

Signalling with Dividends, Stock Repurchases, and Equity Issues

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■ Decisions concerning equity cash flows — dividends, stock repurchases, and equity issues — have long been the focus of controversy and confusion among academics and financial practitioners. The purpose of this paper is to provide insight into the capital markets' reaction to equity cash flow decisions. The nature of the markets' reaction suggests a framework for relating and interpreting these decisions. Although the immediate objective of this research is to measure and understand the markets' reaction to managerial decisions, the ultimate objective is to improve corporate financial decisionmaking.

I. The Controversy Surrounding Dividends and Stock Repurchases

A well known financial consultant is fond of saying, "Any distribution of cash by a company represents failure." By this definition New York Stock Exchange companies failed in 1984 to the tune of over \$68 billion paid out in cash dividends and about \$77 billion distributed through repurchases of common stock. Recent

research sheds light on why financial managers continue to ignore the advice of professors and consultants and shower investors with cash. These studies clarify the efficacy of dividends and repurchases as vehicles for communicating information to shareholders. They suggest that dividends and repurchases are perceived by investors as signals of management's assessment of a company's performance and prospects.

A. The Dividend Puzzle

Summing up our current state of understanding of corporate dividend policy, Martin Feldstein and Jerry Green [11] conclude: "The nearly universal policy of paying substantial dividends is the primary puzzle in the economics of corporate finance."

The puzzle was first posed in a classic paper published in 1961 by Merton Miller and Franco Modigliani [18]. Their work demonstrated that, with a given investment and financing policy, a firm's dividend policy should not affect the value of its shares (ignoring all imperfections). The logic underlying the Miller-

Modigliani theorem can be seen in the behavior of stock prices on ex-dividend dates.

On the day a stock goes ex-dividend, its price drops by the amount of the dividend. This drop is permanent in the sense that the price should always remain below what it would have been were no dividend paid.

Were this drop on the ex-dividend date not to occur, profit motivated speculators could buy the stock the day before, sell it on the ex-dividend day, and pocket the dividend. Inspired by this attractive one-day return, the actions of speculators should drive a wedge between the cum-dividend and ex-dividend stock price, and this profit opportunity disappears only when the reduction in stock price equals the dividend. Since the dividend received is exactly offset by the capital loss on ex-dividend day, investors should only break even on dividends.

Miller and Modigliani's work raises the following question: How can investors benefit from a dividend when it is, in effect, paid dollar for dollar out of the value of their shares? The answer may lie in imperfections present in our world and absent from the world of economic theory.

The prevalence of dividends may be explained by their capacity to convey managerial assessments to investors, institutional restrictions in the capital markets and/or "irrational" investor preferences. On the other hand, the high ordinary income tax rates imposed on dividend income and the costs incurred by firms in financing dividends both seem to argue against dividends.

In the 20 years since the publication of the Miller and Modigliani paper, these competing hypotheses have been subjected to exhaustive theoretical and empirical analysis. The fruits of this research are summarized by Fischer Black [4]. What should investors and firms do about dividends? Black's answer is "We don't know." Despite the amusing befuddlement of their academic counterparts, corporate executives continue to flood the world with cash dividends as forcefully and consistently as the tide pounds the beach.

B. Are Dividends Hazardous to Your Wealth?

The simple question posed in the above heading is the focus of several recent studies. While not solving the dividend puzzle, the studies have supplied additional pieces which move us in the direction of a solution. They examine the impact on stock prices of dividend announcements. The use of daily stock market data permits explicit identification and control of oth-

er, roughly contemporaneous information. The announcement effects of earnings reports and the like can be isolated and eliminated, allowing a clearer view of the separate impact of dividend announcements. This methodology averts a serious flaw inherent in earlier attempts to answer the question posed in the heading.

C. The Birth of a Dividend Policy

We completed a study examining the impact on stock prices of establishing a policy of paying cash dividends [3]. During the period 1964-1980, all the firms in our sample either paid the first dividend in their corporate histories or resumed dividend payments after a hiatus of at least ten years. An advantage of this approach is that investors presumably have little prior expectation of the initiation of dividend payments. They have no recent dividend history on which to base accurate forecasts of future dividend policy. In studies of ongoing dividend policies, the impact of dividends may be obscured by the effects of investors' expectations.

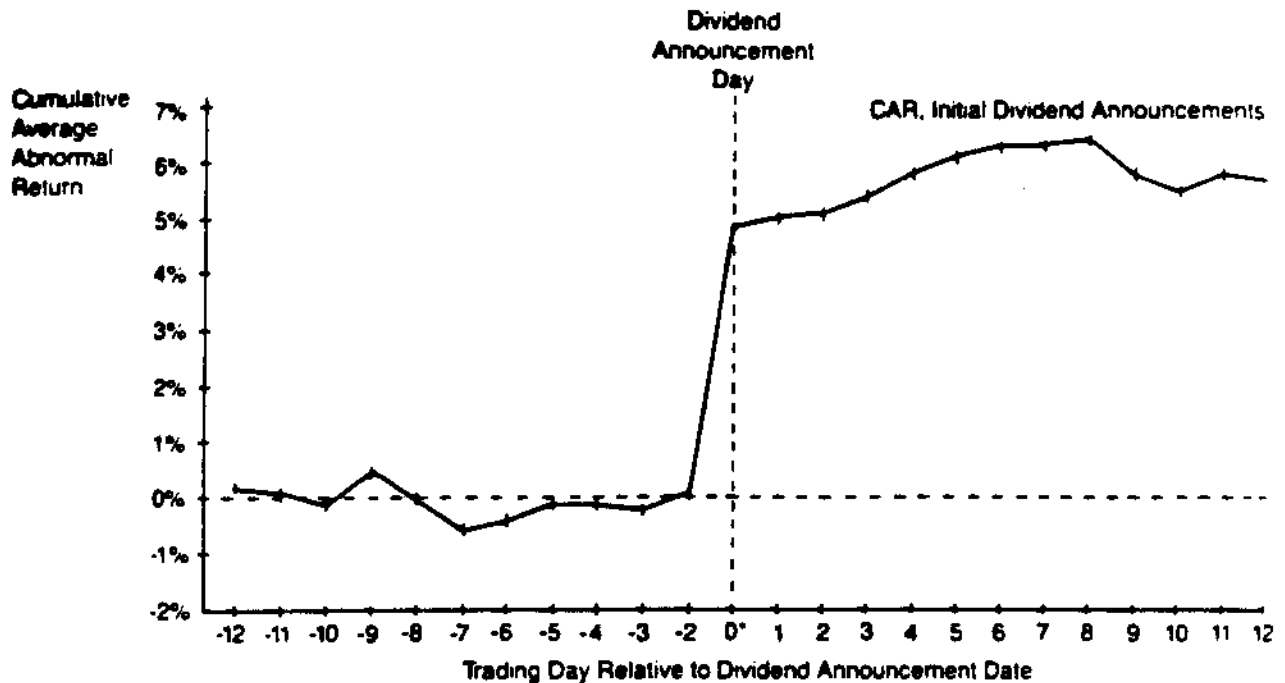
Further, investors in our sample firms have for the preceding ten years received returns solely in the form of capital gains. Since they are likely high tax bracket investors, our results should be biased against a favorable dividend effect. Dividend initiation may be expected to induce a change in clientele with attendant costs. A positive impact is possible only if the benefits of dividends outweigh the tax burden and other costs unexpectedly imposed by them.

Therefore, focusing on the unexpected initiation of dividends purges our sample of investor expectations incorporated in subsequent dividends. This should allow us to see the net impact of the several hypotheses concerning dividends.

For 80 of the 168 firms in our sample, other news in addition to the dividend announcement was published in *The Wall Street Journal* during the period immediately surrounding the dividend announcement date. In the results reported subsequently these firms have been deleted to eliminate the effects of other contemporaneous information. For the remaining 88 firms no other information was made public in the most widely read financial news source. This insures as far as possible that any impact we observe can be attributed solely to the dividend announcement.¹

To examine the stock price impact of initiating dividends we first calculated abnormal returns (ARs) — the stock returns excluding the movement of the mar-

¹An analysis of the complete sample is presented in [3].

