



Revisiting the dividend puzzle Do all of the pieces now fit?

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Abstract

This paper revisits the dividend puzzle, described here as questions about the relevance of dividend policy and how managers should (and do) determine dividend policy. We examine theoretical and empirical research on dividends and share repurchases because they are the principal mechanisms by which corporations disburse cash to their shareholders. Despite a voluminous amount of study, researchers still do not have all the answers to the dividend puzzle. However, we are closer to its resolution. We also do not have definitive answers to why managers choose one method of cash distribution over the other. Solving the dividend puzzle may depend on understanding the effects of various market imperfections or frictions. Because various imperfections affect firms differently, dividend policy may vary substantially from one firm to another. Models that consider the competing frictions on a firm-specific basis offer promise for resolving the dividend puzzle.

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1. Introduction

A main principle of corporate finance is that managers should make decisions that lead to maximizing the wealth of their shareholders as reflected in share price. Much debate exists about the role, if any, of dividend decisions on share prices. Both academics and corporate managers continue to disagree about whether the value of a firm is independent of its dividend policy. Despite exhaustive theoretical and empirical analysis to explain their pervasive presence, dividends remain one of the thorniest puzzles in corporate finance.

Miller and Modigliani (1961), hereafter called M&M, first posed this puzzle in their classic paper. They provide a compelling and widely accepted argument for dividend irrelevance if some well-defined conditions are met. M&M frame their analysis in the context of a perfect capital market with rational investors. Their premise is that valuation depends only upon the productivity of the firm's assets and not the form of payout. The irrelevance argument implies that no matter how much care managers take in choosing a dividend policy for their firm, the chosen policy has no beneficial impact on shareholder wealth. Thus, all dividend policies are equivalent. Early research by Black and Scholes (1974), Miller (1986), and Miller and Scholes (1978, 1982) support the dividend irrelevance argument.

Once we leave M&M's idealized world of economic theory and enter the real world, the issue of dividend irrelevance becomes more debatable. Such market imperfections as differential tax rates, information asymmetries between insiders and outsiders, conflicts of interest between managers and shareholders, transaction costs, flotation costs, and irrational investor behavior might make the dividend decision relevant.

Researchers responded to M&M's dividend policy's irrelevance conclusion by offering many competing hypotheses about why companies pay dividends and why investors pay attention to dividends—the “dividend puzzle.” In assessing the contributions provided by researchers, Black (1976) concluded, “The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just don't fit together.” Several years later, Feldstein and Green (1983, p. 17) echoed Black's sentiments by stating, “The nearly universal policy of paying substantial dividends is the primary puzzle in the economics of corporate finance.” Miller (1986) also recognized that the observed preference for cash dividends is one of the “soft spots in the current body of theory.” The profusion of theories led Ang (1987, p. 55) to observe, “Thus, we have moved from a position of not enough good reasons to explain why dividends are paid to one of too many.” These observations suggest that solving the dividend puzzle has been neither simple nor obvious.

This paper revisits the dividend puzzle in order to determine whether all of the pieces now fit. Because the dividend literature is large, we limit our review to some salient theories and evidence.³ We focus on dividends and share repurchases because they are the principal mechanisms by which corporations disburse cash to their shareholders. Because some people

³ See Allen and Michaely (1995) and Lease, John, Kalay, Loewenstein and Sarig (2000) for comprehensive reviews of the dividend literature.

argue that companies should buy back their shares rather than pay or raise dividends, we examine share repurchases as an alternative mechanism for distributing cash to shareholders.

The structure of the paper is as follows. Section 1 discusses several theories on why companies pay dividends and summarizes some empirical evidence on each explanation. Section 2 provides survey evidence on dividend policy. In Section 3, we summarize various explanations for share repurchases and associated evidence. Section 4 presents the results of survey research on share repurchases. In Section 5, we examine the firm's choice between paying cash dividends and repurchasing common stock. Section 6 describes the trends involving dividends and share repurchases. Section 7 contains our conclusions about the dividend puzzle.

2. Why companies pay dividends

Various theories evolved to explain the dividend puzzle. We focus on three common explanations involving major market imperfections or frictions: taxation, asymmetric information (signaling), and agency costs. We also discuss other minor market imperfections identified in the literature as potentially making the dividend decision relevant: transaction costs, flotation costs, and irrational investor behavior.⁴ Although researchers typically focus on each market imperfection in isolation, complex interactions may exist among these frictions. If the imperfections are insignificant or offsetting, the M&M conclusion about dividend irrelevance may hold. Otherwise, these market imperfections may be relevant to the dividend setting process and to the value of the firm.

2.1. Tax-preference explanation

One of the earliest explanations for paying dividends is based on a tax-preference argument where investors who receive favorable tax treatment on capital gains (lower capital gains tax rate and deferral of capital gains tax) may prefer stocks with low dividend payouts. Thus, different dividend policies may result in tax-induced clientele effects. Only limited evidence supports tax-induced dividend clienteles of shareholders.

