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Common Stock Offerings and Earnings Expectations: A Test of the Release of Unfavorable Information

PETER ALAN BROUS*

ABSTRACT

This paper examines the revisions of analysts' forecasts of future earnings around announcements of common stock offerings. The forecasts of the current year earnings are, on average, decreased when firms announce plans to issue additional common stock. The size of the decrease is significantly related to announcement period abnormal stock returns. In contrast, forecasts of the five-year growth rate of earnings are, on average, unchanged. We interpret these results as being consistent with the claim that equity offering announcements convey unfavorable information regarding the firm's short-term but not its long-term earnings prospects.

SEVERAL EMPIRICAL STUDIES HAVE examined the effect of announcements of seasoned equity offerings on stock price returns. These studies document, on average, a negative announcement period abnormal stock return associated with the equity offering.¹ This empirical finding is consistent with several models in the literature that assume the existence of asymmetric information between various participants in the capital markets. The implication of these models is that the unfavorable market reaction to equity offerings is the result of the release of unfavorable information regarding future earnings. For example, such an equity offering announcement may inform the market that management believes the assets-in-place and the future investment opportunities are overvalued (Myers and Majluf (1984)), that the expected level of funds generated internally has been overstated (Miller and Rock (1985)), or that there is an increase in the likelihood that free cash flows will be investigated in negative net present value projects (Jensen (1986)).

In this study, we test the hypothesis that the announcement to issue additional shares of common stock conveys to investors unfavorable information regarding the level of future cash earnings. Providing evidence on the post-offering announcement earnings, Healy and Palepu (1990) and Hansen

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¹ For example see Asquith and Mullins (1986), Masulis and Korwar (1986), Mikkelsen and Partch (1986), Barclay and Litzenberger (1988), and Lease, Masulis, and Page (1989).

and Crutchley (1990) examine annual changes in realized earnings following the offering announcement.² Healy and Palepu examine raw annual changes and industry adjusted changes in earnings per share while Hansen and Crutchley examine market-adjusted changes in returns on assets. The results of the two studies are contradictory in that Healy and Palepu report no systematic decrease in earnings following the offering while Hansen and Crutchley document a significant decrease in earnings. Hansen and Crutchley interpret their results as evidence that equity offerings are motivated by earnings downturns and state that “because corporate financing decisions motivated by earnings downturns do not necessarily convey new earnings information to the market, the earnings downturn evidence alone has few implications for models building in various ways on the asymmetric information assumption” (Hansen and Crutchley (1990), footnote 14, page 370).

In this study we examine monthly changes or revisions of analysts' forecasts of future earnings measured around the announcement of an upcoming equity offering. This examination provides direct evidence of the new information regarding future earnings that is conveyed by the offering announcement.³ Evidence of the benefits of using analysts' earnings forecasts rather than time-series models of past earnings to measure earnings expectations is provided by Brown and Rozeff (1978), Fried and Givoly (1982), Brown, Griffin, Hagerman, and Zmijewski (1987), and O'Brien (1988). These studies document that analysts' forecasts are more accurate than univariate time-series models in predicting future earnings and that the unexpected earnings conditioned on analysts' forecasts are positively correlated with abnormal stock returns. Another advantage to the method of using analysts' earnings forecasts is that the period used to measure changes in expectations of earnings is shorter, reducing the variance of the estimates due to unrelated events.

Besides providing a direct test of the information conveyed by equity offering announcements, this study makes three other contributions to the existing literature. First, a superior method is used to measure the expected earnings forecast revision. The existing studies which examine changes in

² Healy and Palepu (1990) document a significant increase in the offering firm's systematic risk; however, Lease, Masulis, and Page (1991), who also find that there is a significant increase in post-offering systematic risk, provide evidence that the increase is driven not by an increase in the covariance between the firm's stock and market returns but by a decrease in the market return variance. For a small sample of firms (ranging from 9 to 70), Healy and Palepu (1990) also examine Value Line's forecasts of quarterly earnings. Their findings suggest that there is no significant decrease in earnings forecasts. Because they examine quarterly revisions, the unfavorable information conveyed by the announcement can not be separated with the favorable information released in the months prior to the announcement.

³ To test whether an event conveys information regarding future earnings, several recent studies have examined analysts' forecasts around the event. See Ofer and Siegel (1987), Pound (1988), Lang and Litzenberger (1989), Healy and Palepu (1988, 1990), and Dann, Masulis, and Mayers (1991).

analysts' earnings forecasts implicitly assume that the expected earnings forecast revision equals zero. An examination of the statistical properties of the monthly earnings forecast revisions available on the IBES database, however, suggests that a random walk model is not the best choice to estimate expected forecast revisions. Therefore, this study uses an alternative model to generate expected forecast revisions, one in which the statistical properties of the monthly earnings forecast revisions are considered.

The second contribution is that we examine analysts' forecasts in the months preceding the offering announcement. The previously mentioned studies document negative stock returns over the two-day announcement period and document positive abnormal stock returns in the period prior to the offering announcement. This stock price run-up prior to the offering announcement is explained by Lucas and McDonald (1990) as an outcome of management's decision to issue equity only after the firm's stock has become overvalued. Adding an examination of analysts' earnings forecasts made prior to the offering announcement will determine if there is a systematic increase in expectations of future earnings, which would be consistent with Lucas and McDonald's model.

The final advancement made by this study is the examination of the effect that the offering announcement has on analysts' forecasts of five-year growth of future earnings. As mentioned by Barclay and Litzenberger (1988), unexpected new equity issues may signal an increase in investment activity and therefore convey some favorable information regarding the level of long-term earnings that will not affect short-term earnings. Our examination of analysts' forecasts of the five-year growth of earnings provides evidence on this issue.