Exhibit 1. Abnormal Stock Returns for Initial Dividend Announcements

*Day 0 is the publication date in *The Wall Street Journal*. Since *The Wall Street Journal* is a morning newspaper, the information in articles is often made public before the end of trading on the day before publication. For this reason the abnormal returns for days -1 and 0 have been aggregated to arrive at the announcement day return reported above.

ket in general and adjusted for the sensitivity of the firm's stock price relative to market movements (*i.e.*, adjusted for its beta). The ARs are then cumulated beginning a number of days prior to the dividend announcement and continuing until well after the news date. The resulting cumulative abnormal returns (CARs) provide a clear view of the price behavior of our sample firms during the announcement period.

The results reported in Exhibit 1 demonstrate that for our sample initiating the payment of cash dividends generated a positive abnormal return to shareholders averaging almost 5% on announcement day. This return is in addition to the return accruing to owners of other stocks of the same risk level and is not the result of other contemporaneous announcements.

The dividend effect is concentrated primarily on the announcement date. The CAR picks up about 1% in the 12 days following the announcement. Although the CAR methodology does not allow unequivocal assessment of the permanence of the effect, the increase in shareholders' wealth is at least retained many days after the dividend is announced. For example, 90 trad-

ing days after the announcement, the CAR is a little more than 6%.

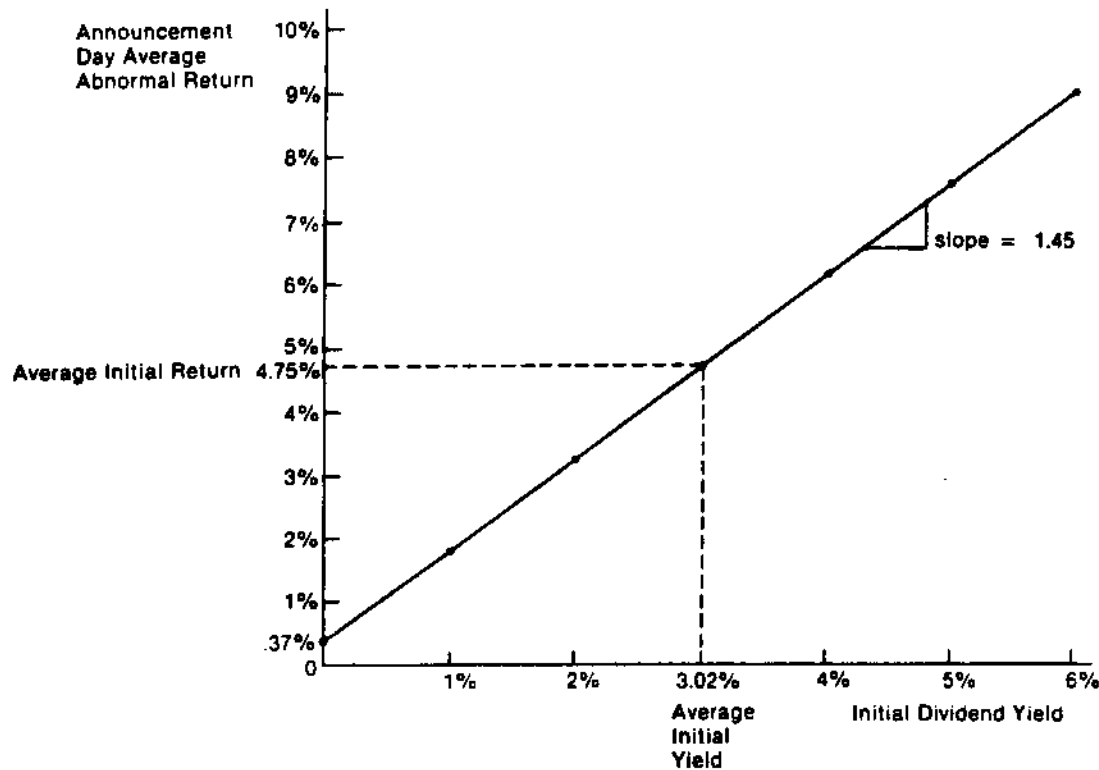
An average abnormal return of only 5% may seem uninspiring. It is, however, highly significant statistically and much larger than the average return of roughly 1% reported in previous studies.² The results are also reasonably consistent across firms. On the upside, 72% of our 88 sample firms experienced a positive impact, led by six firms with abnormal returns in excess of 20%. Of the 28% which suffered a reduction in stock price, only six firms had returns less than -4%. To understand the fate of these unfortunate firms will require detailed field research.³

We also found that the magnitude of the benefit

²Other studies which also report daily abnormal returns for dividend announcements include Aharony and Swary [1] and Charest [5]. These papers only look at changes in the level of already established dividends, however, while our result is for first time dividends.

³One hypothesis is that for these firms investors were anticipating the initiation of dividends and were disappointed by the amount of the initial dividend. However, there are many other hypotheses that could explain the results for this small sub-sample.

Exhibit 2. The Estimated Relationship Between Initial Dividend Announcement Day Return and Initial Dividend Yield



accruing to shareholders is directly proportional to the size of the dividend — measured by either the initial dividend yield or the payout ratio. If investors perceive dividends as positive signals by management, the abnormal return should be related to the signal size.

This relationship can be estimated statistically by linear regression. In Exhibit 2 we have depicted the estimated relationship between the announcement day's abnormal return and the initial dividend yield. Announcing an initial dividend with a yield of 1% generates an abnormal capital gain of almost 2%.

Consistent with the Miller-Modigliani analysis, investors may only break even on ex-dividend day. But the announcement day capital gain insures that they come out ahead overall. Indeed, the dividend effect appears large enough to offset any investor tax differential.⁴ We should note that the specific results reflect only the average experience of our sample of firms.

⁴For example, suppose an investor is subject to a 100% tax on the dividend and the stock price falls by the full amount of the (pre-tax) dividend on ex-dividend day. The regressions demonstrate that the abnormal return on announcement day is at least as large as the dividend yield. Thus, the capital gain on announcement day is at least as large as

Nonetheless, the relationships they illustrate may be valid for the larger population of firms.

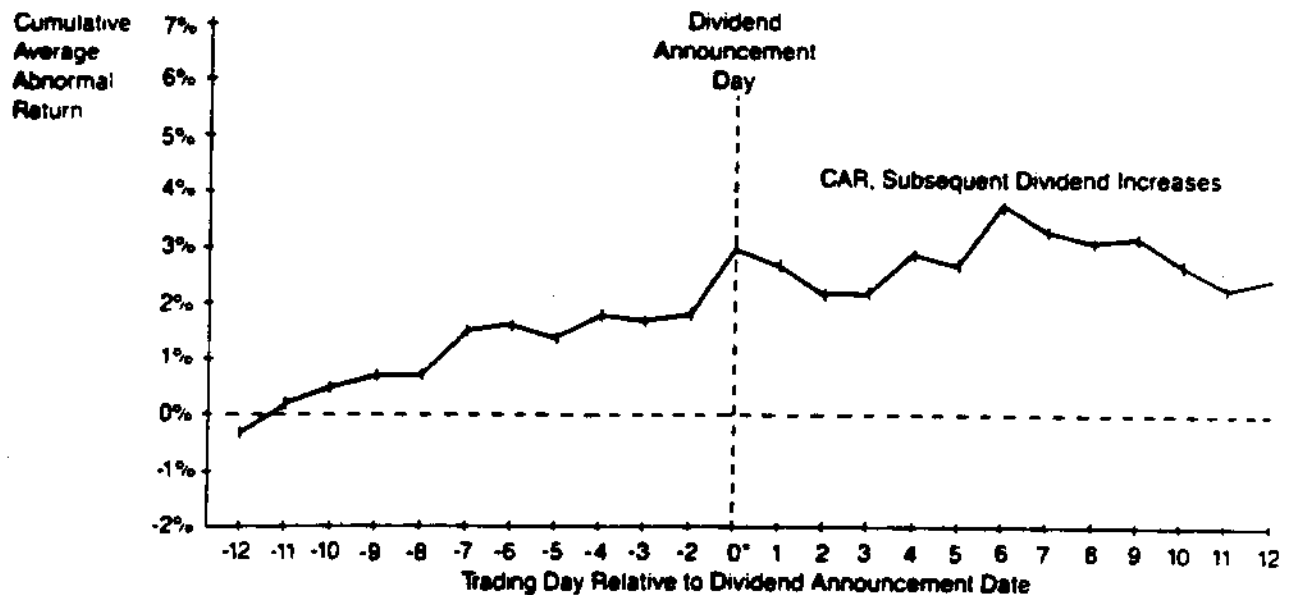
Thus, for our sample, initiating dividends increased shareholders' wealth. Any negative tax burden and/or financing cost associated with dividends is more than offset by the benefits of dividends.

