



American Finance Association

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Author(s): Sanjai Bhagat, M. Wayne Marr, G. Rodney Thompson

Source: *The Journal of Finance*, Vol. 40, No. 5 (Dec., 1985), pp. 1385-1401

Published by: Blackwell Publishing for the American Finance Association

Stable URL: <http://www.jstor.org/stable/2328120>

Accessed: 26/11/2009 08:49

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The Rule 415 Experiment: Equity Markets

SANJAI BHAGAT, M. WAYNE MARR, and G. RODNEY THOMPSON*

ABSTRACT

Rule 415 allows a firm to register all the securities it reasonably expects to sell over the next two years and then, at the management's option, to sell those securities over these two years whenever it chooses. This paper examines whether equity offerings made under Rule 415 (shelf offerings) differ in issuing costs from equity offerings not sold under this rule. We find that shelf offerings cost 13% less for syndicated issues and 51% less for nonsyndicated issues. We also investigate the empirical relevance of the market overhang argument which suggests that shelf registrations depress the price of the registering firm's shares more than traditional registrations. Our data does not support the market overhang argument.

THE SECURITIES AND EXCHANGE Commission's (SEC) Rule 415, which was permanently adopted for large firms in November, 1983, allows a firm to register all the securities that it reasonably expects to sell over the next two years and then sell those securities whenever it chooses. This procedure is known as shelf registration. Investment bankers, securities regulators, and corporate issuers vigorously debate the effect of Rule 415 on firms' issuing cost for new securities. Some (mostly investment bankers) argue that Rule 415 increases new issue costs while others (mostly issuers) argue that Rule 415 decreases new issue costs. In addition, many investment bankers argue that placing common stock "on the shelf" depresses the price of a firm's outstanding shares of stock. Most issuers, in contrast, fail to believe this argument of share price depression.

This paper examines the influence of shelf registration on the issuing cost of new common shares for a company. More specifically, using a sample of 344 new common stock issues of NYSE and Amex companies made from March 17, 1982 through December 31, 1983, we investigate: (a) whether an issuer selling common stock under Rule 415 incurs a lower cost than an issuer selling common stock by a traditional method of sale, and (b) whether shelf registrations depress stock prices more than traditional registrations. The answers to these questions provide

* Bhagat is Assistant Professor of Finance, University of Utah. Marr is Assistant Professor of Finance, Virginia Polytechnic Institute and State University. He is currently on leave as Visiting Scholar, Office of the Chief Economist, Securities and Exchange Commission, Washington, D.C. Thompson is Associate Professor of Finance, Virginia Polytechnic Institute and State University. We thank James Brickley, Charles Cox, Frank Easterbrook, John Finnerty, Peter Frost, Prem Jain, Gregg Jarrell, David Kidwell, Ron Lease, Wayne Lee, Robert Rogowski, and two anonymous referees of this *Journal* for their helpful comments on an earlier draft of this paper. The Securities and Exchange Commission, as a matter of policy, disclaims responsibility for any private publication or statement by any of its employees. The views expressed herein are those of the authors and do not necessarily reflect the views of the Commission or of the author's colleagues upon the staff of the Commission.

insight into the wisdom of the recent SEC decision adopting shelf registration. The paper also offers insight into whether issuers should consider selling equity securities by the shelf procedure.

The paper is organized as follows. Section I discusses the developments that led to the adoption of Rule 415. Section II examines the various propositions put forth by interested parties in the shelf registration debate. Section III discusses the data used in the study. Section IV outlines the model used in testing for differences in new equity issuing costs between shelf and nonshelf issues and presents the results of these tests. Section IV also contains the methodology which tests for the possibility that shelf registrations decrease the price on outstanding common shares more than traditional registrations and presents the results of these tests. Section V summarizes the study.

I. Background of Rule 415

The last sentence of Section 6(a) of the Securities Act of 1933 states that "a registration statement shall be deemed effective only as to the securities specified therein as proposed to be offered." Historically, this passage has been cited when disallowing the registration of securities that did not have a firm sale date in the reasonably near future.¹ In 1980, the SEC proposed changes that allowed the "proposed to be offered" statement to be interpreted to mean those securities in an amount "that can reasonably be expected to be offered and sold within two years from the effective date of the registration statement." The SEC instituted this interpretation with Rule 415 on March 16, 1982.²

Between March, 1982 and May, 1983, firms filed 508 shelf registrations totaling \$79.3 billion. Inspection of the new offerings indicates that shelf registration has altered the traditional distribution methods for new securities. In both the debt and equity markets, shelf registration has led to the widespread use of the "bought deal" where one or two investment bankers buy an entire issue with neither preselling activities nor a syndicate in place. Also, a dribble method of equity issuance has developed. In a dribble, a company registers the shares that it intends to sell over the next two years and then appoints an underwriter to be its sales agent. The company then sells a small number of shares from time to time across the exchange floor.

II. The Shelf Registration Debate

A. Arguments Supporting Rule 415

Proponents of Rule 415 argue that since it is voluntary and it increases the issuing corporation's alternatives in their choice of method for raising equity,

¹ See Hodes [14] for a thorough discussion of the early history of shelf registration.

² See SEC Release 33-6276. Companies that wish to register their offerings under Rule 415 must satisfy the following requirements: (a) The aggregate market value of the firm's outstanding and unaffiliated voting stock should be greater than \$150 million, or \$100 million if the annual trading volume in such stock is greater than 3 million shares; (b) the firm should not have defaulted on its preferred stock, debt, or rental obligations in the last three years; (c) the firm should have met all disclosure requirements of the Securities and Exchange Act of 1934 during the last three years; and (d) the firm's bonds have investment grade rating (see SEC Release 33-6499).

