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Tests for Price Effects of New Issues of Seasoned Securities

ALAN C. HESS and PETER A. FROST*

ABSTRACT

Do new issues of seasoned securities cause significant price movements in the neighborhood of the issue day? This paper presents an empirical comparison of three competing hypotheses: the SEC view that a new issue causes a permanent price decline; the underwriter view that there is only a temporary price decline during the distribution period; and the efficient market hypothesis (EMH) that implies the absence of any price effects. Several empirical tests of the competing hypotheses using data on new issues of utility stocks traded on the NYSE reject the SEC and underwriter views in favor of the EMH.

THE UNITED STATES SECURITIES and Exchange Commission (SEC) enforces laws, and issues and enforces regulations designed to protect investors against buying or selling securities at prices other than those determined by the supply and demand of well informed traders. One such law makes it illegal to engage in purchases and sales of a security for the purpose of pegging its price except under specified conditions.[1] A major exception is during distributions of underwritten new issues of securities by investment banking syndicates.[2] In these events, the syndicate is permitted to engage in specified transactions in efforts to keep the market price close to the fixed selling price of the newly issued securities.

In an interpretive release, the SEC presents arguments for and against stabilization, and contrasts the needs of industry with those of investors.[3] The argument against stabilization contends that when the stabilizing bid is discontinued, the market price falls causing a loss to all who bought at the fixed distribution price. This is the SEC view. The argument for stabilization has three parts. First, stabilization is necessary to prevent a temporary price decline resulting from a temporary oversupply of the security during the distribution period. Second, investment bankers have an obligation to provide existing and prospective owners of the security being issued a ready maket in which to sell their shares during the distribution period. Third, stabilization is necessary under the existing system of firm commitments to issuers and fixed price offerings to investors to protect the relatively low capitalized underwriter against market risks. This argument represents the underwriter view.

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The data for this study were assembled by Gary Fournier. The empirical work reflects the technical assistance of Bill Burrows. J. Richard Zecher provided the opportunity and resources for much of the work.

[1] 15 USC 9(a)(b).

[2] 15 USC 10(b) and 17 CFR 240.10b-7.

[3] 17 CFR 241.2446.

Both of these views stand in contrast to the Efficient Market Hypothesis (EMH). A key assumption of the EMH is that investors are continually trying to find and realize opportunities for profits through security trading. Any systematic price effects of new issues, either temporary or permanent, will soon be discovered by investors and used as the basis for profitable trading. The resulting competition among investors to capture a gain or avoid a loss will eliminate the systematic price movement to the extent possible given transaction costs. Since new issues are announced well before the issue day, in an efficient market there will be no price effects of new issues around the issue day.

We have, then, three competing hypotheses which purport to explain the price behavior of new issues of seasoned securities. The SEC view is that the new issue will cause a permanent price decline; the underwriter view is that there will be a temporary price decline; and the EMH is that there will be no price effects beyond those attributable to transaction costs. In this paper we present an empirical comparison of these three views. The basic question investigated is whether new issues of seasoned securities have significant price movements in the neighborhood of the issue day.

Two previous studies have examined closely related issues. First, Scholes [13] compared the price-pressure hypothesis (PPH), akin to the underwriter's view, with the substitution-information hypothesis which is equivalent to the EMH. The PPH says that an increase in the number of shares outstanding causes a temporary decline in share price. The price first falls to induce buyers lower on the demand schedule to purchase the shares. It then rises in postdistribution trading to reward the buyers with a higher realized return. In an empirical examination of secondary distributions, Scholes found no evidence of a postdistribution price rise. He did find a significant price decline which, however, was not associated with the size of the distribution but appeared to be due to adverse information about the firm.

In a second study, Kraus and Stoll [9] compared the EMH, which they called the information hypothesis, to two versions of the PPH. One was based on different investor preferences for securities and the other on liquidity costs. They found that block trades produced price changes which were significantly correlated with the value of the block. Seller initiated trades caused price declines and buyer initiated trades caused price increases. There were small within day price reversals for block sales but not for purchases. However, there were no further price movements after the day of the block trade. They were unable to determine whether the volume effect reflected the PPH or was due to a correlation between block size and the information contained in the trade.

I. Method of Analysis

Our method for distinguishing empirically between the three views of the new issue market is to specify a regression equation which includes the three hypotheses under specific restrictions, to estimate the equations under each set of restrictions, and then to compare the restrictions using F ratios on the residual sums of squares. The regression equation has as its dependent variable the daily percentage change in the stock price of a seasoned security in which there is a new issue.