D. Subsequent Dividends

We repeated the heretofore described procedure for a sample of subsequent dividend increases within three years of the initial dividend. Focusing on the largest increases, we found 66 firms in our sample with no other announcements roughly concurrent with the announcement of the largest subsequent dividend increase.

Compared with initial dividends, the results presented in Exhibit 3 for subsequent increases look much less convincing. Nonetheless, the 1% average abnormal

the capital loss on ex-dividend day. An investor would not lose even if the entire dividend is taxed away. Furthermore, the yields employed in the regressions are annualized although many of the dividend payments were actually quarterly. This suggests that dividends may produce net gains even for high tax bracket investors.

Exhibit 3. Abnormal Stock Returns for Largest Subsequent Dividend Increase

*Day 0 is the publication date in *The Wall Street Journal*. Since *The Wall Street Journal* is a morning newspaper, the information in articles is often made public before the end of trading on the day before publication. For this reason the abnormal returns for days -1 and 0 have been aggregated to arrive at the announcement day return reported above.

return on announcement day is statistically significant. In contrast we cannot reject the hypothesis that the other daily perturbations are merely random fluctuations.

The impact of subsequent dividend increases appears to be far smaller than the initiation impact. However, our analysis suggests that this may not be the case. The true impact of a subsequent increase cannot be assessed simply by observing average returns on the announcement day.

To evaluate this true impact we need to explore two factors: (i) the relationship between the abnormal return and the size of the dividend and (ii) investors' anticipation of subsequent dividend changes. This latter concern may not be necessary in examining initial dividends. The initiation of dividend payments should be largely unexpected by investors. However, once a dividend policy is established, investors may be more successful in forecasting future dividends, and these forecasts may already be incorporated in stock prices on the dividend announcement date.

Both these factors can be seen in the relationship between announcement day return and the size of the dividend increase — measured by the increase in dividend yield. This relationship is plotted in Exhibit 4.

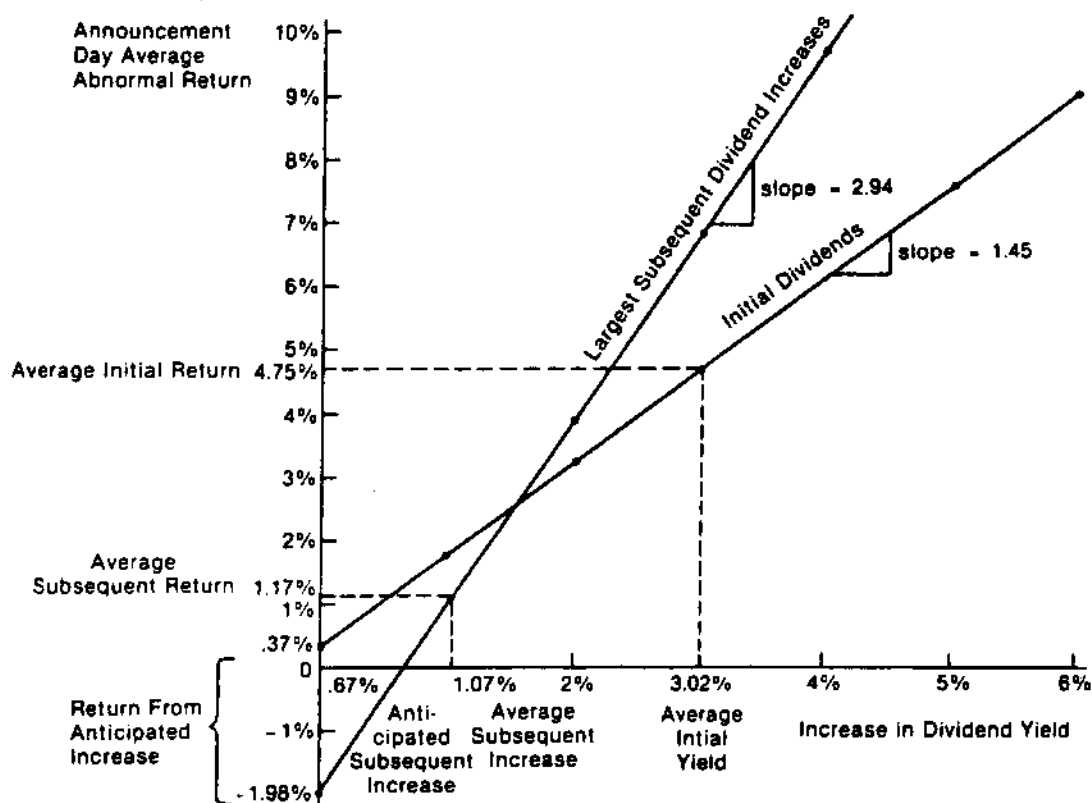
Compared with the relationship for initiation, the subsequent relationship is much more steeply sloped. Another difference is that abnormal returns are negative for small changes. Returns are positive over the full range of yields for initial dividends.

One reason average subsequent returns are smaller than initials is readily apparent from Exhibit 4. The largest subsequent increases in dividend yields are simply much smaller than the initial yield. Were they as large, the subsequent relationship predicts that they would produce returns at least as large as initials. For example, plugging the average initial yield of 3% into the subsequent relationship would predict a subsequent return of almost 7%.

The second factor explaining the observed smaller impact of subsequent dividend changes concerns the negative portion of relationship. We interpret this as confirming that investors forecast subsequent dividends. For this sample their forecast, on average, is a 0.67% change in yield — the yield at which the abnormal return is zero.⁵ If the firm announces an increase in

⁵Of course, investors do not always expect an increase. The subsequent increases reflected in Exhibits 3 and 4 were the largest subsequent increases within three years of the initial dividend. Investors partially predicted these increases.

Exhibit 4. The Estimated Relationship Between Announcement Day Return and Increase in Dividend Yield for Both Initial Dividends and Largest Subsequent Dividend Increases



yield of 0.67%, the stock price is not affected. In this case the increase is fully anticipated and already reflected in market prices.

If the announced increase is greater than 0.67%, investors are pleasantly surprised, resulting in a positive return. If the increase is less than investors anticipate, they express their disappointment through a reduction in the stock price. A positive abnormal return on subsequent dividend announcement day is visible only if the dividend is greater than forecast by investors.

It is important not to confuse this unexpected impact of subsequent dividends (portrayed by the regression line in Exhibit 4) with their total impact. The total impact includes both the unanticipated return and the anticipated return. Note that if the firm fails to increase its dividend at all (a zero change in yield), it suffers a negative return of about 2%. It avoids this loss by announcing the anticipated change of 0.67%. Thus, on announcement day a return of 2% is already incorpo-

rated in stock prices reflecting investors' anticipation of a 0.67% increase in yield.

For example, we would estimate that a subsequent increase in yield of 1% would result in a total abnormal capital gain of about 3% — the anticipated return of 2% already reflected in stock prices plus the unanticipated announcement day return of 1% estimated from the relationship depicted in Exhibit 4. Only the latter component is easily observable, and this has led other researchers to underestimate the true impact of dividends. Again, the specifics of these results apply only to the firms in our sample. However, they illustrate a relationship that may exist for the wider population of firms.

Therefore, we find that subsequent dividends also benefit shareholders. Compared to an initial dividend, a later increase of the same magnitude produces an abnormal return that is at least as large and probably larger than the initial return. Our study also demonstrates that a firm's dividend policy leads investors to

anticipate future dividends. As a result some of the benefits of a subsequent dividend increase are already built into the stock price on the announcement day, and the announcement day effect understates the total benefit of the dividend. On the announcement day, the firm must fulfill investors' expectations or suffer a reduction in stock prices.

II. What's Puzzling about Repurchases?

If dividends suffer from the burden of high ordinary income tax rates, stock repurchases should provide relief. Within certain IRS constraints, these distributions to shareholders are taxed at more favorable capital gains rates. Nonetheless, academics and financial consultants are only marginally more charitable towards repurchases than dividends.

The reason is simple. Virtually any cash distribution generates tax liabilities for some investors. Further, if the funds are needed some time in the future, transactions costs (flotation fees and the like) must be paid to "reclaim" the cash from the capital markets. A final cost to repurchases is the premium usually paid to investors tendering their shares.

