:	abnormal returns from day -63 to -92,
ABPRE4:	abnormal returns from day -93 to -122,
ABPOST1:	abnormal returns from day +1 to +30,
ABPOST2:	abnormal returns from day +31 to +60,
ABPOST3:	abnormal returns from day +61 to +90,
ABPOST4:	abnormal returns from day +91 to +120.

The revision in earnings per share by financial analysts, represented by Δ EPS, is obtained from the IBES tape as follows. Let

EPS_0 = one-year-ahead EPS forecast in month 0 (i.e., the month immediately prior to the equity issue announcement),

EPS_1 = one-year-ahead EPS forecast in month 1 (i.e., the first month immediately after the equity issue announcement),

$EPS_2, \dots, EPS_6$ = EPS forecasts in month 2, . . . , month 6.

All the results reported in this study use median forecasts across all analysts reporting their forecasts to the IBES. Results using the mean forecasts are almost the same and are not reported. If all the financial analysts revise their forecasts each month, revisions in forecasts around the event can be computed as $EPS_1 - EPS_0$.⁶ An examination of the entire IBES tape indicates that, on average, 20 percent of the analysts revise their forecasts each month. This suggests that it takes several months (about five, on average) for the mean or the median forecasts to reflect the effect of firm-specific information. To ensure that these forecasts reflect most of the effect of equity issue announcements, revisions up to six months (EPS_6) were incorporated in computing Δ EPS.⁷ In particular, Δ EPS is defined as $EPS_6 - EPS_0$.

⁶ The IBES definition of month-end is the third Thursday of the calendar month, which falls between the 15th and the 21st day of the month. This has been incorporated into the research design for matching the announcement dates with the IBES month. In addition, the IBES forecasts published on the third Thursday may not include the analysts' reports made just a few days prior to the publication date for compilation. To partially account for this lag, the analysis was repeated by assuming the second Thursday as the effective IBES month-end. The conclusions are not affected. O'Brien (1988) and Brown et al. (1985) discuss the reasons behind reporting lags.

⁷ A number of conversations with the analysts at Lynch Jones and Ryan, Inc. were held during the course of this project. They agreed that four to six months are adequate for the forecasts to reflect revisions by most of the analysts following a firm.

The issuance of new shares increases the number of shares outstanding, which may cause a downward mechanical revision in EPS forecasts. In a cross-sectional setting, however, this should not bias the correlation between announcement period abnormal returns and revision in EPS forecasts because abnormal returns (which reflect real value changes) do not arise because of mechanical revisions in EPS. Yet the estimation should be more efficient with a more precise measurement of the variables involved. Regressions were estimated both with and without any adjustment for the mechanical effect. The qualitative conclusion with respect to the earnings information hypothesis is not affected.

The adjustment process for the mechanical effect can most easily be explained by an example. Assume that the EPS forecast for a firm before the equity issue announcement is \$1.00 per share. Further, assume that after the equity issue announcement, financial analysts incorporate the mechanical and informational aspects of the announcement and revise the forecast to \$0.65 per share. These numbers are reported on the IBES tape and thus ΔEPSTOT (the total revision in EPS) is \$-0.35 per share. To compute the mechanical effect component, assume that the immediate use of the funds from the equity issue is to reduce debt and correspondingly some savings on interest expense are made.⁸ At the same time, the number of shares outstanding is increased. Given the old forecast of earnings (\$1.00 per share), old number of shares outstanding, the funds raised from the issue of equity, the new number of shares outstanding, and the time of the issue with respect to the end of the fiscal year of the firm, it is straightforward to compute a revised EPS; let us assume it to be \$0.80 per share. Then, the mechanical effect (ΔEPSMEC) is \$-0.20 per share. Thus, the revision in earnings per share forecast by analysts attributed to the information in the equity issue announcement ($\Delta \text{EPS} = \Delta \text{EPSTOT} - \Delta \text{EPSMEC}$) is \$-0.15.⁹

With the above definitions of various explanatory and dependent variables, the linear regression for testing the proposition presented in Section 4.1 is as follows:

⁸ For the purpose of computing the amount of interest expense saved from the funds raised from the new equity issue, the interest rate used was the prime rate charged by the banks to their preferred customers.