A. Supply-Demand Analysis

The price of a security is determined by equality between its supply and demand. Figure 1 is a graphical depiction of supply-demand equilibrium under each of the three views of the price effects of new issues. The downward sloping line labeled D_i and the horizontal line D_p are alternative long run demand schedules for a security. Their slopes are determined by the degree of substitution between the security and other assets. If there are many assets with the same risk so that the value of a particular security is small relative to the value of all assets with that risk, then the demand schedule for each security within the risk class is horizontal as is D_p where p stands for perfect substitution. If, on the other hand, each security is viewed as a unique asset without close substitutes, then its demand schedule is downward sloping as is D_i, where i stands for imperfect substitutes.

The more steeply sloped demand schedule D_t is the temporary, short-run schedule in effect while investors alter their portfolios in response to an unexpected event. It is more steeply sloped due both to information costs which may impede the flow of news to investors and to transaction costs which increase with the rate of transacting. This demand curve reflects the second law of demand and represents optimal portfolio adjustments in the face of these costs.[4] As portfolio adjustments are completed, D_t shifts until it intersects the portfolio demand schedule, either D_p or D_i, at the equilibrium price.

The vertical line labeled S_0 represents the quantity of the security in existence prior to the new issue. The pre-announcement equilibrium price is P_0. At this price trading occurs as investors change either the size or allocation of their portfolios. The demand for the security by some investors will be rising just as the demand by other investors is falling, even though the sum of their demands adds up to S_0. While the volume of trading is not shown explicitly in Figure 1, D_t shows the price effects of unanticipated changes in trading volume.

We now use the supply-demand model to derive the price effects of new issues under the three hypotheses.

According to the SEC view, a new issue causes a permanent price decline from P_0 to P_1 which occurs either on the issue day or when the stabilizing bid is removed. This is consistent with a market in which securities have only imperfect substitutes so that D_i is the long run demand schedule, but in which there are no significant portfoio adjustment costs so that D_t is not effective. Before the issue, supply is S_0 with price P_0. After the issue, supply is S_1 with price P_1.

While this explanation seems a straightforward application of supply and demand analysis, it is not consistent with the EMH. Under the EMH, the pre-issue price is the present value of the postdistribution price. Assume for conven-

[4] The second law of demand states that the price elasticity of demand is greater in the long run than in the short run. This is because more people learn about the price change the longer it persists, and the cost of portfolio revision is less if done with less haste and more economical side adjustments. See Alchian and Allen [1] for elaboration.

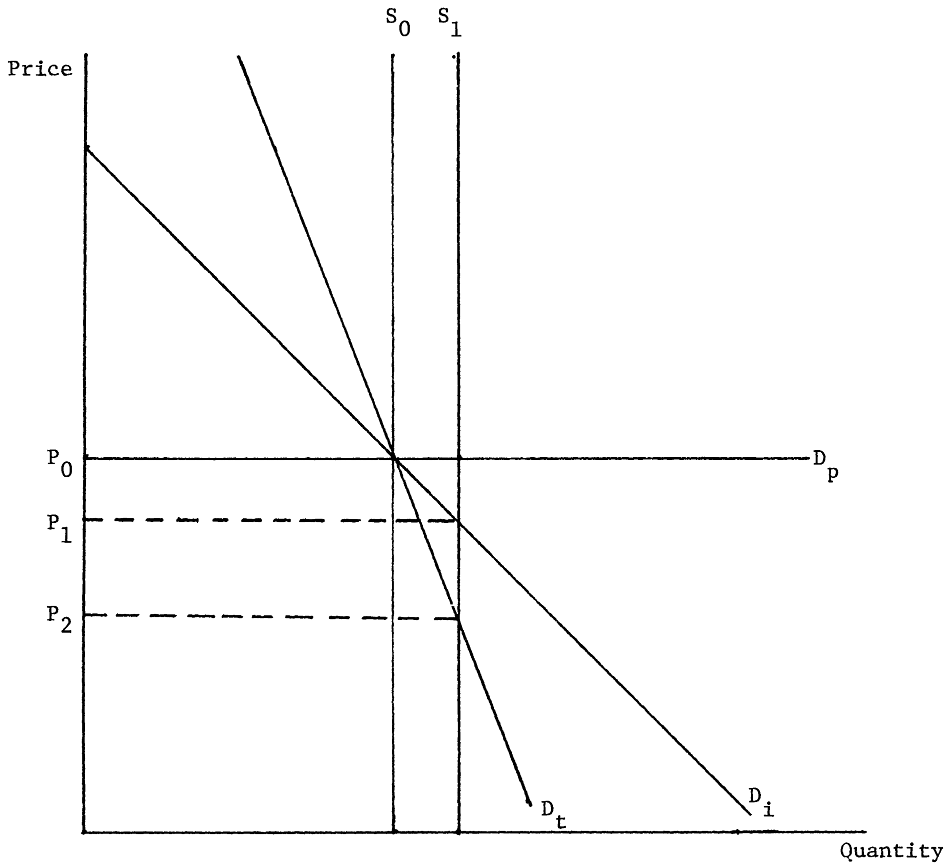

Figure 1. Three views of the new issue market.

ience that the discount rate is zero and there is information about the value of the firm in the announcement of the new issue which causes the postissue equilibrium price to be P_1. At the time the new issue is announced, the demand schedule shifts (not drawn) until it intersects S_0 at a price of P_1. The price effect occurs on the annnouncement day. On the issue day, the demand schedule shifts so that the price remains unchanged at P_1 as the supply increases.