We examine revisions of analysts' earnings forecasts for 350 seasoned common stock offerings announced between January 1976 and December 1985. We find that, on average, the current year earnings forecasts are significantly increased in the months prior to seasoned equity offering announcements and significantly decreased following the announcement. The magnitude of the announcement month downward revisions are positive and significantly related to the two-day announcement period abnormal stock return. We find weak evidence that, on average, the five-year earnings growth forecasts are increased prior to the announcement; and we find no evidence suggesting that analysts lower their long-term forecasts following the announced plans to issue additional common stock. Therefore, the unfavorable information conveyed by firms' stock offering announcements appears to affect forecasts of short-term earnings but not forecasts of the long-term earnings of the firm.⁴

⁴ The lack of strong evidence of a decrease in the forecasts of the five-year growth in earnings may be caused by added noise in these long-term forecasts which lowers the power of the tests or it may reflect the offsetting favorable information of an unexpected increase in the level of future investment activity.

I. Sample Selection Procedures

An initial sample of seasoned issues of common stock for the period 1976 through 1985 was identified from the semiannual editions of the *Investment Dealer's Digest* which contains the Corporate Financing Directory. The announcement date of each offering was identified in the *Wall Street Journal Index* and the weekly editions of the *Investment Dealer's Digest*. The announcement date is defined as either the date of the published announcement of the offering or the reported date of the registration of the offering, whichever falls earlier.

Certain seasoned common stock offerings are excluded from the sample. The offerings of firms whose shares are not traded on the New York or American stock exchange are excluded because the IBES database only includes firms listed on those exchanges. Public utilities (firms listed in Moody's Utilities Manual) are excluded, because the high frequency of common stock offerings by utilities potentially reduces the effect of the information contained in the announcement of an offer. Also excluded are common stock offerings that are made for specific purposes such as mergers, acquisitions, reorganizations, conversions, or exchange offerings. For such offerings the specific purpose itself may convey information about future earnings, thereby confounding the change in expectations attributable to the common stock offering itself. Combination debt/equity offerings are also eliminated. Included in the sample are the remaining primary stock offerings and the combination of primary/secondary stock offerings in which the majority of the shares are on the primary market.

During the period 1976 through 1985, 677 common stock offerings satisfy the sampling criteria. Of the 677 announcements, 431 are made by 350 firms for which IBES reports earnings forecasts. The forecasts of the current year earnings are available from January 1976 to December 1985, while the forecasts of the five-year growth of earnings are available only from December 1981 to December 1985. Given the relatively short series of monthly forecasts that are available for each firm, only the first offering of each firm is included in the final sample. Of the 350 firms for which IBES reports earnings forecasts, 321 offerings have short-term forecasts available and 152 offerings have long-term forecasts available.

Table I shows the number of offerings for which sufficient data is available on the IBES tape yearly and monthly for the entire sample period. Approximately 30% of the offerings for which short-term forecasts are available occur in 1983.⁵ Besides January, which has fewer offerings, the offerings are equally distributed over the remaining eleven months.

⁵ The statistical problems associated with clustered observations, that is an over-statement of the degrees of freedom causing over-stated test statistics, has been discussed in detail in the finance and accounting literature. Although 30% of the observations occur in 1983, no more than 5.2% of the sample observations occur in one month during the year. To empirically determine whether the lack of independent observations is significantly affecting the results, the result section discusses estimates from a subsample of observations in which the dependence is minimized.

Table II provides selected summary statistics for the final sample of offerings. The median number of shares offered is 1,150,000, the median market value of shares offered is \$33.5 million, and the median percentage increase in shares is 11.9%. Even though the percentage increase in shares in

Table I
Annual and Monthly Distributions of Seasonal Common Stock Offerings

The sample includes 312 primary offerings as well as 38 combination primary/secondary offerings from 1976 to 1985 in which the majority of shares are the primary offering. The offers are by firms whose stock is listed on the New York or American Stock Exchanges, and the offer announcement is reported in the *Wall Street Journal Index* or the registration is reported in the *Investment Dealer's Digest*. Excluded from the sample are offerings made by utilities, dual security offerings, and offerings made for a specific purpose, such as mergers, acquisitions, reorganizations, conversions, or security exchanges.

Year	Number of Offers Included in Sample	Month	Number of Offers Included in Sample
1976	19	January	13
1977	3	February	30
1978	16	March	31
1979	16	April	32
1980	56	May	44
1981	40	June	35
1982	36	July	31
1983	107	August	24
1984	26	September	33
1985	31	October	27
		November	21
		December	29
Total	350	Total	350

Table II
Selected Summary Statistics for Seasoned Primary Offerings of Common Stock

The summary statistics are calculated for the sample of 350 offerings announced between 1976 and 1985. The data collected are from Standard and Poor's *Security Owner's Stock Guide*.

Descriptive Measure	Mean	Median	Standard Deviation	Minimum	Maximum
Number of shares offered (000)	1,703	1,150	1,695	185	12,000
Market value of shares offered (000)	\$51,280	\$33,500	\$51,159	\$1,400	\$317,500
Shares offered/shares previously outstanding	0.142	0.119	0.099	0.00003	1.012

this sample is similar to that in the Masulis and Korwar (1986) sample, the median market value of shares offered in their study is only \$19.5 million compared to \$33.5 million reported for this sample.⁶

II. Empirical Methods

A. *Estimating Abnormal Stock Price Performance*

Abnormal stock price performance is measured using the market model. The estimation period for the market model parameters is from 180 days to 61 days prior to and 61 days to 180 days after the common stock offering announcement.⁷ The event period is defined as 60 days before through 60 days after the announcement. The test statistics used are consistent with those reported in the literature.

B. *Estimating Abnormal Earnings Forecast Revisions*

Mean forecasts of the group of analysts are reported monthly for individual firms on the IBES database. The observed monthly earnings forecast revision for firm i during month t is computed as follows:

$$FR_{i,t} = (F_{i,t} - F_{i,t-1})/P^* \quad (1)$$

where $F_{i,t}$ is the mean of analysts' earnings forecasts for firm i at month t , $F_{i,t-1}$ is the mean of analysts' earnings forecasts for firm i at month $t - 1$, and P^* is the market price per share of firm i 's common stock in the month before the announcement of the equity offering.⁸

Previous empirical studies using the IBES forecast data assume the expected forecast revision equals zero and, therefore, the observed forecast

⁶ Two explanations may account for this difference between the average size of the offerings. First, the time periods of the studies differ. The offering announcements in the Masulis and Korwar study occurred between 1963 and 1980, while in this study the announcements occurred between 1976 and 1985. Price appreciation, therefore, could be responsible for the difference in the average size of the offerings. Second, in addition to the criteria in the Masulis and Korwar study, the offerings in this study are included only if appropriate data for the firm appears on the IBES database. Since the IBES database contains data for fewer firms than does the CRSP database, the set of firms included on the IBES tape are, on average, larger than the set of firms on the CRSP tape. This factor may also explain the difference in the average size of the offerings.