These disadvantages can be avoided simply by never paying out anything to shareholders. Firms can construct balanced portfolios of businesses. Cash cows can acquire companies with large, profitable investment opportunities. Funds can be recycled internally, bypassing the external capital markets and the attendant financing costs and investor taxes.

Why, then, do some of our largest, most successful firms repurchase their stock? Academics tend to favor three explanations. First, the investor tax argument — repurchases are not perfect, but are an improvement on cash dividends. The second is the leverage hypothesis. Through repurchases of common stock, a firm can radically alter its capital structure, increase its debt ratio, and reap the benefits of higher leverage. Third, some have suggested that repurchases are merely the product of recommendations by a vested interest group — investment bankers.

Many managers have a simpler answer. Why do they buy back their stock? Because it is underpriced, of course. If this is their motive, repurchases should convey valuable information to investors. A repurchase is a signal that managers, who possess an insider's knowledge of the firm, are convinced that their stock is worth more than its current price. In addition, their conviction is strong enough to lead them to pay a premium for the stock despite the risk of dilution if they are wrong.

A. Research on Repurchases

Theo Vermaelen in 1981 published a study [22] of repurchases.⁶ He employed the CAR methodology in analyzing a sample of tender offers and open-market repurchases executed during the period 1962–1977.

B. Tender Offers

In a tender offer a firm offers to purchase its stock at a specified price, usually a premium to the market price. The offer remains in effect for a specified time period, typically three or four weeks. In Vermaelen's sample of 131 tender offers the average premium was 23% and, on average, 15% of the firm's outstanding shares were repurchased.

Repurchases by tender offer increase stock prices. The details are portrayed in Exhibit 5. The abnormal return during the announcement period averages roughly 17%. As the offers expire during the following few weeks, these stocks sell off by only about 4%. There is no additional decline in CAR for at least a year. Thus, Vermaelen concludes that the remaining gain of 13% is permanent.

In his analysis of the underlying causes of these gains, Vermaelen rejects the tax advantage of repurchases over dividends. He attributes the stock market reaction to an information effect, rather than the leverage hypothesis.

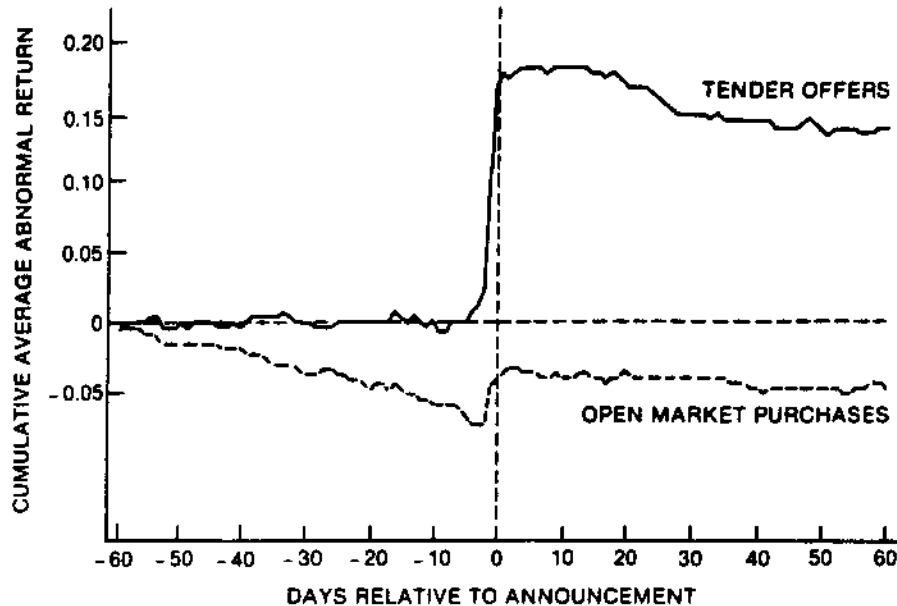
His analysis argues that the repurchase convinces investors that the stock was undervalued prior to the tender offer. The magnitude of the benefits to investors is positively related to the premium paid, the percentage of outstanding shares repurchased, and the fraction of the firm's shares owned by insiders. This is consistent with a signalling explanation. These three factors should be positively related to the market's perception of the strength of managers' conviction that their shares are underpriced.

Managers' faith in the future prospects of their companies is confirmed by subsequent earnings performance. Sample firms exhibited abnormally high earnings during the five years following the tender offer.

C. Open-Market Repurchases

Firms sometimes repurchase relatively small quantities of stock in the open market. The purchases are executed through brokers at normal commission rates and no premium is paid. Vermaelen's study examines 243 open-market announcements. The results of his

⁶A variety of other studies, including Dann [8] and Masulis [16], verify Vermaelen's findings.

Exhibit 5. Abnormal Stock Returns for Stock Repurchase Announcements

Source: "Common Stock Repurchases and Market Signalling" by Theo Vermaelen, *Journal of Financial Economics*, Volume 9 (1981), p. 149.

analysis are also reported in Exhibit 5.

The firms in this sample have been experiencing negative abnormal stock price performance prior to the open-market repurchase. In the three months preceding the repurchase, their stock prices have underperformed the market by about 7%. The repurchase produces a gain of a little more than 3%, but prices retreat about 1% during the following three months. The result is an apparently permanent gain of 2%.

As one might expect, open-market repurchases are less powerful than tender offers. For Vermaelen's sample, which has been underperforming the market, these repurchases are successful in halting the slide and producing a small gain. His interpretation of the results is consistent with his views on tender offers.

Both types of repurchases benefit shareholders. If managers believe their shares are underpriced, a repurchase communicates their conviction to shareholders. This communication is issued by knowledgeable insiders. It is backed by cash or securities and, for tender offers, the willingness to pay a premium above the current price.

This rationale is supported by Karl F. Slacik, chief financial officer for Levi Strauss & Company, a firm that tendered for 15% of its own shares. Explains Mr.

Slacik: "There is no greater expression of confidence than to repurchase your own shares. It looked to us like the best investment we could make at this time and it should speak about our management's confidence. We wouldn't take \$150 million of our resources and use it this way if we were concerned about the future of our business."⁷ After most repurchases, the stock price does not fall back to its pre-announcement level. Apparently, repurchases are successful in convincing investors of the validity of managers' assessments, and the gain to shareholders is permanent.

III. Signalling with Dividends and Repurchases

Distributions to shareholders are received as good news. Repurchases convince the stock market to price a firm's stock substantially higher than the pre-tender price. Establishing and pursuing a policy of paying cash dividends appears to produce small, though consistent, gains. Any investor tax burden or financing costs are outweighed by these benefits. As far as can be determined with the CAR methodology, the gains from both dividends and repurchases are permanent.

⁷As quoted in *The New York Times*, see (23).

These results are consistent with the view that distributions are signals.

The basic idea behind dividend signalling is simple. Paying dividends proves that a firm is able to generate cash, rather than just accounting numbers. By demonstrating its profitability in this manner, the firm can differentiate itself from less profitable firms. Further, management then has an incentive to perform well enough to maintain its dividend and avoid the adverse consequences of a dividend cut or any equity issue to replace the funds paid out. Viewed in this framework, dividend changes reveal management's assessment of a firm's profitability. The research reviewed heretofore suggests that investors perceive these signals as credible, persuasive, and valuable.

A. Can Signals Be Trusted?

The preceding evidence does not demonstrate that managers can manipulate stock prices by consistently misleading investors. For both types of distributions, false signalling is punished.

Our analysis of subsequent dividends illustrates that dividends are habit-forming. If the market does not receive its expected dosage, the stock price will suffer withdrawal symptoms.

Establishment of a dividend program generates expectations of future dividends. Management is forced to submit to investors' anticipation of a periodic signal. Whenever management is unable or unwilling to fulfill these expectations, the stock price will fall. Although not examined in this article, our study and others find substantial reductions when dividends are cut.⁸ These reductions are generally greater than the gains from initiating and increasing dividends. Moreover, if management pays out excessive dividends, it could replace the funds with a new equity issue. As we shall explore later in this paper, equity issues reduce stock prices, and this negative reaction encourages management to limit dividend payout to a sustainable level. Other costs to false signalling with dividends include the possible adverse effects of altering investment and capital structure policy in an attempt to sustain an excessive dividend payout.