According to the underwriter view, a new issue causes a temporary price decline during the distribution period. In terms of Figure 1, the price falls from P_0 to P_2 along D_t and then rises back to P_0 as D_t shifts to intersect D_p at S_1.

This account contains a potential flaw. The second law of demand as represented by D_t is in effect only when the supply change is unexpected. This is not the case with new issues which are well promoted by the underwriters long before the issue day so that investors have ample time to make any offsetting portfolio adjustments in an economical way prior to the issue day. As a result, the demand schedule in effect on the issue day is D_p rather than D_t, and there are no issue day price effects. This is what the EMH predicts.

B. The Regression Equation

An expanded version of the market model is used as a basis for distinguishing empirically between the three views of the price effects of new issues.[5] The market model posits a linear relationship between the rate of return on security j for an interval of time t, and the rate of return on a well-diversified portfolio m for the same time period. It may be written as

$$r_{jt} = \lambda + \beta r_{mt} + e_{jt} \tag{1}$$

Note that neither λ nor β have a j subscript in Equation (1). This is because our sample is restricted to utility stocks which are assumed to be homogenous with respect to systematic risk.

According to both the underwriter and SEC views, the size of a new issue will affect the rates of return. According to the underwriter view, realized rates of returns on securities in which there are new issues have a time dependent relationship with the issue size. As shown in Figure 1, the new issue initially causes a price decline followed by an offsetting price rise. The size of the price change increases with the size of the issue relative to normal trading volume. Adding a quantity variable with a time dependent coefficient to the market model yields an expanded market model

$$r_{jt} = \lambda + \beta r_{mt} + \gamma_t q_j + e_{jt} \tag{2}$$

Here, q_j is the size of the jth new issue relative to normal trading volume in that security. The underwriter view does not specify the length of time over which the price movement occurs; rather, it must be determined empirically.

According to the SEC view, the new issue causes a permanent price decline starting on the issue day. It is empirically indistinguishable from the price fall under the underwriter view. However, it differs from the underwriter view in denying the subsequent price rise.

The EMH says that there is no effect of issue size on rates of return in the neighborhood of the issue day.

These three hypotheses can be empirically compared through estimates of γ_t, the coefficient of issue size.

In addition to the market return, r_m, and the issue size, q_j, firm and industry specific information can affect returns. This can occur in two ways. First, a new issue may convey information; for example, about the existence of profitable investment opportunities. Adding an information content variable x_j to Equation (1), the model is

$$r_{jt} = \lambda + \beta r_{mt} + \gamma_t q_j + \phi_t x_j + e_{jt} \tag{3}$$

Since x_j cannot be measured, the actual regression becomes

$$r_{jt} = \alpha_t + \beta r_{mt} + \gamma_t q_j + \epsilon_{jt} \tag{4}$$

[5] The market model is described in Chapter 3 of Fama [5] and was used by Scholes [13] and Kraus and Stoll [9].

where

$$\alpha_t = \lambda + \phi_t \bar{x} = \lambda + \mu_t$$

and

$$\epsilon_{jt} = \phi_t(x_j - \bar{x}) + e_{jt}$$

We assume that x_j is random and independent of q_j and x_i, and e_{jt} is independent of e_{it}. The intercept may be time dependent under the SEC view but is constant around the issue day under the EMH and underwriter views since such information effect occurs on the announcement day, not the issue day.

Second, if during the distribution period a favorable piece of information either about the firm or its industry is revealed, the demand for shares in the issuing firm will increase. Because the new issue is sold at a fixed price, the favorable information causes a demand for shares at the issue price greater than the amount being issued. The new issue is then said to be oversold. In secondary trading after the distribution, the share price will rise more than can be accounted for by r_m and q_j. This information will be impounded in the intercept. To remove it, a binary variable o_j is added to record whether or not the new issue was oversold. Under the underwriter view, the coefficient of this variable may be time dependent. Under the SEC and EMH views any effect should be registered on the issue day. The expanded market model now reads

$$r_{jt} = \alpha_t + \beta r_{mt} + \gamma_t q_j + \delta_t o_j + \epsilon_{jt} \tag{5}$$

Sometimes the investment banking syndicate purchases shares, which it is simultaneously distributing, during the distribution period to influence the time path of the market price. When this occurs, the dependent variable may not bear the same relationship to the regressors as it would if the stabilizing purchases had not been made. To allow for this potential effect, the sample is divided into subsets depending on whether stabilizing purchases had been made and separate regressions are run for the two subsets.

