

# The demise of share repurchases

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## Abstract

Early share repurchases made substantial use of fixed price tender offers and Dutch auctions with event returns of 10% to 15%, signaling undervaluation. During the 1980s, buybacks were mostly open market repurchases (OMRs) with high positive event returns whose persistence may be related to subsequent repeated announcements occurring every 1 to 3 years. Studies of share repurchases during the 1990s are consistent with the hypothesis that a major motive was to offset the dilution effects of the exercise of stock options. These findings were also supported by the public statements of major companies that share repurchases were used to support their stock prices and by reductions in equity shares outstanding over the years by many firms. The growth of share repurchases took place after 1980 when the number and percentage of firms paying dividends decreased. Dividend payers were predominantly large, mature firms. Also earnings and dividend payments were concentrated in 25 firms which accounted for over 50% of the totals for all industrials by 2000. A relatively small number of firms also accounted for a high concentration of share repurchases by the late 1990s. Early repurchases moved stock valuations toward their intrinsic values; later repurchase programs may have contributed to overvaluation and overinvestment.

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## The demise of share repurchases

During the four years ending in 1998 share repurchase announcements increased by \$150.4 billion; during the four years beginning in 1998, share repurchases decreased by \$105.0 billion, about 50% (*Mergers & Acquisitions*, February 2003, p. 58). This paper is not an obituary for share repurchases, but it is a story filled with paradoxes.

Studies of share repurchases using data for 1960-1979 assigned undervaluation as the dominant motive. Share repurchases made in response to undervaluation served the economic role of moving share prices toward their intrinsic market values, providing improved information for resource allocation. Stock prices rose almost without interruption between 1982 and 2000. By 1998 valuations in relation to earnings and cash flows had reached multiples significantly higher than historical patterns. Yet the growth of share repurchases continued to accelerate. That undervaluation was the dominative force behind the growth was no longer plausible.

Econometric studies of share repurchases in the 1990s found an association between the growth of employee stock options and the use of share repurchases to offset the earnings per share dilution when the options are exercised. If this form of accounting manipulation was the dominant reason for share repurchases, the resulting distortions in earnings measures would create misleading metrics for guiding resource flows.

Further uncertainties are raised by the Jobs and Growth Tax Relief Reconciliation Act of 2003 which substantially removed the tax advantages of share repurchases. In mid 2003 Microsoft announced that it would replace stock options with restricted stock grants. On 7/18/03 Dell's CFO J. M. Schneider stated that the dividend tax changes were

not as favorable as Dell had hoped for and that after meeting with institutional investors it had decided to continue with share buybacks instead of cash dividends.

The growth of share repurchases during the last two decades of the 1900s was associated with a decrease in the percentage of firms paying dividends (Fama and French, 2001). Yet both the absolute dollar amounts of dividends and the dividend payout ratios for the economy as a whole increased. For industrial firms (excluding utilities and financials) the absolute amounts of dividends increased, but payout ratios remained flat. In seeking to explain these paradoxes, DeAngelo, DeAngelo, and Skinner (2003) found that the concentration in 25 firms of the earnings and dividends of industrial firms greatly increased over the two decades. The present paper finds similar concentrations for share repurchases. It also develops new empirical materials for reassessing the relationships between share repurchases and dividend behavior.

In section 1 we review the historical event studies of share repurchases. In section 2 we summarize the econometric studies of share repurchases in the 1990s and test their findings with other evidence. In section 3 we relate the empirical studies of dividend behavior to patterns of share repurchases. In section 4 we make a reassessment of the reasons for the rise and decline of share repurchases. Section 5 presents our conclusions.

## **1. Event studies of share repurchases**

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 enable firms to create valuable exchange options to exchange cash for its shares. The OMR announcements are recitals that a company's board of directors has authorized a market purchase of a dollar amount or percentage of its shares. The announcement is not an unconditional offer to buy, nor a fixed commitment.

The relative uses of the three forms of share repurchases have changed over time (Grullon and Ikenberry, 2000). FPTs peaked at \$13.4 billion in 1985 representing 35.8% of total repurchases. DAs reached \$7.7 billion in 1988 at 17.2% of the total. OMRs reached \$215.0 billion in 1998 constituting almost 97% of the total. The reasons for these changing patterns will emerge from our subsequent discussions.

Table 1 presents an overview of representative event studies of share repurchases using data for 1962-1990. The studies present different patterns of announcement returns. 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 in 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).