Rule 415 can only benefit the corporation. The following reasons are cited to explain why offerings made under Rule 415 are likely to cost less than offerings made using more traditional methods.

Offering dates can be timed to take advantage of favorable market conditions. In a shelf offering, an issuing company can make the decision to go to the market and then sell an issue within minutes. It is argued that this feature will allow an issuer to make an offering when the demand for its shares and its share price reaches a temporary peak. Before Rule 415, for select companies, SEC regulations required a minimum delay of 48 hours between the decision to make the offering and the actual sale. For some companies, the delay could be several weeks to several months.

The shelf-offering process may intensify competition among underwriters, and this may lead to lower issuing costs. An inverse relationship between intensity of competition among underwriters (as proxied by the number of underwriters bidding on an issue) and lower issuing costs has been extensively documented by, among others, Kessel.³ A shelf registration may increase the number of underwriters bidding for an offering. If the issuer does not like the terms of any of the underwriters in a formal competitive bidding offering, then the issuer must start the costly bidding process over again. However, the costs of restarting the bidding process in a shelf offering are considerably smaller. This flexibility can lead to more bids from potential underwriters. In addition to the formal bidding seen in the utility industry, reports from issuers indicate that shelf-registered industrial issues are being sold through informal competitive bidding.

Traditional underwritings have large fixed cost components with the SEC registration statement accounting for a major share of these fixed costs. Under traditional registration procedures, this has led to economies of scale and induced the issuer to make one large rather than many small offerings. With a shelf registration, after the registration statement is filed, the fixed costs of an offering are fairly small. Under Rule 415, the issuer may find it cost-effective to make many small offerings through various underwriters.⁴ Issuing costs are also likely to be less for shelf offerings due to savings in the costs of printing and distributing documents, as well as preparing and filing the registration statement.⁵ Finally, an institutional investor may buy the new shares directly from the issuing corporation. In such instances, since no underwriters are involved, underwriter spread is zero.

B. Arguments Against Rule 415

Opponents of Rule 415 have argued that this rule may not be in the best interest of the shareholders of the issuing corporation. Many investment bankers

³ Kessel [15] uses Stigler's theory of information search to explain the observed behavior of reoffering yields for competitively sold municipal bond issues. Kessel finds that, in general, reoffering yields decline as the number of bidding underwriters increases. He explains this by noting that as the number of bidding underwriters increases, the probability of finding an investor with a higher reservation price also increases (also, see Benson [3]).

⁴ Small offerings may benefit issuers in another way. Bhagat and Frost [5] argue that issuing costs increase with the riskiness of the offering. They show that this risk increases with the size of the offering. This suggests that as offering size decreases, issuing costs also tend to decrease.

⁵ Shelf offerings do not require the preparation or distribution of detailed prospectuses. Also, the shelf procedure allows multiple offerings to be made from a single registration statement.

argue that when an issuing corporation registers new shares using Rule 415 and places them on the shelf for later offering(s), this depresses the price of the firm's outstanding shares of stock. It is argued that the stock price falls since putting the shares on the shelf increases their potential supply without any off-setting increase in demand. This issue is often referred to as the "market overhang" problem.

Some investment bankers argue that the higher spreads in traditional offerings compared to shelf offerings are attributable to greater services provided in traditional offerings. These services include the marketing and stabilization activities of the underwriters which may result in a higher offering price than would otherwise be the case.⁶

Opponents of Rule 415 also argue that in a shelf offering, underwriters may not be able to discharge adequately their traditional due-diligence responsibilities due to the uncertainty surrounding the timing of the shelf offering and the speed with which a shelf offering can be made.⁷ Also, the intensification of the bidding among underwriters has further eroded due diligence. These arguments suggest that underwriters should demand higher spreads in shelf offerings as a premium for protection against potential lawsuits or loss of reputation arising out of possibly inadequate due diligence. Additionally, those who invest in securities issued under a shelf registration may offer less to compensate for bearing any uncertainty arising out of inadequate due diligence.

III. Data and Sample Construction

Data were gathered on all primary public offerings greater than \$3,000,000 of NYSE and Amex companies made from March 17, 1982 through December 31, 1983. The sample was then restricted to offerings of those firms on which data are available on the CRSP tapes (Center for Research in Security Prices, University of Chicago, 1983). The required data from CRSP consists of daily returns from 170 trading days preannouncement to 20 trading days postannouncement. There were 344 primary equity offerings during this period for which all necessary data could be found.⁸

Data on issuer name, issue date, issue price, last sale price (on NYSE or Amex), issue size, underwriter compensation, method of distribution, and type of offering (shelf or nonshelf) were obtained from Drexel, Burham, and Lambert's *Public Offerings of Corporate Securities* (1982 and 1983). The data for utilities were cross-checked for accuracy and completeness using EBASCO Service's *Analysis of Public Utility Financing* (1982 and 1983). Data for industrial issues were checked using the Securities and Exchange Commission's Registration and Offering Statistics File.

⁶ Hess and Frost [13] find that stabilization activities of underwriters do not affect the share prices of issuing companies.

⁷ Due diligence refers to the investigation performed by an underwriter prior to a public offering. The underwriter attempts to ensure that there are no misstatements or omissions in the issuer's registration statement. For a discussion of due diligence, see Nicholas [24].

⁸ Fifteen issues were excluded for various reasons: no filing date (1 issue); deferred settlements (4 issues); debt-equity swaps (6 issues); issue data missing (1 issue); and no CRSP data (3 issues).

