

UCLA

Recent Work

Title

Changing Motives for Share Repurchases

Permalink

<https://escholarship.org/uc/item/9146588t>

Authors

Weston, J. Fred

Siu, Juan A.

Publication Date

2003-12-19

Changing Motives for Share Repurchases

J. Fred Weston and Juan A. Siu^{*}

December 19, 2002

^{*} *Fred Weston is Professor of Finance Emeritus Recalled, the Anderson School at the University of California, Los Angeles, CA 90095. Juan Siu is a Senior Associate of the Research Program on Takeovers and Corporate Restructuring at the Anderson School-UCLA. We appreciate the helpful comments from Gene Fama, Ken French, Harry DeAngelo, Mark Grinblatt, Mark Mitchell, Harold Mulherin, Michael Brennan, and Avaniidhar Subrahmanyam.*

Changing Motives for Share Repurchases

ABSTRACT

Net share repurchases have increased both in absolute terms and relative to cash dividends. Share repurchases during 1975-87 were predominantly fixed price tender offers and Dutch auctions, mainly signaling undervaluation. By 1994 open market repurchases (OMRs) represented over 95% of repurchase activity. Event returns were 10% to 15% for the early period. OMRs during the 1980s had initial event returns of about 3.5%, but had four-year buy-and-hold returns of 12% and higher.

By the mid 1980s share repurchases took the form of multi-year programs with annual levels as high as \$2-\$3 billion. Econometric studies of the 1990s are consistent with the hypothesis that a major motive was to offset the dilution effects of the exercise of stock options. Dividend patterns were related to permanent components of cash flow patterns while share repurchases were associated with more transitory cash flow changes. Dividend paying firms were almost two-third of publicly traded, non-financial, non-utility firms in 1978, but declined to 20.8% in 1999. Non-dividend paying firms were characterized by higher investment rates, higher R&D rates, higher market-to-book ratios, and relatively small size. Firms which began share repurchases in the 1990s have similar characteristics. The use of stock options enabled these firms to make cash payouts based on the discounted values of optimistic expectations of future net cash flows and stimulated the use of share repurchases as documented. In contrast, dividend paying firms with earning increases accounted for a high concentration of payouts, were large and more mature, and were responsible for the secular rise in aggregate dividend payouts. Thus share repurchases did not substitute for dividends but performed different functions.

Changing Motives for Share Repurchases

The motives for share repurchases have changed over time. This paper will describe the change forces and relate them to the theory and empirical evidence. Eight topics are covered: 1. Growth of share repurchases. 2. Theoretical framework for share repurchase activity. 3. Evidence on theories of share repurchase activities. 4. Empirical studies of share repurchases in the 1990s. 5. Related dividend studies. 6. Relations between dividends and share repurchases. 7. Surveys of motives for share repurchases. 8. Interpretations of the findings.

1. Growth of Share Repurchase Activity

Share repurchases have increased both in absolute terms and relative to the use of cash dividends in returning cash to shareholders. The magnitudes, however, vary with data sources and method of measurement. SDC data are based primarily on announcements in company press releases and newswires. An alternative source is Compustat using changes in equity accounts. Wall Street Journal announcements have also been used. Data measurement procedures are subject to error. As an initial estimate, Table 1 uses mainly the SDC data on share repurchase announcements. It shows that in the 1970s share repurchases were a small percentage of cash dividend payouts. A large upward shift took place in 1984. Between 1984 and 1998, cash dividends have grown at a rate of 9.3% a year; gross share repurchases have grown at a compound annual rate of 13.6% per year.

Compilations based on Compustat data show time patterns of the percent gross stock repurchases to dividends similar to the SDC data in Table 1 through 1996 when the ratio was 59% (Grullon and Michaely, 2002, Table 1). Thereafter, the Compustat percent of gross repurchases to dividends rises to 113% in 2000. For the S&P 500, share repurchases exceeded cash dividends beginning in 1997 (Liang and Sharpe, 1999). Despite alternative data sources and measurement methods, the empirical evidence establishes that gross share repurchases have grown at a higher rate than cash dividends since 1980. Especially between 1995 and 1998, gross share repurchases grew at a compound annual rate of over 26%, compared with under 11% for aggregate cash dividends.

Although, gross share repurchases have grown faster than cash dividends, Table 2 shows that aggregate dividend payouts have increased. These findings are consistent with the Fama and French (2001) disappearing dividend paper who also find an increase in aggregate dividend payouts.

Table 2 also shows that dividends plus gross repurchases related to after-tax profits rise from 55% in 1984 to over 100% in 1998 and 2001. Table 3 presents a regression analysis of aggregate dividend payouts and gross share repurchases over time and in relation to each other. The first three rows show significant growth over time for both dividends and gross share repurchases, significant at the 1% level in 5 cases and at the 5% level for the sixth. Rows 4 and 5 show that dividends and gross repurchases are significantly correlated. No direction of causality is implied here.

The decline in the shares outstanding for individual companies shown in Table 4 is additional evidence of a high rate of repurchase activity. For example, between

January 31, 1995 and December 31, 2001, the adjusted number of shares outstanding of IBM declined from 2,351 million to 1,723 million, representing a reduction of 26.7%. Similarly, for Coca Cola – the number of shares outstanding declined from 3,258 million in 1982 to 2,486 million in 2001, a decrease of 23.7% over the period. The share reductions have been widespread. For the period from the end of 1994 to the end of 2001, 16 of the 30 Dow Jones Industrial companies reduced the number of shares of stock outstanding. For this period, 7 of the 16 reduced the number of shares outstanding by more than 10%. These large reductions in shares outstanding reflect the high rates of share repurchase activity. We next examine the reasons.

2. Theoretical Framework for Share Repurchase Activity

We first address the role of share repurchase activity in the framework of basic financial principles. The after-tax cash flows of a firm are available for investing or paid out in the form of dividends or share repurchases as reflected in a simple sources and uses of funds relationship: [After-tax cash flows = Investment + Dividends + Share Repurchases]. To understand the economic functions of share repurchases requires a comparison of the alternatives of investments, dividends, or share repurchases.*

Tax Benefits of Share Repurchases

As compared with cash dividends, which are subject to the tax rates for individuals, share repurchases can qualify for capital gains treatment. The maximum

* A more complete fund flow framework would be:
After-tax operating cash flows + Net equity issuance (including exercise of stock options) + Net debt issuance = Investment + Cash dividends + Gross share repurchases + Cash paid in acquisitions
This broader framework is reflected in our analysis.

marginal individual tax rate in recent years has declined from 39.6% to 39.1% for 2001. Under the 2001 Tax Law change, the maximum rate is scheduled to decline in steps to 35% by 2006. We will use a rate of 39% for illustrative purposes. The return of cash to shareholders in the form of share repurchases may qualify for the long-term capital gains rate of 20%. This represents a tax savings of potentially as much as 19 cents on each dollar received. In addition, shareholders have flexibility in the timing of the payment of capital gain taxes. They can choose whether or not to participate in a stock buyback program. They can defer their tax payments to make their own selection of when to sell. Of course, shareholders can sell their shares in the market if they want cash as a tax advantaged substitute for either share repurchases or cash dividends.

Share Repurchases as a Takeover Defense

Share repurchases may be used as a takeover defense for two reasons (Bagwell, 1992). One, the terms of a share repurchase plan may be viewed more favorably than the takeover. Two, when a firm tenders for a percentage of its shares, the shareholders who offer their shares for sale are those with the lowest reservation prices. Those who do not tender have the higher reservation prices. Hence, for a takeover bidder to succeed with the remaining higher reservation price shareholders, the premium offered will have to be higher. The required higher premium may deter some potential acquirers from making bids.

Change Financial Structure

We demonstrate how a share repurchase changes financial structure using an illustrative measure of leverage – the debt/equity ratio. The standard procedure for measuring debt is to first deduct excess cash and marketable securities holdings. So a share repurchase with excess cash not only reduces equity, but increases debt. Thus, the leverage ratio can be quickly increased. A similar result occurs if a firm sells additional debt to finance share repurchases. If the firm has been operating with less than the optimal debt leverage ratio, the share repurchase will move the firm toward that ratio. If so, it may lower the firm's cost of capital, with a resulting increase in share price and market value (and conversely).

Share repurchases are not unique in their ability to alter a firm's financial structure. A firm can engage in an equity for debt exchange. A firm can take on more debt or sell more equity.

Greater Flexibility

As compared with cash dividends, share repurchases may provide more flexibility in adjusting patterns of cash payouts. Patterns of dividend behavior by individual firms and in the aggregate become established over time. The finance literature documents that corporate earnings rise with fluctuations, whereas cash dividends paid increase in a stair-step fashion and lag behind the growth in corporate cash flows. The market rewards a history of consistent increases in dividends. The market punishes a company that announces a decline in dividends or fails to achieve historical patterns of annual percentage increases. With share repurchases the expectation is that cash will be returned

to shareholders when funds are available in excess of needs to finance sound investment programs. Share repurchase programs thereby facilitate improved information exchange with shareholders. But debt issues and extinction and other financial policies can provide similar flexibility.

Agency Problems

Share repurchases may contribute to a more responsible use of free cash flows (Jensen, 1976). When officers and directors return excess cash to shareholders through share repurchase programs, this may be acting in the best interest of shareholders (the owners). By not using the funds for unwise diversification or negative net present value investments in the firm's traditional lines of business activity, officers and directors may thereby increase the trust and confidence of the shareholders. Of course, cash dividends perform the same function so this benefit is not unique to share repurchases.

Another agency problem that share repurchases may mitigate is the divergence of incentives between management and owners. Share repurchases increase the percentage ownership of the firm for the non-sellers. If officers and directors do not sell their shares in a share repurchase program, their proportionate ownership will increase. If the percentages are substantial, the incentives of officers and directors to think like owners of the firm will be strengthened. Again, this is not a distinctive function of share repurchases. Officers and directors can directly purchase their companies' shares. Also compensation arrangements, including payments in stock, stock option grants and loans, may facilitate increased management ownership proportions.

Accounting for Buybacks

Accounting for buybacks under generally accepted accounting principles (GAAP) inflates the effects of share repurchases on accounting performance measurements. The accounting treatment of share repurchases is conveyed by the procedures in the Compustat compilations. Annual data item number 88 explains that the total dollar amount of treasury stock is expressed in units of millions of dollars and that the cost method or retirement method may be used. GAAP permits the charge (debit) to the shareholders' equity account to be at book or at cost – the amount paid for the repurchased stock (which will be its market price). Under the cost method, treasury stock is debited for the amount paid and is shown “on the Balance Sheet as a deduction to equity.” (Compustat, Chapter 5 – Data Definitions, p. 274, 4/2001) The second procedure, “the retirement method records shares as if formally retired.” The net balance sheet effect is the same in both methods: the book equity is debited by the purchase price (cost) of the share repurchased and cash is credited (reduced) to reflect the outlay. Since market is greater than book, book equity is reduced whether the retirement or cost method is used. These procedures, using generally accepted accounting principles (GAAP), artificially reduce book equity by the degree to which the market-to-book ratio is greater than 1. Market-to-book ratios are further artificially increased and the return on book equity is overstated. It follows that these procedures overstate some accounting measures of gains from share repurchase activities.

Signaling

Share repurchases may signal future improvements in cash flows. Dividends may have even stronger signaling power since they are tied more closely to long term cash flow patterns. A buyback may be also taken as a signal that a firm has diminished positive NPV research and development and other investment opportunities. An example is the open market repurchase announced by Merck in late February 2000. Table 5 shows that the abnormal return on the announcement date was a positive 5.19%. The cumulative abnormal returns (CARs) for the preceding ten days were –13.12%. It is plausible the negative run up reflected some information leaks. The net negative CAR on the buyback announcement date was 7.93%. By the end of the 10 days following the announcement, the CAR had declined to –26.88%. Investors were disappointed that Merck apparently did not have internal profitable uses for the buyback funds

Undervaluation

Signaling may seek to convey information about undervaluation. Consulting firms and other practitioners have emphasized that if the market values a firm's shares significantly below their intrinsic value, the return from share repurchases may exceed returns from some or all of the firm's real investments. A model is presented by Rappaport (1998).