### *1.1. Comparisons between FPTs, DAs, and OMRs*

Comment and Jarrell (1991) compared event returns among the three types of share repurchase programs. For their sample without confounding events, FPT offers have substantially higher event returns, 11% versus 8% for DAs. The event returns to OMRs were 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. Prorationing reflects a high proportion of shareholders with low reservation prices, so 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. When management holdings are higher, signals are more credible (Howe, Vogt, and He, 2003).

## *1.2. Lagged responses*

Ikenberry, Lakonishok, and Vermaelen (1995) analyzed a sample of 1,239 OMRs announced between 1980-1990. 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 had a 4-year return of 12.14%. For a portfolio of 169 value stocks, the 4-year return was 45.29%. Ikenberry et al “hypothesize that the market treats repurchase announcements with skepticism, leading prices to adjust slowly over time.”

A possible explanation for the lagged abnormal returns from OMRs found in Ikenberry et al (1995) is that share repurchase announcements are repeated over a period of years. Table 2 shows that IBM authorized a series of share repurchases of \$2.0-3.5 billion from the mid 1980s through 2002. More generally, Table 3 shows that for the top 50 repurchasers in 2000, share repurchases during the previous 16 years had been announced with high frequency. For IBM, General Motors and 3M the announcements were approximately one per year. Almost 80% of the companies announced share repurchases every 3.5 years or less. Jagannathan and Stephens (2003) find similar patterns of repeated repurchase announcements. For their sample of 3,520 OMRs between the years 1986-1996, the frequency of about one-half of the total repurchases was less than two years. Their category of infrequent repurchases made announcements with about seven-year intervals. Event studies of OMRs treat their observations as independent, but they are related events in repeated programs of repurchases over

extended time periods. The concentration of share repurchase activity in a relatively small number of large firms reported in Table 3 is discussed in section 2 below.

## **2. Empirical studies of share repurchases in the 1990s**

Econometric studies of share repurchases in the 1990s are consistent with the hypothesis that a major motive has been to offset the dilution effects of the exercise of stock options. Jolls (1998), and Fenn and Liang (2001) observed an association between executive stock options and share repurchases. Weisbenner (2001) found that total employee stock options are associated with share repurchases. He finds further that this positive relationship is stronger for firms with rising stock prices which make stock options deeper in the money. He also notes that the soaring valuations in the late 1990s make undervaluation an unlikely explanation for the growth in share repurchases.

The study by Bens, Nagar, Skinner, and Wong (2002) uses S&P 500 Industrial firms from 1996 to 1999. They perform a statistical analysis comparing the antidilution motive versus plausible alternatives. As the dilutive effects of outstanding employee stock options (ESOs) on reported (GAAP defined) earnings per share (EPS) rises, firms increase the amount of their stock repurchases. 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.

Kahle (2002) provides an in-depth analysis of the variables influencing repurchasing policies for 712 repurchase announcements during the six year period 1/1/91 and 12/31/96. Kahle finds that firms repurchase more shares as free cash flows increase, as firms are larger, and have low growth opportunities (low market-to-book ratios). Her data provide evidence that firms buy back shares as options become exercisable. Repurchasing firms announce OMR 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 (cf. Ikenberry et al (1995) whose data was for the 1980s). Her finding that the announcement returns to OMRs had declined in the 1990s is consistent with a decreasing influence of undervaluation.

The Grullon and Michaely (2002) sample covers the period 1972-2000 for almost 16,000 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. Over the 1972 to 2000 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 test 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 find that the repurchases reduce the dividend forecast errors. 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.

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 note also that the booming economy and financial markets greatly stimulated the use of employee stock options and the anti-dilution motive for share repurchases.

Jagannathan, Stephens, and Weisbach (2000) analyze 4,753 SDC repurchase announcements during 1985-1996. 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. Guay and Harford (2000) compare 1,068 repurchases with 5,007 dividend increases for 1981-1993 finding similar results.

Jagannathan and Stephens (2002) stratified their sample of 3,520 OMRs between 1986-1996 by frequency. Frequent repurchases occur about once a year. Their “occasional repurchases” occur about every 2 years. Infrequent repurchases take place about every 7 years. The infrequent repurchase group compared to the other two categories is composed of firms that are smaller, have lower dividend payout ratios, higher market to book ratios, higher managerial ownership, lower institutional ownership, and higher 3-day announcement period returns. In contrast to the earlier Ikenberry et al (1995) study whose data cover the 1980s, returns in each of the 3 years following the announcement year are not statistically different from zero. They conclude that managements who repurchase frequently are not likely to be motivated by undervaluation.