Brennan (1970) developed a version of the capital asset pricing model with an additional premium based on dividend yield. The model states that investors require higher pretax risk-adjusted returns on stocks with higher dividend yields to compensate for the tax disadvantages of these returns. Brennan's empirical tests of this model, however, are mixed and Black and Scholes (1974) find no evidence of such a tax effect. On the other hand, Kalay and Michaely (1993) and Litzenberger and Ramaswamy (1979) do find evidence that pretax returns are related to dividend yield.

⁴ See Lease et al. (2000) for a detailed discussion of the "big three imperfections" (taxes, asymmetric information, and agency costs) and the "little three frictions" (transaction costs, flotation expenses, and behavioral considerations) that are the keys to the relevance of dividend policy. Allen and Michaely (1995) also discuss various theoretical models of dividend behavior.

Another way to test the tax-preference hypothesis is to examine the ex-dividend date price drop. Favorable capital gains tax treatment should cause the price drop to be less than the dividend payment and cause investors to prefer stocks that do not pay dividends. Empirical evidence on this matter is also inconclusive. [Elton and Gruber \(1970\)](#) find an ex-dividend day price drop that is less than the dividend amount, but [Michaely \(1991\)](#) finds an ex-dividend day price drop equal to the dividend payment.

2.2. Signaling explanation

The signaling (asymmetric information) models for paying dividends, developed by [Bhattacharya \(1979\)](#), [John and Williams \(1985\)](#), and [Miller and Rock \(1985\)](#), suggest that managers as insiders choose dividend payment levels and increases, to signal private information to investors. Managers have an incentive to signal this private information to the investment public when they believe that the current market value of their firm's stock is below its intrinsic value. The increased dividend payment serves as a credible signal when other firms that do not have favorable inside information cannot mimic the dividend increase without unduly increasing the chance of later incurring a dividend cut. Thus, the implication of the dividend-signaling hypothesis is that firms that increase (decrease) cash dividends should experience positive (negative) price reactions.

Empirical tests involving the signaling explanation yield mixed results. Much evidence shows that dividend changes are positively associated with stock returns in the days surrounding the dividend change announcement (e.g., [Aharony & Swary, 1980](#); [Asquith & Mullins, 1983](#); [Kalay & Lowenstein, 1986](#)). Other studies support the signaling hypothesis by finding an association between dividend increases and future profitability (e.g., [Aharony & Dotan, 1994](#); [Bernheim & Wantz, 1995](#); [Brooks, Charlton, & Hendershott, 1998](#); [Dyl and Weigand, 1998](#); [Healy & Palepu, 1988](#); [Kao & Wu, 1994](#); [Nissim & Ziv, 2001](#)). Some studies, however, do not support the hypothesized relation between dividend changes and future earnings. For example, older studies include [Gonedes \(1978\)](#) and [Watts \(1973\)](#), while more recent studies include [Benartzi, Michaely, and Thaler \(1997\)](#) and [DeAngelo, DeAngelo, and Skinner \(1996\)](#).

2.3. Agency costs explanation

Agency relationships between various claimholders of the firm may offer another explanation for why firms pay dividends. [Easterbrook \(1984\)](#) argues that firms pay dividends to help reduce the agency costs between shareholders and managers. By paying dividends, managers must raise funds more frequently in the capital markets where they are subjected to the scrutiny and the disciplining effects of investment professionals. Thus, shareholders are willing to accept the higher personal taxes associated with dividends in exchange for the increased monitoring that the professional investment community provides.

[Jensen \(1986\)](#) makes a similar argument based on the shareholder–manager agency relationship where managers pay dividends to reduce the firm's discretionary free cash flow that managers could use to fund suboptimal investments that benefit themselves but diminish

shareholder wealth. That is, excessive cash balances give managers added investment flexibility, which may be detrimental to shareholders.

Allen, Bernardo, and Welch (2000) offer another agency argument for paying dividends. When institutional investors are relatively less taxed than individuals, dividends result in “ownership clientele” effects. Firms paying dividends attract relatively more institutions. Because institutions are better informed than individuals, they have a relative advantage in detecting high firm quality and using this information to help the firm control agency problem. Thus, institutions are more likely to play a larger role in overseeing management than dispersed individual investors.

Mixed empirical results exist for the agency costs explanation for paying dividends. Several researchers (e.g. Agrawal & Jayaraman, 1994; Jensen, Solberg, & Zorn, 1992; Lang & Litzenberger, 1989; Rozeff, 1982) provide empirical support for these agency explanations for paying dividends. Other studies provide little or no support for the free cash flow hypothesis (e.g., Denis, Denis, & Sarin, 1994; Howe, He, & Kao, 1992; Lie et al., 2000; Yoon & Starks, 1995). The studies by Denis et al. and Yoon and Starks, however, provide support for the signaling hypothesis.

2.4. Other explanations of dividend relevance

Three other market imperfections identified in the literature as potentially making the dividend decision relevant are transaction costs, flotation costs, and irrational investor behavior. Lease et al. (2000) view these frictions as relatively minor in the total scheme of imperfections. Although the theoretical and empirical finance literature devotes relatively little attention to the first two frictions, a growing body of literature exists on behavioral explanations for dividend policy relevance.