If a company's shares are undervalued and if stock is repurchased near the undervalued price, the firm will earn a rate of return greater than its market-required cost of equity. The relationship can be expressed in a formula, where the symbols are defined as follows:

R = rate of return on share repurchase

k_s^* = market required cost of equity of the firm

V = intrinsic value of the firm

P = market price or market value of the firm

The initial relationship is shown by Equation 1

$$\text{Rate of Return on Share Repurchase} = \frac{\text{Cost of Equity}}{1 - \text{Percent Undervaluation}} \quad (\text{Eq. 1})$$

In symbols:

$$R = \frac{k_s^*}{1 - (V - P)/V} = \frac{k_s^*}{(V - V + P)/V} = \frac{k_s^*}{P/V}$$

In words:

$$R = \frac{\text{Cost of Equity}}{\text{Ratio of Actual Market to Intrinsic Value}}$$

For example, let $k_s^* = 10\%$, $P = \$20$, $V = \$30$. Then:

$$R = \frac{10\%}{\$20/\$30} = 15\%$$

A share repurchase financed by foregoing value-creating investments is rational only if the investment would have yielded a rate of return less than the rate of return on a share repurchase. However, the critical issue is whether the market undervaluation actually exists. Some form of market inefficiency is required for undervaluation to persist. (Isawaga, 2002).

Share repurchases can potentially have multiple motives and consequences that change over time. The relative roles of factors influencing share repurchases are discussed in the next section.

3. Evidence on Theories of Share Repurchase Activities

Three main types of share repurchase activity have been employed. Fixed price tender offers (FPT) grant shareholders an in-the-money put. Dutch auctions (DA) grant shareholders a put at a range of prices some of which are in-the-money. Open market share repurchase (OMR) announcements create a valuable exchange option which permits a firm to exchange cash for the market value of its shares at times selected by management. The OMR announcements are recitals that the company's board of directors has authorized a market purchase of a dollar amount or number of shares, sometimes over a specified future time period. The announcement is not an unconditional offer to buy, nor a fixed commitment of any kind. This section presents a panoramic view of event studies and other evidence related to changing motives for share repurchase activities over time.

Undervaluation in the 1970s

Earlier event studies were primarily of FPTs. The use of DAs did not begin until 1981. In recent years (1994-1999), OMRs represented from 95% to 98% of repurchase activity (Grullon and Ikenberry, 2000). For that time period, FPT offers were generally 1% to 1.5%; DAs were about 2% to 3% of total repurchases. Our discussion of the event

studies will seek to explain the changing relative importance of the types of repurchases used.

Table 6 presents an overview of representative event studies using data covering time periods beginning in 1962 and ending in 1997. The changing patterns of the results reported by the event studies reflect changes in the economic and financial environments. The studies present different patterns of pre-event data, near post-event data, or longer term post-event performance.

Dann (1981) calculated for his sample of 143 FPTs during 1962-1976, a 17% cumulative abnormal return (CAR) for a 3-day window. The initial premium averaged 23% offered for an average 20% fraction of shares outstanding. At the expiration of the FPT, share prices on average were 13% (the shareholders' wealth effect) above their pre-announcement level. The results are similar to the Vermaelen (1981) study, which covered 131 OMRs over the period 1962 to 1977. The initial average premium was the same, 23%, but the fraction repurchased averaged 15%. The wealth effect was 16%.

The dominant explanation for the positive CARs for this period was undervaluation. The FPT announcements were signals of this undervaluation. Of this period, Warren Buffet was quoted as saying that in the mid 1970s many stocks traded below their intrinsic values and "the wisdom of making these [share repurchases] was virtually screaming at managements." (McGough et al, 2000).

Share Repurchases around the October 1987 Stock Market Drop

Another pioneering study reported in Table 6 is the analysis of the share repurchase activity associated with the stock market crash in October 1987 by Netter and

Mitchell (1989). They analyzed OMRs for 337 NYSE/AMEX companies and 181 OTC companies. They observed significant, positive CARs over a 3-day window for both groups. The CARs for the near post-event period (+2,+40) were also significant, positive. They also observed that firms which announced repurchases had underperformed the market in the period immediately before the announcement. Their results were consistent with the theory that the repurchases announced at the time of the October 19 stock market crash signaled undervalued stock prices.

Netter and Mitchell (1989) also presented evidence that for 530 publicly traded firms that announced stock repurchases, 347 insiders purchased stock and 33 insiders sold. For companies with no stock repurchase announcements 1566 insiders purchased stock and 22 sold. The value of insider purchases relative to the value of all insider transactions was much higher in repurchase firms (86%) than in firms not announcing repurchases (56%). The purchases by officers and directors reflected their judgments that the stock price declines in October 1987 were only temporary. This contrasts with stock repurchases during the stock market declines beginning in 2000.

Comparisons between FPTs, DAs, and OMRs

Comment and Jarrell (1991) compared event returns among the three types of share repurchase programs. FPTs have somewhat higher CARs than DAs for their total sample. For their sample without confounding events, FPT offers have substantially higher event returns, 11% versus 8%. The event returns to OMRs are much lower, 2.3%.

Comment and Jarrell (1991) also analyzed the effects of prorationing and the risk exposure of officers and directors (ODR) for FPT and DA types; this type of analysis

cannot be made for OMRs. Prorating reflects a high proportion of shareholders with low reservation prices. Hence event returns are likely to be lower. ODR risks exist (per Comment and Jarrell) if their proportionate ownership interest increases and the tender offer premium is more than 2% above the market price of the stock at 4 days before the offer announcement date. With ODR, event returns rise to 11.7%; without, returns fall to 5.6%.

Comment and Jarrell (1991, pp. 1258-1259) conclude that DAs are favored by relatively large firms that are widely followed by security analysts and other informed investors. These are companies in which management owns a relatively low percentage of stock. Because their stock is widely followed and management stakes are relatively low, these firms are “ill-suited” to send strongly credible signals in premium repurchase offers. For such firms, Comment and Jarrell conclude that DAs are likely to be substitutes for OMRs.

DAs and Shareholder Heterogeneity

Bagwell (1992) published an in-depth analysis of DAs. Her event return results were similar to those of Comment and Jarrell (1991) for DAs. The effects for prorating were also similar. Bagwell also developed data on the supply schedule of shares offered for 32 firms using DAs between 1981-1988. She finds consistently upward sloping supply curves from shareholder tendering responses in the DAs. She emphasizes that this is evidence of shareholder heterogeneity in contrast to the general assumption of homogeneity. Shareholders have different reservation prices. Since shareholders with the lowest reservation prices are likely to tender in a DA, this

highlights the function of share repurchases as a takeover defense. After a share repurchase, the non tendering shareholders are the one with the highest reservation prices so that the premium in a takeover offer would have to be higher. In addition, of course, the premium in a FPT or DA could be set to be competitive with the premium in a takeover tender.

Lagged Responses

Ikenberry, Lakonishok, and Vermaelen (1995) perform an in-depth analysis of OMRs for a sample of 1239 for the period 1980-1990 with the results shown in Table 6. As in other studies, pre-event returns are negative. Event announcement returns for a 5-day window are 3.54%. A 4-year buy-and-hold portfolio of 893 OMRs has a 4-year return of 12.14%. For a portfolio of 169 value stocks, the 4-year return is 45.29%. Ikenberry et al “hypothesize that the market treats repurchase announcements with skepticism, leading prices to adjust slowly over time.” They note other examples of delayed market reactions to IPOs, mergers, proxy contests, spinoffs, and “essentially the mirror image of stock repurchase” – seasoned equity offerings.

Since the data period for their study is the decade of the 1980s, they examine the potential influence of takeovers. They compare long run performance overall with firms that survived at least 4 years following the purchase announcement. For announcements between 1980 and 1988, the 3-year compounded abnormal performance is 13.0%; for survivors, it drops to 6.7%, still significant. For high book-to-market ratio firms, the 3-year abnormal performance drops from 39.7% to 31.6% for survivors. They infer that the takeovers that occurred in their original sample do not explain the abnormal returns of

firms that repurchased shares. However, the Bagwell insight is relevant here. One of the motives for share repurchase may be to eliminate shareholders with low reservation prices as a takeover defense. The need for a takeover defense may reflect the increased probability of takeovers. Hence, the increased probability of takeovers that could have taken place during the high rates of M&A activity in the 1980s would have increased prices and returns to shareholders over time.

The Mitchell and Stafford (2000) Methodology Critique

Persistent long term abnormal returns following major corporate events are inconsistent with the efficient market hypothesis. Mitchell and Stafford (2000) find that with the proper statistical methodology virtually no evidence of long term abnormal performance remains. They note that the usual methodology in the literature calculates average multi-year buy-and-hold abnormal returns (BHAR), using a bootstrapping procedure to draw inferences. Mitchell and Stafford demonstrate that this methodology is biased because it assumes independence of multi-year abnormal returns. But share repurchases cluster by industry and take place in programs of successive announcements over a period of years. They recommend a methodology that accounts for the dependence of event-firm abnormal returns as illustrated by the calendar-time portfolio approach recommended by Fama (1998). After taking into account the positive cross-correlations of event-firm abnormal returns, little evidence of long term abnormal performance remains for major corporate events such as share repurchases.

Share Repurchases in the 1990s

Three subsequent studies of share repurchases focused on other issues (discussed in the next section) but also include materials on event returns. Jagannathan et al (2000) cover 660 FPTs, 120 DAs, and 4753 OMRs for the years 1985-1996, using SDC data. For repurchases with no dividend increase, data are presented for average returns for the year ending in the repurchase announcement date. The average returns are -1.10% with no significance test data provided. These results are difficult to interpret. Most studies show declining returns for short periods preceding repurchases, but their data for one full prior year are not comparable to other studies.

Grullon and Michaely (2002) studied 3935 OMR repurchases for 1980-1997 using both SDC and Wall Street Journal sources. They find a positive CAR of 2.57% over a 3-day window, statistically significant at the 1% level. These results are much lower than the Ikenberry et al results. The performance results in a post-event period are not studied.

Kahle (2002) analyzed 712 OMRs for the period 1993-1996 from the SDC M&A database. Similar to Ikenberry et al, she found a negative CAR of -3.64% for the pre-event period from -43 to -4 days. For a 3-day window around the share repurchase announcement date, she finds a mean CAR of 1.61% and a median of 1.30%. She points out that these CARs are much lower than previous studies. She observes that the lower announcement returns are consistent with a reduced role for undervaluation and an increased role for reversing the dilution effects of exercise of stock options.

The Impact of Stock Market Declines

The stock market declines which began in 1999 accelerated in 2000, with subsequent fluctuations in a range below peak levels by yearend 2002. Nevertheless, some buybacks continued during this time interval. For example, Table 7 presents a sample of data on buybacks totaling \$55.9 billion beginning in 1999. The closing prices on 12/15/00 were \$13 billion less than the share repurchase prices paid. By 10/9/02, the closing prices were \$31 billion lower than the purchase prices. For some of the companies in the list, the downward pressure on stock prices reflected unfavorable industry developments that severely impacted individual companies as well as movements in the general economy and financial markets. However, such continuing large losses raise issues with respect to the rationales for these share repurchases.

Implications of Gains and Losses from Share Repurchases

The patch quilt nature of the findings in Table 6 on event returns makes it difficult to formulate generalizations. Clearly the findings of studies with data before 1980 based on FPTs were consistent with undervaluation as the main motive for the share buybacks. The Netter and Mitchell (1989) analysis of OMRs related to the October 1987 market crash demonstrated that companies correctly anticipated that the stock market declines were of relatively short duration. The 1987 stock market crash, in contrast to the market declines of 1999-2001, were not associated with a recession in the general economy (defining a recession as two successive quarters of declines in real gross domestic product).