⁷ Examining several alternative estimation periods does not affect the results.

⁸ Christie (1987) discusses the theoretical and empirical merits of normalizing by price per share. Pound (1988) provides a simple example to explain the reason behind normalizing by price per share and not by past earnings forecasts. For a firm with a stock price of \$30/share, a forecast revision from \$0.01 to \$0.03 per share is 200% if expressed in terms of the original forecast, and a change from \$ - 0.01 to \$0.03 is 400%. The relative importance of these revisions is better expressed as 0.02/30 and 0.04/30, respectively. For sake of completeness, however, we also conduct tests normalizing by past forecasts of earnings. Since the results are qualitatively the same, the results are not reported here. The long-term forecasts available on IBES are the expected five-year growth of earnings. Since the forecasts are growth rates, we normalize the change in growth rates by the growth rate in the previous month.

revision is an unbiased estimate of the unexpected forecast revision. O'Brien (1988) provides evidence that analysts' forecasts are biased estimates of future earnings. Her evidence suggests the forecasts found on the IBES database are subject to an optimism bias; i.e., on average, analysts tend to overestimate future earnings and systematically lower their forecasts each month up to the fiscal year end. To demonstrate this systematic pattern, Table III provides the average monthly revisions in the mean of analysts' forecasts of the current year earnings per share for each month preceding the fiscal year end for all firms for which IBES reports forecasts.⁹ On average, analysts usually start forecasting relatively strong earnings one year prior to the announcement of actual earnings. These forecasts are then continuously lowered each month until actual earnings are reported. This systematic change in the level of forecasted earnings per share suggests that the expected forecast revision is not zero.¹⁰

There is another statistical property of the earnings forecasts that is relevant in determining the measure of the expected forecast revision. The forecasts examined are mean forecasts of a group of analysts, and since approximately 15–20% of the analysts update their forecast each month, any information released in one month will be reflected in the mean of analysts' earnings forecasts for several subsequent months.¹¹ For example, if favorable information was released during January regarding a firm's earnings prospects and if 20% of the analysts following the firm revised their forecasts on January 31, the forecast revision for January would be positive. If an equal amount of negative information were released in February and if a different 20% of the analysts following the firm updated their forecasts on February 28, the forecast revision for February would be zero. This would be the case even though negative information is released in February because the analysts who revise that month use all information released following their last revision including the favorable information released in January.

Evidence of the serial correlation of monthly forecast revisions is provided in Table IV. This table provides Pearson correlation coefficients of contempo-

⁹ When the change in forecasts is normalized by the price per share of each firm's stock the month preceding the offering announcement, it is helpful to convert the revision back into a forecast change relative to the pre-announcement forecast before interpreting the results. This is done by multiplying the average forecast revision provided in the tables by 15 to reflect the sample's average pre-announcement price/earnings ratio and then by multiplying by 100 to express the result in percentage terms. For example, a price-normalized average revision of -0.004 can be restated as an earnings forecast normalized revision of about -0.06 or a -6.0% revision.

¹⁰ This systematic pattern is only prevalent in six of the ten years examined.

¹¹ Based on the information provided by IBES regarding forecasts of the current year earnings, the mean percentage of analysts that update each month is relatively stable over different years, different months, different forecast horizons, and across firms. Similar information regarding the number of forecasters that update each month is not provided by IBES for the mean forecasts of the five-year growth of earnings. Therefore, it is impossible to determine how often analysts update their long-term forecasts. Implicitly, we are assuming a similar updating period for the long-term forecasts as the short-term forecasts; i.e., 4–6 months.

Table III
Average Monthly Revisions in the Mean of Analysts' Forecasts
of the Current Year Earnings per Share at Different Forecast
Horizons

The sample consists of all firms for which forecasts are available from IBES from 1976 to 1985. Forecast horizon refers to the number of months between the month IBES places on the forecast and the month in which the upcoming annual earnings are announced. The monthly revision in the mean forecast is calculated by measuring the change in forecasts from one month to the next and by dividing by the firm's stock price per share at the beginning of the period.

Forecast Horizon (Months)	Average Monthly Revision in the Mean of Analysts' Forecast	Standard Deviation	Number of Observations	Proportion Negative
11	-0.0024	0.0220	20,772	0.60
10	-0.0027	0.0235	24,245	0.60
9	-0.0033	0.0283	25,271	0.58
8	-0.0026	0.0262	26,114	0.59
7	-0.0036	0.0306	26,862	0.61
6	-0.0040	0.0303	27,584	0.60
5	-0.0032	0.0260	28,197	0.61
4	-0.0040	0.0323	28,797	0.64
3	-0.0039	0.0342	29,454	0.61
2	-0.0027	0.0283	30,153	0.61
1	-0.0022	0.0297	30,988	0.61

Table IV
Pearson Correlation Coefficients for Lagged Monthly
Forecasts of the Current Year's Earnings per Share

The sample consists of 500 randomly chosen firms from 1976 to 1985 and may include some of the firms in the common stock offering sample. The correlation coefficients are generated from pooled observations (*p*-values and number of observations are in parentheses).

	FR_{t-1}	FR_{t-2}	FR_{t-3}	FR_{t-4}	FR_{t-5}
FR_t	0.13286 (0.001, 45557)	0.08697 (0.001, 45165)	0.11607 (0.001, 44728)	0.07794 (0.001, 44293)	0.08327 (0.001, 43859)

aneous forecast revisions and lagged forecast revisions calculated from a sample of 500 randomly selected firms. We find evidence consistent with the presence of positive serial correlation; the correlation coefficients for the five lagged variables range from 0.08 to 0.13 and are all highly significant. This positive serial correlation implies that the previous months' forecast revisions may be useful in estimating the expected forecast revision.