For many shelf issues, data are not publicly available on offering price or underwriter compensation; therefore, we wrote the companies to obtain the necessary information. We failed to obtain the required information for only one shelf issue. Also, the data for issuer expenses for some shelf issues are not available. Since the involved companies could not provide us with this data, we estimated issuer expenses based on an average of their three previous issues. If an issuer did not have three previous issues within the past five years, we used the latest estimate available. This procedure biases the tests of our hypotheses in favor of finding shelf offerings to be more costly because most issuers argue that issuer expenses are less under shelf procedures.

Table I presents the descriptive statistics for the sample of industrial and utility stocks. Although only a first approximation, the average cost on shelf sales is 2.21 cents less per dollar of stock raised for industrials and 0.82 cents less for utilities. The average size of the shelf issues is larger in the instance of the industrial firms and smaller in the instance of the utilities. The size of shelf issues as a percent of outstanding shares is consistently smaller than for nonshelf issues. Finally, more nonshelf offerings tend to be syndicated in both industries.

During 1982, of the 121 equity offerings by NYSE and Amex companies, 19 (or 15.7%) were shelf offerings. However, during 1983, of the 223 offerings, 74 (or 33.2%) were shelf. It appears that the (relative) popularity of the shelf procedure for offerings has approximately doubled during the last year.

IV. Empirical Techniques and Results

The discussion in Section II suggests two empirically testable propositions regarding the costs and benefits of Rule 415. The first proposition concerns the relative issue costs of shelf and nonshelf offerings. The second proposition concerns the market overhang originating from shelf registrations. These propositions, along with their empirical tests, are presented below.

A. Issuing Costs

This discussion of issuing costs is based on Bhagat and Frost [5]. There are three components of the cost of an underwritten equity offering. First is the commission paid the investment banker(s) for providing the underwriting services. Second is the cost borne by the issuing company, for example, accounting fees, filing fees, opportunity costs of the issuing firm's management time spent in planning the offering, etc. The third component of this cost is underpricing of the new shares.⁹

The determinants of issuing costs include risk of the offering, size of the offering, information costs, method of distribution, and industry factors. The measure of risk of an underwritten equity offering is based on the degree to which National Association of Securities Dealers' Rules of Fair Practice constrain the

⁹ Several authors, e.g., Smith [31, p. 288] and Myers [23, p. 584], have noted the possibility that new issues of even seasoned securities may be underpriced. Underpricing is measured as (last trade price/public offerings price) - 1.0. This measure of underpricing is very similar to that used in [5] and [31].

Table I
Sample Statistics of Equity Issues of NYSE and Amex-Listed Companies (March 17, 1982 through December 31, 1983)

Variable	Industrial Companies			Utility Companies		
	Shelf ^a (n = 46)		Nonshelf (n = 159)		Shelf (n = 47)	
	Mean ^b	Median ^c	Mean	Median	Mean	Median
Issuing cost	3.686 (2.167)	3.784 (3.348)	5.904 (2.778)	5.409 (2.412)	2.074 (1.009)	2.886 (1.892)
Cash Spread	3.064 (1.730)	3.575 (2.250)	4.649 (1.147)	4.480 (1.560)	2.015 (0.968)	2.974 (1.123)
Underpricing	0.202 (0.681)	0.000 (0.261)	0.523 (1.797)	0.000 (0.406)	-0.280 (0.613)	-0.594 (0.606)
Issuer Expenses	0.419 (0.405)	0.282 (0.468)	0.731 (0.633)	0.575 (0.632)	0.235 (0.224)	0.506 (0.711)
Size (\$million)	61.520 (53.585)	47.600 (57.139)	43.509 (46.982)	26.888 (34.281)	59.119 (68.838)	83.765 (149.269)
β_i	1.168 (0.496)	1.225 (0.587)	1.278 (0.581)	1.310 (0.730)	0.408 (0.161)	0.460 (0.258)
$\text{Var}(\hat{\epsilon}_i)$	4.270 (2.619)	3.520 (2.295)	6.389 (4.220)	5.520 (4.920)	1.206 (0.411)	1.519 (1.265)
Size of issue as a percent of outstanding shares	10.326 (7.128)	7.850 (10.575)	14.897 (9.767)	13.100 (11.700)	6.309 (3.896)	10.289 (8.593)
Trading days between filing and offering	18.935 (32.744)	8.000 (13.000)	11.421 (11.368)	8.000 (9.000)	27.532 (36.734)	11.663 (7.874)
% of offerings syndicated	69.565	—	91.824	—	36.170	71.740
						—

Notes: Issuing cost = cash spread + underpricing + issuer expenses. (100 - Issuing Costs) may be interpreted as the number of cents the issuing corporation receives per dollar of equity raised. Cash spread—underwriter commission expressed as a percentage of the public offering price. Underpricing = (last trade price/public offering price) - 1.0. This is scaled up by a factor of 100. Issuer expenses = expenses incurred by the issuing corporation in making the new offering (other than underwriter commission) expressed as a percentage of the gross amount.

^a n denotes the number of observations in the sample.

^b Standard deviation is in parentheses.

^c Interquartile range is in parentheses.

underwriter to not sell new shares above the offer price. This is the approach of Bhagat and Frost [5] who find that the measure of risk of an offering depends upon the variance of returns of the stock and the ownership structure of the underwriting firm. If the residual claims on the underwriting firm are publicly traded and are widely held, then systematic risk is a measure of risk of the offering. If the underwriting firm is a partnership, then risk of the offering is a function of the size of the offering and unsystematic risk. Assuming that the ownership structure of the underwriting firms in our sample is between the above-mentioned extremes, both systematic and unsystematic risk (and size of the offering) are used as measures of risk of the offering.¹⁰

The size of an offering also affects issuing costs in another way. It is commonly believed that there are scale economies in the sale of a new issue. Hence, we expect issuing costs (as a percentage of the proceeds) and issue size to be inversely related. Kessel [15] and Ederington [8, 9], among others, find this inverse relationship for bond offerings. Additionally, Hansen and Pinkerton [11] suggest the following fixed-cost components which can yield scale economies in an equity offering: legal and accounting fees which result from the registration statement filing process, registrar's fees, and overhead portions of printing and engraving expenses.