By assuming away transaction costs and taxes, M&M (1961) create a situation in which investors can construct their own dividend policy without incurring costs. That is, they can undo any dividend decision made by a firm’s managers. Investors can create their desired cash flow level by either selling shares of stock to create “homemade” dividends or using unwanted dividends to buy additional shares of the company’s stock. Under these conditions, one dividend policy is as good as any other. In practice, taxes and transaction costs exist so dividend policy may be relevant.

Assume that a firm has a large amount of attractive investment opportunities that require more funds than are available internally after meeting dividend commitments. By assuming away flotation costs, M&M enable companies to obtain costless financing to fund new investments. Without flotation costs, the firm would be indifferent between using internally versus externally generated funds for such purposes. In real-world financial markets, companies face flotation costs if they need funds to finance desirable investment opportunities. Thus, managers may serve the best interest of shareholders by following a residual policy in which they pay dividends only after meeting capital expenditures from operating cash flows. This is because internal equity is less costly than external equity.

M&M (1961) assume that investors are rational in that they prefer more wealth to less wealth. Ample anecdotal evidence exists that investors are not always rational. The question

remains: Can dividends be explained in terms of rational decision making or does behavior do a better job of explaining dividend decision making?

Shefrin and Statman (1984) present a behavioral framework explaining why some investors want to receive cash dividends. Their framework is based on the theory of self-control presented by Thaler and Shefrin (1981) and the theory of choice under uncertainty described by Kahneman and Tversky (1979). Shefrin and Statman argue that receiving dividends and generating cash from the sale of stock are not perfect substitutes. They believe that many investors prefer specific dividend payouts. They also identify the demographic attributes of investors who prefer stocks having low and high dividend payout ratios. If, for example, retired individuals prefer a high and stable dividend to help finance their daily consumption, they may prefer firms with high dividend payout ratios. By receiving large dividend payments, these individuals can avoid the inconvenience and cost of creating the needed cash flows by liquidating share holdings. Shefrin and Statman find empirical evidence that is consistent with this theory.

Shefrin and Statman also argue that some investors prefer cash dividends for self-control reasons (dividends ration out money that can be spent without ever touching the principal) and some people prefer dividends for regret avoidance reasons (avoiding the regret that occurs when an investor sells stock to generate spendable cash just before the stock market rises). Long (1978) presents evidence that some investors are willing to receive lower after-tax returns for these reasons.

Miller and Shiller (1986) argue that introducing behavioral elements to explain dividend policy is natural because many anomalies appear in dividend policy. They trace these anomalies to (1) misreading of empirical evidence, (2) misinterpretation of the basic dividend model, and (3) unrealistic expectations of what economic models should accomplish. Miller and Shiller argue that the models used to explain dividend policy are no worse at explaining dividend policy than other economic models. That is, the anomalies are not so bad that the models need complete reconstruction. They also contend that, to the extent that behavioral elements affect dividend decisions, the implications are large only for individual investors who invest directly in modest amounts of stock.

Waller (1989) looked at the concept of habit (nonreflective behavior) in economic thought. He suggests that differentiating between routine and ritualized habits and stressing the socialized aspects of habitual behavior may provide a useful additional tool for institutional policy analysis. This is especially true with regard to policy implementation. Waller notes that in economics, the existence of nonreflective behavior can be a fatal blow to work that is based on rational behavior. In other words, some firms continue to pay dividends because old habits are hard to change. Others, such as Frankfurter and Lane (1984), suggest that the existence of habitual behavior can be a problem when one attempts to model dividend policy assuming rational behavior.

Frankfurter and Lane (1984) describe several behavioral economic theories of dividends. One involves theories of habits (nonrandom behavior based on past experience). Habits may reflect cultural and societal factors rather than rational economic behavior (Waller, 1989). A second theory involves bounded rationality, which recognizes that an individual cannot evaluate all possible choices as required by economic rationality (Golembiewski,

1988). A third theory involves implicit contracts, as opposed to explicit or written contracts. These implicit contracts include the situation when firms continue paying dividends that enable shareholders to value stocks based on those dividends. In exchange, shareholders permit managers to keep their jobs. Conversely, explaining dividend behavior based on wealth maximization either requires unrealistic assumptions or it cannot be supported by empirical testing.

Frankfurter and Lane (1984) suggest that the socioeconomic consequences of the evolution of the modern corporation best explain dividend behavior. They conclude that many managers today are aware that investors need to receive dividends as an indication of continued firm value and, therefore, pay steady or increasing dividends.

2.5. Summary of why companies pay dividends

What have we learned from research on various explanations of why firms pay dividends? First, each explanation suggests that a particular market imperfection might influence dividend policy. Second, no single theory has become the dominant explanation. Of the major market imperfections, the signaling and agency-cost explanations appear to have more convincing empirical support than the tax-preference explanation, but no theory provides definitive answers. Thus, the empirical contest among the various theories continues. Third, transaction costs, flotation costs, and behavioral considerations may play a role in influencing a firm's dividend decisions, but these three “minor” frictions have received less attention than the three “major” frictions.

3. Survey research on dividends

Over the past 35 years, survey researchers have taken another path to learn about the actual behavior of corporations in setting dividend policy. Instead of using data to extract evidence to support or reject various dividend theories, they have asked corporate managers about their attitudes toward possible reasons underlying dividend decisions. Although survey responses can suffer from nonresponse and incorrect response bias, they supplement methods of inferring management motives by providing direct evidence about managerial attitudes.