Although contagion effects caused temporary declines in world stock markets in October 1987, Mitchell and Netter (1989) present evidence that a tax bill containing antitakeover provisions caused the October 19, 1987 crash. A tax bill with antitakeover provisions was proposed by the U.S. House Ways and Means Committee on October 13, 1987 and approved by the Committee on October 15. The antitakeover provisions would have limited the deductibility of interest on debt incurred to finance corporate takeovers, recapitalizations, and leveraged buyouts; it would also have imposed other restrictions on hostile takeovers. These provisions were associated with a greater than 10% decline in the stock market on October 14-16, triggering the crash on October 19. The tax bill was subsequently enacted without most of the antitakeover provisions. Thus the negative influences were temporary and the strong positive event returns associated with the share repurchases following the October 19 crash were motivated by judgments of undervaluation.

The Netter and Mitchell (1989) study also measured the behavior of executives and other insider investors. They found that insiders were also heavy purchasers of their company equities during this period. Other empirical studies support these findings (Lee et al, 1992; D' Mello, 2000). It is plausible that if management uses share repurchases to signal undervaluation, they would also increase their ownership in the company by additional stock purchases.

Similar issues are involved in reconciling the Comment and Jarrell (1991) findings with Ikenberry et al (1995). The former found that in FPTs and DAs event returns were substantially lower when officers and directors (ODs) were not at risk.

OMRs do not provide information whether ODs are at risk. Yet the OMRs in the Ikenberry et al study yield very large abnormal returns at announcement and longer term.

We present a possible explanation for the large abnormal returns from OMRs found in the Ikenberry et al and other studies of OMRs for data through the mid 1990s. A share repurchase by a firm is not an isolated event, but part of a series of repeated actions. Table 8 shows that IBM authorized a series of share repurchases of \$2.0-3.5 billion per year from the mid 1980s through 2002. More generally, Table 9 shows that for a sample of 33 large companies, share repurchases were authorized with high frequency. The number of announcements was as high as 21 for the period 1994-2002 for DuPont, a frequency of 1 every 10 months. The frequency for both General Motors and IBM was 1 per year. Yet studies of OMRs treat their observations as independent, when actually they may represent related events in a program of repurchases followed over an extended time period.

4. Empirical Studies of Share Repurchases in the 1990s

Econometric studies of share repurchases are consistent with the hypothesis that a major motive has been to offset the dilution effects of the exercise of stock options. The study by Bens, Nagar, Skinner, and Wong (2002) focuses directly on the issue. They perform a statistical analysis comparing the antidilution motive versus plausible alternatives. They use hand-collected data on repurchases and employee stock option (ESO) activity for all employees of S&P 500 Industrial firms from 1996 to 1999. As the dilutive effects of outstanding ESOs on reported (GAAP defined) earnings per share (EPS) rises, firms increase the amount of their stock repurchases. Furthermore, when the

earnings growth targets of firms are threatened, they are more likely to increase share repurchase activities. They also find that the incentives to repurchase in response to the potentially dilutive effects of ESOs are stronger for firms with high price to earnings (P/E) ratios. In their multiple regression studies, they are able to control for other possible influences on repurchase decisions including the proceeds from the exercise of ESOs, deviations from target leverage, and firm characteristics – size, growth rates, book to market ratios, and levels of operating cash flows.

Fenn and Liang (2001) found similar results. They studied 1,108 firms for the period 1993-97. They obtain data on dividends, repurchases, and firm characteristics from Compustat; data on managerial stock incentives was obtained from Execucomp. In addition to the positive relationship between ESOs and repurchases, they find that managerial share ownership furnishes incentives to increase payouts at firms where the most severe agency problems were associated with high free cash flows, limited investment opportunities, and low management stock ownership. Using a 3 to 5 year time horizon, they find both dividends and repurchases increasing with free cash flows and decreasing with external financing costs. They find as do other researchers that firms distribute permanent cash flow increases as cash dividends and use share repurchases for temporary cash flow shocks. However, they find that a one standard deviation increase in their management stock option variable is related to a significant reduction of 38 basis points in dividend yields. They observe that while the flexibility and undervaluation reasons for share repurchases had not changed during the accelerated use of share repurchases in the late 1990s, the use of ESOs had greatly increased. Hence they

conclude that the growth of ESOs has been significantly associated with the increased use of stock options.

Kahle (2002) provides an in-depth analysis of the variables influencing repurchasing policies. Her sample for repurchases is based on the Securities Corporation's Mergers and Acquisition database for the six year period 1/1/91 and 12/31/96. Data on managerial options outstanding and exercisable are obtained from the Standard & Poor's Execucomp database. Compustat data are used for company characteristics. Annual reports were used to collect data on options exercised, total options outstanding, and total options exercisable held by all employees. The final sample analyzes 712 repurchase announcements.

She first compares the characteristics of dividend increasing firms versus repurchase firms. The average dividend increase measured as a percent of the last previous dividend paid is 9.8% and earns an abnormal return of 0.5% over the 3-day window (-1,+1). Repurchasing firms announce buybacks of an average of 6.4% of shares outstanding associated with an abnormal return of 1.6%, lower than the findings for earlier time periods.

Her regression analysis finds that larger firms with higher ratios of free cash flows to assets are more likely to repurchase than to increase cash dividends. The coefficients on executive options as well as total options outstanding are positive and significant. Cash dividend payments would decrease the value of managerial options whether or not they are currently exercisable.

In open market repurchases firms may not follow through on the total amounts announced. Kahle next turns to an analysis of the determinants of the actual level of

repurchases. She finds that firms repurchase more shares as free cash flows increase, as firms are larger, have low growth opportunities (low market to book ratios), and are undervalued (larger post-announcement returns). Her data provide evidence that firms repurchase stocks in anticipation of future option exercises which would cause earnings dilution. She notes also that firms concerned about dilution buy back shares as options move into the money when they are more likely to be exercised. This analysis further supports her findings of the role of total options exercisable in explaining share repurchases. Her finding that the announcement returns to repurchasing firms have declined over time is consistent with a decreasing influence of undervaluation and an increasing influence of the potential dilution effects of increased number of employee stock options outstanding.

5. Related Dividend Studies

Fama and French (FF) (2001) report that in 1973, 52.8% of publicly traded nonfinancial, nonutility firms paid dividends. This rises to 66.5% in 1978 and then declines to 20.8% in 1999. They attribute the decline in part to a shift of publicly traded firms toward characteristics of firms that have never paid dividends. The number of publicly traded firms grew from 3,638 in 1978 to 5,670 in 1997, declining to 5,113 in 1999. The increase in the number of firms was associated with a shift to newer and smaller firms, which mostly have not paid dividends. These firms are characterized by higher rates of investment, higher R&D rates, and higher ratios of market value of assets to their book value; their investments exceed pre-interest earnings. Their size is about one-tenth the size of payers. FF state that “the aggregate payout ratio for all firms masks

the kind of widespread evidence of lower propensity to pay dividends, among individual firms of all types ...” (p. 39) FF also state that the “Lower propensity to pay is quite general.” (p. 40) FF define “propensity” as the probability that a firm in a given category of firms will be a dividend payer.

In their paper on dividend concentration, DeAngelo et al (2002) present data (in Appendix Table A1) on real dividends and real earnings in 1978 and 2000 for the 25 industrial firms that paid the largest dividends in 2000 when they accounted for 53.5% of the aggregate for all industrials. From their data we calculated in Table 10 the percentage changes in the real dividend payouts between 1978 and 2000 for 23 firms with data for both years. Twelve firms reduced their payout ratios; eleven firms increased payouts. Therefore, the large firms that increased their dividend payouts are the engines behind the rise in aggregate payouts.

In Table 10 we also ranked the percentage change in payouts and ranked the compound annual growth rates in real earnings between 1978 and 2000. We calculated the Spearman’s correlation coefficient between the ranked pairs. The resulting r of 0.53 for the 23 observations is significant at the 1% level. This finding that dividend payouts over time are related to underlying real earnings growth rates as one of the underlying causal variables is consistent with economic principles. We conclude that the dividend paying group of firms increased their dividend payouts, and among the dividend payers, those with the highest rates of earnings improvements also had the highest rates of increase in their dividend payouts. Lower propensities, as defined by FF, can therefore coexist with higher payouts for some dividend payers.

6. The Relations between Dividends and Share Repurchases

With this background on recent patterns in dividend behavior, we next review the literature on relationships between dividends and share repurchases. The Grullon and Michaely (2002) sample covers the period 1972-2000 for almost 16,000 firms. Their primary source is Compustat data on dividends and share repurchases. Grullon and Michaely report a 0.97 correlation coefficient with the SDC series on share repurchases.

They first analyze the composition of aggregate cash distributions to equity holders over time. Between 1972 and 1983 repurchases were about 11% of cash dividend payments. Over the period 1984 and 2000 the ratio was 58% rising to 113% in 2000. They next analyze firm characteristics by payout policy. Dividend paying firms are larger and more profitable than non-dividend paying firms. Firms that repurchase shares but pay no dividends are small, have a high market to book ratio and high earnings volatility. Only about 34.1% of repurchasing firms have traded for more than 8 years; 63.3% of dividend paying firms have traded for more than 8 years. For a sample of mature firms, no positive relation between share repurchase activity and earnings volatility is found. Repurchasing firms increase from 31% in 1972 to 80% in 2000 of total firms distributing cash to shareholders. Over roughly the same period, firms initiating a cash distribution using only share repurchases increased from less than 27% to more than 84% of the total firms initiating a cash distribution.

Grullon and Michaely next use Lintner's model (1956) that a firm's dividend policy is a function of its targeted payout ratio and the speed of dividend adjustments. They also test for the influence of firm characteristics – size, return on assets, volatility of that return, nonoperating income to total assets, and leverage. They find that the

repurchase yields still have a negative effect on the dividend forecast errors, supporting the substitution hypothesis. They also develop econometric evidence to show that when firms substitute repurchase programs for dividend cuts, the market reaction is not significantly different from zero, consistent with the flexibility motive for repurchases. They also find that the market reaction to repurchases is more positive when the tax gains from repurchases relative to dividends are larger.

Grullon and Michaely explain the growth of repurchases after the mid-1980s. They suggest that the introduction by the SEC of Rule 10b-18 in 1983 provided a safe harbor protecting repurchasing firms against charges of stock price manipulation. This also reduced the likelihood that the IRS would tax repurchases at ordinary income tax rates like dividends. We observe also that the booming economy and financial markets greatly stimulated the use of employee stock options and the anti-dilution motive for share repurchases.

The Role of Special Dividends

In a related study, DeAngelo, DeAngelo, and Skinner (2000) analyzed the use of special dividends by NYSE firms. About 20% of dividend paying firms paid a special dividend in 1927. This peaked to over 50% in the mid-1930s. After dropping to less than 20% in the early 1940s, it rose about 47% in the late 1940s. Thereafter a steady decline took place to virtually zero by 1995. Over the full period 1926 to 1995, special dividends accounted for a median 17% of total cash dividends paid for the full sample of 1,287 firms on the NYSE. They found that on average firms experienced significant positive abnormal returns of about 1% when they did not change the regular dividend and

paid a positive special dividend. Since firms generally paid specials almost as predictably as they paid regular dividends, investors began to regard them as part of regular dividends. Special dividend payouts became relatively rare. DeAngelo et al observed that the virtual disappearance of special dividends was associated with the rise of institutional investors whose greater sophistication saw no substantive difference between regular dividends and specials paid with high frequency.

The issue of whether stock purchase programs substituted for special dividends is also addressed. In general the incidence and dollar value of special dividends had already declined to small levels by the late 1960s. The rapid growth of share repurchases took place after 1980. DeAngelo et al further test the substitution issue with a detailed analysis of a sample of 91 NYSE firms that had stopped established programs of special dividends. Their results are consistent with the conclusion that share repurchases did not substitute for special dividends.

DeAngelo et al noted that it was the influence of institutions as sophisticated investors that caused recurring special dividends to evolve into regular dividends. Allen, Bernardo, and Welch (2000) extend the analysis of the role of institutional investors. They postulate that institutional investors possess a tax advantage relative to individual investors, inducing dividend clientele effects. As a consequence, institutional investors prefer dividends to share repurchases. In addition, the professional staffs of institutions give them a relative advantage in monitoring firms to evaluate firm quality. By paying dividends, firms attract more institutional investors whose monitoring results in improved performance. Thus the role of institutions is to provide a quality certification for dividend-paying firms (Allen, Bernardo, and Welch, 2000).