C. The Data

Two theoretical considerations guided the choice of data to be used in estimating Equation (5). First, both cross-section and time series data are required to capture the effect of issue size on share price under the PPH. Time series data are required to permit the coefficients α_t, γ_t, and δ_t to vary from day-to-day in the neighborhood of the issue day. Cross-section data are required to have variation in issue size across firms. Second, it is necessary to have a sample of stocks in the same risk class so the true value of the coefficient of r_m is the same for each observation.

These two considerations led to collecting data on new issues of stock by utilities which are listed on the New York Stock Exchange in the period 1 January 1975 to 1 March 1977. During this period there were 152 new issues of common stock of utilities. For each issue, closing share price was collected for each trading day from 30 days before the new issue to 14 days after it. This yields 44 daily rates of return for each of the 152 issues, or a total of 6688 observations. For estimation the sample is divided into stabilized and nonstabilized issues. There are 3784 observations in the first group and 2904 in the second.

Because the last trade on any day of a particular stock is not synchronous with that of other shocks in the market index, the information set on which r_{jt} is based can differ from the information set determining r_{mt}. To compensate for this, both the current and lagged values of r_{mt} are included as regressors. The sum of these three coefficients is approximately equal to the value which would result if the last trades on each day in all stocks occurred at the same time.[6]

r_{jt} is defined as the percentage change in the closing price of security j from Day $t-1$ to Day t. r_{mt} is defined as the percentage change in the $S+P$ composite stock price index from Day $t-1$ to Day t. q_j is the natural logarithm of the ratio of the size of the new issue to the average weekly amount of security j traded. o_j is a binary variable equal to one if the new issue is oversold and zero if it is not oversold.

To permit variation in α_t, γ_t, and δ_t, a set of binary variables is included in the regression equation to register potential daily changes in the demand schedule. The set is constructed according to the formula

$$b_k = 1 \text{ if } k = t \text{ for } t = 0, 1, \cdots, 6 \qquad (6)$$
$$0 \text{ otherwise.}$$

Here, the issue day corresponds to Day $t = 0$ and days after the issue day have positive time indexes. Adding these binary variables to the expanded market model gives the equation estimated under either the underwriter or SEC views.[7]

$$r_{jt} = \lambda + \sum_{k=0}^{6} \mu_k b_k + \beta_0 r_{mt} + \beta_{-1} r_{mt-1} + \beta_1 r_{mt+1} + \sum_{k=0}^{6} \gamma_k b_k q_j + \sum_{k=0}^{6} \delta_k b_k oj + e_{jt} \qquad (7)$$

Note that by setting $b_k = 0$ for all k, Equation (7) reduces to the EMH.

II. Empirical Results

Empirical results are reported in the following sequence. First, the hypothesis that the coefficients for Equation (7) are the same for both stabilized and unstabilized issues is tested to determine whether the two subsamples can be combined to increase the power of the tests. Since we do not reject the hypothesis of equality, the rest of the tests are run over the combined sample of all new issues. Second, the hypothesis that return is independent of whether the new issue is oversubscribed is tested and not rejected. Third, the oversold variable is dropped and the hypothesis that return is independent of the quantity of new issues sold is tested and not rejected. Finally, the quantity variables are dropped and the hypothesis that the daily intercepts are all equal is tested and rejected.

Before presenting the results it is important to emphasize that the error terms

[6] This procedure is taken from Ibbotson [6] and from Scholes and Williams [14].

[7] To increase the probability of detecting time dependent parameters, we also estimated an equation allowing for parameter changes on every day from 29 days before the issue day to 14 days after the issue day.

from the regressions are not normally distributed. A typical value for the studentized range is 13.9, which indicates that the distribution has fat tails relative to the normal distribution. This is consistent with the fact that daily common stock returns are leptokurtic. Mandelbrot [10] and Fama [3] suggest that common stock returns are distributed according to the stable Paretian distribution with a characteristic exponent less than 2.0. In contrast, Press [11], Blattberg and Gonedes [2], and Westerfield [16] contend that common stock returns can be described as a subordinated process, which implies that the regression residuals are heteroscedastic. In either case, ordinary least squares estimates of the standard errors of the regression coefficients are biased. Fama and Babiak [4] show that the bias is downward if the error terms are drawn from a stable Paretian distribution. Consequently, the probability of rejecting the null hypothesis is greater than the implied significance level. It means that in this study there is a bias toward rejecting the EMH. If common stock returns follow a subordinated process, the direction of the bias is indeterminant because it depends upon the covariances between the variance of the error term for Observation i and each of the independent variables.