In a classic study on corporate dividend decisions in the United States, Lintner (1956) finds evidence that firms have long-run target dividend payout ratios that lead to a smoothing of dividend payments over time. Thus, changes in dividends only partially adjust to changes in earnings. The dividend changes announced by firms follow shifts in long-run sustainable earnings because managers are hesitant to announce dividend increases that may later have to be reversed. Managers are also very hesitant to cut dividends unless adverse circumstances are likely to persist. These findings have signaling implications.

Based on this evidence, Lintner developed a partial-adjustment model to describe the dividend decision process that explained 85% of year-to-year dividend changes. Lintner's findings are supported by numerous studies including Brittain (1964, 1966) and Fama and Babiak (1968). Benartzi et al. (1997, p. 1032) conclude, “. . . Lintner's model of dividends

remains the best description of the dividend setting process available.” [Kumar and Lee \(2001\)](#) developed a dynamic course signaling model of dividends, which they claim outperforms Lintner’s partial-adjustment model.

[Harkins and Walsh \(1971\)](#) survey 166 members of The Conference Board panel of senior financial executives. Their findings show the major considerations of managers in making dividend decisions are earnings and cash flow, regularity of payment, stability of rate, and stockholder needs and expectations. Managers also consider loan provisions and taxes on excess retained earnings.

[Baker, Farrelly, and Edelman \(1985\)](#) and [Farrelly, Baker, and Edleman \(1986\)](#) survey the chief financial officers (CFOs) of 562 NYSE firms from three industry groups (utilities, manufacturing, and wholesale/retail) to identify the major determinants of corporate dividend policy. Based on 318 responses, the evidence indicates the most important determinants are the anticipated level of future earnings, the pattern of past dividends, the availability of cash, and the desire to maintain or increase the stock price. Additionally, managers express attitudes consistent with [Lintner’s \(1956\)](#) findings that firms should avoid changing dividend rates that might soon need to be reversed, strive to maintain an uninterrupted record of dividend payments, have a target payout ratio, and periodically adjust the payout toward the target. They also report strong agreement from managers that dividends provide a signaling device and the market uses dividend announcements to help value firm stocks. Finally, they find that the importance that managers attach to various statements about dividend policy differs based on industry classification. That is, the responses of utility managers sometimes differ from those of manufacturing and wholesale/retail firms.

[Baker and Farrelly \(1988\)](#) survey dividend achievers, which they define as firms having unbroken records of at least 10 consecutive years of increasing dividends. The results show dividend achievers place more emphasis on the importance of dividend stability and its impact on stock price than firms in general.

[Farrelly and Baker \(1989\)](#) survey institutional investors (portfolio managers and security analysts) to learn their views on dividends. Based on 130 responses, the evidence shows that these institutional investors believe that a dividend increase has a positive effect on the price of a stock. The respondents also indicate a preference for capital gains over the receipt of dividends as a source of return.

[Pruitt and Gitman \(1991\)](#) survey high-level finance officers at firms ranked among the largest 1000 US firms. Based on 114 responses, their evidence indicates that managers make dividend decisions independently of investment and financing decisions. They also find that the major influences on current dividends are profits and the prior year’s dividends.

[Baker and Powell \(1999\)](#) survey CFOs of NYSE-listed firms classified as manufacturing, wholesale/retail, and utilities. Based on 198 responses, they report most respondents believe that dividend policy affects firm value, which supports [Baker et al. \(1985\)](#). Although respondents show strong support for the signaling explanation of dividends, they are uncertain about the importance of tax-preference and bird-in-hand explanations. Managers’ views about setting dividend payments today are consistent with [Lintner’s \(1956\)](#) findings, particularly regarding the concern about continuity of dividends. Unlike [Baker et al. \(1985\)](#), this study reports few differences between the responses of managers in different industries,

which Baker and Powell attribute to changes in the economic and competitive environment for utilities.

Baker, Veit, and Powell (2001) survey CFOs of Nasdaq financial and nonfinancial firms. Once again, the findings are consistent with earlier findings in many ways. Based on 188 responses, the most important determinants of dividends are the pattern of past dividends, the stability of earnings, and the level of current and expected future earnings (cash flows). In general these are the same factors that Baker and Powell (1999) report as important to NYSE firms. Also, managers are still making dividend decisions consistent with Lintner's (1956) findings. Few differences exist between the importance to managers of financial versus nonfinancial firms with regard to factors influencing dividend policy.

Taken as a whole, the survey evidence suggests several generalizations. First, the major factors influencing dividend policy appear to be relatively stable over time and appear similar to those identified by Lintner (1956). Of particular importance are expected earnings and cash flows and the pattern of past dividends. Second, managers generally believe that dividend policy affects value. Finally, respondents express the highest level of agreement with the signaling explanation for paying dividends.