DeAngelo et al observed that in contrast to the virtual disappearance of special dividends, large specials (defined as exceeding 5% of equity value) have survived and increased in importance after the 1980s. They note that between 1980 and 1995, 39 specials larger than 10% of equity value were almost double the 22 specials of comparable size over the prior half century. They cite Wall Street Journal reports indicating that 30 (81.1%) of 37 large specials after 1980 were part of a corporate restructuring program and that 18 of the 30 were related to takeover pressures. It follows that the post-1980 large special payouts are different in nature from the earlier special dividends which appeared to be gradual regular dividend increases. Nor were large specials after 1980 repetitive in nature as were the earlier ones. They were events associated with takeovers and reorganizations.

Jagannathan, Stephens, and Weisbach (2000) also analyze the choice between dividends and stock repurchases. Their results include the impact of institutional ownership, similar to DeAngelo et al (2000). Firms that increase dividend payouts have higher institutional ownership than those that do not increase payouts. Firms that increase dividends have higher institutional ownership than repurchasing firms. Repurchasing firms have more volatile cash flows and distributions. Dividends are associated with permanent elements of operating cash flows, while repurchases are associated with transitory elements of non-operating cash flows. Firms repurchase shares following stock price weaknesses and increase dividends following good stock market performance. While dividends grow over time, repurchases are pro-cyclical in relation to stock price movements. Repurchases do not replace dividends; rather they provide increased flexibility in payouts.

Guay and Harford (2000) developed these themes further. They found that changes in cash flows that lead to dividend increases contained a larger permanent component than share repurchases. The cash flows of dividend increasing firms are less likely to revert back to prior levels. Share repurchases are more likely to be associated with more transitory cash flow changes. They conclude that cash dividends have stronger signaling power than share repurchases.

The Substitution Issue

The foregoing papers state or imply that share repurchases have substituted for the use of cash dividends. FF hold that share repurchases have not substituted for cash dividends nor explain why the propensity to pay dividends has decreased. The substance of their story is that the rise in share repurchases has taken place in firms that have also continued to pay dividends or have the characteristics of non-dividend paying firms.

We developed a set of data relevant to the substitution issue. Arrayed by market capitalizations (our cutoff was \$1 billion), we found 326 firms in Compustat that made no dividend payments for the seven years 1995-2001. Table 11 tabulates the number of non-dividend paying firms during 1995-2001 and the corresponding number of years in which share repurchases were made. The first row of the table shows that only 47 of the 326 firms (14.4%) made no share repurchases. The remaining 85.6% of the firms made share repurchases aggregating to \$108.2 billion in 7 years.

Table 12 presents the distribution by 2-digit SIC industries of the number of non-dividend paying companies making share repurchases during 1995-2001. Nine industry categories account for 71.2% of no dividends but positive share repurchases. The SIC

codes of these companies indicate that they are mostly in the industrial categories where the FF characteristics of non-dividend payers are likely to be found, particularly high investment requirements in relation to cash flows. These data support the proposition that share repurchases and cash dividends perform different economic and business functions.

The Measurement of Share Repurchase Growth

The measurement of share repurchase growth is also subject to disagreement. Stephens and Weisbach (1998) point out that open market share repurchases can not be calculated at the announcement nor directly measured after share repurchases begin to take place. They describe four possible proxies: (1) firms' shares outstanding from CRSP, (2) firms' shares outstanding from Compustat, (3) the statement of cash flows or flow of funds statement from Compustat, and (4) changes of the dollar value of treasury stock reported by Compustat. The primary method they employ is the first. Since the primary interest of Stephens and Weisbach (1998) is the measurement of the percent of shares actually acquired after OMR announcements, they do not present a time series of share repurchases. They estimate that for their sample of 450 programs, 1981-1990, 74% to 82% of share announcement quantities take place within 3 years. They note that the flexibility in OMRs is one of the reasons why they account for over 95% of share repurchase programs.

In the Grullon and Michaely (2002) study summarized above, share repurchases use the Compustat measure of expenditures on the purchase of common and preferred stocks (adjusted to remove preferred stock). They state that their evidence is consistent

with the FF findings of a lower propensity to pay dividends. However, they present the view that firms have been substituting share repurchases for dividends. They state that their results differ from FF who use a net measure of repurchase activities. Whether the gross share repurchase measure or the net measure should be used depends on the nature of the application. In studies of the influences on the growth of share repurchases by Kahle (2002), it was appropriate for her to use the gross measure to arrive at her finding that the number of exercisable options had the strongest explanatory power. In comparing share repurchases to cash dividends from firms to individuals, net distributions would be relevant. For example, if a firm sold equity whose proceeds were used in share repurchases, the distribution from firms to individuals would be offsetting. The option transaction is similar. At the time of option exercise, the firm is selling equity and raising cash. If the proceeds are used for share repurchases, no net cash payout by the firm was made. The firm's net cash balance remains the same and the cash in the hand of investors is also unchanged.

If a firm makes an acquisition for cash, a net cash disbursement has occurred; the firm has less cash and investors have more. But suppose the target prefers a non-taxable event and the acquiring firm makes a share repurchase for cash, using the shares acquired in a stock-for-stock non-taxable transaction. From a funds flow standpoint the linked sequence of transactions for the acquiring firm represents an outflow of cash and no change in shares outstanding. However, while firms sometimes describe the purpose of a buyback to obtain shares to be used in acquisitions, it is not plausible that it is the real reason. A more efficient procedure is for firms to have a cushion of authorized shares in excess of shares issued and outstanding. The authorized number of shares is just a

number set forth in a company's articles of incorporation, as filed with the secretary of the state of incorporation, typically Delaware. The relatively minor expense relates to some State franchise taxes based on authorized capitalization. If a firm does not have an ample cushion of authorized shares in excess of shares outstanding, it may not have shares needed for acquisitions or the exercise of stock options, as well as for antitakeover defensive actions. The firm would then incur delays to authorize more shares by amending its corporate charter which requires shareholders approval. The benefits of having a substantial excess of authorized shares over outstanding shares are so great it is predictable that most corporations would always have that cushion.

Empirical evidence is consistent with the proposition that firms have incentives to hold a cushion of authorized shares in excess of outstanding shares. Table 13 presents a tabulation of authorized shares versus outstanding shares for the Dow Jones 30 Industrial Companies. The mean excess of shares authorized over shares outstanding is 162.2%. The median excess is 141.5%.

The empirical studies summarized above found a strong association between share repurchase activity and the use of stock options. The exercise of stock options was associated with share repurchases which offset the dilution effects of an increase in shares outstanding. These activities are consistent with the use of share repurchases on a net basis to measure total corporate payouts. This treatment is required for accurate flow of funds behavior for firms and the economy. While measures of share repurchases on a net basis are not available, the gross measures as illustrated by our Table 2 data overstate net share repurchases. A reduction by a 30% to 35% factor would bring the dividends plus repurchases percentages in the final column of Table 2 to more plausible levels.

7. Surveys of Motives for Share Repurchases

Surveys of the motives for share repurchases have been conducted. In March 1999, the Financial Executives International (FEI) conducted an electronic poll of 155 members. We summarize their findings in Table 14. We note that the reason ranked number 1 was to improve their earnings per share (EPS) numbers. The other reasons given are somewhat ambiguous. To check on these results, the FEI commissioned a research project whose results were published by Badrinath and Varaiya (2000). The study covered 200 firms that announced and completed share repurchase programs from 1991-1996. The most commonly cited reasons for share repurchase programs were: (1) to prevent earnings dilution, (2) to increase share price, (3) to change capital structure, and (4) to return cash to shareholders by a favorable tax method.

We also collected data on the purposes of the buyback programs as reported in the SDC share repurchase database. We analyzed the largest (by total value of actual repurchases) 538 buyback programs covering 1987-2002. Subjectivity was sometimes required in making the classifications. Table 15 presents the results. The number one purpose given was “general corporate purposes.” These vague responses should probably be distributed over the other four more clearly specified reasons. The objective of offsetting dilution of options exercised was indicated in 30% of the total. This motive has also been given in statements by individual companies. For example, in its Form 10-K for the fiscal year ended 2/1/02, the Dell Computer Corporation states on page 44, “The Company has a share repurchase program that it uses primarily to manage the dilution resulting from shares issued under the Company’s employee stock plans.”

The explanation of offsetting dilution in order to increase share prices is inconsistent with finance theory. The motive to make share repurchases to avoid dilution in earning per share implies that this accounting metric influences stock prices. Kahle (2002) addresses this issue. She cites the Andrade (1999) paper which finds that EPS accretion has a significant positive effect on abnormal returns to acquirers both at announcement and for 18 subsequent months. She also cites evidence that sophisticated investment bankers observe that companies avoid dilutive transactions (Wasserstein, 1998).

The shift in the dominant motive for share repurchases from signaling undervaluation to offsetting dilution from the exercise of EESOs may be related to underlying developments in the economy and stock prices. Table 16 provides the relevant data. For the period 1959-1982 the annual compound growth rate in stock prices was in the range from 2% to 5%. For 1982-2000, the range was 15% to 18%. For the period 1994-99, the range was from 22% to 23% for the Dow and S&P 500 but over 29% for Nasdaq. The generally high rates of growth in stock prices from 1978 to 1999 stimulated the use of bonuses and stock options.

The belief that share repurchases could increase share prices by reducing the number of stock outstanding may have been fostered by the confluence of multiple developments during the two decades of rising stock prices. Underlying real economic growth was strong. Expectations were strongly optimistic. Firms grew by acquisitions and stock options were used to help retain key employees of acquired firms. Share repurchases were used to prevent EPS dilution when the options were exercised. In a strong economy supporting high growth in revenues, in cash flows, in earnings per share,

in price-earnings ratios, and in stock prices, share repurchases were also rising. In this environment, misconceptions about the underlying causes of share price increases could have developed.

8. Interpretations of the Findings

Share repurchases can potentially influence central issues of corporate financial policy – payout decisions and capital structure choices. Buybacks can also potentially influence the flow of funds between businesses and individuals in the economy. These considerations make the study of share repurchases relevant and important.

Measures of the Growth of Share Repurchases

We started with the SDC measures of share repurchases since it was a convenient source for obtaining updates. In recent years share repurchases have been predominantly open market repurchases. Since the SDC data is based on announcements, it does not measure actual share repurchases nor does their aggregate data take into account the net effect of the exercise of stock options which have stimulated the use of buyback programs. Measurement problems have been discussed at some length in the literature (see especially Stephens and Weisbach, 1998; Jagannathan et al, 2000).

Our judgment is that share repurchases net of stock options exercised had grown to about 25% to 30% of cash dividends by the late 1990s. This implies that dividends plus share repurchases combined became about 70% to 75% of aggregate after-tax profits. Hence share repurchases have become a significant aspect of corporate financial policy.

Changed Motives for Repurchases

The relative influences of the multiple forces behind the increase in share repurchases have changed over time. The early literature on share repurchases (Dann, 1981; Vermaelen, 1981) developed models consistent with signaling of undervaluation. With the safe harbor policies of the SEC in 1983 supported by similar actions by the IRS, tax savings and flexibility motives became stronger. The increased threats of takeovers that emerged at about the same time increased the role of share repurchases as a takeover defense.

The use of share repurchases during the stock crash of October 1987 was also explained by undervaluation. Netter and Mitchell (1989) also documented that insiders in share repurchasing firms invested heavily in their firms' stock. Strong economic logic supports this behavior. If management is using share repurchases to signal undervaluation, it would be rational for them to invest in the stock as well as to make share repurchases. Other empirical studies find confirming evidence of this Netter and Mitchell (1989) finding (Lee et al, 1992. D'Mello and Shroff, 2000).

The most comprehensive study of OMRs by Ikenberry, Lakonishok, and Vermaelen (1995) covers data for the decade of 1980-90. Pre-event returns are negative as in other studies. Event returns for a 5-day window were a positive, significant 3.54%. A four year buy-and-hold portfolio of 893 OMRs had a four year return of over 12%; a portfolio of 169 value stocks had a 45% return. These delayed abnormal returns are attributed to the nature of OMRs since their announcement is not a firm commitment.