The results are summarized in Table I. To test for effects of stabilization requires estimates of three versions of Equation (7). First, under the null hypothesis of no effect of stabilization an equation denoted (7c) is estimated using the entire sample of data combining stabilized and unstabilized issues. Under the alternative hypothesis, separate regressions are estimated for stabilized issues (7a) and unstabilized issues (7b). The F ratio is calculated using the residual sum of squares (RSS) from these three regressions along with their degrees of freedom. Since the null hypothesis is not rejected, the entire sample is used for the remaining tests.[7]

Table I

Summary of Empirical Estimates of Equation (7) Under Various Hypotheses

Null Hypothesis	Estimation Procedure	Calculated F Statistic	Critical value of F at 5%	Conclusion
Stabilization has no price effect	Estimate (7) for (a) stabilized, (b) nonstabilized, and (c) stabilized and nonstabilized issues combined	.97	1.51	Do not reject null hypothesis
Overselling has no price effect	Estimate (7c) with and (7d) without oversold variables	.50	2.01	Do not reject null hypothesis
Issue size has no price effect	Estimate (7d) with and (7e) without quantity variables	.51	2.01	Do not reject null hypothesis
No distribution period price effects	Estimate (7e) with and (7f) without time dependent intercept	3.38	2.64[a]	Reject null hypothesis

[a] Critical value of F at 1%.

We next examine whether the price behavior of oversold issues differs from the rest of the sample. One new regression is estimated to perform this test. It is Equation (7d) which omits the oversold variable. The RSS's from (7d) and (7c) are not significantly different. Thus we conclude that whether or not a new issue is oversold has no effect on price in the neighborhood of the issue day.

Having completed the preliminary regressions, we now come to the main issue. The critical distinction between the EMH and the underwriter and SEC views is that the EMH says there are no quantity-related price efforts of new issues while the other two views state there are such price effects. To test the quantity-related price effects, a regression (7e) is estimated for the combined sample but omitting both the oversold and quantity variables. The RSS from this equation is compared to that for the just previously estimated equation which had dropped only the oversold variables. The F value for this test is insignificant. The estimated value of γ_0, the issue day coefficient of issue size, is negative, but its t-value is only $-.21$ and the implied mean change in rate of return is $-.375$, which is only one half of one tick and less than the smallest transaction cost.[8] There is no evidence of an inverse relationship between the return on a security immediately following a new issue and the size of the new issue. This result casts serious doubt on the validity of both the underwriter and SEC views of the new issue market.

Since it is possible that there are information effects associated with the new issue which are not correlated with the size of the new issue, a regression (7f) is run without the quantity variables to obtain a more powerful test of whether the intercept term varies from day to day. Comparing the RSS from (7f) to that from (7e) yields a significant value of F at the 1 percent level. There is evidence of a statistically significant postissue effect, but this effect is not correlated with the size of the new issue.

Figure 2 shows the cumulative value of the μ's, the intercept changes, from Day 0 to Day 6. There are positive excess returns on Days 0 through 3 and then negative excess returns on Days 4 through 6. Over the 7 day period, the net excess return is a trivial $-.10\%$. Since investment bankers seldom stabilize stocks for more than 3 days, one possible explanation of this pattern is that stabilized stock prices are held abnormally high during the period of stabilization (Days 0 through 3) and then return to their proper value by Day 6. If this explanation is correct, one should observe the pattern only for stabilized new issues. As shown in Figure 2, the pattern exists for both stabilized and unstabilized new issues. We can not reject the null hypothesis that α_t is the same for stabilized and unstabilized new issues.

Because of the similarity in behavior for both stabilized and unstabilized new issues, we must reject the explanation that the observed pattern is due to stabilization. We do not have an explanation for the postissue behavior of excess returns. However, this is not very important because the postissue excess returns are economically insignificant. The cumulative excess return from Day 0 through Day 3 is only .63% which is approximately 1 tick (.66%) and just barely greater than the minimum transaction cost (.53%). The cumulative excess return from

[8] The average new issue price for the sample is $18.85. This means that a movement of one tick ($.125) is 0.66%. Most traders will face transaction costs of approximately 2%. However, the very largest traders can trade at $.10 per share or .53%.