4. Why companies repurchase shares

Another puzzle is why firms use cash dividends instead of share repurchases to distribute cash flows to shareholders. The literature identifies many motives for share repurchases. Some of these motives are similar, but not identical, to those for paying cash dividends. These motives may differ based on type of repurchase method used such as open-market share repurchases, fixed-price tender offers, Dutch-auction repurchases, and target block repurchases. Open-market programs are the dominant method by which US firms repurchase stock. Grullon and Ikenberry (2000) report that over the period 1980–1999, open-market programs comprised about 92% of the total share repurchase announcements and 91% of the total value of all repurchase announcements.

We examine six common explanations for stock repurchases: (1) a tax-motivated substitution of repurchases for dividends; (2) a signaling explanation; (3) an agency cost explanation involving the problem of free cash flows; (4) a capital market allocation hypothesis; (5) an explanation involving desired capital structure adjustments; and (6) a stock option rationale. Some of these explanations are not mutually exclusive.

4.1. Tax-motivated substitution for dividends

Managers may use share repurchases in lieu of cash dividends to minimize stockholder taxes. This tax-motivated substitution of share repurchases for dividends results from the favorable tax treatment given to capital gains over the receipt of cash dividends under US tax law. Recent evidence by Grullon and Michaely (2000) may offer support for the dividend substitution explanation. They report that while the total payout ratio for dividends and share repurchases has been constant at around 26–28% for the past few decades, the dividend

payout ratio has been declining. From 1974 to 1998, the average repurchase payout ratio increased from 3.7% to 13.6%, while the average dividend payout ratio fell from 22.3% to 13.8%. Grullon and Michaely also report that companies distributing cash in recent years have favored share repurchases over cash dividends. The frequency of firms initiating a distribution with a share repurchase increased from 27% in 1973 to 81% in 1998. They find that established companies have increased their share repurchase activities much more dramatically than they have increased dividend payout rates.

4.2. Signaling explanation

Signaling is the most widely studied explanation for share repurchases in the academic literature. The basis of signaling theory is that a firm's management is better informed about the company's true value than outside shareholders. Because of this informational asymmetry, prevailing stock prices may not reflect true value because investors only have access to public information. Repurchasing shares of the firm's stock may signal that existing stock prices are below the stock's intrinsic value. According to one form of signaling theory, companies use common stock repurchases to convey to the market positive information about the firm's future prospects. Miller and Rock (1985) contend that managers who anticipate better-than-average earnings are more likely to increase cash distributions to their shareholders, whether through dividends or share repurchases.

Another part of the signaling story is that share repurchases convey that managers disagree with how the market is pricing existing public information. Thus, managers may initiate repurchase programs to shore up declining investor confidence. Ikenberry, Lakonishok, and Vermaelen (1995) report evidence consistent with the possibility that such firms are indeed undervalued at the time they announced a repurchase.⁵

Much empirical evidence shows sizable share price reactions to share repurchase announcements (e.g., Dann, 1981; Klein & Rosenfeld, 1988; Masulis, 1980; Vermaelen, 1981). Prior research shows announcement period returns are positively correlated to both the size of the repurchase program and the amount of the offer premium. Consequently, tender offers, which tend to be larger and have higher offer premiums, have the highest announcement returns, and open-market repurchases, which tend to be the smallest and have no premium, have the lowest announcement returns. Comment and Jarrell (1991) find that Dutch auction self tender offers and open-market share repurchase programs are weaker signals of stock undervaluation than fixed-price tender offers.

4.3. Agency costs of free cash flows

The agency problems of free cash flows are another explanation for share repurchases. As previously discussed, Easterbrook (1984) and Jensen (1986) argue that by distributing cash to

⁵ See Lease et al. (2000) for a discussion of other signaling models that use repurchases to signal a firm's prospects and to defend against takeover attempts by potential raiders.

shareholders by paying dividends, firms reduce the agency costs associated with managers overinvesting or investing in nonproductive activities. This argument is easily extended to share repurchases. Grullon (2000) reports support for the agency cost explanation with the finding that the market reacts favorably to share buyback programs announced by companies whose investment opportunities appear to have declined. Lie et al. (2000) find a positive relationship between the market reaction to firms announcing repurchase tender offers and the amount of excess cash held by the announcing firms relative to their industry peers.

4.4. Capital market allocations

Closely related to the agency cost explanation is the capital market allocation hypothesis. This hypothesis asserts that even without the agency problems of free cash flow, shareholders may benefit from a share repurchase program. The logic of this argument is that with a much broader view of productive opportunities in an economy, shareholders can allocate capital in the financial markets better than a firm's management. Of course, shareholders could obtain the same result via increased dividend payment. Given a life cycle where some firms are growing and others declining, share repurchases serve to allocate funds from the declining firms with limited investment opportunities to those firms with more promising investments. Nohel and Tarhan (1998) provide support for this hypothesis by finding that, on average, firms shrink their asset bases after share repurchase transactions. A study by Grullon (2000) also supports this hypothesis with the finding that firms reduce their capital expenditures following share repurchases.

4.5. Capital structure adjustments

Managers may use share repurchases to deliberately change their firm's capital structure. If they want to make substantial changes in capital structure, they can use debt-financed stock repurchases to do so. In principle, debt-financed dividend payments also lead to changes in capital structure, but the magnitude of change is generally much larger through stock repurchase. While a share repurchase conducted via tender offer can provide a sudden and dramatic change in capital structure, the more predominant open-market repurchase programs, which are usually smaller in size and often occur over several years, do not appear to be motivated by this capital structure explanation.