The share repurchases might not actually take place. Actual share repurchases and successive OMR announcements increase credibility.

Studies of share repurchases for data of the 1990s document a statistical association between the growth of share repurchases and the number of exercisable stock options outstanding. The explanation offered is that share repurchases are used to offset the dilution that would otherwise take place as executive and employee options (EESOs) are exercised. The dilution effect could be substantial since an explosive growth of EESOs took place during the 1990s.

The growth of share repurchases raises the issue of whether they have substituted for cash dividends. Aggregate dividends and the aggregate payout ratio have increased. Nevertheless, the probability that a firm in a given class of firms will be a dividend payer has decreased as shown by the FF data for 1978-1999. They state: “the perceived benefits of dividends ... have declined through time.” (FF, 2001, p. 5) Non-dividend payers are mainly smaller firms with investment opportunities that use a high percentage of operating cash flows. The time span of the FF data coincide with the period of strong growth in stock prices as shown in Table 16. The capital gains element in shareholder returns offered much higher returns than dividends since price-earnings ratios were also rising. Increased use of stock options took place in growing firms with rising stock prices. As more stock options became exercisable, share repurchases were made.

Stock options were used in the new growing firms to achieve cash returns to the top executive group in the form of capital gains. Stock options were also used to recruit key employees who could also benefit from participation in capital gains. The rising stock values were based on optimistic expectations of future firm performance in a

growth economy. These firms would not have paid cash dividends related to current earnings which FF document were relatively low. Stock prices represent discounted values of expected future net cash flows providing the ability to make large gains. Hence it was not so much the advantage of tax benefits, but the ability to benefit from the capitalized values of expected favorable future earnings growth that made stock options valuable.

It was the strong economy and rising stock prices that provided opportunities for the formation of new firms. The strong economy also made possible the growth in earnings in some of the larger, more mature firms. This enabled the traditional dividend paying group to increase payouts from rising earnings. In this environment, the growth of both dividends and share repurchases was stimulated by common factors: a strong economy associated with favorable performance and optimistic expectations of the future. But dividends and share repurchases perform different economic functions.

References

- Allen, Franklin, Antonio E. Bernardo, and Ivo Welch, 2000, "A Theory of Dividends Based on Tax Clienteles," *Journal of Finance*, 55 (No. 6, December), 2499-2536.
- Allen, Franklin, and Roni Michaely, 1995, "Dividend Policy," *Handbook in Operations Research and Management Science: Finance*, R. A. Jarrow, V. Maksimovic, and W. T. Ziemba, eds., Amsterdam, The Netherlands: Elsevier, 793-838.
- Andrade, Gregor, 1999, "Do Appearances Matter? The Impact of EPS Accretion and Dilution on Stock Prices," Working Paper, Harvard Business School.
- Badrinath, Swaminathan G. and Nikhil P. Varaiya, 2000, "The Share Repurchase Decision: Causes, Consequences, and Implementation Guidelines," Financial Executives Research Foundation Study, (October).
- Badrinath, Swaminathan G. and Nikhil P. Varaiya, with Rhona L. Ferling, 2001, "Share Repurchase: To Buy or Not to Buy," *Financial Executive*, 17 (No. 3, May), 43-48.
- Bagwell, Laurie Simon, 1992, "Dutch Auction Repurchases: An Analysis of Shareholder Heterogeneity," *Journal of Finance*, 47 (No. 1, March), 71-106.
- Bens, Daniel A., Venky Nagar, Douglas J. Skinner, and M. H. Franco Wong, 2002, "Employee Stock Options, EPS Dilution, and Stock Repurchases," Working Paper, University of Chicago, (February).
- Bens, Daniel A., Venky Nagar, and M. H. Franco Wong, 2002, "Real Investment Implications of Employee Stock Option Exercises," *Journal of Accounting Research*, 40 (No. 2, May), 359-393.
- Comment, Robert, and Gregg A. Jarrell, 1991, "The Relative Signalling Power of Dutch-Auction and Fixed-Price Self-Tender Offers and Open-Market Share Repurchases," *Journal of Finance*, 46, (No. 4, September), 1243-1272.
- Dann, Larry Y., 1981, "Common Stock Repurchases: An Analysis of Returns to Bondholders And Stockholders," *Journal of Financial Economics*, 9, 113-138.
- DeAngelo, Harry, Linda DeAngelo and Douglas J. Skinner, 2000, "Special Dividends and the Evolution of Dividend Signaling," *Journal of Financial Economics*, 57 (No. 3, September), 309-354.
- DeAngelo, Harry, Linda DeAngelo and Douglas J. Skinner, 2002, "Are Dividends Disappearing? Dividend Concentration and the Consolidation of Earnings," Working Paper No. 02-9, University of Southern California – Marshall School of Business, (September).

- D'Mello, Ranjan and Pervin K. Shroff, 2000, "Equity Undervaluation and Decisions Related to Repurchase Tender Offers: An Empirical Investigation," *Journal of Finance*, 55 (No. 5, October), 2399-2424.
- Fama, Eugene F., 1998, "Market Efficiency, Long-Term Returns, and Behavioral Finance," *Journal of Financial Economics*, 49 (No. 3, September), 283-306.
- Fama, Eugene, and Kenneth R. French, 2001, "Disappearing Dividends: Changing Firm Characteristics or Lower Propensity to Pay," *Journal of Financial Economics*, 60, (No. 1, April), 3-43.
- Fenn, George W. and Nellie Liang, 2001, "Corporate Payout Policy and Managerial Stock Incentives," *Journal of Financial Economics*, 60 (No. 1, April), 45-72.
- Grullon, Gustavo and David L. Ikenberry, 2000, "What Do We Know about Stock Repurchases?" *Journal of Applied Corporate Finance*, 13, (No. 1, Spring), 31-51.
- Grullon, Gustavo and Roni Michaely, 2002, "Dividends, Share Repurchases, and the Substitution Hypothesis," *Journal of Finance*, 57, (No. 4, August), 1649-1684.
- Guay, Wayne and Jarrad Harford, 2000, "The Cash-Flow Permanence and Information Content of Dividend Increases versus Repurchases," *Journal of Financial Economics*, 57 (No. 3, September), 385-415.
- Ikenberry, David, Josef Lakonishok, and Theo Vermaelen, 1995, "Market Underreaction to Open Market Share Repurchases," *Journal of Financial Economics*, 39 (No. 2-3, October-November), 181-208.
- Isawaga, Nobuyuki, 2002, "Open-Market Repurchase Announcements and Stock Price Behavior in Inefficient Markets," *Financial Management*, 31 (No. 3, Autumn), 5-20.
- Jagannathan, Murali, Clifford P. Stephens, and Michael S. Weisbach, 2000, "Financial Flexibility and the Choice between Dividends and Stock Repurchases," *Journal of Financial Economics*, 57 (No. 3, September), 355-384.
- Jensen, Michael C., 1986, "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers," *American Economic Review*, 76, 323-329.
- Kahle, Kathleen M., 2002, "When a Buyback Isn't a Buyback: Open Market Repurchases and Employee Options," *Journal of Financial Economics*, 63 (No.2, February), 235-261.
- Lee, D. Scott, Wayne H. Mikkelson, and M. Megan Partch, 1992, "Managers' Trading Around Stock Repurchases," *Journal of Finance*, 47 (No. 5, December), 1947-1961.
- Liang, J. Nellie, and Steven A. Sharpe, 1999, "Share Repurchases and Employee Stock Options and Their Implications for S&P 500 Share Retirements and Expected Returns," working paper, Federal Reserve Board – Division of Research and Statistics, (November).

- Lintner, John, 1956, "Distribution of Incomes of Corporations among Dividends, Retained Earnings, and Taxes," *American Economic Review*, 46, 97-113.
- McGough, Robert, Suzanne McGee, and Cassell Bryan-Low, 2000, "Heard on the Street: Poof! Buyback Binge Now Creates Big Hangover," *The Wall Street Journal*, (December 18), p. C1.
- Mitchell, Mark L. and Jeffrey M. Netter, 1989, "Triggering the 1987 Stock Market Crash: Antitakeover Provisions in the Proposed House Ways and Means Tax Bill?" *Journal of Financial Economics*, 24 (No. 1, September), 37-68.
- Mitchell, Mark L. and Erik Stafford, 2000, "Managerial Decisions and Long-Term Stock Price Performance," *Journal of Business*, 73 (No. 3, July), 287-329.
- Netter, Jeffrey M. and Mark L. Mitchell, 1989, "Stock-Repurchase Announcements and Insider Transactions after the October 1987 Stock Market Crash," *Financial Management*, 18 (No. 3, Autumn), 84-96.
- Nohel, Tom, and Vefa Tarhan, 1998, "Share Repurchases and Firm Performance: New Evidence on the Agency Costs of Free Cash Flow," *Journal of Financial Economics*, 49, (No. 2, August), 187-222.
- Norris, Floyd, 2002, "Cigna's Buyback Plan Has Created a Cash Crunch," *The New York Times*, (October 29), C1.
- Rappaport, Alfred, 1998, *Creating Shareholder Value*, New York: The Free Press.
- Stephens, Clifford P. and Michael S. Weisbach, 1998, "Actual Share Reacquisitions in Open-Market Repurchase Programs," *Journal of Finance*, 53 (No. 1, February), 313-333.
- Vermaelen, Theo, 1981, "Common Stock Repurchases and Market Signalling: An Empirical Study," *Journal of Financial Economics*, 9, 138-183.
- Wasserstein, Bruce, 1998, *Big Deal: The Battle for Control of America's Leading Corporations*, New York: Warner Books.

Table 1
Share Repurchase vs. Cash Dividends, 1972-2001

| Year | Dividends (\$ Billion) | Share Repurchase (\$ Billion) | % Share Repurchase to Dividends |
|---------------------|-----------------------------------|--|--|
| 1972 | 26.8 | 1.5 | 5.6% |
| 1973 | 29.9 | 3.1 | 10.4% |
| 1974 | 33.2 | 1.6 | 4.7% |
| 1975 | 33.0 | 0.8 | 2.6% |
| 1976 | 39.0 | 1.6 | 4.1% |
| 1977 | 44.8 | 3.6 | 8.1% |
| 1978 | 50.8 | 4.3 | 8.5% |
| 1979 | 57.5 | 5.4 | 9.5% |
| 1980 | 64.1 | 6.6 | 10.3% |
| 1981 | 73.8 | 6.3 | 8.5% |
| 1982 | 76.2 | 10.6 | 13.9% |
| 1983 | 83.6 | 9.2 | 11.0% |
| 1984 | 91.0 | 27.3 | 30.0% |
| 1985 | 97.7 | 20.3 | 20.8% |
| 1986 | 106.3 | 28.2 | 26.5% |
| 1987 | 112.2 | 55.0 | 49.0% |
| 1988 | 129.6 | 37.4 | 28.9% |
| 1989 | 155.0 | 63.7 | 41.1% |
| 1990 | 165.6 | 36.1 | 21.8% |
| 1991 | 178.4 | 20.4 | 11.4% |
| 1992 | 185.5 | 35.6 | 19.2% |
| 1993 | 203.1 | 38.3 | 18.9% |
| 1994 | 234.9 | 73.8 | 31.4% |
| 1995 | 254.2 | 99.5 | 39.1% |
| 1996 | 297.7 | 176.3 | 59.2% |
| 1997 | 335.2 | 181.8 | 54.2% |
| 1998 | 348.7 | 237.3 | 68.1% |
| 1999 | 343.5 | 164.6 | 47.9% |
| 2000 | 379.6 | 158.1 | 41.6% |
| 2001 | 416.6 | 177.4 | 42.6% |
| Growth Rates | | | |
| 1984-2001 | 9.3% | 13.6% | |
| 1984-1998 | 9.9% | 14.6% | |
| 1995-1998 | 10.7% | 26.4% | |

*Source: Economic Report of the President, 2002, Table B-90;
Thomson Financial Securities Data; share repurchase data
for 1972-83 are from Grullon and Michaely (2002)*