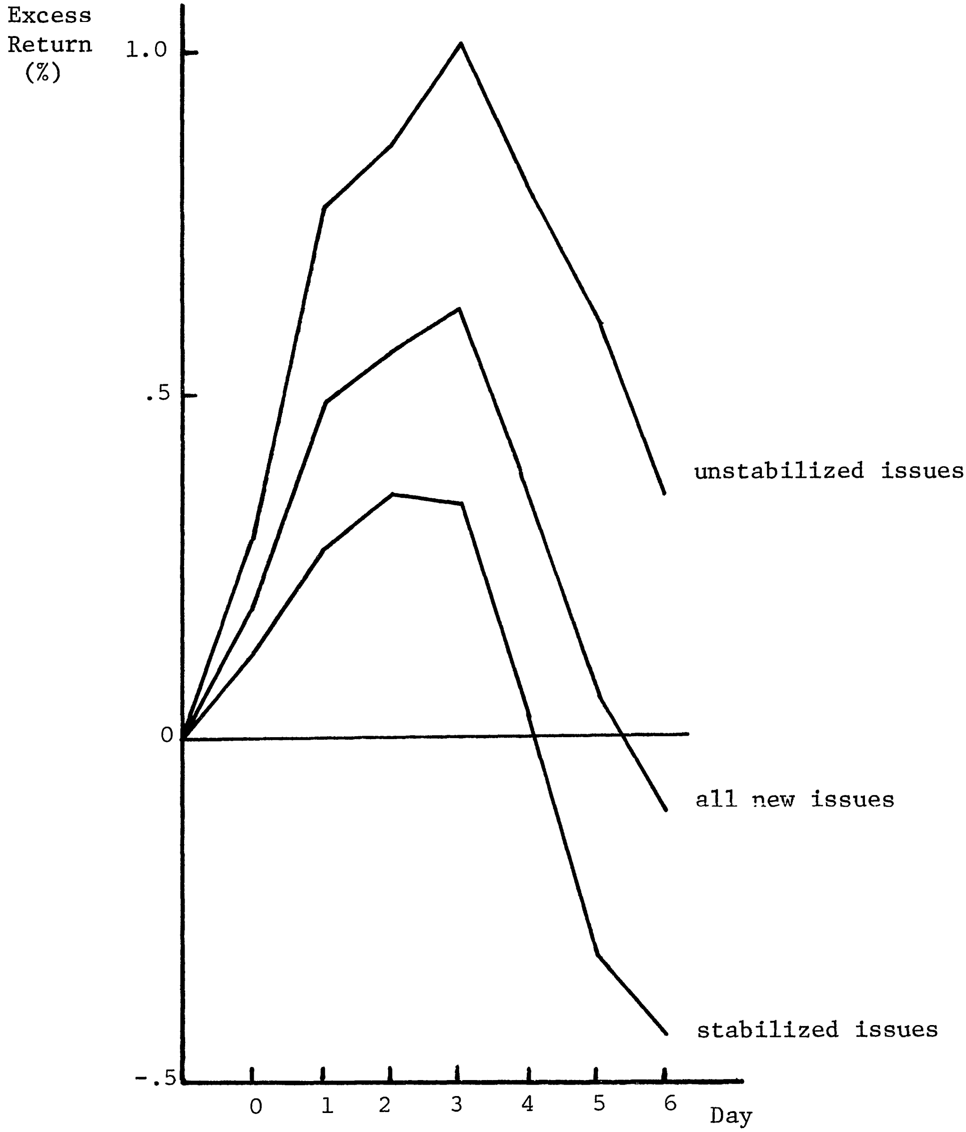

Figure 2. Cumulative value of μ.

Day 3 through Day 6 is $-.73\%$. Given the economic insignificance of these excess returns, we conclude that there is no evidence from these tests that would lead to the rejection of the EMH. However, there is the possibility that there are pre-issue effects. Consequently, we next report estimates allowing intercept and slope changes on every day in the sample.

To be as generous as possible to the SEC and underwriter views given our sample of data, we allow the intercept and coefficient of issue size to change daily from 29 trading days before the new issue to 14 trading days after it. This is accomplished by estimating various versions of equation

$$r_{jt} = \sum_{k=-29}^{14} \alpha_k b_k + \beta_0 r_{m,t} + \beta_{-1} r_{m,t-1} + \beta_1 r_{m,t+1} + \sum_{k=-29}^{14} \gamma_k b_k q_j + \sum_{k=0}^{6} \delta_k b_k o_j + e_{jt} \quad (8)$$

As before, b_k is a binary variable which takes the value 1 if the dependent variable is observed on Day k relative to the issue day and 0 otherwise. Various tests of hypotheses are constructed from estimates of (8) under restrictions on the coefficients. These tests are reported in Table II which follows the same form as Table I.

The results allowing maximum flexibility in daily parameter changes are the same as above. In summary, stabilization and issue size have no effect on share price from 29 trading days before the issue day to 14 trading days after the issue day.

There is still the possibility that there are information effects which are uncorrelated with the size of the new issue. To test for this, we test the hypothesis that all of the daily intercepts are constant. The F value is significant at the 1% level. Consequently, we can reject the hypothesis that the daily intercepts are constant. This result is not surprising given the similar results from the previous tests. Since there is reason to believe that the intercepts are not constant during Days 0 to 6, it is interesting to test for whether they are constant outside of Days 0 to 6. The resulting F test is barely significant at the 5% level.

$$F_{36,6641} = 1.47 > F_{5\%,36,\infty} = 1.41$$

Because of the lack of normality of the error terms, the significance of this result is questionable.