### **3. Relations between dividends and share repurchases**

The studies of share repurchases in the preceding section make some analysis of the relationship between share repurchases and dividends. These issues are examined in greater depth in two subsequent papers.

#### *3.1. Disappearing dividends*

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. This dramatic decline in dividend payers is attributed in part to a shift of publicly traded firms toward characteristics of firms that have never paid dividends, but also from a reduced propensity to pay dividends. FF 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. 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, mostly nondividend payers. These firms are characterized by higher rates of investment, higher R&D rates, low earnings, 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 observed that the flat aggregate dividend payout ratio “masks the kind of widespread evidence of lower propensity to pay dividends, among individual firms of all types ...” (p. 39)

Table 4 shows that for the economy as a whole dividend payout ratios increased from a 40% level in the early 70s to about 60% by 1999. Dividend payout ratios increased by 0.84% per annum over 1972-1998. FF found no increase in aggregate dividend payout ratios over the last two decades of the 1900s based on industrial companies excluding utilities and financials. Our compilations of the dividend payout ratios for utilities show an increase from 56.0% in 1978 to 88.5% in 1998; for financials the rise was from 28.0% to 32.9%. The increases in these sectors help explain why dividend payout ratios for all firms increased over time. This reinforces the FF point that the unchanged aggregate dividend payout ratio for industrial firms did not contribute to the decline in the number of dividend payers.

### *3.2. Earnings and dividend concentration*

DeAngelo, DeAngelo, and Skinner (2003) (DDS) present data summarized in Table 5 on real dividends and real earnings in 1978 and 2000 for the 25 industrial firms that paid the largest dividends in 2000. As Table 5 demonstrates what drives their results is that the 25 industrial firms with the largest dividends in 2000 more than doubled their real earnings between 1978 and 2000. Total real earnings increased by 15.2%. The real earnings of all other industrial firms decreased by 21.9%. The dividends paid by the top 25 increased by 77.1%; by all firms by 22.7%; and for all other dividend paying firms a decline of 10.7%. Supporting Fama and French (2001), the total number of dividend payers decreased from 2,176 in 1978 to 930 in 2000, a decline of 57.3%.

To round out the picture, Table 12 of DDS shows that of the 2,176 firms that were dividend payers in 1978, only 474 were dividend payers in the year 2000. Their Table 4

shows that the total number of dividend paying firms in 2000 was 930. Therefore, 456 firms were dividend payers in 2000, but not in 1978. The earnings and dividends of the 1,249 acquired firms (of the total 2,176 dividend payers in 1978) must be substantially reflected in the additions to the earnings and dividends of the 25 firms in the 2000 list. Thus the high rate of M&A activity between 1978 and 2000 contributed substantially to the significant increase in the concentration of earnings and dividends that took place during that period.

The DDS also observe high concentration in earnings of 25 nondividend payers which accounted for about 50% of the total earnings of the nondividend payers with positive earnings in 2000. One-third of the total earnings of the 25 came from 13 high tech firms, reflecting their industry-specific investment opportunities.

DDS sketch broader implications of the high earnings and dividend concentration which prevent the market from providing dividend heterogeneity either across or within industries. From this they observe that it would be unlikely that clientele pressure would have a strong impact on a firm's dividend policy except for special circumstances such as a small number of controlling shareholders. Signaling theories are also weakened by the concentration of earnings and dividends in a small number of large, well known firms. Analysts and the financial press follow such firms closely and publish much information about them. Dividend signaling should occur in lesser known firms which account for a small proportion of dividend activity. Since earnings and dividends are highly concentrated, they conjecture that share repurchase activity is also likely to be concentrated in a small number of large firms.

### *3.3. Share repurchase patterns*

Our studies of share repurchase patterns confirm the DDS predictions. Table 6 lists the top 50 companies by aggregate share repurchases during 2000. The cumulative percentage of total share repurchases for the top 25 companies is 44.9% using Compustat data, confirming the concentration measures in Table 3 based on actual share repurchases from the SDC Repurchase Database. Using this SDC database, the peak concentration during the years 1996-2000 occurred in 1996 when it was 51.8% for the top 25.