Information costs are the third component of issuing costs. These costs were first suggested by Kessel [15] in the context of bond offerings. In an underwritten equity offering, the underwriter has to search out the highest bidders for the new shares. The investors also have to assess their demand for new shares. We assume that in periods of great uncertainty, these information costs and hence issuing costs will be greater. We use the variance of the market's returns at the time of the offering as a measure of this uncertainty.¹¹

The method of distribution of the new offering also determines issuing costs. If an underwriter knows that a particular offering can be sold to an institution, he will not form a syndicate. If the cost savings that result from not forming a syndicate are passed on to the issuer in the form of a lower spread, then the underwriter spread will be lower for nonsyndicated offerings. Also, if an underwriter knows that a particular issue will be very risky, he is more likely to form a syndicate. Given that issuing costs are higher for riskier offerings, syndicated offerings are likely to have higher issuing costs.

Utility issues are often sold by competitive bidding whereas industrial issues are rarely sold this way. Indeed, Kidwell, Marr, and Thompson [16] find issuing costs to be significantly different for industrial and utility bond issues. Such an industry influence could also be present in the equity market.

Based on the above discussion, we can compare the issuing costs of shelf and nonshelf offerings with the help of the following regression equation:

$$C_i = \theta_0 + \theta_1 \cdot \beta_i + \theta_2 \cdot \text{Var}(\tilde{\varepsilon}_i) + \theta_3 \cdot (\log X_i) + \theta_4 \cdot \text{Var}(\tilde{R}_{m,i}) \\ + \theta_5 \cdot \text{SYND}_i + \theta_6 \cdot \text{UTIL}_i + \theta_7 \cdot \text{SHELF}_i + \tilde{u}_i, \quad (1)$$

¹⁰ We also conducted our tests using the variance of the stock's return (instead of beta and residual variance) as the measure of risk of the offering. These results are not presented here since they are qualitatively identical to the ones reported.

¹¹ Bhagat and Frost [5] provide a justification for the use of this proxy.

where,

- C_i = the issuing cost per dollar of gross proceeds for offering i , which is equal to cash spread + underpricing + issuer expenses. Cash spread is underwriter commission expressed as a percentage of the public offering price. Underpricing equals (last trade price/public offering price) - 1.0; this is scaled up by a factor of 100. Issuer expenses are expenses incurred by the issuing corporation in making the new offering (other than underwriter commission) expressed as a percentage of the gross amount. The variable $(100 - C_i)$ may be interpreted as the number of cents the issuing corporation receives per dollar of equity raised;
- β_i = the systematic risk of offering i . This is estimated using 150 daily returns from 170 trading days to 21 trading days before announcement of the issue;¹²
- $\text{Var}(\tilde{\epsilon}_i)$ = the unsystematic risk of offering i measured as the variance of the residuals of the market model. The market model is estimated using 150 daily returns from 170 trading days to 21 trading days before announcement of the issue;
- $\text{Var}(\tilde{R}_{m,i})$ = the market variance around the time of the offering i . The market variance is the variance of the equally weighted market index based on all NYSE and Amex companies and is estimated using the 10 daily returns from five days before the offering through four days after the offering;
- $\log(X_i)$ = natural logarithm of issue size in \$millions;¹³
- SYND_i = 1 if offering i is syndicated and 0 otherwise;
- UTIL_i = 1 if offering i is made by a utility, 0 if by an industrial;
- SHELF_i = 1 if offering i is made under Rule 415 and 0 otherwise; and
- $\tilde{u}_i$ = the usual regression error term.

It is expected that θ_1 , θ_2 , θ_4 , and θ_5 will be significantly positive for the reasons noted above. The signs of θ_3 and θ_6 are ambiguous. In this paper, the most interesting coefficient is θ_7 . If θ_7 is significantly positive, this would suggest that issuing costs for shelf offerings are greater and vice-versa.

¹² We also estimated β_i and $\text{Var}(\tilde{\epsilon}_i)$ using 150 daily returns from 21 days to 170 days after the announcement. The results using these estimates are not presented here since they are qualitatively identical to the ones reported with the exception of β_i (see footnote 14). We use this postannouncement estimation period since it has been suggested that companies issue equity after a run-up in their share prices (see Marsh [19] and Taggart [32]), hence, it is possible that the preannouncement estimation period market model estimates are biased. Note that our postannouncement period estimation period is similar to that used by Masulis and Korwar [21] and Hess and Bhagat [12] in their analysis of announcement period abnormal returns.

¹³ θ_3 is a proxy for the effect of size of the offering on issuing costs. As size of the offering increases, risk of the offering increases, and this tends to increase issuing costs. Also, as the size of the offering increases, issuing costs tend to decrease because of scale economies. The exact functional form of the effect of these two factors on issuing costs is not known. We use natural logarithms of size since other authors [5, 8, 9, 11, 15] have used this functional form.

B. Issuing Costs—Empirical Results

Covariance analysis is used to test for intercept and slope shifts between utility and industrial issues and between syndicated and nonsyndicated issues. The results of the covariance analysis are presented in Table II. Based upon this information, the estimated coefficients of Equation (1) are poolable over the industry groups with an intercept shift (a zero-one variable). The syndicated and nonsyndicated issues are not poolable with an intercept shift.