Table II

Summary of Empirical Estimates of Equation (8) Under Various Hypotheses

Null Hypothesis	Estimation Procedure	Calculated F Statistic	Critical Value of F at 5%	Conclusion
Stabilization has no price effect	Estimate (8) for (a) stabilized, (b) nonstabilized, and (c) stabilized and nonstabilized issues combined	1.06	1.24	Do not reject null hypothesis
Overselling has no price effect	Estimate (8c) with and (8d) without oversold variables	.50	2.01	Do not reject null hypothesis
Issue size has no price effect	Estimate (8d) with and (8e) without quantity variables	1.05	1.37	Do no reject null hypothesis
No distribution period price effects	Estimate (8e) with and (8f) without time dependent intercept	1.77	1.56[a]	Reject null hypothesis

[a] Critical value of F at 1%.

One possible check for whether the apparent significance could be due to biased standard error estimates is to compare the estimates for the stabilized and unstabilized subsamples. If there really is a significant relationship, the pattern should be observable in both subsamples. This does not appear to be the case since the rank correlation between the intercept estimates for the two subsamples is .007 for all days other than Days 0 to 6. The rank correlation for pre-issue days is .087. The only interval where the subperiod intercept estimates are clearly correlated is Days −2 through 6.[9]

Figure 3 shows the cumulative values of the estimated intercepts. Two things must be kept in mind when analyzing this figure. First, there is some question as to whether the pre-issue intercept estimates are significantly different. Second, from Equation (4) it is clear that the cumulative intercept is

$$\sum_{t=-29}^{-29+\tau} \alpha_t = \tau\lambda + \sum_{t=-29}^{-29+\tau} \mu_t$$

If λ is not equal to zero, the cumulative intercept captures more than the cumulative information effect. Consequently, the cumulative intercept cannot be interpreted as an abnormal performance index. Tests for differences in μ's are made by comparing the differences between mean values of the estimated intercepts for different intervals.

There are two important questions to ask about the cumulative intercept estimates shown in Figure 3. First, is there any evidence of a significant postissue movement in the cumulative intercepts? Second, is there any evidence of negative excess returns prior to the new issue day?

Table III shows the difference between the mean intercept for Days 0 to τ and the mean intercept for all other days. Significant differences occur for τ equal to 1, 2, and 3. This reflects the postive excess returns earned on Days 0 through 3. By Day 6 the excess returns are completely gone. Since the movement of the cumulative intercept estimates for Days 0 through 6 is identical to that observed in the previous tests, there is no point in pursuing this behavior. Probably, the most important finding is that there is no significant difference between the postissue mean return (Days 0 to 14) and the pre-issue mean return (Days −29 to −1). While there is a significant increase in the cumulative intercept immediately following the new issue, there is no evidence of a permanent new issue effect.

One corollary of the preceding result is that the decrease in the cumulative intercept from Day −29 to −1 is not significant. However, there does appear to be a significant difference between the mean intercept value for Days −24 through −16 and the mean value for all other days. The difference is −.1502 with a t-value of −3.45.[10] This result is difficult to interpret. Since there is no ex ante reason to

[9] When the intercept estimates for all 44 days are ranked, the average squared difference between the rank of the stabilized and the rank of the unstabilized subsamples is 252.5 and the rank correlation coefficient is .217. The average squared difference for Days 0 through 6 is 40.7 and for Days −2 through 6 is 38.8, which indicates that the subsamble intercept estimates are highly correlated during these intervals. The only other interval of 7 days or more to have an average squared difference of less than 100 is Days −29 to −23 with an average of 98.4.

[10] There is also some evidence of correlation between intercept estimates for the two subsamples of stabilized and unstabilized securities. When all 44 intercept estimates are ranked, the average