4.6. Stock option rationale

Finally, firms may use the repurchase of shares to fund stock option plans and to offset an increase in common equity resulting from the exercise of stock options. This latter reason is similar to the capital structure adjustment motive. A recent study by Chan, Ikenberry, and Lee (2000), however, finds evidence that companies may time repurchase announcements around the time of exercise of executive stock options. This result offers some evidence that companies may use open-market share repurchase programs to accomplish small, needed changes in capital structure.

4.7. Summary of why firms repurchase shares

Although strong support exists for the signaling explanation, empirical support also exists for the other stated reasons for repurchasing shares. Because some of the explanations are not mutually exclusive, excluding the existence of multiple effects is difficult, if not impossible, in many cases. The evidence suggests that there is no universally accepted theory of why companies engage in share repurchases.

5. Survey research on repurchases

Several surveys provide evidence on the motivations behind repurchases. Baker, Gallagher, and Morgan (1981) survey CFOs from 150 randomly selected common stock repurchasers and 150 nonrepurchasers listed on the NYSE during the late 1970s. Their results suggest the two major reasons for repurchasing stock are “a good investment of excess cash” and “use in employee bonus or stock option plans.” The major reason for not repurchasing stock is “no excess cash.” The majority of responding managers view stock repurchases as an investment decision, not a financing or dividend decision.⁶ Survey evidence by Lees (1983) also supports this finding. The managers disagree with the idea that stock repurchases are a substitute for paying cash dividends.

Wansley, Lane and Sarkar (1989) survey CFOs of large firms about their motives for share repurchase. Based on results from 98 repurchasers and 42 nonrepurchasers, the evidence supports the information signaling hypothesis. Among the 17 reasons stated in the questionnaire, the results show that the two most important motives are “to acquire undervalued stock” and “to signal investors that managers are confident about the company’s future.” No evidence supports repurchasing as an alternative to cash dividends.

Tsetsekos, Kaufman, and Gitman (1991) survey CFOs of 1000 large firms to understand the precipitating circumstances and motivations leading to stock repurchases. Based on 210 responses, the evidence shows that the most important *circumstance* precipitating repurchases is “the low stock price.” While “the desire to change the capital structure” is the most frequently expressed *motivation*, a majority of responses are consistent with the signaling hypothesis. Unlike Baker et al. (1981), managers appear to view repurchases as financing rather than investment decisions. The evidence also shows that firms finance most repurchases with available cash balances.

In a recent study, Baker, Powell, and Veit (2002) survey 642 top financial executives to learn their views about their firm’s share repurchases from January 1998 to September 1999. Based on 194 responses from managers of firms engaging in open-market repurchases, the results show that the most highly cited reasons for repurchasing shares of common stock are consistent with the signaling hypothesis, specifically the undervaluation version of this hypothesis.

⁶ Bierman (2001, p. 22) notes, “Strictly speaking a corporation cannot ‘invest’ in its own shares.” If a firm repurchases its own shares, there is disinvestment by the corporation.

Perhaps the most consistent finding of these share repurchase surveys is the importance that managers place on the signaling motive. The survey evidence also casts doubt on the other reasons suggested for share repurchases. Another result that appears in several surveys is that managers do not view repurchases as substitutes for dividends. Finally, survey evidence suggests the importance that managers attach to various motives may change over time.

6. Cash dividends versus common stock repurchases

Why do corporations prefer to use one form of cash distribution versus another? In a frictionless world without taxes or transaction costs, cash dividends and share repurchases are equivalent. Upon considering market imperfections, cash dividends and share repurchases are not perfect substitutes. We discuss several reasons for a firm's choice between cash dividends and share repurchases.⁷

First, each method has different tax effects. The tax treatment between the two approaches differs because cash dividends for individuals are taxed as ordinary income, whereas income from share repurchases is treated as capital gains. If dividends are taxed more heavily than capital gains, share repurchases are superior to dividends because they impose a lower tax burden on shareholders (Brennan & Thakor, 1990). Thus, share repurchase is a tax efficient method of transferring cash from the firm to investors. This advantage decreases as the percentage of tax-exempt institutions and low or zero tax paying individuals increases.

Second, share repurchases provide investors with self-selectivity unavailable with cash dividends. Cash from share repurchases go only to those stockholders preferring cash compared to ownership. If investors do not want to convert their investments into cash, they do not have to sell their stock back to the corporation. By not selling, investors avoid realizing the capital gain and incurring transaction costs. As previously noted, however, the tax is likely to be less than if the cash distribution were taxed as ordinary income. Thus, firms may choose share repurchases over cash dividends to give shareholders flexibility.

By providing self-selectivity, share repurchases suffer from the costs of adverse selection. That is, investors with more information can take actions that adversely affect those without superior information. Thus, informed investors can sell overpriced stocks back to the firm but refrain from selling underpriced stocks. Informed investors do not have an advantage with dividends because shareholders do not have any option of whether to receive dividends. Brennan and Thakor (1990) contend that due to the adverse selection problem associated with repurchases, informed investors prefer share repurchases to cash dividends but uninformed shareholders prefer dividends to repurchases.