The results of Table II suggest that the coefficients of Equation (1) be estimated for the syndicated and nonsyndicated issues separately. This, of course, removes the $SYND_i$ variable from the specification of Equation (1). Table III presents the estimated coefficients of Equation (1). For the syndicated issues, the model explains over 60% of the inter-issue variation of issuing cost. The estimated coefficients for the variables for which prior expectations were presented have the correct signs with the exception of β_i . Indeed, β_i has an unexpected negative and significant estimated coefficient.¹⁴ The only variable with an insignificant (at the 10% confidence level) estimated coefficient is $\text{Var}(\hat{R}_{m,i})$. For the nonsyndicated issues, all the variables except β_i and $\text{Var}(\hat{R}_{m,i})$ have estimated coefficients that are significantly different from zero at the 10% confidence level.

The estimated coefficients in Table III indicate that, in general, issuing cost increases directly with the unsystematic risk of the offering. The signs of the estimated coefficients of $\log(X_i)$ suggest that issuing cost (per dollar of equity raised) decreases as the size of the offering increases. Utilities issuing equity pay significantly less in issuing cost than do industrials. Also, from the dependent means of the two groups, issuing cost is substantially higher when the issue is syndicated.

The estimated coefficients of *SHELF* presented in Table III indicate that shelf-registered equity offerings have lower issuing costs of about 0.630 cents per dollar of equity raised in syndicated offerings and about 1.363 cents for nonsyndicated offerings. The average issue size of the 344 equity offerings in the sample is \$58.8 million which implies that the issuing cost difference between shelf and nonshelf issues is about \$370,000 in favor of the shelf method for syndicated offerings and about \$800,000 for nonsyndicated. These results are consistent with the results of studies that have investigated the effect of the shelf-offering process on issuing costs in the debt market [16, 26]. They can be attributed to the greater competition among investment bankers for shelf issues. Indeed, it has been suggested that competitive underwriters may have been underpricing their services to win away issuers from their traditional investment bankers.

While we cannot address the question of whether services are underpriced, the information in Table IV indicates that of the 51 shelf issuers in the sample who had made another equity issue since 1977, and could choose their underwriter (not a required competitive bid), 13 (25.49%) chose to change underwriters for

¹⁴ When we use the postannouncement period, the negative sign becomes positive although the estimated coefficient is not significantly different from zero. Our choice to present the preannouncement period results is founded on the loss of approximately 10% of our sample due to the postannouncement data requirements and the number of issues that were made late in 1983.

Table II
Covariance Analysis

Category	F-Values	
	Intercept Shift	Slope Shift
Total Sample		
Utility/Industrial	54.20*	1.93
Syndicated/Nonsyndicated	12.99*	2.91*
Syndicated Issues		
Utility/Industrial	48.21*	2.23
Nonsyndicated Issues		
Utility/Industrial	5.13*	1.26

* Significant at the 0.05 level.

Table III
Issuing Cost Regression by Method of Syndication

Explanatory Variable	Syndicated		Nonsyndicated	
	Est. Coef.	t-value	Est. Coef.	t-value
Constant	16.015	10.98	10.499	4.63
β_i	-1.953	-7.35	-0.410	-0.81
$\text{Var}(\tilde{\epsilon}_i)$	0.373	9.55	0.153	1.67
$\text{Log}(X_i)$	-0.976	-7.08	-0.583	-2.86
$\text{Var}(\tilde{R}_{m,i})$	0.204	0.70	-0.235	-0.78
$UTIL_i$	-2.163	-6.94	-1.305	-2.27
$SHELF_i$	-0.630	-2.17	-1.363	-4.54
Adjusted R^2	0.611		0.484	
F-value	66.445		11.890	
Dep. Mean	4.791		2.661	
Root MSE	1.793		1.332	
Sample Size	261		83	

Notes: Issuing Cost per dollar of gross proceeds (C_i) is the dependent variable. The sample consists of 344 primary equity offerings made by NYSE and Amex-listed companies from March 17, 1982 through December 31, 1983. β_i is the systematic risk, $\text{Var}(\tilde{\epsilon}_i)$ the unsystematic risk, X_i the size of offering i , and $\text{Var}(\tilde{R}_{m,i})$ the market volatility around the day of the offering. $UTIL_i = 1$ if the issuing firm is a utility and 0 if the issuing firm is an industrial. $SHELF_i = 1$ if the offering is a shelf offering and 0 otherwise.

some reason. Alternatively, of the 131 nonshelf issuers in the sample who sold a previous equity issue since 1977, and could choose their underwriter, 29 (22.14%) changed underwriters for some reason. While these percentages indicate more changes within the shelf-registered group, the difference is clearly not overwhelming, nor do we believe this small variation to be sufficiently large to explain the significant savings associated with a shelf registration. Thus, it appears unlikely that these savings are a passing phenomenon caused by "maverick" underwriters underpricing their services simply to draw issuers away from their traditional underwriters.

Table IV
Underwriter Information for 344 Equity Issues of
NYSE and Amex-Listed Companies (March 17, 1982
through December 31, 1983)

	Shelf Issues	Nonshelf Issues
Same Underwriter	38	102
Changed Underwriter	13	29
First Issue in Last 4/5 Years	33	112
Competitive Bid Required	<u>9</u>	<u>8</u>
Total Number of Issues	93	251

Notes: Same underwriter—the issuer used the services of the investment banker that managed their last equity issue. Changed underwriter—the issuer used the services of a different investment banker than the underwriter who managed their last issue. First issue in last 4/5 years—the issuer has not sold an equity issue since 1977 or before (at least 4 years in 1982, 5 years in 1983). Competitive bids—utilities that were required to obtain competitive bids for their issues.