Three measures of share repurchases have been widely used in the literature. The Compustat share repurchase data (item 115) are taken from company cash flow statements. One problem with this measure is that the cash flow statements sometimes combine share repurchases with other financial transactions so that these numbers have to be excluded. The SDC database seeks to measure actual repurchase transactions, but in making comparisons with Compustat we find that SDC missed some actual purchases. Possible misalignments may also result from SDC use of calendar years contrasted with Compustat use of fiscal years. FF used net treasury stock changes, contrasted with the first two which are gross measures of share repurchases. This procedure has been criticized by Grullon and Michaely (2002, pp. 1664-1665) on grounds that it mixes a financing action (repurchase shares) with “an investment decision” (to pay the manager) and because a similar deduction is not made to gross dividend payments. We believe this criticism to be misplaced. The previous section summarized the econometric research for the 1990s finding an association between the growth of employee stock option and the use of share repurchases to offset their dilutive effects on reported earnings per share. Consequently, for analysis of financial fund flows in the economy, net share repurchase

measures are more relevant. Also, applied financial research focuses on share repurchases net of new equity issuance as well (UBS PaineWebber Global Strategy Research, “Dynamic Dividends,” May 30, 2003).

The Fama and French data using net repurchases show that a substantial amount of share repurchases are accounted for by dividend payers. Our analysis using gross share repurchases also confirms their findings. Table 7 iterates the DDS analysis of average dividend concentration for the 5-year period 1996-2000 in column 1. The share repurchases of these companies are shown for Compustat data (column 2) and SDC data (column 3). Visual inspection establishes that every company in the list of the top 50 companies by dollar amounts of nominal dividends had also made share repurchases during the 5-year period 1996-2000 by at least one of the compilations of share repurchases. A possible explanation is that these relatively mature, high dividend paying firms also sought to benefit from reducing the number of shares outstanding to improve reported earnings per share.

Table 8 shows that the concentration of earnings for the 25 highest ranking firms with positive reported earnings in 2000, but no dividend payments, is 41.1%. These same 25 firms accounted for 44.2% of share repurchases by total nondividend paying firms with positive earnings. However, when the concentration is related to all firms (adding firms with no positive earnings), the average share repurchase concentration measure drops to 37.2%.

In Table 9 we summarized the data for 1905 nondividend paying firms for the 5-year period 1996-2000. Their share repurchases over the period totaled \$131 billion. The companies are grouped by 2-digit SIC codes. The patterns support the DDS (2003)

observation that nondividend paying firms are primarily from the high technology industries.

Several inferences can be drawn from the data in Tables 6 to 9. One, the highest dividend payers also account for a substantial percentage of repurchase activity. Two, nondividend paying firms with high reported earnings also account for a substantial proportion of gross share repurchases. Three, firms with low earnings have made share repurchases, but were not dividend payers. Four, share repurchases did not fully substitute for dividends since the highest dividend payers also accounted for a substantial proportion of total share repurchases. Five, the growth in share repurchases does not explain the lower propensity to pay dividends since the nondividend payers making share repurchases would not have been dividend payers consistent with Fama and French (2001).

#### **4. A reassessment of the reasons for share repurchases**

With the foundation of the empirical findings developed in the previous two sections, we reexamine the reasons for the rise and decline in the use of share repurchases.

##### *4.1. Tax aspects*

The first argument for the growth of share repurchases were their tax advantages in substituting capital gain tax rates for the higher personal income tax rates. The highest dividend payers greatly increased their dollar dividend payments during the period of the

highest growth in share repurchases and also accounted for a considerable volume of share repurchases. Hence, their share repurchases did not substitute for dividend payments. If the tax advantages of share repurchases were dominating reasons, the dollar amount of dividends paid would not have increased. The Jobs and Growth Tax Relief Reconciliation Act of 2003 enacted into law on May 28, 2003 substantially reduces the tax benefits of share repurchases.

#### *4.2. Cash payouts flexibility*

A second claim for share repurchases is that they provide firms with flexibility in adjusting cash payouts to temporary fluctuations in net income. But the regular annual share repurchase programs followed by many large firms as described above is inconsistent with the argument that share repurchases are used as a type of irregular special dividends.

#### *4.3. Signaling possibilities*

A third benefit of share repurchases was that they could signal future improvements in cash flows. The patterns of repeated share repurchase programs described above would appear to dilute the signaling strength of each repeated share repurchase announcement. Furthermore, the high concentration of share repurchases by large well known firms makes the arguments by DDS (2003) against the signaling functions of cash dividend announcements equally applicable. The bulk of share repurchases are accounted for by large firms whose activities are already widely monitored, reducing the need for signaling.