Table 2
Dividends plus Share Repurchase to After-Tax Profits, 1972-2001
(in Billions of Dollar)

| Year | | | | | <u>As Percent of After-Tax Profits</u> | |
|------|-------------------|-----------|------------------|-------|--|-------------------------|
| | After-Tax Profits | Dividends | Share Repurchase | Total | Dividends | Dividends + Repurchases |
| 1972 | 67.9 | 26.8 | 1.5 | 28.3 | 39.5% | 41.66% |
| 1973 | 74.7 | 29.9 | 3.1 | 33.0 | 40.0% | 44.18% |
| 1974 | 62.7 | 33.2 | 1.6 | 34.8 | 53.0% | 55.46% |
| 1975 | 82.1 | 33.0 | 0.8 | 33.8 | 40.2% | 41.23% |
| 1976 | 96.4 | 39.0 | 1.6 | 40.6 | 40.5% | 42.11% |
| 1977 | 117.9 | 44.8 | 3.6 | 48.4 | 38.0% | 41.06% |
| 1978 | 133.7 | 50.8 | 4.3 | 55.1 | 38.0% | 41.22% |
| 1979 | 134.5 | 57.5 | 5.4 | 62.9 | 42.8% | 46.80% |
| 1980 | 113.7 | 64.1 | 6.6 | 70.7 | 56.4% | 62.18% |
| 1981 | 137.8 | 73.8 | 6.3 | 80.1 | 53.6% | 58.11% |
| 1982 | 138.2 | 76.2 | 10.6 | 86.8 | 55.1% | 62.78% |
| 1983 | 176.9 | 83.6 | 9.2 | 92.8 | 47.3% | 52.46% |
| 1984 | 215.7 | 91.0 | 27.3 | 118.3 | 42.2% | 54.84% |
| 1985 | 225.9 | 97.7 | 20.3 | 118.0 | 43.2% | 52.24% |
| 1986 | 194.2 | 106.3 | 28.2 | 134.5 | 54.7% | 69.26% |
| 1987 | 219.5 | 112.2 | 55.0 | 167.2 | 51.1% | 76.17% |
| 1988 | 267.9 | 129.6 | 37.4 | 167.0 | 48.4% | 62.34% |
| 1989 | 254.2 | 155.0 | 63.7 | 218.7 | 61.0% | 86.03% |
| 1990 | 268.0 | 165.6 | 36.1 | 201.7 | 61.8% | 75.26% |
| 1991 | 297.7 | 178.4 | 20.4 | 198.8 | 59.9% | 66.78% |
| 1992 | 309.9 | 185.5 | 35.6 | 221.1 | 59.9% | 71.35% |
| 1993 | 345.1 | 203.1 | 38.3 | 241.4 | 58.9% | 69.95% |
| 1994 | 386.5 | 234.9 | 73.8 | 308.7 | 60.8% | 79.87% |
| 1995 | 457.8 | 254.2 | 99.5 | 353.7 | 55.5% | 77.26% |
| 1996 | 530.4 | 297.7 | 176.3 | 474.0 | 56.1% | 89.37% |
| 1997 | 596.6 | 335.2 | 181.8 | 517.0 | 56.2% | 86.66% |
| 1998 | 538.6 | 348.7 | 237.3 | 586.0 | 64.7% | 108.80% |
| 1999 | 572.1 | 343.5 | 164.6 | 508.1 | 60.0% | 88.81% |
| 2000 | 604.9 | 379.6 | 158.1 | 537.7 | 62.8% | 88.89% |
| 2001 | 508.6 | 416.6 | 177.4 | 594.0 | 81.9% | 116.79% |

Source: *Economic Report of the President, 2002, Table B-90; Thomson Financial Securities Data;*
share repurchase data for 1972-83 are from *Grullon and Michaely (2002)*

Table 3
Growth of Aggregate Dividend Payouts and Repurchases, 1984-2001

| Dependent | Independent | Intercept | Coeff |
|--|---------------------|--------------------|------------------|
| (1) % Dividend to After-Tax Profits | Time | 0.460 (15.575) | 0.012 (4.510) |
| (2) % Repurchase to After-Tax Profits | Time | 0.083 (2.199) | 0.014 (3.873) |
| (3) % (Div + Repurchase) to After-Tax Profits | Time | 0.544 (11.520) | 0.026 (5.933) |
| (4) Dividend | Repurchase | 102.546 (5.621) | 1.342 (8.392) |
| (5) Δ Dividend | Δ Repurchase | 16.474 (5.563) | 0.217 (2.443) |

Notes:

** in billions of dollar*

t-values shown in parentheses

Source: Table 2

Table 4
Dow Jones Industrial Companies with Share Reductions, 1994-2001

| | <u>Adj. Shares Outstanding (millions)</u> | | |
|---------------------------------------|---|------------|----------|
| | 12/31/1994 | 12/31/2001 | % Change |
| American Express Co. | 1,488 | 1,331 | -10.5% |
| Caterpillar Inc. | 401 | 343 | -14.3% |
| Coca-Cola Co. | 2,552 | 2,486 | -2.6% |
| E.I. DuPont de Nemours & Co. | 1,362 | 1,002 | -26.4% |
| Eastman Kodak Co. | 340 | 291 | -14.4% |
| General Electric Co. | 10,236 | 9,926 | -3.0% |
| General Motors Corp. | 754 | 559 | -25.9% |
| Hewlett-Packard Co. | 2,039 | 1,939 | -4.9% |
| International Business Machines Corp. | 2,351 | 1,723 | -26.7% |
| McDonald's Corp. | 1,387 | 1,281 | -7.7% |
| Merck & Co. Inc. | 2,496 | 2,273 | -8.9% |
| Minnesota Mining & Manufacturing Co. | 420 | 391 | -6.8% |
| Philip Morris Cos. | 2,559 | 2,153 | -15.9% |
| Procter & Gamble Co. | 1,369 | 1,296 | -5.3% |
| United Technologies Corp. | 493 | 472 | -4.1% |
| Wal-Mart Stores Inc. | 4,594 | 4,453 | -3.1% |

Source: Compustat

Table 5
Returns to Merck from Open Market Repurchase Announcement

| | Date | MRK Close | MRK Return | S&P Close | S&P Return | Abnormal Return | CAR |
|-----|-------------|----------------------|-----------------------|--------------------------|---------------------------|----------------------------|------------|
| -10 | 7-Feb-00 | 72.92 | 0.25% | 1424.24 | -0.01% | 0.26% | 0.26% |
| -9 | 8-Feb-00 | 73.10 | 0.25% | 1441.72 | 1.23% | -0.98% | -0.72% |
| -8 | 9-Feb-00 | 69.17 | -5.39% | 1411.71 | -2.08% | -3.30% | -4.02% |
| -7 | 10-Feb-00 | 66.86 | -3.33% | 1416.83 | 0.36% | -3.69% | -7.71% |
| -6 | 11-Feb-00 | 63.23 | -5.43% | 1387.12 | -2.10% | -3.34% | -11.05% |
| -5 | 14-Feb-00 | 64.02 | 1.25% | 1389.94 | 0.20% | 1.04% | -10.01% |
| -4 | 15-Feb-00 | 63.59 | -0.66% | 1402.05 | 0.87% | -1.53% | -11.54% |
| -3 | 16-Feb-00 | 63.47 | -0.19% | 1387.67 | -1.03% | 0.84% | -10.71% |
| -2 | 17-Feb-00 | 61.29 | -3.44% | 1388.26 | 0.04% | -3.48% | -14.19% |
| -1 | 18-Feb-00 | 60.08 | -1.98% | 1346.09 | -3.04% | 1.06% | -13.12% |
| 0 | 22-Feb-00 | 63.47 | 5.65% | 1352.17 | 0.45% | 5.19% | -7.93% |
| 1 | 23-Feb-00 | 61.17 | -3.63% | 1360.69 | 0.63% | -4.26% | -12.19% |
| 2 | 24-Feb-00 | 60.08 | -1.78% | 1353.43 | -0.53% | -1.25% | -13.43% |
| 3 | 25-Feb-00 | 58.32 | -2.92% | 1333.36 | -1.48% | -1.44% | -14.88% |
| 4 | 28-Feb-00 | 59.66 | 2.28% | 1348.05 | 1.10% | 1.18% | -13.69% |
| 5 | 29-Feb-00 | 59.66 | 0.00% | 1366.42 | 1.36% | -1.36% | -15.06% |
| 6 | 1-Mar-00 | 58.42 | -2.08% | 1379.19 | 0.93% | -3.01% | -18.07% |
| 7 | 2-Mar-00 | 57.69 | -1.25% | 1381.76 | 0.19% | -1.44% | -19.50% |
| 8 | 3-Mar-00 | 55.98 | -2.95% | 1409.17 | 1.98% | -4.94% | -24.44% |
| 9 | 6-Mar-00 | 55.01 | -1.74% | 1391.28 | -1.27% | -0.47% | -24.91% |
| 10 | 7-Mar-00 | 52.52 | -4.54% | 1355.62 | -2.56% | -1.97% | -26.88% |

Source: Historical price series from Yahoo!Finance

Table 6
Representative Event Studies on Share Repurchase Activities
(CARs in Percent)

| Author | Period | Source | n | Type | Benchmark | Pre-Event | | Event Announcement | | Near Post-Event | | Longer Term | | | | |
|---|-----------|---------|------|-------------------------------------|----------------|-----------|-----------|--------------------|-----------|-----------------|-----------|-------------|-----|-----------|--------------|-----------|
| | | | | | | Period | CAR | Period | CAR | Period | CAR | Period | All | | Value Stocks | |
| | | | | | | | | | | | | | n | CAR | n | CAR |
| Dann (1981) | 1962-1976 | WSJ,IDD | 143 | FPT | portfolio mean | | | -1 to +1 | 17.01 *** | +3 to +20 | 2.86 | | | | | |
| Netter & Mitchell (1989) | Oct-87 | SEC | 337 | OMR NYSE/AMEX | CRSP EW | | | -1 to +1 | 2.71 *** | +2 to +40 | 3.45 *** | | | | | |
| | Oct-87 | SEC | 181 | OMR OTC | CRSP EW | | | -1 to +1 | 5.46 *** | +2 to +40 | 10.57 *** | | | | | |
| Comment & Jarrell (1991) | 1984-1989 | DJNR | 72 | DA | CRSP EW | | | -1 to +1 | 7.50 NA | | | | | | | |
| | 1984-1989 | DJNR | 93 | FPT | CRSP EW | | | -1 to +1 | 8.30 NA | | | | | | | |
| | 1984-1989 | DJNR | 112 | DA, FPT ODR | CRSP EW | | | -1 to +1 | 9.50 NA | | | | | | | |
| | 1984-1989 | DJNR | 53 | DA, FPT not ODR | CRSP EW | | | -1 to +1 | 4.70 NA | | | | | | | |
| | 1985-1988 | DJNR | 1197 | OMR | CRSP EW | | | -1 to +1 | 2.30 NA | | | | | | | |
| | 1984-1989 | DJNR | 64 | DA w/o CCN | CRSP EW | | | -1 to +1 | 7.90 NA | | | | | | | |
| | 1984-1989 | DJNR | 68 | FPT w/o CCN | CRSP EW | | | -1 to +1 | 11.00 NA | | | | | | | |
| | 1984-1989 | DJNR | 84 | DA, FPT ODR w/o CCN | CRSP EW | | | -1 to +1 | 11.70 NA | | | | | | | |
| | 1984-1989 | DJNR | 48 | DA, FPT not ODR w/o CCN | CRSP EW | | | -1 to +1 | 5.60 NA | | | | | | | |
| Bagwell (1992) | 1981-1988 | WSJ,BPI | 31 | DA | CRSP EW | | | -1 to 0 | 7.67 *** | -1 to EXP | 6.728 *** | | | | | |
| | 1981-1988 | WSJ,BPI | 22 | DA Non Pro-Rata | CRSP EW | | | EXP1 | -0.11 | -1 to EXP | 9.788 *** | | | | | |
| | 1981-1988 | WSJ,BPI | 6 | DA Pro-Rata | CRSP EW | | | EXP1 | -6.90 *** | -1 to EXP | 0.133 | | | | | |
| Ikenberry, Lakonishok & Vermaelen (1995) | 1980-1990 | WSJ | 1239 | OMR | CRSP VW | -20 to -3 | -3.07 *** | -2 to +2 | 3.54 *** | +3 to +10 | 0.21 | 4yr BH | 893 | 12.14 *** | 169 | 45.29 *** |
| Jagannathan, Stephens & Weisbach (2000) † | 1985-1996 | SDC | 120 | DA | | | | | | | | | | | | |
| | 1985-1996 | SDC | 660 | FPT | | | | | | | | | | | | |
| | 1985-1996 | SDC | 4753 | OMR | | | | | | | | | | | | |
| | 1985-1996 | SDC | | Repurchase, No Dividend Increase | | -1yr to 0 | -1.10 NA | | | | | | | | | |
| | 1985-1996 | SDC | | No Repurchase, Dividend Increase | | -1yr to 0 | 25.90 NA | | | | | | | | | |
| Grullon and Michaely (2002) | 1980-1997 | SDC,WSJ | 3935 | OMR | NA | | | -1 to +1 | 2.57 *** | | | | | | | |
| Kahle (2002) | 1993-1996 | SDC | 712 | OMR | NA | -43 to -4 | -3.64 NA | -1 to +1 | 1.61 NA | | | | | | | |