⁹ Adjustment in the EPS forecast due to increased number of shares need not be made for the current year forecast if the announcement date is before the end of the fiscal year and the issue date is after the end of the fiscal year. Also, in some cases, firms' annual earnings are announced in less than six months (i.e., before EPS_6 is known) after the equity issue announcement month. The EPS forecasts after the announcement of annual earnings will pertain to the next fiscal year. In those cases, the revisions in earnings forecasts (ΔEPS) are computed by properly matching the one-year-ahead forecasts and the two-year-ahead forecasts reported in the IBES tape.

$$\begin{aligned} \Delta \text{ EPS} = & c_0 + c_1 \text{FRACISSUED} + c_2 \text{ABPRE1} + c_3 \text{ABPRE2} \\ & + c_4 \text{ABPRE3} + c_5 \text{ABPRE4} + c_6 \text{ABEVT} + c_7 \text{ABPOST1} \\ & + c_8 \text{ABPOST2} + c_9 \text{ABPOST3} + c_{10} \text{ABPOST4} + e, \quad (2) \end{aligned}$$

where e is a random error term, and the coefficients $c_0, \dots, c_{10}$ are to be estimated using the available data. The variable $\Delta \text{ EPS}$ is standardized by dividing it by price per share on the day prior to the day EPS_0 was available. The earnings-to-price ratio is dimensionless and is, therefore, comparable across firms. Christie (1987) further explains the need to divide changes in EPS by price per share.¹⁰ As explained in Section 1, the above equation is used to test the earnings information hypothesis. Specifically, the earnings information hypothesis predicts that $\Delta \text{ EPS}$ and ABEVT are positively correlated.

4.3 Cross-sectional results

Means, medians, and standard deviations of the variables used in estimating the cross-sectional regression are presented in Table 3. Statistics on some other variables of interest are also presented. One motivation for separating the primary issues from combination issues is that the cash from secondary issues is not received by the company and, therefore, the signaling implication of primary issues may not be applicable to secondary issues. However, if the sellers of the secondary issue have private access to superior information, then the same type of adverse selection problem occurs for secondary issues.¹¹ For both types of issues, new shares issued as a percentage of shares outstanding is about 12 percent. In the four preannouncement periods, both these groups of firms experience positive abnormal returns.

The average revision in earnings per share, given by $\Delta \text{ EPSTOT}$, for the total sample is negative as predicted. The point estimates of $\Delta \text{ EPSTOT}$ and $\Delta \text{ EPSMEC}$ in Table 3 indicate that about half of the downward revision by analysts could be attributed to the mechanical effect from the increase in the number of shares outstanding. However, it is more appropriate to test the hypothesis using a cross-sectional regression, which allows us to control for other effects.

Since subsequent issues may be less informative than the first issues, the cross-sectional regression is estimated separately for the first issues and for the subsequent issues. Similarly, because combination issues (primary and secondary issues together) may provide information that is different from the primary issues, the combination issues are not included in the initial estimation of the cross-sectional regression.

¹⁰ The use of price as a divisor is not without limitations. To the extent that firms' earnings are expected to grow at different rates, the ratio of earnings to price is not completely comparable across firms.

¹¹ For details of signaling implications of secondary issues, see Scholes (1972) and Hess and Bhagat (1986).

Table 3
Summary statistics for firm-specific variables for firms issuing shares of common stock

Variable name	Primary issues only Mean (SD) [Median] (199-217)	Primary and secondary (combination) issues Mean (SD) [Median] (47-52)	All issues Mean (SD) [Median] (246-269)
No. of observations:			
ABEVT: abnormal return for 3-day event period ¹ (day -2 to day 0) ²	-0.030 (0.042) [-0.033]	-0.023 (0.049) [-0.030]	-0.029 (0.044) [-0.033]
ABPRE1: abnormal return during pre-event period (-3 to -32)	0.042 (0.114) [0.030]	0.040 (0.100) [0.047]	0.042 (0.111) [0.037]
ABPRE2: abnormal return from day -33 to -62	0.054 (0.111) [0.050]	0.079 (0.144) [0.061]	0.059 (0.118) [0.053]
ABPRE3: abnormal return from day -63 to -92	0.044 (0.106) [0.044]	0.053 (0.133) [0.038]	0.046 (0.111) [0.043]
ABPRE4: abnormal return from day -93 to -122	0.019 (0.108) [0.014]	0.048 (0.131) [0.026]	0.024 (0.113) [0.019]
ABPOST1: abnormal return from day +1 to +30	0.015 (0.102) [0.017]	0.012 (0.124) [0.017]	0.015 (0.107) [0.017]
ABPOST2: abnormal return from day +31 to +60	-0.013 (0.100) [-0.021]	-0.011 (0.130) [-0.006]	-0.013 (0.107) [-0.016]
ABPOST3: abnormal return from day +61 to +90	-0.011 (0.114) [-0.017]	-0.003 (0.117) [-0.033]	-0.010 (0.114) [-0.019]
ABPOST4: abnormal return from day +91 to +120	-0.001 (0.102) [0.001]	-0.014 (0.100) [-0.014]	-0.004 (0.101) [-0.002]
Δ EPSTOT: earnings per share revision by analysts subsequent to equity issue announcements divided by price per share	-0.0089 (0.050) [-0.0004]	0.0017 (0.022) [-0.0000]	-0.0069 (0.046) [-0.0003]
Δ EPSMEC: effect of equity issue on computing EPS, divided by price per share	-0.0041(0.004) [0.0032]	-0.0037 (0.003) [-0.0027]	-0.0040 (0.004) [-0.0030]
Δ EPS: Δ EPSTOT - Δ EPSISS; i.e., net adjustment in EPS by analysts divided by price per share	-0.0043 (0.051) [0.0028]	0.0045 (0.022) [0.0030]	-0.0026 (0.047) [0.0028]