The earnings forecast revision process can be described by the following:

$$FR_{i,t} = k + \varepsilon_{i,t} \quad (2)$$

where $FR_{i,t}$ is the forecast revision for firm i at month t , k is the forecastable component, and $\varepsilon_{i,t}$ is uncorrelated and by definition the unforecastable component. If individual forecasters submit a revision every n months, then the average forecast revision for the set of forecasters j who update at month t for firm i ($IFR_{i,t}^j$) can be written as:

$$IFR_{i,t}^j = nk + \sum_{c=0}^{n-1} \varepsilon_{i,t-c} \quad (3)$$

Since $1/n$ forecasters update their forecasts each month the mean observed forecast revision at month t for firm i ($FR_{i,t}$) is:

$$FR_{i,t} = \frac{1}{n} [IFR_{i,t}^j] = k + \frac{1}{n} \sum_{c=0}^{n-1} \varepsilon_{i,t-c} \quad (4)$$

If $\varepsilon_{i,t}$ are identically distributed with variance σ^2 , as well as independent, the

$$\text{Cov}(FR_{i,t}, FR_{i,t-c}) = (n - c) \sigma^2 \text{ if } n \geq c, 0 \text{ otherwise.} \quad (5)$$

Given that a finite number of lagged terms are correlated, this simple model suggests that $FR_{i,t}$ follows an $n - 1$ order moving average process.¹²

The expected mean forecast revision at month t for firm i ($E(FR_{i,t})$) can be estimated by the following:¹³

$$E[FR_{i,t}] = k + \frac{1}{n} \sum_{c=1}^{n-1} \varepsilon_{i,t-c} \quad (6)$$

¹² On average, 15–20% of the analysts in our sample revise their forecasts each month, a practice which is consistent with the notion that some analysts update quarterly and others semi-annually. For our estimation process, therefore, we initially assume $n = 5$ and are using a fourth-order moving average model. To determine whether this assumption affects the results, a fifth-order and a sixth-order moving average model are also used. Since the results are the same for all three choices of models, we only provide the results found using a fourth-order moving average model.

¹³ The forecastable component (k) is estimated for each firm as the average forecast revision during an estimation period which consists of all months for which forecasts are available excluding months -6 to $+6$. To estimate the forecastable component, we use forecasts following the announcement to maximize sample size; for completeness sake we also conduct tests using forecasts which only occur prior to the announcement month. The results from this subsample of observations are similar to those presented in Tables VI, VIII, and IX, a finding that supports the idea that the pre- and post-estimation period is not biasing our results.

Equation 6 is a moving average model, and if we assume $n = 5$ the coefficients on the lagged error terms are forced to equal a constant of 0.20. To determine whether the results are biased by this process, we conduct tests using a fourth-order Box-Jenkins moving average model. Using a Box-Jenkins model reduces the sample size by approximately 40%; however, the results from this alternative estimation procedure are quantitatively similar to those reported. Forcing the coefficients of the lagged error term to equal 0.20, therefore, is not biasing our results.

The abnormal or unexpected forecast revision at month t for firm i ($AFR_{i,t}$) can be expressed as:

$$AFR_{i,t} = FR_{i,t} - E(FR_{i,t}) = \varepsilon_{i,t}. \quad (7)$$

III. Test Results

A. Stock Price Reaction

The abnormal stock returns for the equity offering sample used in this study are consistent with other studies.¹⁴ The announcements of offerings tend to follow a period of positive abnormal returns; the average two-day announcement period abnormal return is -2.72% (significantly different from zero at the 1% level), and the abnormal returns following the offering announcements are not significantly different from zero.

B. Analysts' Reactions

B.1. Analysts' Forecasts of Current Year Earnings per Share

A graph of the average earnings per share forecasts divided by the market value per share of the firm's common stock the month before the stock offering announcement for the 321 common stock offering announcements is provided in Figure 1. The average forecast appears to increase during the four-month period prior to the announcement month and then appears to decrease following the announcement month.

Average earnings forecast revisions for the equity offering sample are presented in Table V. The average forecast revisions in months -4 to month -1 are positive and are not representative of the normal observed decrease in analysts' forecasts. The average forecast revision in month 0 is negative but not significant at the 10% level. The average forecast revisions in the five months following the announcement month are all negative and are significant at the 5% level. Given that the monthly forecasts exhibit a systematic pattern and that a minority of analysts are updating their forecasts monthly, average monthly forecast revisions do not accurately reflect the information being released during a month.

Table VI presents the average abnormal earnings forecast revisions for the equity offering sample. Abnormal forecast revisions are calculated as the difference between the observed forecast revision and the expected forecast revision estimated from a fourth-order moving average model. The average abnormal forecast revisions prior to the announcement month are positive and are consistent with the abnormal returns associated with stock price behavior prior to the announcement. The average monthly abnormal earnings forecast revisions for the announcement month and for the following two months are -0.0019 , -0.0020 , and -0.0021 and are significantly different

¹⁴ See, for example, Asquith and Mullins (1986), Masulis and Korwar (1986), and Mikkelsen and Partch (1986).