Notes:

Source: WSJ = Wall Street Journal, DJNR = Dow Jones News Retrieval, IDD = Investment Dealer's Digest, SEC = Division of Market Regulation of the SEC, SDC = Securities Data Corp, BPI = Business Periodicals Index

Type: DA = Dutch auction, FPT = fixed price tender, OMR = open market repurchase, ODR = officers & directors at risk, CCN = coincident confounding news

Benchmark: EW = equal weighted, VW = value weighted, NA = not available

Period: BH = Buy-and-Hold, EXP = expiration day, EXP1 = expiration day one-day excess return

Significance level: *** 1%, ** 5%, * 10%, NA = not available

Table 7
Stock Repurchases in Down Markets
(in \$ millions except per share)

| Company | Amount Spent on Buybacks | Time Period | Shares Sought | Average Price | Price Close 12/15/00 | Paper Loss 12/15/00 | Price Close 10/9/02 | Paper Loss 10/9/02 |
|--------------------|--------------------------|-------------------|---------------|---------------|----------------------|---------------------|---------------------|--------------------|
| 1. AT&T | \$3,940 | Feb/March 1999 | 69.8 | \$57.31 | \$21.000 | (\$2,534) | \$10.75 | (\$3,250) |
| 2. GM | 2,600 | 1999 | 36.0 | 72.22 | 53.813 | (663) | 31.01 | (1,484) |
| | 310 | 01/01/00-09/30/00 | 5.0 | 62.00 | 53.813 | (41) | 31.01 | (155) |
| 3. Gillette | 2,054 | 1999 | 46.7 | 42.53 | 33.813 | (407) | 30.06 | (582) |
| | 911 | 01/01/00-12/08/00 | 24.5 | 35.85 | 33.813 | (50) | 30.06 | (142) |
| 4. Hewlett-Packard | 2643 | 11/01/98-10/31/99 | 62.0 | 42.63 | 31.625 | (682) | 11.16 | (1,951) |
| | 5,570 | 11/01/99-10/31/00 | 97.0 | 57.44 | 31.625 | (2,504) | 11.16 | (4,489) |
| 5. IBM | 7,280 | 1999 | 67.5 | 107.88 | 87.813 | (1,355) | 55.07 | (3,565) |
| | 5,279 | 01/01/00-09/30/00 | 45.8 | 115.31 | 87.813 | (1,259) | 55.07 | (2,759) |
| 6. Intel | 4,600 | 1999 | 71.3 | 64.52 | 32.438 | (2,287) | 13.46 | (3,641) |
| | 3,000 | 01/01/00-09/30/00 | 50.7 | 59.17 | 32.438 | (1,355) | 13.46 | (2,317) |
| 7. McDonald's | | 1999 | 24.2 | 38.55 | 31.500 | (171) | 16.56 | (532) |
| | 1,700 | 01/01/00-09/30/00 | 48.0 | 35.42 | 31.500 | (188) | 16.56 | (905) |
| 8. Microsoft | 4,852 | 07/01/99-12/31/99 | 54.7 | 88.70 | 49.188 | (2,161) | 43.99 | (2,446) |
| | 1,752 | 08/01/00-09/30/00 | 25.5 | 68.71 | 49.188 | (498) | 43.99 | (630) |
| 9. P&G | 1,770 | fiscal year 2000* | 17.6 | 100.34 | 71.375 | (510) | 88.19 | (214) |
| 10. CIGNA | 7,400 | 1997-2002 | 90.1 | 81.92 | 119.350 | 3,372 | 57.50 | (2,200) |
| <i>Total</i> | \$55,661 | | | | | (\$13,293) | | (\$31,262) |

*Ended June 30

Based on McGough et al (2000) and Norris (2002)

Table 8
Authorized Repurchases by IBM

| Date of Authorization* | Authorized Value (\$ mil) |
|-----------------------------------|--|
| 02/24/1987 | 574 |
| 10/27/1987 | 1,000 |
| 09/27/1988 | 2,000 |
| 10/18/1989 | 5,000 |
| 01/31/1995 | 2,500 |
| 07/25/1995 | 2,500 |
| 11/28/1995 | 2,500 |
| 04/30/1996 | 2,500 |
| 11/26/1996 | 3,500 |
| 04/29/1997 | 3,500 |
| 10/28/1997 | 3,500 |
| 04/28/1998 | 3,500 |
| 10/27/1998 | 3,500 |
| 04/27/1999 | 3,500 |
| 10/26/1999 | 3,500 |
| 04/25/2000 | 3,500 |
| 10/31/2000 | 3,500 |
| 04/24/2001 | 3,500 |
| 10/30/2001 | 3,500 |
| 04/30/2002 | 3,500 |
| <i>Total</i> | 60,574 |

* Data before 1995 are incomplete

Source: SDC Database on Share Repurchases

Table 9
Frequency of Repurchase Announcements of Large Companies

| | Number of Announcements* | Year Range | Frequency (Yrs/Announcement) |
|------------------------------|-------------------------------------|-------------------|---|
| Abbott Laboratories | 13 | 1982 - 2000 | 1.46 |
| Alcoa Inc | 9 | 1989 - 2001 | 1.44 |
| Amgen Inc | 8 | 1992 - 2002 | 1.38 |
| Anheuser-Busch Cos Inc | 7 | 1984 - 2000 | 2.43 |
| Baxter International Inc | 9 | 1983 - 1999 | 1.89 |
| Boeing Co | 5 | 1987 - 2000 | 2.80 |
| ChevronTexaco Corp | 2 | 1989 - 1997 | 4.50 |
| Cisco Systems Inc | 3 | 1994 - 2001 | 2.67 |
| Coca-Cola Co | 6 | 1984 - 1996 | 2.17 |
| Colgate-Palmolive Co | 7 | 1985 - 1998 | 2.00 |
| Dell Computer Corp | 6 | 1996 - 2002 | 1.17 |
| Dow Chemical Co | 15 | 1983 - 1997 | 1.00 |
| Eastman Kodak Co Inc | 5 | 1984 - 1999 | 3.20 |
| El du Pont de Nemours and Co | 21 | 1984 - 2000 | 0.81 |
| Eli Lilly & CO | 8 | 1984 - 2001 | 2.25 |
| Exxon Mobil Corp | 18 | 1984 - 2002 | 1.06 |
| Ford Motor Co | 7 | 1984 - 2000 | 2.43 |
| General Electric Co | 8 | 1984 - 1997 | 1.75 |
| General Motors Corp | 15 | 1986 - 2000 | 1.00 |
| Gillette Co | 6 | 1986 - 1997 | 2.00 |
| IBM Corp | 16 | 1987 - 2002 | 1.00 |
| Intel Corp | 6 | 1987 - 2001 | 2.50 |
| Johnson & Johnson | 6 | 1984 - 2002 | 3.17 |
| Kimberly-Clark Corp | 9 | 1987 - 2000 | 1.56 |
| McDonald's Corp | 6 | 1992 - 2001 | 1.67 |
| Merck & Co Inc | 13 | 1984 - 2002 | 1.46 |
| Microsoft Corp | 4 | 1989 - 1996 | 2.00 |
| Oracle Corp | 2 | 1997 - 1999 | 1.50 |
| PepsiCo Inc | 6 | 1985 - 2002 | 3.00 |
| Pfizer Inc | 8 | 1991 - 2002 | 1.50 |
| Philip Morris Cos Inc | 8 | 1989 - 2001 | 1.63 |
| Procter & Gamble Co | 5 | 1984 - 1996 | 2.60 |
| Sun Microsystems Inc | 7 | 1990 - 2001 | 1.71 |

* Include major subsidiaries

Source: SDC

Table 10
Real Dividend Payout in 1978 and in 2000
of the 25 Industrial Firms that Pay the Largest Dividends in 2000

| | <u>Real Dividend Payout</u> | | Change in Payout | <u>Real Earnings</u> | | CAGR | <u>Rank</u> | | Square Change in Rank |
|------------------------|-----------------------------|---------|------------------|----------------------|-------|--------|------------------|---------------------------------------|-----------------------|
| | 1978 | 2000 | | 1978 | 2000 | | Change in Payout | CAGR | |
| Exxon Mobil | 53.3% | 38.3% | -15.0% | 2,763 | 6,054 | 3.6% | 19 | 14 | 25 |
| General Electric | 46.3% | 44.3% | -2.0% | 1,230 | 4,822 | 6.4% | 14 | 10 | 16 |
| Philip Morris | 30.6% | 53.4% | 22.9% | 409 | 3,222 | 9.8% | 3 | 3 | 0 |
| SBC | — | 43.2% | — | — | 3,017 | — | — | — | — |
| Merck | 42.9% | 42.6% | -0.3% | 308 | 2,583 | 10.1% | 12 | 2 | 100 |
| Ford | 26.2% | 50.6% | 24.3% | 1,589 | 2,048 | 1.2% | 2 | 16 | 196 |
| Pfizer | 39.8% | 69.1% | 29.3% | 206 | 1,408 | 9.1% | 1 | 6 | 25 |
| AT&T | 57.6% | 53.2% | -4.4% | 5,273 | 1,768 | -4.8% | 17 | 22 | 25 |
| Bristol Myers Squibb | 37.9% | 47.1% | 9.2% | 203 | 1,551 | 9.7% | 7 | 4 | 9 |
| Johnson & Johnson | 33.8% | 35.9% | 2.2% | 299 | 1,817 | 8.5% | 11 | 7 | 16 |
| Chevron | 39.3% | 32.6% | -6.8% | 1,106 | 1,963 | 2.6% | 18 | 15 | 9 |
| Coca-Cola | 57.3% | 77.4% | 20.1% | 375 | 824 | 3.6% | 4 | 13 | 81 |
| Procter & Gamble | 43.6% | 47.4% | 3.9% | 512 | 1,341 | 4.5% | 10 | 12 | 4 |
| Du Pont | 44.2% | 62.9% | 18.7% | 787 | 876 | 0.5% | 5 | 19 | 196 |
| General Motors | 48.8% | 29.1% | -19.8% | 3,508 | 1,686 | -3.3% | 20 | 21 | 1 |
| Amercian Home Products | 59.5% | -133.4% | -192.9% | 348 | -341 | -10.0% | 23 | 23 | 0 |
| Abbott Labs | 31.5% | 42.3% | 10.7% | 149 | 1,055 | 9.3% | 6 | 5 | 1 |
| Eli Lilly | 41.9% | 37.9% | -4.0% | 277 | 1,158 | 6.7% | 16 | 9 | 49 |
| Texaco | 63.7% | 38.5% | -25.3% | 852 | 962 | 0.6% | 21 | 18 | 9 |
| 3M | 41.6% | 49.5% | 7.9% | 563 | 703 | 1.0% | 8 | 17 | 81 |
| IBM | 56.7% | 11.2% | -45.4% | 3,111 | 3,064 | -0.1% | 22 | 20 | 4 |
| Wal-Mart | 9.1% | 16.0% | 6.9% | 22 | 2,111 | 23.1% | 9 | 1 | 64 |
| Schering-Plough | 33.5% | 33.2% | -0.4% | 194 | 917 | 7.3% | 13 | 8 | 25 |
| Pepsico | 38.9% | 36.6% | -2.3% | 226 | 827 | 6.1% | 15 | 11 | 16 |
| UPS | — | 26.8% | — | — | 1,111 | — | — | — | — |
| | | | | | | | | Sum = | 952 |
| | | | | | | | | Spearman's Rank Correlation (r) = | 0.530 |