Similar retribution should be suffered in response to false signalling with repurchases. As subsequent events inevitably reveal the truth, the stock should fall below its pre-announcement price, reflecting the premium given away in the tender offer. The costs associated with replacing the funds paid out in repurchases

also help to keep management honest. Vermaelen's finding of abnormally high earnings performance following repurchases suggests that his sample firms did not lie.

False signalling may mislead the market for a short time. Though market vengeance may not be immediate, it should be unavoidable. This would also compromise the credibility of any future attempts at signalling. As a result, management would lose tools valuable in creating value for shareholders.

B. Wouldn't It Be Cheaper to Send a Postcard?

That dividends are news is not news. We have long known that managers possess valuable, inside information and that dividends convey information to the market. Critics of signalling through dividends raise a simple question. In view of the tax burden and other costs associated with dividends, aren't there equally effective, less costly ways to convey information? Shouldn't a candid letter to shareholders serve the same purpose more cheaply? Other alternatives include financial and accounting statements, managerial forecasts, and other statements by management.

Recent evidence does not support this view. It demonstrates that dividend announcements convey information over and above that contained in alternative announcements. For example, when quarterly earnings and dividends are announced on different days, the two announcements produce separate, significant market reactions. Regardless of whether the earnings announcement precedes or follows it, the dividend impact is roughly the same. The converse is also true.⁹

There are reasons for the efficacy of dividends as signals. Dividend announcements are backed by hard, cold cash. The firm must generate this cash internally or convince the capital markets to supply it. Alternative communications may lack the credibility that comes from "saying it with cash." Investors may suspect that statements by management are backed by the ghostwriting of well paid public relations specialists. They may feel that financial statements have been skillfully massaged by the financial staff. In addition, dividend decisions tend to be future oriented as opposed to accounting statements which document past performance.

Besides credibility, dividends also have the advantages of simplicity and visibility. Many other announcements are, at the same time, complex and de-

⁸In particular, see Charest [5].

⁹See Aharony and Swary [1].

tailed in focus. They require time and expertise to decipher. In contrast, few investors fail to notice and understand a check in the mail. An empty mailbox is also easily interpreted. As simple numerical signals, dividends facilitate comparative analyses unlike statements by management which may be difficult to calibrate. Simplicity is especially advantageous for investors holding many firms' shares to achieve the benefits of diversification. Further, dividend signals convey information without releasing sensitive details that may be useful to competitors. A firm can reap some of the benefits of disseminating sensitive information safely coded as dividend signals, but avoid the competitive damage resulting from the release of detailed forecasts.

Thus, dividends have a number of unique advantages over alternative managerial communications. The empirical evidence confirms that alternatives are not perfect substitutes for dividends. Dividends serve as a simple, comprehensive signal of management's interpretation of the firm's recent performance and its future prospects.

C. But, Shouldn't Repurchases be Better?

They share equally with dividends the advantages of credibility, visibility, and simplicity. Open-market repurchases avoid the cost of the premium usually paid in tender offers. In addition, they have one substantial advantage over dividends. Distributions through repurchases may be subject only to capital gains tax rates which are lower than the ordinary income rates applicable to dividend income.

For a repurchase program of the same frequency and magnitude as dividend payments, this advantage is, unfortunately, illusory. Under applicable U.S. tax code, repurchases qualify for capital gains treatment only if the distribution is "essentially not equivalent" to paying a dividend. If many firms instituted large, quarterly or even annual programs, the IRS would likely construe these repurchase distributions to be dividends for tax purposes. If it did not, the U.S. Treasury would suffer an enormous revenue loss from no longer collecting taxes on cash payments by U.S. firms.

If perfect substitution of repurchases for dividends is not feasible (in the aggregate at least), what about relatively large, infrequent programs? Some firms have implemented such a policy, and it appears to be a viable alternative to quarterly dividends. However, lack of frequency does entail a disadvantage. Shareholders benefit from the frequent communication of valuable information, and to some extent, a reduction

in frequency reduces the benefits.

Repurchases appear more suited for episodic signalling with timing at the discretion of management. Vermaelen's results suggest that they may be appropriate whenever a firm's management is convinced that its stock is undervalued. To be most effective, management must be willing to back its conviction by paying a premium for a significant percentage of its shares.

Dividends appear to be the appropriate vehicle for regular, relatively frequent communication of management's ongoing assessment of a firm's prospects. The tax burden imposed on both types of distributions are simply costs associated with these signalling mechanisms. The research reviewed in this article provides evidence that the benefits of employing these mechanisms outweigh these costs.

IV. Dividends and Repurchases — Still Puzzling after All these Years

The findings reviewed in this paper appear to be consistent with the way managers and investors have traditionally viewed dividends and repurchases. This suggests that managers and investors are not as unintelligent as some academics think. While we would hope the converse is also true, the evidence is less persuasive on this point.

We still have no precise answer as to how managers should determine distributions to shareholders — no definitive guidance on optimal dividend and repurchase policy. We now know more about how such distributions affect stock prices. However, this is only one input to managers' decisions.

We have not dealt with other important inputs. Perhaps chief among these is the financing side of dividends and repurchases. Further, the effects we have described may not apply to all firms. For example, relatively closely held firms may not need dividends to communicate with shareholders. The structure of the shareholder constituency is still an important concern.

Even ignoring other decision inputs, progress on the information content of dividends has yet to yield specific prescriptions for managers. There is some evidence that suggests dividend signalling may be more effective for lower risk firms.¹⁰ However, we do not know precisely how dividends should be set to maximize the value of information communicated.

¹⁰Eades [10] finds that dividend yield and a firm's stock return variance are negatively correlated and that *ceteris paribus*, larger information is gained through dividend changes for low-risk firms.

New theory and evidence on signalling does seem roughly consistent with time honored (if hidebound) heuristics: (i) set dividends to reflect management's estimate of the lower bound of future intermediate-term earnings, (ii) do not increase dividends unless confident that the higher level can be maintained, (iii) reduce dividends only if absolutely necessary. A dividend policy that consistently reflects forecasts of intermediate-term, sustainable earnings should produce signals which are simple, credible, and valuable.

Thus, our review of recent research does not provide a comprehensive analysis of how managers should make dividend and repurchase decisions. Nonetheless, these findings have important implications for managers.

They suggest that dividends and repurchases, though similar, play somewhat different signalling roles. Dividends appear to be perceived by the stock market as regularly scheduled news releases conveying management's ongoing assessment of a firm's prospects. A repurchase is viewed as an "extra" — a news bulletin justified when management is convinced its stock is substantially undervalued. The market's reaction demonstrates that in both cases, the news is credible and, apparently, investors are persuaded. Moreover, both types of distributions create an incentive for management to fulfill the promise implicit in the signal, and the integrity of both types of signals is policed by substantial costs associated with false signalling. Both dividends and repurchases are useful tools that managers can employ to create value for shareholders.

V. A Final Puzzle — Equity Issues

Another enduring anomaly in financial economics is the reliance of firms on internally generated funds as their chief source of equity financing and their corresponding reluctance to issue common stock.¹¹ According to academic finance, firms should not be reluctant to issue equity in the large, efficient U.S. capital markets.

Efficiency means that investors are pricing the firm's stock correctly based upon the risk and expected return associated with its future cash flows. One firm's shares represent only a small fraction of all assets available to investors. Close substitutes for any firm's shares, securities with similar risk and return characteristics, either are directly available in the capital mar-

kets or can be constructed with combinations of existing securities. The availability of many close substitutes implies that the demand curve for a firm's shares is essentially horizontal. A stock price reduction should not be required to induce investors to absorb an increased supply of shares, and firms should be able to issue large amounts of equity at the current stock price.

Neither should dilution of current earnings per share reduce stock prices when firms issue equity. In efficient capital markets investors should see through current earnings dilution and price a firm's shares based upon expected future cash flows. As long as a firm can earn a competitive return on the funds raised, an equity issue should be a fair deal. The value of the equity issued should be exactly equal to the value created by the firm's investment of the proceeds leaving the stock price unchanged. The actions of profit-motivated speculators should insure that current earnings dilution should not produce a price reduction associated with new equity issues.

Thus, with large, efficient capital markets firms should be able to issue large quantities of stock at the current price to finance worthwhile investment projects. Firms' self-imposed constraint to finance their operations primarily with internally generated equity funds is considered an anomaly in academic finance. This behavior is less anomalous to financial practitioners. Financial executives, investment bankers, and other practitioners contend that equity issues result in depressed stock prices that correspondingly depress financial executives who are considering external equity financing.