Some of these variables are used in crosssectional regressions.

¹ Abnormal returns reported used equally weighted market (CRSP) index.

² Day 0 is defined as the date of the first publication of the news in the *Wall Street Journal Index*.

The results for the cross-sectional regressions are presented in Table 4. The sample used for the results in the first column is for the primary issues, which are also the first equity issues by the firms. Results for all primary issues are presented in the second column. The results are similar to those for the first primary issues alone. Results for the entire sample (primary and combination issues) are presented in the third column. One motivation for using the entire sample is that the announcement period abnormal returns are similar across the two subgroups (Table 3). To the extent that the sample of combination issues is comparable to the sample of primary issues, the larger sample has an advantage over a smaller sample.

Among the estimated coefficients in the cross-sectional equation,

Table 4**Cross-sectional regressions of change in earnings per share forecasts (Δ EPS) around equity issue announcements on a number of explanatory variables**

Dependent variable	First public issues of primary common stock ¹	All primary issues	All issues: primary and combination issues
Explanatory variables ²	Eq. (1) (Δ EPS)	Eq. (2) (Δ EPS)	Eq. (3) (Δ EPS)
Estimated coefficients and t-statistics			
Intercept	-0.001 (-0.1)	-0.009 (-1.3)	-0.005 (-0.9)
FRACISSUED	0.062 (1.1)	0.060 (1.1)	0.009 (0.3)
ABPRE4	-0.007(-0.2)	-0.027 (-0.9)	-0.014 (-0.6)
ABPRE3	-0.005 (-0.1)	-0.003 (-0.1)	0.009 (0.4)
ABPRE2	0.033 (1.0)	0.075 (2.4)**	0.062 (2.4)**
ABPRE1	0.086 (2.9)***	0.125 (4.3)***	0.118(4.6)***
ABEVT	0.323 (4.1)***	0.236 (3.0)***	0.199(3.0)***
ABPOST1	-0.035 (-1.1)	-0.030 (-1.3)	-0.024 (-0.8)
ABPOST2	-0.059 (1.8)*	0.045 (1.6)	0.052 (2.1)**
ABPOST3	0.088 (3.1)***	0.089 (3.2)***	0.075 (3.1)***
ABPOST4	-0.045 (-1.4)	-0.024 (-0.8)	-0.012 (-0.4)
No. of observations	143	197	242
R ² (adjusted):	0.20	0.18	0.15
F-value:	5.00***	6.02***	5.09***

The three columns represent three different selections of samples of firms used.

¹ First issues are those for which the *WSJI* did not contain announcements for at least two years prior to these announcements.

² For variable definitions, see Table 3.

* Significant at the 10% level of significance (two-tailed test).