Third, the signaling effects associated with the announcement of share repurchases versus cash dividends may differ. As previously mentioned, announcements of dividend increases

⁷ See Allen et al. (2000), Ambarish, John, and Williams (1987), Barclay and Smith (1988), Brennan and Thakor (1990), Chowdhry and Nanda (1994), Lucas and McDonald (1998), and Ofer and Thakor (1987) for studies that address a firm's choice between cash dividend and share repurchases.

and share repurchases generally generate abnormal security returns. Because firms tend to smooth dividends, they prefer not to increase dividends unless the dividends are sustainable. Thus, firms may increase dividends if they view excess cash flows are permanent but engage in share repurchase if the cash flows are temporary.

Fourth, common stock repurchase may affect the ownership structure of the firm because the cash distribution to shareholders is generally disproportional. Firms may prefer to use share repurchases for corporate control issues such as serving as a defensive mechanism against hostile takeovers. If managers and other insiders choose not to sell their shares in a repurchase offer, this increases their concentration of voting power.

7. Fading dividends and flourishing repurchases

Although dividends have historically played a prominent role in generating equity returns, studies show that, over time, the tendency to pay dividends has been on the wane. [Fama and French \(2001\)](#) document a substantial decline in the percentage of firms paying dividends. They report that while 66.5% of nonfinancial nonutility NYSE, AMEX, and Nasdaq firms paid dividends in 1978, only 20.8% did so in 1999. Another well-documented trend is dramatically shrinking dividend yields. For example, between 1980 and 2000, the dividend yield on the S&P 500 companies dropped from 5.4% to 1.1%, and the percentage of profits that companies pay in dividends reached an all-time low.

[Fama and French \(2001\)](#) find that three characteristics affect the decision to pay dividends: profitability, investment opportunities, and size. Firms that are more likely to pay dividends tend to be larger and more profitable with fewer investments. The decline after 1978 in the percent of firms paying dividends is due partly to an increasing tilt of publicly traded firms toward the characteristics of firms that have never paid—small size, low earnings, and large investments relative to earnings. Fama and French conclude that the trend towards disappearing dividends is attributable not only to the changing population of firms that trade on these markets but also to a lower propensity to pay dividends, regardless of firm characteristics.

Although many companies still pay cash dividends and raise their yields, the trends are undeniable. These trends, especially during the late 1990s, occurred during a booming economy in which investors became accustomed to large capital gains and found dividends to be less important. Analysts often attribute the requirements for heavy capital expenditures during a period of rapidly advancing technology as a reason these trends. Nonetheless, the unmistakable trends in dividends have led some to ask, “Do dividends still matter?” The responses span the spectrum. [Bernstein \(1996, p. 21\)](#) concludes, “Dividends do not appear to matter,” while [Cassidy \(2001, p. 7\)](#) states, “Thus, not only are dividends currently still an attractive item, they may well matter even more in the future.”

The declining incidence of dividend-paying firms contrasts sharply with the increasing level of repurchase activity. During the past 40 years, especially since the mid-1980s, US corporations have increasingly repurchased substantial amounts of their own common stock. For example, in the 5-year period between 1995 and 1999, US corporations announced

intentions to repurchase about US\$750 billion worth of their stock. Grullon and Ikenberry (2000) note that companies distributed more cash to shareholders via repurchases than cash dividends in 1998.

Bierman (2001) notes that the reasons US corporations have increasingly repurchased substantial amounts of their own common shares have been subject to numerous and conflicting interpretations. Although no fully satisfactory explanation exists for changes in repurchase activity over the past several decades, especially the dramatic increase in the use of open-market share repurchases during the 1990s, several factors may have contributed to this development.

One factor is the improved regulatory environment for repurchases resulting from the adoption of rule 10b-18 by the Securities and Exchange Commission in late 1982. Another factor involves the economy. Several market crashes, such as in October 1987 and October 1989, temporarily caused stock prices to fall. Evidence by Netter and Mitchell (1989) suggests an inverse relationship between program announcements and broader moves in the market; that is, the number of announcements tends to rise when stock prices fall.

A third explanation involves substituting repurchases for dividends in order to generate lower-taxed capital gains for stockholders. Bagwell and Shoven (1989) argue that an increasing proportion of firms are choosing share repurchases over the less tax-efficient route of paying or raising dividends. Subsequent tests of this hypothesis by DeAngelo et al. (2000) and Jagannathan, Stephens, and Weisbach (2000) produce mixed results.

A final explanation for the increased popularity of buybacks, especially during the 1990s, is the growing use of stock options to compensate not just management but all employees in a firm. Several studies (e.g., Bartov, Krinsky, & Lee, 1998; Fenn & Liang, 2000; Jolls, 1998; Weisbenner, 1999) examine stock options and the payout policies of firms. In a study of open-market repurchases from 1993 to 1996, Kahle (2002) finds support for the notion that changes in compensation policy have caused changes in payout policy. Her results show that firms announce repurchases when executives have large numbers of options outstanding and when employees have large numbers of options currently exercisable. After the firm decides to engage in a repurchase, the amount repurchased is positively related to total options exercisable by all employees but independent of managerial options. These results are consistent with managers repurchasing both to maximize their own wealth and to fund employee stock option exercises.