A. Equity Issues and Stock Prices

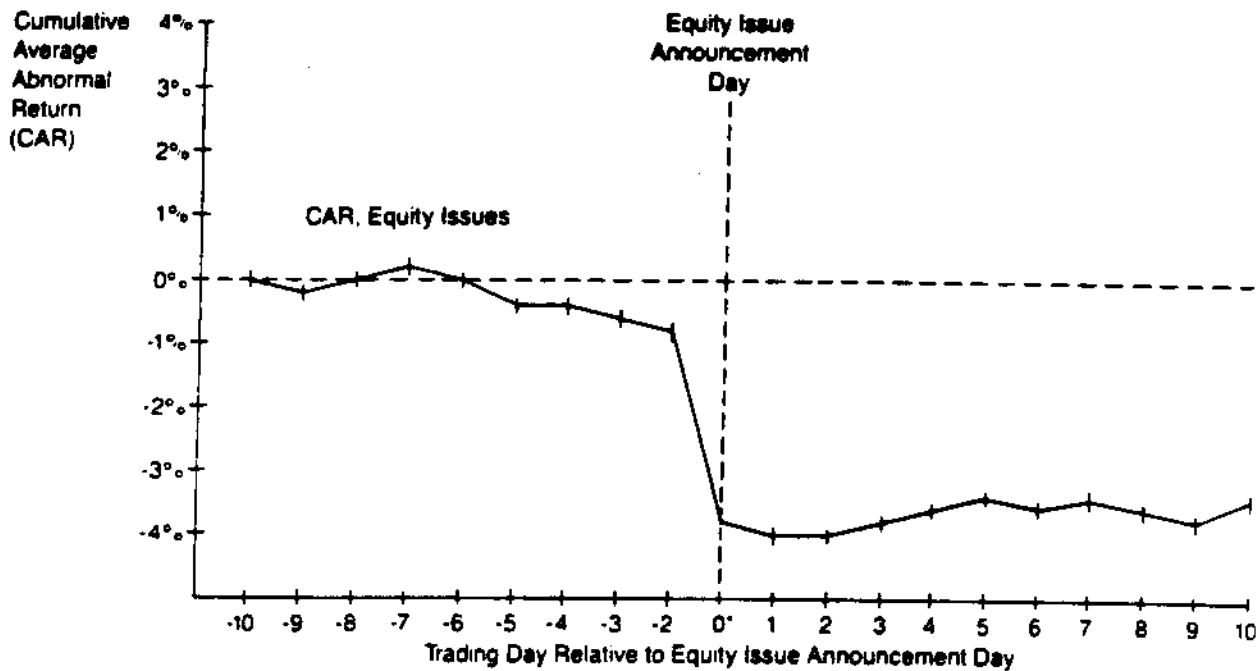
In a recent study, we analyzed the impact of equity issues on stock prices.¹² Included in our sample were 128 offerings of seasoned equity by industrial firms during the period 1963–1981. As in our dividend study, we calculated abnormal returns (ARs) and cumulated the ARs to produce cumulative average returns (CARs) centered on the announcement of the stock issue. The result is a view of the price behavior of our sample firms around the time of the equity issue.

The results reported in Exhibit 6 demonstrate that for our sample, equity issues reduced stock prices. The reduction averaged 3% on the day the offering was announced.¹³ Although the stock price reduction is

¹¹For empirical evidence on firms' financing practices see Donaldson [9], Lintner [14], and Sametz [21].

¹²For a detailed description of the study, see Asquith and Mullins [2].

¹³Masulis and Korwar [17] report a similar result on a different sample of firms.

Exhibit 6. Abnormal Stock Returns for Seasoned Equity Issues

*Day 0 is the publication date in *The Wall Street Journal*. Since *The Wall Street Journal* is a morning newspaper, the information in articles is often made public before the end of trading on the day before publication. For this reason the abnormal returns for days -1 and 0 have been aggregated to arrive at the announcement day return reported above.

concentrated primarily on the announcement date, the CAR falls by about 1% in the five days preceding the announcement. Moreover, sample stock prices fall by about 1% surrounding the issue date — the date the offering is sold. While the CAR methodology does not allow unequivocal determination of the permanence of the price decline, the reduction persists for many trading days after the announcement. For example, one month after the announcement, the CAR is -3.5%. This should provide ample time for profit motivated traders to capitalize on and thereby correct any unjustified price reductions.

An average abnormal return of only 3% may not seem to be reason for concern. Nonetheless, it is highly significant statistically. The result is also pervasive among sample offerings. Over 80% of our sample experienced price reductions associated with the equity issue announcement. Moreover, most equity issues represent a relatively small fraction of the shares then outstanding. Regression analyses of our results confirm that the size of the price reduction is directly proportional to the size of the equity offering. Addi-

tional insight into the magnitude of the price reduction can be gained by relating the reduction in the aggregate market value of the equity to the aggregate proceeds of the equity issue.

Exhibit 7 presents the distribution of the reduction in aggregate market value as a percentage of the funds raised in the equity issue. Although the percentage reduction in stock price may appear small, the aggregate loss in shareholders' value is a large fraction of the proceeds of the offerings. On average, when an equity issue is announced, the loss in market value is 31% of the funds raised. This means that, to raise \$100 million in new equity, existing shareholders in our sample gave up an average of \$31 million in current market value. Almost 25% of the sample offerings produced reductions in market value greater than 50% of the proceeds of the issue, and for 6% of the offerings, shareholders lost more on announcement day than the total proceeds of the equity offering.

A graphic example of the latter result occurred on February 28, 1983. American Telephone & Telegraph announced its intention to raise \$1 billion in new com-

Exhibit 7. Distribution of the Reduction in Aggregate Market Value as a Percentage of the Proceeds of an Equity Issue

	Loss in Market Value as a Percentage of the Proceeds of the Equity Issue	Offerings within this Range:		
		Number	Percentage of sample	Cumulative Percentage of Offerings
Negative Market Reaction to Equity Issue	Greater than 200%	1	0.8%	0.8%
	200% to 120%	2	1.7%	2.5%
	120% to 100%	4	3.3%	5.8%
	100% to 80%	6	5.0%	10.8%
	80% to 70%	4	3.3%	14.1%
	70% to 60%	6	5.0%	19.1%
	60% to 50%	5	4.1%	23.2%
	50% to 40%	6	5.0%	28.2%
	40% to 30%	25	20.7%	48.9%
	30% to 20%	11	9.1%	58.0%
	20% to 10%	9	7.4%	65.4%
	10% to 0%	20	16.5%	81.9%
Positive Market Reaction to Equity Issue	0% to -10%	9	7.4%	89.3%
	-10% to -20%	7	5.8%	95.1%
	-20% to -30%	3	2.4%	97.5%
	-30% to -60%	2	1.7%	99.2%
	less than -60%	1	0.8%	100.0%
		121	100%	

Average loss in market value as a percentage of the proceeds of the equity issue = 31%.

mon equity. The market greeted AT&T's announcement with a reduction in its aggregate market value of over \$2 billion.¹⁴

The results reported in Exhibit 7 can be interpreted in a number of ways — none of which are very comforting to executives who are considering issuing new equity. For example, one may view the price reduction as dilution of existing shareholders' value.

Consider an aggregate reduction in market value of 100% of the proceeds of the issue. After the issue is executed, the firm's aggregate market value will be the same as before the issue was announced. However, this post-issue market value will be divided by the larger number of shares outstanding leading to a reduction in stock price. The result is a purely dilutive equity issue — the price reduction is exactly proportional to the increase in shares outstanding. This same result would occur if the market value of the firm remained unchanged on announcement day but management simply gave away the new shares receiving nothing in

return. In our sample the average stock issue is highly dilutive but less than purely dilutive. On average, shares outstanding increase by about 10% and the stock price falls by 3%.

There is another way to view the loss in current shareholders' wealth associated with raising new equity funds. Our results imply that a substantial portion of the proceeds of an equity issue, in effect, comes out of the pockets of current shareholders. On average, after \$100 million in new equity is raised, the market value of the firm has increased by only \$69 million. The other \$31 million is "donated" by existing shareholders in the announcement period price reduction.