As we find that issuing costs are significantly lower for shelf offerings, it is interesting to investigate how the shelf procedure has affected the three issuing cost components. To do this, we ran regressions similar to those in Table III except that we used three different dependent variables. The three different dependent variables were the three components of issuing costs—cash spread, underpricing, and issuer expenses. The results are presented for both the syndicated and nonsyndicated offerings in Table V. It appears that the cash spread accounts for most, and issuer expenses for some, of the difference in issuing costs between shelf and nonshelf offerings.¹⁵ Also, there does not seem to be any significant difference in underpricing for shelf and nonshelf offerings.¹⁶

C. Market Overhang

The evidence above suggests that issuing costs are on average lower for shelf offerings. However, because of possible market overhang effects, the shelf method may still be less advantageous to the issuing firm. The market overhang argument is based on the price pressure hypothesis. This hypothesis suggests that the

¹⁵ Kidwell, Marr, and Thompson [16] also find cash spread to be lower for shelf debt offerings of industrial companies. However, they do not find any significant difference in cash spread for shelf and nonshelf utility debt offerings. Rogowski and Sorensen [26] do not find any difference in cash spread for shelf and nonshelf utility or industrial debt offerings. However, both of these studies find a significant difference in reoffering yields between shelf and nonshelf offerings. It appears that the effect of increased underwriter competition due to the shelf procedure is mostly on reoffering yields for debt offerings and cash spreads for equity offerings. This is consistent with the findings in Kessel [15] who notes that the effect of increased underwriter competition in debt offerings is most easily observable in reoffering yields.

¹⁶ Rogowski and Sorensen [26] find that nonshelf debt offerings are underpriced more. It appears that underpricing of equities is different than of debt with respect to the shelf procedure. One reason why this may be the case is that equity has a firm benchmark—the existing price of outstanding equity, which is not so apparent with debt.

Table V
Issuing Cost Component Regressions

Explanatory Variable	Cash Spread		Underpricing		Issuer Expenses	
	Coef.	<i>t</i> -value	Coef.	<i>t</i> -value	Coef.	<i>t</i> -value
Syndicated Offerings (<i>n</i> = 261)						
Constant	10.445	14.12	0.197	0.19	5.372	15.84
β_i	-0.526	-3.90	-1.21	-6.37	-0.217	-3.51
$\text{Var}(\tilde{\epsilon}_i)$	0.133	6.71	0.196	7.01	0.044	4.88
$\text{Log}(X_i)$	-0.561	-8.03	0.036	0.36	-0.451	-14.06
$\text{Var}(\tilde{R}_{m,i})$	-0.225	-1.52	0.351	1.67	0.786	1.15
<i>UTIL</i> _{<i>i</i>}	-1.053	-6.67	-1.118	-5.02	0.001	0.12
<i>SHELF</i> _{<i>i</i>}	-0.701	-4.78	0.175	0.843	-0.103	-1.54
Adjusted <i>R</i> ²	0.605	—	0.292	—	0.590	—
<i>F</i> -value	64.833	—	17.496	—	60.999	—
Dep. Mean	4.033	—	0.118	—	0.639	—
Root MSE	0.909	—	1.283	—	0.417	—
Nonsyndicated Offerings (<i>n</i> = 83)						
Constant	4.421	2.44	1.637	1.16	4.442	8.32
β_i	-0.714	-1.77	-0.502	1.61	-0.198	-1.67
$\text{Var}(\tilde{\epsilon}_i)$	0.125	1.70	0.010	0.17	0.018	0.85
$\text{Log}(X_i)$	-0.063	-0.39	-0.159	-1.26	-0.362	-7.55
$\text{Var}(\tilde{R}_{m,i})$	-0.689	-0.28	-0.425	-0.24	-1.205	-1.70
<i>UTIL</i>	-0.917	-1.99	-0.378	-1.06	-0.009	-0.06
<i>SHELF</i> _{<i>i</i>}	-1.081	-4.51	-0.190	-1.02	-0.092	-1.30
Adjusted <i>R</i> ²	0.360	—	0.249	—	0.457	—
<i>F</i> -value	7.135	—	4.194	—	12.490	—
Dep. Mean	2.360	—	-0.073	—	0.375	—
Root MSE	1.063	—	0.823	—	0.313	—

Notes: The combined samples consist of 261 syndicated and 83 nonsyndicated primary equity offerings sold by industrial and utility companies listed on the NYSE or Amex from March 17, 1982 through December 31, 1983. β_i is the systematic risk, $\text{Var}(\tilde{\epsilon}_i)$ the unsystematic risk, X_i the size of offering *i*, and $\text{Var}(\tilde{R}_{m,i})$ the market volatility around the day of the offering. *UTIL*_{*i*} = 1 if the issuing firm is a utility and 0 if the issuing firm is an industrial. *SHELF*_{*i*} = 1 if the offering is a shelf offering and 0 otherwise.

announcement of a new equity offering depresses share prices and that the magnitude of the drop in the share price is directly proportional to the relative issue size.¹⁷ The market overhang argument assumes the validity of the price pressure hypothesis and furthermore argues that the price pressure effect is more pronounced for shelf offerings than for traditional offerings. If this is true, then the benefits to the shareholders of the issuing company from lower issuing costs might be offset by the greater drop in share price for shelf offerings relative to traditional offerings.

We investigate the market overhang argument by analyzing the share price changes around the announcement day of the new offering. Table VI presents the common stock returns around the offering's announcement day for the sample

¹⁷ See Scholes [27] or Hess and Bhagat [12] for a discussion of this hypothesis.