8. Conclusions

Despite a voluminous amount of research, we still do not have all the answers to the dividend puzzle. We also do not have definitive answers to why managers choose one method of cash distribution over the other. Although dividends and share repurchases are similar in many ways, they are not perfect substitutes. For example, both are costly signals, but tax and signaling effects differ between the two methods of distributing cash. Developing models that describe the choice between paying dividends and repurchasing stock continues to be a fertile area for further research.

While not fully solving the dividend puzzle, theoretical and empirical studies over the past four decades have provided additional puzzle pieces that move us closer in the direction of resolution. In reality, there is probably some truth to all of the explanations of why corporations pay dividends or repurchase stock at least for some firms. Although evidence shows that fewer corporations are paying dividends, a firm's distribution policy still matters because it can affect shareholder wealth.

Solving the dividend puzzle appears to rest with better understanding the effects of various market imperfections or frictions. Despite some mixed results, the evidence suggests that managers can use dividends and repurchases as useful tools to create value for shareholders due to various market imperfections. Concentrating on one piece of the puzzle at a time (i.e., a single imperfection) fails to provide a satisfactory resolution because the puzzle contains multiple pieces. A promising approach to resolving the dividend puzzle involves combining the various pieces and understanding their interactions. Lease et al. (2000, p. 179) conclude,

We believe that the lack of empirical support for a particular dividend policy theory is the result of problems in quantitatively measuring market frictions and the statistical complications in dealing with the myriad interactive imperfections that likely affect individual firms differentially. In other words, since each firm faces a combination of potentially different market frictions with varying levels of relevance, the optimal dividend policy for each firm *may* be unique. If each firm has a uniquely optimal dividend policy, we should not be surprised that significant statistical generalizations still elude researchers.

A problem with most existing theories is that they fail to consider the potentially complex interactions among the various imperfections. Another problem is that each theory typically takes a “one-size-fits-all” approach by trying to generalize the findings. Not surprisingly, Frankfurter and Wood (1997, p. 31) conclude, dividend policy “. . . cannot be modeled mathematically and uniformly for all firms at all times.” Because various imperfections affect firms differently, dividend policy may vary substantially from one firm to another. Thus, not all firms should have the same distribution policy.

Researchers have identified the key factors that tend to affect the dividend policies of firms in a real-world setting. Clearly, some factors may be unimportant to some firms and overlap and/or interact with other factors. We have listed the key factors below.

1. *Market imperfections or frictions*: taxes, asymmetric information (signaling), agency costs, transaction costs, and flotation costs.
2. *Behavioral considerations*: irrational behavior of investors, behavioral needs of shareholders, and habitual behavior of firms.
3. *Firm characteristics*: profitability, investment opportunities, size, availability of cash, and anticipated future earnings and cash flows.
4. *Managerial preferences*: desire to smooth dividends and to avoid later dividend reductions.

Researchers have also identified the key factors that tend to affect firm decisions to repurchase shares of common stock. Some of these factors are similar to those affecting the dividend policy decision (e.g., lack of profitable investment opportunities and signaling),

while others are not (e.g., change ownership structure and use of shares to compensate managers or employees). Once again, some factors may be unimportant to some firms, and they may overlap and/or interact with other factors.

To deal with multiple factors affecting dividend policy, Lease et al. (2000) propose a competing frictions model that includes all previously discussed market imperfections, except investor irrationality. They illustrate how a firm's dividend payout policy changes as a function of its life cycle. Based on the interactions of the market frictions, they show an implied dividend policy for five stages of the dividend life cycle: start-up, IPO, rapid growth, maturity, and decline. Their model suggests that a firm should pay no dividends during the start-up and IPO stages but should pay a low, growing, and generous dividend during the three latter stages, respectively. Although the model requires testing, it provides a framework for potentially bringing together key pieces of the dividend puzzle.

We believe there are two relevant questions related to the dividend puzzle: (1) Do we have all the pieces of the dividend puzzle? and (2) Do all the pieces of the dividend puzzle now fit? Our view is that researchers have identified all the key pieces of the dividend puzzle but need to focus their attention on developing firm-specific dividend models. If this puzzle were a jigsaw puzzle, different firms use different combinations of puzzle pieces to form different pictures of the firm. This results because each firm has different characteristics, managers, and stockholders. One firm may focus on puzzle pieces that together form an Andrew Wyeth-like picture of the firm and another firm may select puzzle pieces that form a Pablo Picasso-like picture of the firm. Is one of them correct and the other incorrect? Not necessarily. Each policy may be appropriate for each firm. Conversely, both firms may possibly need a Wyeth-like structure in which case the value of the Picasso-like firm is lower than necessary.

If this view is correct, dividends can matter. However, because no single model specifies which dividend policy results in the highest value of a firm, neither managers nor investors know with certainty if a specific firm's dividend policy is optimal. Therefore, a firm's dividend policy may be viewed as being acceptable within a range. After identifying this range, managers should clearly communicate their firm's dividend policy so that the market can incorporate such information into its valuation process. Only when a firm deviates from this range of acceptable dividend policy, all else equal, should share prices react negatively to a substantial degree.

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