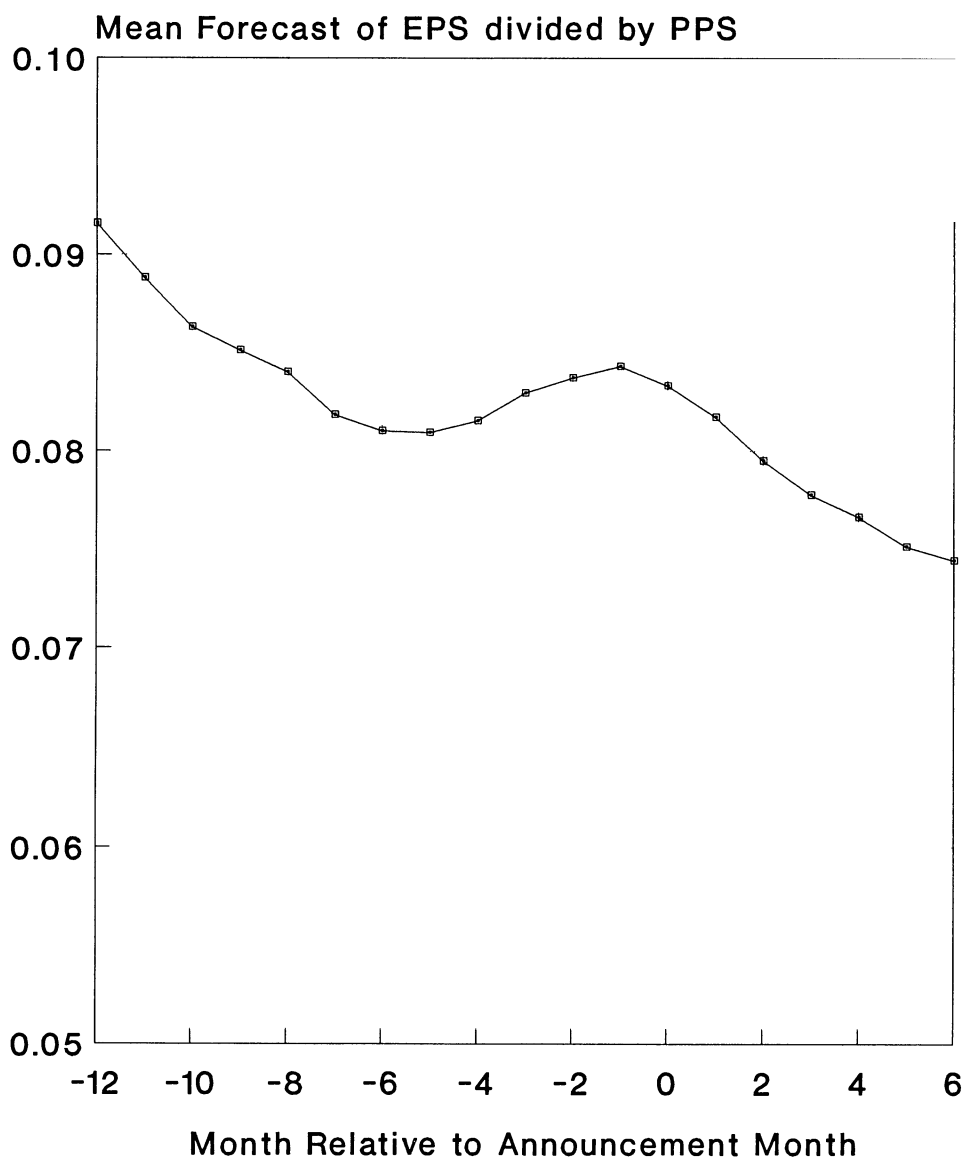


Figure 1. Average forecasts of current year earnings per share. The sample consists of the 321 equity offering announcements for which forecasts of the current year earnings are available from IBES from 1976 to 1985. The forecasts are standardized by the firm's stock price per share the month before the offering announcement.

Table V
Monthly Average Forecast Revisions of the Current Year
Earnings per Share and Proportion of Negative Forecast
Revisions

The sample consists of the 321 equity offering announcements for which forecasts of the current year earnings are available from IBES from 1976 to 1985. The forecast month is from the 15th day in one month to the 15th day in the following month relative to the announcement month, month 0. The forecast revisions are normalized by the price per share listed by IBES the month before the offering. The null hypotheses for each month are (1) the average earnings forecast revision equals zero and (2) the proportion of earnings forecast revisions equals 0.50. We test the second hypothesis using the Wilcoxon signed-ranks test statistic described by Daniel (1978).

Forecast Month	Average Forecast Revision	<i>t</i> -Statistic	Standard Deviation	Proportion Negative	<i>t</i> -Statistic	<i>N</i>
-12	-0.0024***	-3.91	0.0100	0.67***	-2.83	270
-11	-0.0028***	-5.26	0.0087	0.65***	-2.59	275
-10	-0.0025***	-3.02	0.0138	0.62***	-2.87	277
-9	-0.0012	-1.08	0.0182	0.61**	-2.32	280
-8	-0.0011**	-2.22	0.0087	0.61**	-2.05	286
-7	-0.0022***	-3.57	0.0106	0.60**	-2.18	291
-6	-0.0008	-1.62	0.0084	0.54	-1.44	292
-5	-0.0001	-0.30	0.0084	0.55	-1.06	296
-4	0.0006	1.19	0.0080	0.51	-0.14	300
-3	0.0014**	2.42	0.0102	0.47	1.08	305
-2	0.0008*	1.70	0.0084	0.44**	1.99	309
-1	0.0006	1.29	0.0084	0.46	1.57	316
0	-0.0010	-1.36	0.0134	0.53	-0.97	321
+1	-0.0016**	-2.45	0.0117	0.57*	-1.87	316
+2	-0.0022**	-2.18	0.0182	0.61**	-2.53	314
+3	-0.0017**	-2.35	0.0130	0.60***	-2.61	312
+4	-0.0011**	-2.18	0.0087	0.58**	-2.45	305
+5	-0.0015***	-3.16	0.0085	0.60***	-2.72	305
+6	-0.0007	-1.37	0.0084	0.57**	-2.03	299

*Significant at the 0.10 level.

**Significant at the 0.05 level.

***Significant at the 0.01 level.

from zero at the 1%, 1%, and 5% level. The proportion of firms with negative abnormal forecast revisions for these three months are 0.55, 0.58, and 0.54, and all are significantly different from 0.5 at the 5% level.¹⁵

¹⁵ A subsample of observations is created by randomly choosing one observation per month during the sample period. Because this subsample reduces the dependency of observations, test results from this sample are used to determine how significant is the effect of dependent observations on the results presented. The announcement month abnormal forecast revision is -0.0022 for this subsample (significantly different from zero at the 5% level), a finding consistent with the results presented for the full sample; therefore, it implies that the lack of truly independent observations is not driving the results presented in this study.