** Significant at the 5% level of significance (two-tailed test).

*** Significant at the 1% level of significance (two-tailed test).

the coefficient on ABEVT (announcement period abnormal returns) is of most interest since it indicates whether the announcement of equity issues conveys negative information about earnings. The t-statistic of 4.1 (column 1) or 3.0 (columns 2 and 3) for this coefficient is highly significant and the results are, therefore, consistent with the earnings information hypothesis as derived from the models of Myers and Majluf (1984) and Miller and Rock (1985). The magnitude of the coefficient between 0.323 and 0.199 is also reasonable assuming a simple valuation model. Consider, for example, the discount factor for earnings to be 10 percent. If a change in earnings is permanent (perpetual), the coefficient would be 0.10 but the coefficient would be 1.10 if the change in earnings is expected to last only for one year. Thus, the appropriate range is from 0.10 to 1.10.¹²

¹² Lys and Sivaramakrishnan (1988) and Israel et al. (1989) discuss the issue of the magnitude of the coefficient in greater detail. They examine equity-for-debt swaps using a cross-sectional regression similar to the equation estimated here. Other similar studies include Ofer and Siegel (1987) on dividend changes; and Dann, Masulis, and Mayers (1991), Hertz and Jain (1991), and Bartov (1991) on repurchases. The above analysis was also performed by excluding firms that had stock splits within six months of the announcement dates and by excluding firms that had other important announcements (such as dividend changes) within three days of the announcement dates. The conclusions are not affected.

The eight variables represented by ABPRE1,...,ABPRE4, and ABPOST1,...,ABPOST4 are included in the cross-sectional regression to control for other effects on Δ EPS from periods adjacent to the announcement period.¹³ The results suggest that the inclusion of these variables is critical in explaining the cross-sectional variation in Δ EPS. Exclusion of these variables would have led to an omitted variable bias.¹⁴ The coefficient on the variable FRACISSUED is not significant, suggesting that this variable does not convey significant information.

Although not the focus of their study, Healy and Palepu (1990) examine *Value Line* earnings forecasts for a smaller sample of 71 firms and do not find significant results. Apart from a smaller sample size and a different time period of their study, there is at least one important difference between their analysis and the analysis presented here. They do not control for the effect of abnormal returns adjacent to the announcement period. As reported earlier, the equity issuing firms experience very large positive abnormal returns prior to the equity issue announcements. Since these positive abnormal returns are expected to affect the forecasts of earnings positively, the total effect on the revision in the analysts' forecasts is composed of two opposite effects. Without controlling for the preannouncement period abnormal returns, the estimated variance of the coefficients may be upward-biased [Maddala (1977, p. 156)] and we may obtain insignificant results. Consistent with this argument, for the present sample, the simple correlation coefficient between the three-day abnormal returns and the revisions in analysts' forecasts was positive but insignificant.¹⁵

¹³ The simple correlation coefficient between two of the explanatory variables (ABEVT and ABPOST1) is -0.11 . However, the coefficient on the ABEVT variable is almost the same when the equation is estimated without the ABPOST1 variable. The ABPOST1 to ABPOST4 variables have been adjusted by excluding the three-day abnormal returns around the issue date. This is important because, as reported in Mikkelsen and Partch (1988), there is a significant stock price movement also around the issue date: for the current sample, abnormal returns for the three-day period from two days before the issue day to the day of the issue is -0.70 percent, which is significant at the 5 percent level.

¹⁴ The coefficient to the ABPOST3 variable has a surprisingly large t -statistic associated with it. Since, on average, the ABPRE and ABPOST variables are expected to have positive coefficients, one of them could be large and positive by chance alone. The regression diagnostic results presented in Section 4.4 indicate that large t -statistics are not a common occurrence, and thus one large positive coefficient is consistent with randomness and does not necessarily represent a systematic misspecification of the equation.

¹⁵ Similar to the analysis in Jain (1987) for firms included in the S&P 500 index and for the equity issuing firms in Healy and Palepu (1990), I also examined risk changes around the announcements and found a statistically significant increase in the average β . However, the increase in β was not significantly correlated to the announcement period abnormal returns. For brevity, the results are not reported but are available from the author. In addition, when the increase in β is included as an additional explanatory variable in Equation (2), it is also not significant. In various forms of the equation estimated, announcement period abnormal returns are positively associated with changes

4.4 Regression diagnostics

As pointed out by Israel et al. (1989, 1990), it is important to validate the main results using control regressions. Control regressions are similar to Equation (2), estimated for testing the earnings information hypothesis. However, the window chosen to calculate ABEVT is outside the equity issue announcement period. Since there are no equity issue announcements and no other systematic announcements are expected in the control period windows, the control period regression results should not display a significant coefficient on the ABEVT variable. Two different types of control regressions are estimated. First, a cross-sectional regression was estimated using a three-day window defined by day +3 to day +5. The *t*-statistic for the coefficient on the ABEVT variable in such a control regression was only 0.1. This gives credence to the significant results (supporting the earnings information hypothesis) reported earlier. Second, 12 control regressions were estimated using 12 randomly chosen “event” dates for all the firms in the sample. For the 12 observations, the average *t*-statistic for the coefficient on the ABEVT variable was only 0.6 with a standard deviation of 0.7. Thus, the result for the actual event (*t*-statistics of 3.0 and 4.1 as reported in Table 4) is significantly larger than the empirical value under the null hypothesis.¹⁶ In general, this simulation exercise does not affect the earlier conclusion that the results are consistent with the signaling models of Myers and Majluf (1984) and Miller and Rock (1985) as explained in the first section.