Regardless of the interpretation, the reductions in market value reported in Exhibit 7 represent a hefty haircut associated with bringing new equity funds into the firm from the external capital markets. The reductions may also be viewed as a barrier to external equity financing — a cost which might be avoided by relying on internally generated equity funds.

B. Equity Issues and Timing

Because a firm's stock is always correctly priced in efficient markets, financial economists argue that

¹⁴The proposed issue represented about 1.6% of the shares then outstanding, while AT&T's stock price fell by 3.5%. AT&T's stock price rebounded somewhat the day after the announcement, but retreated to the post-announcement low by the end of the week.

Exhibit 8. The Timing of Equity Issues: Market-Wide Performance and Market-Adjusted Performance (CAR) for Two Years Before and After the Equity Issue

Trading Day Relative to the Announcement of a New Equity Issue	Cumulative Average Return on the Market (S&P 500)	Cumulative Average Abnormal Return (CAR) for Issuing Firms
-480	-0.4%	0.9%
-280	0.4%	12.2%
-80	6.0%	33.5%
-40	9.4%	37.7%
-20	11.6%	39.5%
-10	12.3%	40.4%
Announcement Day	12.7%	35.5%
+10	13.1%	36.2%
+20	13.2%	35.6%
+40	13.2%	37.1%
+80	13.5%	39.0%
+280	23.0%	38.9%
+480	26.5%	32.4%

firms should always be willing to issue equity to finance worthwhile projects at the current stock price. Managers should not be concerned about timing equity issues to take advantage of high stock prices. Managers should be just as willing to sell equity when the firm's stock price is near an historic low as when the price is scaling new heights. In contrast, financial executives considering an equity issue appear to be very concerned with the level of stock prices. Their enthusiasm for issuing equity seems to be directly proportional to the level of their firm's stock price.

Exhibit 8 provides insight into the timing of equity issues. The results presented include both the cumulative movement of the market in general and the performance of sample firms relative to the market (*i.e.*, the CAR) for selected time periods surrounding the stock issue.

The market-wide results confirm that firms issue equity when stock prices in general are rising. Nonetheless, the results reveal no ability to time the general level of stock prices. Market returns are positive in the two years preceding the equity issue, and the market continues to rise during the two years following the offering.

A different picture emerges from the results on market-adjusted performance of issuing firms' stock prices. In the two years prior to the equity offering, sample firms on average outperform the market by

about 40%. In the ten days concluding with the announcement of the stock issue, sample firms' stock prices fall by about 5%.¹⁵ Market-adjusted performance following the issue is at first slightly positive then negative.

In addition, the price reduction associated with issuing equity is related to the firm's market-adjusted performance prior to the issue. Regression analyses of our results demonstrate that poorer stock price performance in the months preceding the offering is associated with larger price reductions.¹⁶ This is consistent with the notion that it is more difficult and costly to sell equity when a firm's stock has not been performing well. Investors are apparently more concerned about the implications of managers' willingness to issue equity in the face of poor recent stock price performance.

Thus, firms issue equity following a period in which the stock outperforms the market. Subsequent to the issue, superior performance ceases and average or below average performance is observed. In our sample this timing pattern is observed only for the performance of a stock relative to the market in general, and no systematic differences are apparent in market-wide returns prior to and following stock issues.

VI. Why Are Stock Issues Bad News?

Our findings confirm financial executives' concerns about issuing equity. Equity issues reduce stock prices. The percentage reduction in stock price is small, but the aggregate loss in market value is a large fraction of the funds raised in the offering. While sample firms have been outperforming the market as a whole, the announcement of an equity issue is associated with the cessation of superior stock price performance.

There are several possible explanations for the negative stock price impact of equity issues. The negative market reaction may result from earnings per share dilution, supply-demand imbalance (or price pressure effects), and/or the valuation effects of a change in debt-to-equity ratio. Our analysis does not support these explanations for three principal reasons. First, the magnitude of the price reduction is generally incon-

¹⁵This is somewhat greater than reported in Exhibit 6 due to differences in the sample. Stock price data for two years before and after the equity issue are available for only 80 of the sample of 128 represented in Exhibit 6.

¹⁶An average issuing firm outperformed the market by about 24% in the eleven months preceding the month of the offering and experienced a 3% reduction on announcement day. In contrast, a firm that underperformed the market by 24% prior to the issue experienced a price reduction of about 4.3% on the announcement date.

sistent with predictions based upon the three hypotheses presented heretofore. Second, the negative market reaction varies widely across firms and, for sample firms that executed more than one issue, the negative market reaction varies widely for different offerings. The magnitude and nature of this variability is not consistent with these explanations. Third, these hypotheses are not supported by the reaction of stock prices to other types of equity offerings such as secondary offerings and stock sales by knowledgeable insiders. This final point warrants elaboration.

In addition to primary sales of new equity by corporations, our study analyzed registered secondary distributions, the underwritten sales of large blocks of existing shares. The announcement of secondary distributions of equity is associated with a stock price reduction despite the fact that this produces no dilution in earnings per share and no change in the firm's debt ratio. Other studies have documented that the sale of stock by insiders reduces stock prices.¹⁷ After adjusting for the size of the sale, secondary distributions and insider sales produce price reductions substantially larger than those accompanying primary sales of equity by firms. The price reduction appears too large to be explained by a supply-demand imbalance. The preponderance of evidence supports an alternative explanation for the negative market reaction to stock issues.

A. Equity Issues as Negative Signals

The decision to sell equity is made by executives who possess an insider's knowledge of the firm, its current performance and future prospects. When the current stock price is high relative to managers' assessment of the firm's prospects, there is a powerful incentive to sell stock to benefit the firm and its existing shareholders. This incentive is, of course, simply the mirror image of the incentive to repurchase stock when managers view their stock as underpriced. Conversely, when management believes the firm's shares are underpriced, there is an incentive to avoid issuing equity even if the firm has worthwhile projects to finance. To protect themselves against the risk of buying overvalued shares, investors mark down the stock price in response to the announcement that management is willing to sell equity. Indeed, this sort of price hedging is common in any trading situation where some participants are viewed as having superior information.¹⁸

Of course, the firm selling equity may simply be raising funds to finance a very profitable investment project. Because of the information imbalance between investors and managers and investors' vulnerability to this imbalance, there may be no credible way to convince investors of management's laudable motive for issuing equity.¹⁹ Moreover, new equity issues are typically a relatively small percentage of the existing shares outstanding. New shareholders are investing primarily in the valuation of the firm's existing assets rather than the specific investment project funded by the sale. Regardless of the outcome of the project, new investors' returns will be determined primarily by the future performance of the firm's existing businesses. Investors have little recourse if they purchase overvalued shares.

Thus, an equity issue is viewed by the market as a negative signal. The stock price reduction is produced by investors hedging against the risk that, in selling stock, informed managers are responding to the incentive to capitalize on a favorable market valuation. A more benign interpretation is that the information available to management is not so favorable as to preclude selling stock at the going price, and thus the decision to issue equity is a negative signal.

This signalling explanation is consistent with our empirical findings. The size of the equity issue represents the size of the signal. Investors fear that management's willingness to sell a large fraction of the firm's equity reflects their assessment that the stock price is especially favorable relative to their superior information. The variability of the negative market reaction to equity issues through time and across firms reflects the varying information content of equity issue decisions. Negative reactions to secondary distributions and insider sales suggest that whether managers sell equity for their own account or for the firm's account, investors are concerned about the implications of the decision.