Based on DeAngelo et al (2002) Appendix Table A1

Table 11
Share Repurchases by Non-Dividend Paying Firms, 1995-2001

| Years | Number of Firms | Percent | Repurchases (\$ millions) |
|--------------|------------------------|----------------|----------------------------------|
| 0 | 47 | 14.4% | 0 |
| 1 | 29 | 8.9% | 1,396 |
| 2 | 35 | 10.7% | 4,488 |
| 3 | 47 | 14.4% | 10,686 |
| 4 | 38 | 11.7% | 8,496 |
| 5 | 34 | 10.4% | 11,653 |
| 6 | 53 | 16.3% | 29,843 |
| 7 | 43 | 13.2% | 41,678 |
| Total | 326 | 100.0% | 108,241 |

Source: Compustat

Table 12
Distribution of Companies with Share Repurchases
and No Dividend Payments, 1995-2001

| 2-Digit SIC | Description of Industry | Number of Companies | Percent |
|----------------|--|------------------------|---------|
| 13 | Oil & Gas Extraction | 13 | 4.0% |
| 28 | Chemicals & Allied Products | 46 | 14.1% |
| 35 | Industrial & Commercial Machinery/Computer Equipment | 25 | 7.7% |
| 36 | Electronic & Other Electrical Equipment | 43 | 13.2% |
| 38 | Measuring & Analyzing Instruments | 14 | 4.3% |
| 48 | Communications | 23 | 7.1% |
| 59 | Miscellaneous Retail | 10 | 3.1% |
| 73 | Business Services | 48 | 14.7% |
| 80 | Health Services | 10 | 3.1% |
| | <i>Subtotal</i> | 232 | 71.2% |
| | Others | 94 | 28.8% |
| | <i>Total</i> | 326 | 100.0% |

Source: Compustat

Table 13
Dow Jones 30 Industrial Companies, Shares Outstanding and Authorized
in Millions as of 12/31/01

| | Shares Outstanding | Shares Authorized | Authorized Less Outstanding | Excess over Outstanding |
|---------------------------------------|-----------------------|----------------------|-----------------------------------|----------------------------|
| ALCOA Inc. | 848 | 1,800 | 952 | 112.4% |
| American Express Co. | 1,331 | 3,600 | 2,269 | 170.5% |
| AT&T Corp. | 3,542 | 6,000 | 2,458 | 69.4% |
| Boeing Co. | 798 | 1,200 | 402 | 50.4% |
| Caterpillar Inc. | 343 | 900 | 557 | 162.1% |
| Citigroup Inc. | 5,149 | 15,000 | 9,851 | 191.3% |
| Coca-Cola Co. | 2,486 | 5,600 | 3,114 | 125.2% |
| E.I. DuPont de Nemours & Co. | 1,002 | 1,800 | 798 | 79.6% |
| Eastman Kodak Co. | 291 | 950 | 659 | 226.5% |
| Exxon Mobil Corp. | 6,809 | 9,000 | 2,191 | 32.2% |
| General Electric Co. | 9,926 | 13,200 | 3,274 | 33.0% |
| General Motors Corp. | 559 | 2,000 | 1,441 | 257.8% |
| Hewlett-Packard Co. | 1,939 | 9,600 | 7,661 | 395.1% |
| Home Depot Inc. | 2,346 | 10,000 | 7,654 | 326.3% |
| Honeywell International Inc. | 815 | 2,000 | 1,185 | 145.4% |
| Intel Corp. | 6,690 | 10,000 | 3,310 | 49.5% |
| International Business Machines Corp. | 1,723 | 4,688 | 2,964 | 172.0% |
| International Paper Co. | 482 | 991 | 509 | 105.7% |
| J.P. Morgan Chase & Co. | 1,973 | 4,500 | 2,527 | 128.0% |
| Johnson & Johnson | 3,047 | 4,320 | 1,273 | 41.8% |
| McDonald's Corp. | 1,281 | 3,500 | 2,219 | 173.3% |
| Merck & Co. Inc. | 2,273 | 5,400 | 3,127 | 137.6% |
| Microsoft Corp. | 5,383 | 12,000 | 6,617 | 122.9% |
| Minnesota Mining & Manufacturing Co. | 391 | 1,000 | 609 | 155.6% |
| Philip Morris Cos. | 2,153 | 12,000 | 9,847 | 457.5% |
| Procter & Gamble Co. | 1,296 | 5,000 | 3,704 | 285.9% |
| SBC Communications Inc. | 3,354 | 7,000 | 3,646 | 108.7% |
| United Technologies Corp. | 472 | 2,000 | 1,528 | 323.6% |
| Wal-Mart Stores Inc. | 4,453 | 11,000 | 6,547 | 147.0% |
| Walt Disney Co. | 2,010 | 3,600 | 1,590 | 79.1% |
| | | | Mean | 162.2% |
| | | | Median | 141.5% |

Source: Compustat and Mergent FIS

Table 14
FEI Survey of Reasons for Share Repurchase

| | |
|--|-------|
| 1. Improve earnings per share numbers | 39% |
| 2. Distribute cash to shareholders | 28% |
| 3. Reduce costs of employee stock option plans | 21% |
| 4. Adjust capital structure | 12% |
| | <hr/> |
| | 100% |

Source: Badrinath, Varaiya, and Ferling (2001)

Table 15
Reasons for Share Repurchase

| | Number | Percent |
|--|---|--|
| General corporate purposes | 352 | 52.5% |
| Offset dilution from exercise of options | 200 | 29.9% |
| Stock undervaluation | 78 | 11.6% |
| Use of shares in M&As | 38 | 5.7% |
| Takeover defense | 2 | 0.3% |
| | <hr style="width: 100px; margin: 0 auto;"/> 670 | <hr style="width: 100px; margin: 0 auto;"/> 100.0% |

Source: SDC Share Repurchase Database, largest 500 buyback programs by total actual value repurchased (includes ties for a total of 538 buyback programs), 1987-2002

Table 16
Stock Price Movements
1959-2001

| Year | S&P | | | % Change | | |
|------|-----------|-----------|----------|---------------|-----------|--------|
| | Composite | Dow Jones | Nasdaq | S&P Composite | Dow Jones | Nasdaq |
| 1959 | 57.38 | 632.12 | ..... | ..... | ..... | ..... |
| 1960 | 55.85 | 618.04 | ..... | -2.7% | -2.2% | ..... |
| 1961 | 66.27 | 691.55 | ..... | 18.7% | 11.9% | ..... |
| 1962 | 62.38 | 639.76 | ..... | -5.9% | -7.5% | ..... |
| 1963 | 69.87 | 714.81 | ..... | 12.0% | 11.7% | ..... |
| 1964 | 81.37 | 834.05 | ..... | 16.5% | 16.7% | ..... |
| 1965 | 88.17 | 910.88 | ..... | 8.4% | 9.2% | ..... |
| 1966 | 85.26 | 873.60 | ..... | -3.3% | -4.1% | ..... |
| 1967 | 91.93 | 879.12 | ..... | 7.8% | 0.6% | ..... |
| 1968 | 98.70 | 906.00 | ..... | 7.4% | 3.1% | ..... |
| 1969 | 97.84 | 876.72 | ..... | -0.9% | -3.2% | ..... |
| 1970 | 83.22 | 753.19 | ..... | -14.9% | -14.1% | ..... |
| 1971 | 98.29 | 884.76 | 107.44 | 18.1% | 17.5% | ..... |
| 1972 | 109.20 | 950.71 | 128.52 | 11.1% | 7.5% | 19.6% |
| 1973 | 107.43 | 923.88 | 109.90 | -1.6% | -2.8% | -14.5% |
| 1974 | 82.85 | 759.37 | 76.29 | -22.9% | -17.8% | -30.6% |
| 1975 | 86.16 | 802.49 | 77.20 | 4.0% | 5.7% | 1.2% |
| 1976 | 102.01 | 974.92 | 89.90 | 18.4% | 21.5% | 16.5% |
| 1977 | 98.20 | 894.63 | 98.71 | -3.7% | -8.2% | 9.8% |
| 1978 | 96.02 | 820.23 | 117.53 | -2.2% | -8.3% | 19.1% |
| 1979 | 103.01 | 844.40 | 136.57 | 7.3% | 2.9% | 16.2% |
| 1980 | 118.78 | 891.41 | 168.61 | 15.3% | 5.6% | 23.5% |
| 1981 | 128.05 | 932.92 | 203.18 | 7.8% | 4.7% | 20.5% |
| 1982 | 119.71 | 884.36 | 188.97 | -6.5% | -5.2% | -7.0% |
| 1983 | 160.41 | 1,190.34 | 285.43 | 34.0% | 34.6% | 51.0% |
| 1984 | 160.46 | 1,178.48 | 248.88 | 0.0% | -1.0% | -12.8% |
| 1985 | 186.84 | 1,328.23 | 290.19 | 16.4% | 12.7% | 16.6% |
| 1986 | 236.34 | 1,792.76 | 366.96 | 26.5% | 35.0% | 26.5% |
| 1987 | 286.83 | 2,275.99 | 402.57 | 21.4% | 27.0% | 9.7% |
| 1988 | 265.79 | 2,060.82 | 374.43 | -7.3% | -9.5% | -7.0% |
| 1989 | 322.84 | 2,508.91 | 437.81 | 21.5% | 21.7% | 16.9% |
| 1990 | 334.59 | 2,678.94 | 409.17 | 3.6% | 6.8% | -6.5% |
| 1991 | 376.18 | 2,929.33 | 491.69 | 12.4% | 9.3% | 20.2% |
| 1992 | 415.74 | 3,284.29 | 599.26 | 10.5% | 12.1% | 21.9% |
| 1993 | 451.41 | 3,522.06 | 715.16 | 8.6% | 7.2% | 19.3% |
| 1994 | 460.42 | 3,793.77 | 751.65 | 2.0% | 7.7% | 5.1% |
| 1995 | 541.72 | 4,493.76 | 925.19 | 17.7% | 18.5% | 23.1% |
| 1996 | 670.50 | 5,742.89 | 1,164.96 | 23.8% | 27.8% | 25.9% |
| 1997 | 873.43 | 7,441.15 | 1,469.49 | 30.3% | 29.6% | 26.1% |
| 1998 | 1,085.50 | 8,625.52 | 1,794.91 | 24.3% | 15.9% | 22.1% |
| 1999 | 1,327.33 | 10,464.88 | 2,728.15 | 22.3% | 21.3% | 52.0% |
| 2000 | 1,427.22 | 10,734.90 | 3,783.67 | 7.5% | 2.6% | 38.7% |
| 2001 | 1,194.18 | 10,189.13 | 2,035.00 | -16.3% | -5.1% | -46.2% |

| | CAGR | | |
|-----------|-------|-------|-------|
| 1959-1982 | 3.2% | 1.5% | |
| 1967-1982 | 1.8% | 0.0% | |
| 1971-1982 | 1.8% | 0.0% | 5.3% |
| 1982-2000 | 14.8% | 14.9% | 18.1% |
| 1982-1990 | 13.7% | 14.9% | 10.1% |
| 1990-1999 | 16.5% | 16.3% | 23.5% |
| 1994-1999 | 23.6% | 22.5% | 29.4% |

Source: *Economic Report of the President, February 2002, Table B-95, averages of daily closing prices*