Two additional diagnostics were performed. First, the residual errors were plotted against explanatory variables and the plots did not exhibit heteroskedasticity. Second, regressions were run after deleting the two largest and the two smallest values of Δ EPS and ABEVT. The truncation also did not change the results in any appreciable manner.¹⁷

in analysts' forecasts whether the increase in β is used as an additional explanatory variable or not. Thus, the support for the earnings information hypothesis exists even after controlling for the possible effect of the increase in β . Similar to Korajczyk et al. (1991, 1992), I also examine the timing of equity issue announcements and find that equity issues are more frequent after quarterly and annual earnings announcements. In contrast, Loderer and Mauer (1992) report that the timing of dividend declarations and equity issue announcements are not related. In a recent related article, Brous (1992) finds some results similar to those presented here.

¹⁶ The control regressions also included eight other variables (ABPRE1,...,ABPRE4 and ABPOST1,...,ABPOST4) similar to those in the test period. The results again show that it is useful to include relevant variables represented by abnormal returns from the periods adjacent to the announcement period. The average *t*-statistic for these variables for the randomly chosen events was 1.7 with a standard deviation of 1.4. Thus, some of the significant *t*-statistics reported in Table 4 for these variables are consistent with those under the null hypothesis.

¹⁷ Although the main regressions in the present analysis are cross-sectional, autocorrelations of estimated residuals were examined in a manner similar to that by Israel et al. (1989). There was no evidence of significant autocorrelations. Also, see Bernard (1987) for the need to examine these correlations.

5. Conclusion

I have presented an empirical explanation for negative abnormal returns around equity issue announcements. The evidence shows that the revisions by financial analysts subsequent to the equity issue announcements are positively related to the announcement period abnormal returns. This result supports the earnings information hypothesis in the article in that the seasoned equity issues provide signals to the market about earnings as suggested in the models of Myers and Majluf (1984) and Miller and Rock (1985).

References

- Asquith, P., and D. Mullins, 1986, "Equity Issues and Offering Dilution," *Journal of Financial Economics*, 15, 61-90.
- Barclay, M. J., and R. H. Litzenberger, 1988, "Announcement Effects of New Equity Issues and the Use of Intraday Price Data," *Journal of Financial Economics*, 21, 71-99.
- Bartov, E., 1991, "Open-market Stock Repurchases as Signals for Earnings and Risk Changes," *Journal of Accounting and Economics*, 14, 275-294.
- Bernard, V., 1987, "Cross-Sectional Dependence and Problems in Market Based Accounting Research," *Journal of Accounting Research*, 25, 1-48.
- Brous, P., 1992, "Common Stock Offerings and Earnings Expectations: A Test of the Release of Unfavorable Information," working paper, Pennsylvania State University.
- Brown, L., and M. Rozeff, 1978, "The Superiority of Analysts' Forecasts as Measures of Expectations: Evidence from Earnings," *Journal of Finance*, 33, 1-16.
- Brown, S., and J. Warner, 1985, "Using Daily Stock Returns: The Case of Event Studies," *Journal of Financial Economics*, 14, 3-32.
- Brown, P., G. Foster, and E. Noreen, 1985, "Security Analysts Multi-year Earnings Forecasts and the Capital Market," *Studies in Accounting Research No. 21*, American Accounting Association, Sarasota, Fla.
- Christie, A., 1987, "On Cross-sectional Analysis in Accounting Research," *Journal of Accounting and Economics*, 9, 231-258.
- Dann, L., R. Masulis, and D. Mayers, 1991, "Repurchase Tender Offers and Earnings Information," *Journal of Accounting and Economics*, 14, 217-251.
- Fried, D., and D. Givoly, 1982, "Analysts' Forecasts of Earnings: A Better Surrogate for Market Expectations," *Journal of Accounting and Economics*, 4, 115-107.
- Healy, P., and K. Palepu, 1990, "Earnings and Risk Changes Surrounding Primary Stock Offers," *Journal of Accounting Research*, 28, 25-48.
- Hertzel, M., and P. C. Jain, 1991, "Earnings and Risk Changes Around Tender Offer Repurchases," *Journal of Accounting and Economics*, 14, 253-274.
- Hess, A. C., and S. Bhagat, 1986, "Size Effects of Seasoned Stock Issues: Empirical Evidence," *Journal of Business*, 59, 567-584.
- Israel, R., A. R. Ofer, and D. Siegel, 1989, "The Information Content of Equity for Debt Swaps: An Investigation of Analyst Forecasts of Firm Cash Flows," *Journal of Financial Economics*, 25, 349-370.