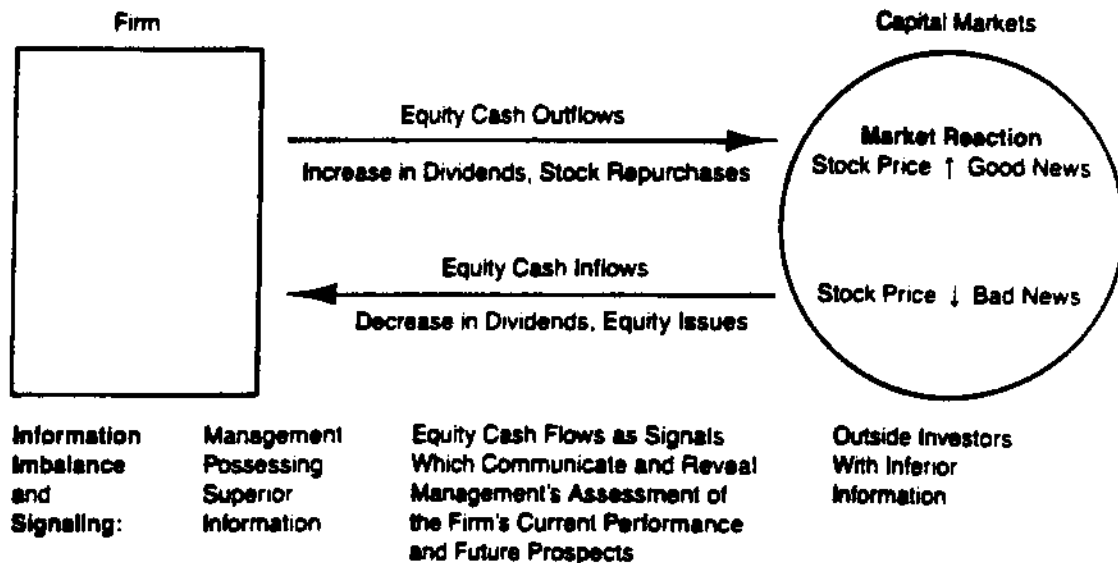
The signalling rationale is also consistent with the firm-specific timing pattern observed in our empirical work. The decision to sell stock follows a period of superior stock price performance. The decision to sell equity now, rather than wait for additional price appreciation, suggests that management does not foresee continued superior performance. The post-issue cessa-

¹⁷For example, see Jaffee [13], and Finnerty [12].

¹⁸For example, block traders routinely mark down the price when buying securities from sellers whom they fear possess superior informa-

tion. Price increases are associated with purchases by investors who specialize in speculating on takeover targets. The same is true of real estate purchases by buyers who are thought to have information concerning future real estate development.

¹⁹Myers and Majluf [20] discuss this issue in more detail.

Exhibit 9. The Capital Markets' Reaction to (Unanticipated) Equity Cash Flow Decisions

tion of superior stock price performance reflects both the validity of management's assessment and investors' response to the equity issue signal.

Finally, the signalling story is consistent with another aspect of management's attitude toward equity issues. When queried about their reluctance to issue equity, managers explain that this reluctance stems from the inappropriately low valuation placed upon their shares by the market.²⁰ With this attitude as a backdrop, it is not surprising that investors fear that a decision to sell equity reflects the temporary reversal of this assessment.

B. Is Issuing Equity a Bad Idea?

The answer to the question posed in the heading is "not really." First, of course, selling stock when the market is overly optimistic may benefit the firm and its existing shareholders. Second, an equity issue may make sense if the firm has worthwhile investment projects, insufficient internal funds flow, and insufficient debt capacity. In this case the benefits of pursuing the project may outweigh the negative impact associated with external equity financing.

²⁰Despite the impressive advance in stock prices over the past two years, a recent study by Louis Harris & Associates, Inc., found that 60% of the executives polled felt their stock was valued too low and about a third of the sample executives felt their stock was seriously undervalued. Only 2% felt that their stock was overvalued and 32% believed that their companies' shares were correctly priced. See [23].

However, the negative signal inherent in issuing equity will require the firm to forgo some profitable investment opportunities. This occurs when the benefits of the project do not outweigh the negative impact of issuing equity. In this case there may be no credible way management can persuade investors that the equity issue is motivated by a worthwhile investment rather than the opportunity to take advantage of an overly favorable stock price. Investors' vulnerability to management's incentive to capitalize on its superior information creates a barrier to equity financing, a cost that constrains firms from pursuing all worthwhile investment opportunities. Firms can avoid this difficulty by designing financial policies to insure ample availability of internal funds to finance all worthwhile investment opportunities.

VII. The Firm as a Black Box

Emerging from the empirical studies reviewed in this article is an interesting pattern. Despite the associated tax burden, increases in cash dividends are received by investors as favorable signals. The same is true of stock repurchases. The downside is that when a firm requires refunding from the equity market, this is viewed as a negative signal. Similarly, a cut in cash dividends is greeted with a reduction in the stock price.

As illustrated in Exhibit 9, these studies of equity cash flows have documented that unanticipated equity cash flows and stock prices are positively related. This

suggests a model of the firm based upon the superior information possessed by managers vis-à-vis outside investors.²¹ These findings are consistent with a view of the firm as a "black box," where unanticipated equity cash flows communicate information to investors. Cash outflows, stock repurchases, and increases in dividends are positive signals accompanied by increases in stock prices. Conversely, if a firm requires cash inflows from the equity market, through equity issues or a reduction in dividends, the result is a negative signal and a reduction in the stock price.

The information imbalance arises because of the separation of ownership and management. Indeed, there are theories of economic organization that view efficiency in information processing as the factor that defines firms as economic entities. Efficiency in information processing helps determine which activities are undertaken within organizations and which are left to market transactions.²² Moreover, there are organizational behavior models of the firm based upon information processing.²³ The separation of management and investors endows managers with superior information concerning a firm's current performance and future prospects. Equity cash flows serve as signals that communicate managerial information to investors.

Of course, it is unrealistic to portray the firm as an impenetrable black box. Empirical studies demonstrate that accounting information, managerial statements, and security analysts' reports all provide valuable information to investors.²⁴ Nonetheless, equity cash flows appear to have value independent from and in addition to other informative signals.

Why is there residual signalling value to equity cash flows over and above other informative signals? First, equity is the residual claim to the firm's cash flows and carries with it no fixed promise of return. Equity returns are highly volatile, and equity is simply very difficult to value. Second, the information imbalance between management and investors is apparently quite severe. Third, as noted earlier in this paper, cash has unique advantages as a signal. Equity cash flows constitute simple, highly visible, and credible managerial signals. The reaction of the capital markets to equity cash flows illustrates that, if not an impenetrable black

box, the firm is viewed by investors as a "beige box" — an opaque entity about which investors draw inferences from equity cash flow signals.

VIII. Interrelated Corporate Financial Decisions

An important source of the credibility of dividend and repurchase signals is the negative market reaction produced by equity issues and dividend reductions. This negative impact on stock prices associated with equity cash inflows imposes a cash flow constraint on firms. Even though dividend increases and stock repurchases are received as good news, firms that pay out excessive equity cash flows may later have to replace the funds paid out with new equity financing or a reduction in dividends. The negative impact on stock prices of equity issues and dividend reductions constitutes a substantial "cost to false signalling," which keeps management honest and adds credibility to dividend and repurchase signals.

The constraints imposed by the information imbalance between firms and investors have important implications for corporate financial decisions. It should be apparent that decisions concerning dividends, repurchases, and equity issues are interrelated. These decisions must be determined jointly to avoid paying the cost inherent in violating the cash flow constraint and reducing dividends and/or issuing equity.

More generally, the information-induced barrier between the firm and the capital markets helps bind the firm as an entity separate from the capital markets. It also binds the firm's major financial decisions and forces the simultaneous determination of investment policy, capital structure policy, and dividend policy. The necessity of jointly determining financial policies is mandated by the constraint imposed by the negative market reaction to external equity financing. This leads to policies that differ from those predicated on the assumption that a firm can always issue equity at the current stock price. Were this assumption valid, decisions could be determined incrementally and independently.

The findings explored in this paper explain firms' self-imposed equity capital rationing. The desire to avoid the negative information impact of having to go to the equity market for funds (or reducing dividends) encourages firms to limit their growth and investment to that sustainable with internally generated equity funds. This explains why so many firms use the sustainable growth paradigm as an integrative planning framework in determining financial policies.

²¹Miller and Rock [19] develop such a model.

²²For a survey of relevant literature, see Marris and Mueller [15].

²³See for example Cyert and March [7].

²⁴For a review of some of this literature, see Copeland and Weston [6].

IX. Future Research on Equity Cash Flows

Although the results reviewed in this paper provide useful insight to financial decisionmakers, this work does not constitute enough progress on how managers should make equity cash flow decisions. More progress on this front requires going behind corporate decisions to investigate how and why decisions are made and why some decisions are favorably received by the capital markets and others poorly received. Our results suggest that corporate policies should not be studied as separate decisions. Future research needs to focus on the interrelated nature of major financial decisions — how financial policies are reconciled within the constraints that bind firms' decisions.

This future research will be more difficult than measuring the capital markets' reaction to corporate decisions. But, the payoff promises to be correspondingly greater as well. The work to date does constitute important progress toward solving the equity cash flow puzzles and provides a foundation for future research designed to improve corporate financial decisionmaking.

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