Table VI
Monthly Average Abnormal Forecast Revisions of the Current
Year Earnings per Share and Proportion of Negative
Abnormal Forecast Revisions

The sample consists of the 316 equity offering announcements for which forecasts of the current year earnings are available from IBES from 1976 to 1985. Five firms were lost from the original 321 observations because we had insufficient data to calculate abnormal forecast revisions. The forecast month is from the 15th day in one month to the 15th day in the following month relative to the announcement month, month 0. The abnormal forecast revisions are calculated using a fourth-order moving average model. The null hypotheses for each month are (1) the average abnormal earnings forecast revision equals zero and (2) the proportion of abnormal earnings forecast revisions equals 0.50. We test the second hypothesis using the Wilcoxon signed-ranks test statistic described by Daniel (1978).

Forecast Month	Average Abnormal Forecast Revision	<i>t</i> -Statistic	Standard Deviation	Proportion Negative	<i>t</i> -Statistic	<i>N</i>
-12	-0.0004	-0.54	0.0121	0.53	-1.27	265
-11	-0.0008	-1.42	0.0043	0.52	-0.98	271
-10	-0.0001	-0.16	0.0104	0.53	-1.28	275
-9	0.0010	1.01	0.0165	0.47	0.81	277
-8	0.0009	1.41	0.0107	0.46*	1.66	280
-7	0.0002	0.36	0.0094	0.46*	1.82	286
-6	0.0010**	2.40	0.0071	0.44**	2.09	291
-5	0.0009*	1.71	0.0090	0.41**	2.15	292
-4	0.0017***	3.67	0.0080	0.43**	2.38	296
-3	0.0022***	3.86	0.0099	0.41**	2.46	300
-2	0.0011**	2.19	0.0088	0.44**	2.06	305
-1	0.0001	0.35	0.0050	0.48	1.47	309
0	-0.0019***	-2.71	0.0125	0.55**	-2.10	316
+1	-0.0020***	-3.31	0.0107	0.58**	-2.31	316
+2	-0.0021**	-2.24	0.0166	0.54**	-2.06	314
+3	-0.0008*	-1.58	0.0089	0.53	-1.34	312
+4	0.0003	0.69	0.0076	0.51	-0.28	305
+5	0.0001	0.18	0.0097	0.49	0.01	305
+6	0.0008	1.09	0.0127	0.48	0.35	299

*Significant at the 0.10 level.

**Significant at the 0.05 level.

***Significant at the 0.01 level.

The negative and significant revisions found in the two months following the announcement month reflect the fact that analysts are not updating their forecasts on a monthly basis. Since analysts, on average, update every fifth month, the information released by the offering announcement will affect forecast revisions for the following four months. The cumulative abnormal forecast revision over months 0 to +3 of -0.0068 (or -10.2%) is our best

estimate of the effect that the offering announcement has on forecasts of the current year earnings. Comparing the 10.2% drop in analysts expectations of the current year earnings with the average two-day announcement period abnormal stock return of -2.72% implies that the unfavorable information conveyed by the announcement is relevant to short-term earnings and not equally relevant to long-term earnings.

B.2. Analysts' Forecasts of the Five-Year Growth of Earnings

A graph of the average forecast of the five-year growth of earnings for the 152 common stock offering announcements for which long-term forecasts are available is provided in Figure 2. The average growth rate forecasts increase from months -4 to $+1$ and then decrease in months $+2$ and $+3$.

Average forecast revisions of analysts' five-year growth of earnings for the 152 equity offerings are presented in Table VII. The earnings forecast revisions in the six months preceding the offering announcement month are generally positive but only significantly different from zero at the 5% level in month -2 . The average forecast revision at the announcement month is 0.0114 and is significantly different from zero at the 10% level. None of the forecast revisions subsequent to the offering announcement are significantly different from zero at the 10% level except for month $+5$.

Average abnormal forecast revisions of analysts' five-year growth of earnings for the same sample are presented in Table VIII. The abnormal earnings forecast revisions in the six months preceding the offering announcement month are generally positive but not significantly different from zero at the 10% level. The average abnormal forecast revision at the announcement month is 0.0058 and is not significantly different from zero at the 10% level. Abnormal forecast revisions subsequent to the offering announcement, on the other hand, are generally negative and are significantly different from zero at the 10% and 5% level in months $+3$ and $+5$. We interpret this evidence as suggesting that analysts do not systematically update their forecasts of the five-year growth of earnings in response to a firm's announced stock offering.¹⁶ This evidence is consistent with a conjecture made earlier that forecasts of long-term earnings are not adjusted downward as were forecasts of short-term earnings.

C. The Association between the Stock Price Reaction and Analysts' Reaction

To determine whether the abnormal forecast revisions subsequent to the offering announcement are significantly related to announcement period

¹⁶ The finding that long-term growth forecasts are not lowered does not create a contradiction with the results regarding short-term earnings. If actual earnings follow a random walk, then long-term growth forecasts would be unaffected by a change in the level of short-term earnings.