Table VI
Common Stock Return of NYSE and Amex-Listed Companies
that Announced New Equity Offerings During March 17, 1982
through December 31, 1983

Event Day	Nonshelf Sample			Shelf Sample		
	Daily Raw Return	Cum Daily Raw Return	No. of Firms	Daily Raw Return	Cum Daily Raw Return	No. of Firms
-20	0.32	0.32	251	0.29	0.29	93
-19	0.25	0.57	251	0.37	0.66	93
-18	0.25	0.83	251	0.23	0.89	93
-17	0.31	1.14	251	0.53	1.42	93
-16	0.36	1.50	251	-0.07	1.35	93
-15	0.33	1.82	251	0.15	1.50	93
-14	0.50	2.32	251	0.60	2.10	93
-13	0.37	2.70	251	0.37	2.47	93
-12	0.40	3.09	251	0.36	2.84	93
-11	0.44	3.54	251	0.23	3.06	93
-10	0.35	3.89	251	0.31	3.37	93
-9	0.29	4.18	251	0.42	3.79	93
-8	0.46	4.64	251	0.21	4.00	93
-7	0.50	5.14	251	0.09	4.10	93
-6	0.39	5.54	251	0.40	4.50	93
-5	0.43	5.97	251	0.53	5.03	93
-4	0.25	6.22	251	0.56	5.59	93
-3	0.29	6.51	251	0.71	6.30	93
-2	0.31	6.81	251	0.14	6.44	93
-1	-0.26	6.55	251	-0.45	5.99	93
0	-0.99	5.57	251	-0.55	5.44	93
1	-0.01	5.56	251	-0.25	5.19	93
2	-0.04	5.52	251	-0.24	4.95	93
3	0.09	5.61	251	0.34	5.29	93
4	0.51	6.12	251	0.34	5.63	93
5	0.47	6.60	251	-0.04	5.58	93
6	0.22	6.82	251	0.19	5.78	93
7	0.19	7.01	251	0.22	6.00	93
8	0.27	7.29	251	0.18	6.18	93
9	0.18	7.47	251	-0.24	5.94	93
10	0.15	7.61	251	0.10	6.03	93
11	0.24	7.85	251	-0.30	5.73	93
12	0.39	8.24	251	0.12	5.85	93
13	0.29	8.53	251	0.15	6.00	93
14	0.24	8.77	251	0.04	6.04	93
15	0.00	8.77	251	0.08	6.13	93
16	0.30	9.06	251	0.49	6.61	93
17	0.14	9.20	251	-0.00	6.61	93
18	0.29	9.49	249	0.11	6.72	92
19	-0.04	9.45	248	-0.14	6.58	91
20	0.10	9.55	248	0.12	6.71	91

	Nonshelf Sample	Shelf Sample
Two-Day Announcement Returns		
Day Zero Plus Day One Mean Raw Return (%)	-0.995	-0.801
t-Statistic	-7.372	-3.863
% Negative	57.0	62.4
% Zero	4.8	5.4
75 Two-Day Comparison Returns		
Mean Return (%)	0.534	0.366
Standard Deviation (%)	0.20738	0.30209
% Negative	1.3	13.3
% Zero	0.0	0.0

Note: Event day 0 is the announcement day.

of firms utilizing the shelf procedure in making the offering and the sample of firms using the more traditional methods. The announcement day is the day on which the firm filed its registration statement at the SEC and is denoted as event day 0 in Table VI.¹⁸ In these event studies, we utilize the comparison period returns technique developed by Masulis [20] and later modified by Dann [7]. See Dann [7] for a detailed description of the technique and the statistical tests employed to test the null hypothesis that the announcement period abnormal returns are zero.

The announcement period abnormal return is the portfolio return for event day 0 and day 1 minus the mean two-day portfolio return for the comparison period. The announcement period abnormal returns for the shelf sample and nonshelf sample are -1.167% (t -statistic $= -3.86$) and -1.529% (t -statistic $= -7.37$), respectively. This negative return on the announcement day of an equity offering has been well-documented in the finance literature, e.g., see Masulis and Korwar [21]. The cumulative daily returns in each of the samples do not appear to be abnormal.

Although we observe a drop in share price on the announcement day, it is difficult to draw any inferences about price pressure or market overhang. Indeed, besides price pressure effects, the observed share price changes on the announcement day may be the result of a combination of an additional five effects. These are investment project effects, signaling effects, managerial incentive effects, effects due to the changes in capital structure, and effects due to the financing costs of the offering; Bhagat [4, pp. 294–98] discusses these effects in detail.

The market overhang argument can be tested more directly by comparing the announcement period abnormal returns of shelf and nonshelf offerings with their relative issue size. The announcement period abnormal returns are determined using the standard one factor market model technique. Let $\tilde{R}_{j,t}$ represent the unadjusted stochastic rate of return (including both dividends and price changes) at event date t for stock j making the announcement. Event time is measured relative to the announcement date which is denoted as day 0 in event time. We assume that the market model as indicated in (2) is a satisfactory representation of the stochastic process generating returns, $\tilde{R}_{j,t}$, for firm j at event date t . This model is given by

$$\tilde{R}_{j,t} = \alpha_j + \beta_j \tilde{R}_{m,t} + \tilde{\varepsilon}_{j,t}, \quad (2)$$

where α_j and β_j are firm j -specific and time-independent parameters, $\tilde{R}_{m,t}$ is the stochastic return on the market index m at event time t , and $\tilde{\varepsilon}_{j,t}$ is the stochastic error term for firm j and reflects the effect of events specific to stock j at event time t . Stock j 's estimated normal return for date t conditional on the realization of $\tilde{R}_{m,t}$ is defined as

$$\hat{\gamma}_{j,t} = \hat{\alpha}_j + \hat{\beta}_j \tilde{R}_{m,t}, \quad (3)$$

where α_j and β_j are estimates of α_j and β_j , respectively. These estimates are

¹⁸ The *Wall Street Journal* normally reports this announcement on the day after it is registered. A total of 271 of the 344 issues in our sample had their registration reported in the *Journal*. One hundred ninety-seven (72.7%) of these reports were made on the day following the registration. More importantly, the wire services and a number of the investment banking houses have staff personnel on site in the Public Reference Room at the SEC.