- Israel, R., A. R. Ofer, and D. Siegel, 1990, "The Use of Changes in Equity Value as a Measure of the Information Content of Announcements of Changes in Financial Policy," *Journal of Business and Economic Statistics*, 8, 209-216.
- Jain, P. C., 1985, "The Effect of Voluntary Sell-off Announcements on Shareholder Wealth," *Journal of Finance*, 40, 209-224.
- Jain, P. C., 1986, "Analyses of the Distribution of Security Market Model Prediction Errors for Daily Returns Data," *Journal of Accounting Research*, 24, 76-96.
- Jain, P. C., 1987, "The Effect on Stock Price of Inclusion in or Exclusion from the S&P 500," *Financial Analysts Journal*, 43, 57-65.
- Korajczyk, R. A., D. J. Lucas, and R. L. McDonald, 1991, "The Effect of Information Releases on the Pricing and Timing of Equity Issues," *Review of Financial Studies*, 4, 685-708.
- Korajczyk, R. A., D.J. Lucas, and R. L. McDonald, 1992, "Equity Issues with Time-Varying Asymmetric Information," *Journal of Financial and Quantitative Analysis*, 27, 397-417.
- Lakonishok, J., and B. Lev, 1987, "Stock Splits and Stock Dividends: Why, Who, and When," *Journal of Finance*, 42, 913-932.
- Lease, R. C., R. W. Masulis, and J. R. Page, 1991, "An Investigation of Market Microstructure Impacts on Event Study Returns," *Journal of Finance*, 46, 1523-1536.
- Loderer, C. F., and D. C. Mauer, 1992, "Corporate Dividends and Seasoned Equity Issues: An Empirical Investigation," *Journal of Finance*, 47, 201-225.
- Lys, T., and K. Sivaramakrishnan, 1988, "Earnings Expectations and Capital Restructuring: The Case Of Equity-for-Debt Swaps," *Journal of Accounting Research*, 26, 273-399.
- Maddala, G. S., 1977, *Econometrics*, McGraw-Hill, New York
- Masulis, R. M., 1988, *The Debt-Equity Choice*, Ballenger, Cambridge, Mass.
- Masulis, R. M., and A. N. Korwar, 1986, "Seasoned Equity Offerings," *Journal of Financial Economics*, 15, 91-118.
- Mikkelson, W. H., and M. M. Partch, 1986, "Valuation Effects of Security Offerings and the Issuance Process," *Journal of Financial Economics*, 15, 31-60.
- Mikkelson, W. H., and M. M. Partch, 1988, "Withdrawn Security Offerings," *Journal of Financial and Quantitative Analysis*, 28, 119-133.
- Miller, M., and K. Rock, 1985, "Dividend Policy Under Asymmetric Information," *Journal of Finance*, 40, 1031-1051.
- Myers, S., and N. Majluf, 1984, "Corporate Investment and Financing Decision When Firms Have Information That Investors Do Not Have," *Journal of Financial Economics*, 13, 187-221.
- O'Brien, P. C., 1988, "Analysts' Forecasts as Earnings Expectations," *Journal of Accounting and Economics*, 10, 53-83.
- Ofer, A. R., and D. R. Siegel, 1987, "Corporate Financial Policy, Information, and Market Expectations: An Empirical Investigation of Dividends," *Journal of Finance*, 42, 888-911.
- Schipper, K., and A. Smith, 1986, "A Comparison of Equity Carve-outs and Seasoned Equity Offerings: Share Price Effects and Corporate Restructuring," *Journal of Financial Economics*, 15, 153-186.
- Scholes, M., 1972, "The Market for Securities: Substitution Versus Price Pressure and the Effects of Information on Share Prices," *Journal of Business*, 45, 179-211.