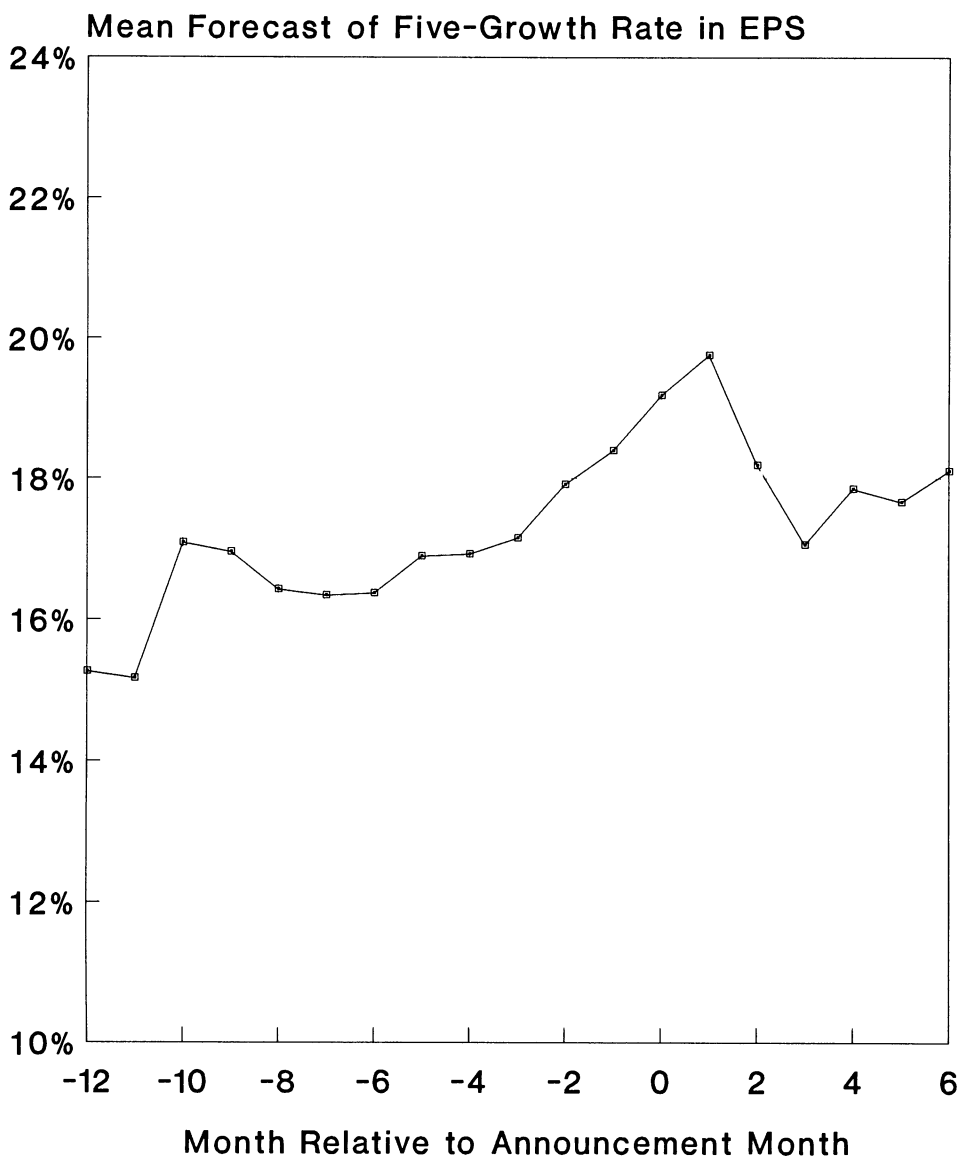


Figure 2. Average forecasts of the five-year growth of earnings per share. The sample consists of the 152 equity offering announcements for which forecasts of the five-year growth are available from IBES from 1981 to 1985. The forecasts are not standardized by the firm's stock price per share.

abnormal stock returns, we conduct cross-sectional tests using the following linear regression:

$$AR_i = b_{i,0} + b_{i,1} AFR_i \quad (8)$$

where AR_i is the two-day announcement period abnormal stock return for

Table VII
Monthly Average Forecast Revisions of the Five-Year Growth
of Earnings per Share and Proportion of Negative Forecast
Revisions

The sample consists of the 152 equity offering announcements for which forecasts of the five-year growth in earnings are available from IBES from 1981 to 1985. The forecast month is from the 15th day in one month to the 15th day in the following month relative to the announcement month, month 0. Forecast revisions are normalized by the previous month's forecast. The null hypotheses for each month are (1) the average earnings forecast revision equals zero and (2) the proportion of earnings forecast revision equals 0.50. We test the second hypothesis using the Wilcoxon signed-ranks test statistic described by Daniel (1978).

Forecast Month	Average Forecast Revision	<i>t</i> -Statistic	Standard Deviation	Proportion Negative	<i>t</i> -Statistic	<i>N</i>
-12	0.0042	0.48	0.0897	0.48	0.49	107
-11	0.0010	0.08	0.1351	0.51	-0.28	117
-10	-0.0111	-1.02	0.1202	0.53	-1.14	123
-9	-0.135*	-1.84	0.0828	0.57*	-1.76	128
-8	0.0070	0.65	0.1253	0.47	0.83	137
-7	-0.0092	-1.03	0.1042	0.52	-0.94	136
-6	0.0069	0.95	0.0865	0.48	0.87	140
-5	0.0112	1.47	0.0919	0.45	1.35	146
-4	0.0074	0.81	0.1112	0.48	0.92	146
-3	-0.0009	-0.18	0.0627	0.51	-0.41	148
-2	0.0159**	2.43	0.0804	0.43*	1.84	151
-1	0.0046	0.96	0.0590	0.46	1.49	151
0	0.0114*	1.77	0.0793	0.45	1.52	152
+1	0.0090	0.96	0.1153	0.46	1.46	153
+2	-0.0007	-0.07	0.1219	0.51	-0.18	153
+3	-0.0116	-1.16	0.1239	0.53	-0.91	153
+4	0.0014	0.17	0.1020	0.49	0.26	149
+5	-0.0116*	-1.68	0.0843	0.54	-1.52	150
+6	-0.0045	-1.28	0.0432	0.51	-0.81	149

*Significant at the 0.10 level.

**Significant at the 0.05 level.

***Significant at the 0.01 level.

firm i , and AFR_i is the announcement month abnormal forecast revision for firm i .¹⁷ The coefficient b_i is a measure of the elasticity of the abnormal stock

¹⁷ Alternative specifications which include a measure of the pre-announcement abnormal stock return and a measure of the relative size of the offering as independent variables, and setting the abnormal forecast revision equal to the cumulative abnormal forecast revision from months 0 to +3 yield similar results for the coefficient on the abnormal earnings forecast revision variable and hence are not reported here.

Table VIII

**Monthly Average Abnormal Forecast Revisions of the
Five-Year Growth of Earnings per Share and Proportion of
Negative Abnormal Forecast Revisions**

The sample consists of the 150 equity offering announcements for which forecasts of the five-year growth in earnings are available from IBES from 1981 to 1985. Two firms were lost from the original 152 observations because we had insufficient data to calculate abnormal forecast revisions. The forecast month is from the 15th day in one month to the 15th day in the following month relative to the announcement month, month 0. The abnormal forecast revisions are calculated using a fourth-order moving average model. The null hypotheses for each month are (1) the average abnormal earnings forecast revision equals zero and (2) the proportion of abnormal earnings forecast revision equals 0.50. We test the second hypothesis using the Wilcoxon signed-ranks test statistic described by Daniel (1978).