Table VII
Market Overhang Regressions

Explanatory Variable	Equation (5a)		Equation (5b)	
	Est. Coef.	t-value	Est. Coef.	t-value
Constant	-1.102	-3.66	-1.112	-3.62
$RELSIZE_i$	-0.015	-0.75	-0.013	-0.69
$SHELF_i \times RELSIZE_i$	-0.079	-0.89	-0.023	-0.67
Adjusted R^2	-0.002		-0.003	
F-value	0.672		0.489	
Dep. Mean	-1.349		-1.349	
Root MSE	3.274		3.276	
n	344		344	

Notes: Announcement period abnormal return is the dependent variable. The sample consists of all primary equity offerings made by NYSE and Amex-listed companies from March 17, 1982 through December 31, 1983. For Equation (5a), $RELSIZE_i$ = announced number of new shares for offering i /outstanding number of shares. For Equation (5b), $RELSIZE_i$ = the actual number of new shares sold for offering i /outstanding number of shares. $SHELF_i$ = 1 if the offering is made under Rule 415 and 0 otherwise.

obtained using the 150 daily returns from event day -170 through event day -21. Stock j 's estimated abnormal return for date t is

$$\hat{\varepsilon}_{j,t} = \tilde{R}_{j,t} - \hat{\gamma}_{j,t}. \quad (4)$$

The market overhang argument is tested with the help of the following regression equation

$$AR_j = \lambda_0 + \lambda_1(RELSIZE_j) + \lambda_2(SHELF_j \cdot RELSIZE_j) + \tilde{V}_j, \quad (5)$$

where,

$AR_j = \hat{\varepsilon}_{j,0} + \hat{\varepsilon}_{j,1}$ = sum of the abnormal return for stock j on the announcement day and the trading day after;

$RELSIZE_j$ = the ratio for announcement j of the announced number of new shares (in the registration statement) to the outstanding number of shares; and

$SHELF_j$ = 1 if announcement j is for a shelf-registered offering and 0 otherwise.

In (5), λ_1 indicates the price pressure effects for nonshelf announcements, $(\lambda_1 + \lambda_2)$ indicates the price pressure effects for shelf announcements, and λ_2 indicates the difference between the price pressure effects for nonshelf and shelf announcements. The price pressure hypothesis suggests that both λ_1 and $(\lambda_1 + \lambda_2)$ are significantly negative. The market overhang argument implies that λ_2 is significantly negative.

D. Market Overhang—Empirical Results

Table VII presents the regression results for the market overhang argument as indicated in Equation (5). Equation (5) is estimated with two measures of relative size ($RELSIZE$). Because under a shelf registration some issuers only

take a portion of the issue off the shelf, *RELSIZE* is computed as both: (1) the number of new shares registered divided by the firm's total outstanding shares [Equation (5a)] and (2) the actual number of new shares sold in the offering divided by the firm's total outstanding shares [Equation (5b)].¹⁹ This alternative specification allows for the possibility that a shelf registration may send a different signal than a traditional registration.

The results in Table VII indicate that neither λ_1 nor $(\lambda_1 + \lambda_2)$ is significantly negative in either equation. This evidence is inconsistent with the price pressure hypothesis.²⁰ In addition, the estimate of λ_2 is not significantly different from zero. This evidence does not support the market overhang argument that the price pressure effect is more pronounced for shelf announcements.²¹

V. Conclusions

This paper investigates whether equity securities sold under Rule 415 differ in issuing costs from equity securities not sold under Rule 415. Also, we examine whether shelf registrations depress the price of a firm's outstanding shares more relative to traditional registrations.

The results of the study indicate that the issuing cost of equity securities sold under Rule 415 is about 13% less than that of comparable syndicated equity securities not sold under Rule 415 and 51% less for nonsyndicated. For a \$58.8 million stock issue (the average in our sample), this is equal to a cost savings of either about \$370,000 or \$800,000 an issue depending upon whether the issue is syndicated or nonsyndicated. In addition, our evidence does not support the hypothesis that shelf registrations depress stock prices more than traditional registrations.

¹⁹ For the sample, the percentage of the issue taken off the shelf had a mean of 90%. The specific distribution is as follows:

<u>% Sold</u>	<u>No. of Issuers</u>	<u>% of Issuers</u>
Less than 25%	6	6.45
25% to 50%	9	9.68
50% to 75%	3	3.23
75% to 99%	8	8.60
<u>100%</u>	<u>67</u>	<u>72.04</u>
Total	93	100.00

²⁰ The finance literature contains evidence both consistent and inconsistent with the price pressure hypothesis. Scholes [27], Evans [10], Hess and Frost [13], Hess and Bhagat [12], and Masulis and Korwar [21] provide evidence inconsistent with the price pressure hypothesis. Kraus and Stoll [17], Logue and Jarrow [18], Asquith and Mullins [2], and Mikkelsen and Partch [22] provide evidence that may be interpreted as being consistent with the price pressure hypothesis.

²¹ We also ran the market overhang regressions [Equations (5a) and (5b)] using the postannouncement estimation period results. These estimates are not presented because they are qualitatively identical to the results presented in Table VII.

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