#### *4.4. Earnings per share management*

Business executives are often quoted with a fourth reason for share repurchases – to acquire stock for use in acquiring other companies. This explanation requires reinterpretation in the light of the data in Table 10. Table 10 presents a tabulation of authorized shares versus outstanding shares for the Dow Jones 30 Industrial Companies. The mean total of shares authorized over shares outstanding is 162.2%. The median is 141.5%. Hence firms do not need share repurchases to make stock-for-stock acquisitions.

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. The relatively minor expense relates to 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, the exercise of stock options, or 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 create that advance cushion.

But two considerations may explain why firms with a substantial cushion of authorized shares in excess of shares outstanding would also engage in share repurchases as a first step in a stock-for-stock acquisition. An acquisition with stock increases the number of shares outstanding for the surviving firm. If instead, the acquiring firm does a share repurchase in which the number of treasury stock shares is increased and then used

in the subsequent acquisition, the number of shares outstanding for the acquiring firm is unchanged. Immediately after the merger, the total earnings of the acquiring firm are augmented, but the number of shares outstanding could be unchanged. Using share repurchases as the initial step in a stock-for-stock acquisition makes reported earnings higher than they would have been if the firm has simply used authorized but unissued shares.

The use of repurchased shares in stock-for-stock acquisitions has implications for the measurement of share repurchases. Fama and French (2001) explain that earlier papers “treat share repurchases as non-cash dividends, that is, a repacking of shareholder wealth that substitutes capital value for cash dividends.” (p. 35) They note further that repurchases used in employee stock options and in acquisitions are not a source of additional capital value. For this reason they measure net share repurchases by changes in reported treasury stock. They find that the fraction of nondividend payers with positive changes in treasury stock is low (Fama and French, 2001, Table 12, p. 38). Hence, the lower propensity to pay dividends is not explained by share repurchase activity, but by other aspects of the investment and financing decisions of nonpayers.

The decline in the shares outstanding for individual companies shown in Table 11 has been substantial. 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. Of the 15 industrials with share reductions in the list, 14 appear in our Tables 3 and 6 listing of the companies with the highest dollar amounts of share repurchase activity. The large reductions in shares outstanding associated with high rates of share repurchase activity suggest earnings management. A considerable literature supplies evidence of such earnings manipulation to influence stock prices (Shleifer and Vishny, 2003; Erickson and Wang, 1999; Teoh, Welch, and Wong, 1998).

Further evidence is that firms explicitly state that share repurchases are used to offset the dilutive effects of the exercise of stock options. In its 10-K for the fiscal year ending 1/31/03, Dell states “the Company has a share repurchase program ... to manage the dilution resulting from shares issued under the Company’s employee stock plans.” Similarly, Procter & Gamble in its 10-K for fiscal year ending 6/30/02 states that it has a share repurchase program whose “primary purpose ... is to mitigate the dilutive impact of stock option grants.” On 2/20/03, Texas Instruments announced a new repurchase program “intended to neutralize the potential dilutive effects of shares expected to be issued upon the exercise of stock options ...” Similar quotations for many companies represent widespread acknowledgment of the use of share repurchases to prevent earnings dilution. These explicit statements of the motivations for share repurchases also support the significance of the many econometric studies of share repurchases in the 1990s which find a causal relationship between the number of employee stock options outstanding and the growth of share repurchases.

#### *4.5. Accounting for share repurchases*

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 shares 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 returns on book equity are overstated. It follows that these procedures also overstate some accounting measures of gains from share repurchase activities.

## 5. Conclusions

The event studies summarized in Table 1 cover data from 1963 through 1990. They found consistently large positive event returns (10% to 15%) during the decades of the 70s and 80s for fixed price tender offers and somewhat smaller positive event returns (6% to 8%) for Dutch auction repurchases. The authors of these studies concluded that for the periods when these forms of share repurchases were substantial, the primary motivation was undervaluation.

By the 1980s the primary form of share repurchase was open market repurchases. While initial event gains were somewhat smaller (3%), lagged responses continued, giving buy-and-hold portfolios continued abnormal returns over a subsequent 3-year period (Ikenberry et al, 1995). These positive lagged responses in the case of open market repurchases may be explained by the recognition that firms were engaging in a pattern of repeated announcements of share repurchases. Since OMR announcements were not firm commitments, their repetition patterns increased credibility that repurchases for a given announcement would actually be made and that subsequent repurchases would also be made.