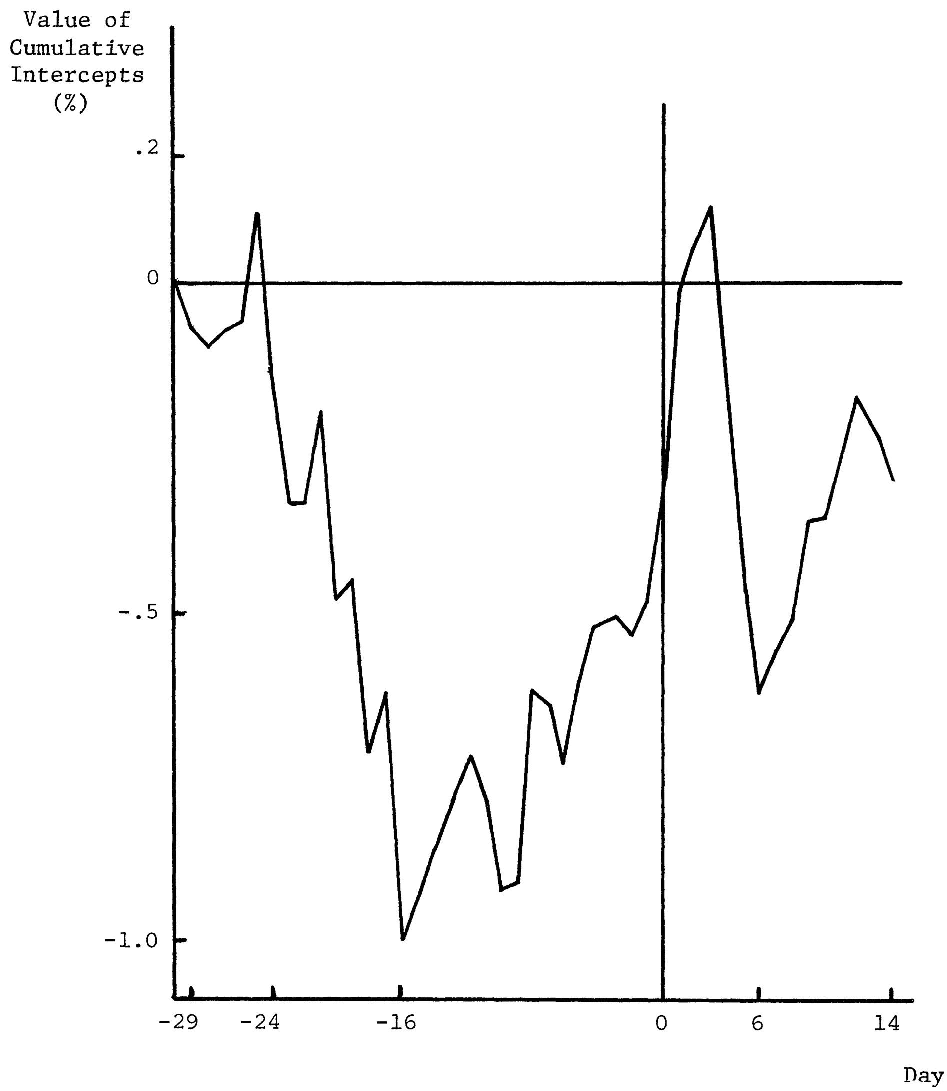

Figure 3. Cumulative intercepts.

separate the days in this manner, there is a substantial danger of selection bias. One can almost always find an apparently significant relationship in a subsample when no underlying relationship exists. The probability of Type I error is large if one uses the data to determine the subsample in which to test. If the drop in the cumulative intercept is significant, it might reflect the effect of investment bankers soliciting orders for the new securities. Demand for outstanding securities could be expected to fall slightly if large investors plan on purchasing the new

squared difference in rank for Days −24 through −16 is 227.7, which is slightly smaller than the average squared difference for all days of 252.5. When only Days −24 through −16 are ranked, the rank correlation is .70, which is significant at the 5 percent level.

Table III

Difference in the Means of the Estimated Intercepts for Days 0 to τ and All Other Days

τ	Difference in Means	t-value
0	.2054	1.74
1	.2563	3.04
2	.2052	2.95
3	.1745	2.86
6	−.0143	−.30
14	.0296	.80

issue for their portfolios. In an efficient market, the stock price could not fall by more than twice the transaction cost of buying or selling securities. The difference in the mean intercept values implies a negative excess return of −1.35% which is just slightly over 2 ticks and is 2.6 times the minimum transaction cost. Since we picked the largest observed difference in mean returns, the negative excess return is not economically significant.[11] When transaction costs are considered, the evidence is not inconsistent with the EMH.

III. Conclusion

In this paper we compare three hypotheses about how common stock prices react to new issues of seasoned securities. The underwriter and SEC hypotheses imply that there is an inverse relationship between the rate of return on security j and the size of the new issue of security j. In contrast, the efficient market hypothesis asserts that there are no postannouncement effects of a new issue on share price or rates of return. We found no evidence to support the underwriter and SEC views. Rates of return appear to be uncorrelated with the size of the new issue. We did find statistically significant postissue excess returns during Days 0 to 6, but the excess returns are economically insignificant because they are not large enough to cover transaction costs. We also found negative returns during Days −24 to −12 that may or may not be statistically significant. However, since they are also economically insignificant, there is no evidence that would cause us to reject the EMH.

Our evidence avoids the ambiguity pointed out by Kraus and Stoll [9] as to whether the volume effect they found was due to the PPH or a correlation between volume and information. Since our tests separate the quantity effect from the information effect because the announcement was well in advance of the issue day, our finding of no volume effect is unambiguously inconsistent with the underwriter and SEC views. We have not found any evidence that justifies allowing investment bankers to stabilize the market around the time of new issues.

[11] For example, the mean excess return for Days −29 to −12 is −.9509, which is only 1.8 times as large as the minimum transaction cost.

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