Forecast Month	Average Abnormal Forecast Revision	<i>t</i> -Statistic	Standard Deviation	Proportion Negative	<i>t</i> -Statistic	<i>N</i>
-12	0.0046	0.45	0.1032	0.48	0.58	102
-11	0.0062	0.51	0.1263	0.48	0.79	108
-10	-0.0077	-0.49	0.1678	0.50	-0.12	114
-9	-0.0111	-1.23	0.0993	0.51	-0.46	121
-8	0.0126	0.97	0.1470	0.52	-0.84	128
-7	-0.0074	-0.99	0.1303	0.51	-0.67	135
-6	0.0124	1.40	0.1037	0.46	1.02	137
-5	0.0120	1.53	0.0928	0.48	0.83	140
-4	0.0037	0.47	0.0945	0.48	0.79	144
-3	-0.0024	-0.42	0.0690	0.52	-0.77	146
-2	0.0106	1.35	0.0945	0.47	0.81	145
-1	-0.0027	-0.68	0.0481	0.53	-1.06	147
0	0.0058	0.61	0.1165	0.48	0.35	150
+1	0.0019	0.24	0.0970	0.48	0.36	150
+2	-0.0106	-0.99	0.1316	0.53	-1.11	151
+3	-0.0184*	-1.72	0.1310	0.55	-1.37	150
+4	-0.0011	-0.10	0.1334	0.52	-0.96	147
+5	-0.0143**	-1.98	0.0880	0.58*	-1.71	150
+6	-0.0022	-0.43	0.0622	0.52	-1.08	148

*Significant at the 0.10 level.

**Significant at the 0.05 level.

***Significant at the 0.01 level.

market reaction to the abnormal revision in forecasts of earnings and is expected to be positive.¹⁸

Table IX presents the estimated coefficient and other statistics for the cross-sectional regression expressed by Equation (8). Equation (8A) is esti-

¹⁸ This interpretation of the b_1 coefficient is provided by Healy and Palepu (1988).

Table IX
Cross-Sectional Regression Results

The dependent variable is the two-day announcement period abnormal stock return; and the independent variable is the abnormal earnings forecast revision (AFR) calculated using a fourth-order moving average model. In Equation (8A) the abnormal forecast revisions are calculated using forecasts of the current year earnings per share for 321 common stock offerings from 1976 to 1985. In Equation (8B) abnormal forecast revisions are calculated using forecasts of the five-year growth of earnings for 152 common stock offerings from 1981 to 1985.

Estimated Coefficients (<i>t</i> -Statistics in Parentheses)		
Explanatory variables	Equation (8A) (Current Year EPS)	Equation (8B) (Five-Year Growth of Earnings)
Intercept	-0.024 (-8.52)***	-0.023 (-7.64)***
AFR	0.481 (2.18)**	0.003 (1.61)*
Adjusted R^2	0.03	0.01
F -value (significance level)	3.85 (0.06)*	2.36 (0.10)

*Significant at the 0.10 level.

**Significant at the 0.05 level.

***Significant at the 0.01 level.

mated with abnormal forecast revisions that are calculated using the forecasts of the current year earnings. The estimate of the coefficient for the abnormal forecast revision variable is 0.476 and is significantly different from zero at the 5% level. The magnitude of the estimated coefficient implies that the stock market reaction is approximately 50% of the analysts' reaction.

Equation (8B) presents the estimated coefficient and other statistics for a similar cross-sectional regression when the forecasts of the five-year growth of earnings are used to estimate abnormal forecast revisions. The estimate of the coefficient for the abnormal forecast revision variable is 0.003 and is marginally significant. Comparing the elasticity measure estimated by Equation (8A) and (8B), our findings suggest that the stock market reaction is more sensitive to unexpected revisions in short-term earnings than to unexpected revisions in long-term earnings.¹⁹

IV. Concluding Remarks

The goal of this research is to determine whether common stock offering announcements convey information about the level of the firm's future cash flows. An implication of the models by Myers and Majluf (1984), Miller and Rock (1985), and Jensen (1986) is that a common stock offering announce-

¹⁹ The difference between the value of b_1 estimated by Equations (8A) and (8B) is magnified by the difference in the measure of short-term and long-term forecast revisions. The short-term forecasts are of earnings per share, and the change is normalized by the firm's stock price per share; by contrast, the long-term forecasts are of growth rates of earnings per share, and the change is normalized by the previous month's growth forecast.

ment conveys unfavorable information about the level of the firm's future cash flows. We test this implication by examining analysts' forecasts of both the current year earnings per share and the five-year growth of earnings. To estimate the expected forecast revision, our study, unlike previous research, uses a model that is less likely to provide biased estimates.

Our results suggest that forecasts of both the current year earnings per share and of the five-year earnings growth are abnormally raised prior to the offering announcement, a result which is consistent with the previously documented abnormal stock returns prior to the offering announcement and supportive of Lucas and McDonald's (1990) model. Furthermore, we find that the forecasts of the current year earnings are unexpectedly lowered following the announcement month. This decrease in analysts' forecasts is positively (and significantly) associated with the announcement period abnormal stock returns. Forecasts of the five-year growth of earnings, however, remain unchanged when firms announce an upcoming stock offering.

Interpreting the finding of no systematic change in the forecasts of the five-year growth of earnings is ambiguous. The lack of a systematic change in the long-term forecasts is consistent with the net effect of offsetting favorable and unfavorable information that may be released by the announcement regarding long-term earnings. Alternative interpretations are that the tests are significantly weakened by additional noise in the long-term forecasts or that equity offerings do not convey any information regarding long-term earnings.

Our finding of a significant decrease in the analysts' forecasts of short-term earnings following announcements of equity offerings for a large sample of firms, after adjusting for the increase in the number of shares offered and after adjusting for the systematic pattern in the forecast data, is new and interesting. This finding supports the hypothesis that the announcement to issue common stock conveys unfavorable information regarding the level of future earnings.

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