Econometric studies of share repurchases in the 1990s shifted the emphasis to analysis of forces underlying the accelerated rate of growth in the use of share repurchases. These studies observed statistically significant associations between the growth in share repurchases and the growth in employee stock options (ESOs). The studies also found that the event returns related to OMR announcements had declined relative to studies with data prior to 1990.

The changed motives for share repurchases are also consistent with general stock price movements since the 1960s. Table 12 summarizes major movements in stock prices. Between 1967 and 1982, the Dow showed zero growth, the S&P 500 grew at only 1.8% per year compounded, consistent with general undervaluation. Growth in the 1980s accelerated with high growth rates in the monetary base and economic recovery. After an economic adjustment period between 1989 and 1993, stock price growth accelerated between 1994-1999 which was characterized as the period of irrational exuberance and a bubble economy.

Stock prices experienced substantial declines during 2000-2002. These data are relevant for the change in the volume of share repurchases which declined by almost 50% from their peak in 1998 through 2002. The use of employee stock options can have strong incentive effects during periods of rising stock prices. Employee compensation can benefit greatly as it did with the increased use of stock options during rising valuations. With the decline in stock prices beginning in 2000, stock options fell out of the money, with consequent declines in share repurchases which had been used to offset the dilution effects of employee stock options.

Other literature we have reviewed deals with the interaction of fundamental fund flows with their implications for investment and financing activities in the economy. Fama and French (2001) called attention to the sharp decline in the percentage of dividend payers and the generally lowered propensity to pay dividends even after accounting for firm characteristics. They noted that despite disappearing dividends, aggregate payout ratios for industrial firms had not declined. DeAngelo, DeAngelo, and Skinner (2003) further expanded the analysis of earnings and dividend patterns by

demonstrating increases in the concentration of both earnings and dividends among a small number of large firms. Their analysis showed a consistency between the reduced propensity to pay dividends, stable dividend payout ratios for industrials, and the increase in aggregate dollar amounts of dividends paid by the largest firms.

Their data are further analyzed in Table 13 in which we calculated the percentage changes in the real dividend payout ratios between 1978 and 2000 for the 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 dollars of dividends paid by industrial firms.

In Table 13 we also ranked the percentage changes in payout ratios 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  $\rho$  of 0.53 for the 23 observations is significant at the 1% level. This finding that dividend payout ratios over time are related to underlying real earnings growth rates is consistent with economic principles. We conclude that the dividend paying group of firms increased the dollars of dividend paid, and among the dividend payers, those with the highest rates of earnings improvements also had the highest rates of increase in their dividend payout ratios.

We conclude with observations on the manipulative aspects of the use of share repurchases. The association between stock options and share repurchase activity represents an effort by management to avoid dilution in earnings per share. Also the generally accepted principles for accounting for share repurchases artificially reduces book net worth measures resulting in higher reported returns on book equity. Thus share

repurchases were used to manipulate increases in reported earnings and in rates of returns. When the stock market bubble burst, share repurchases dropped by almost 50% between 1998 and 2002. The high growth of share repurchases between 1995 and 1998 had been stimulated by the cycles of rising stock prices, the growth of employee stock options, and the use of share repurchases to offset earnings dilution. With generally declining stock prices, stock options outstanding moved to an out-of-the-money status. Consistent with the findings of studies of share repurchases during the 1990s, levels of share repurchase announcements dropped substantially between 1998 and 2002.

The earliest studies of share repurchases use data for the 1960 to 1980 period. The primary motive was undervaluation. These early share repurchases performed the economic function of providing better measures of stock values and returns to guide resource allocation. Infrequent repurchases by smaller firms may continue to signal undervaluation. But the multi-year programs of share repurchases by larger firms in the 1990s increasingly were motivated by the objective of offsetting earnings dilution and overstating rates of return on book equity, contributing to the overvaluation of equity shares that occurred. These misleading signals could have contributed to overinvestment in the late 1990s and the severity of the corrections that began in 2000.

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Table 1

## Illustrative event studies on share repurchase activities

Three event studies on share repurchases covering data for the years 1962-1990 are summarized. The sources of the data for each study are identified. The sample size is  $n$ . The type of share repurchase is identified.  $EW$  represents equally-weighted benchmarks;  $VW$  refers to value-weighted benchmarks.  $CAR$  refers to the cumulative daily abnormal returns measured over specified time periods and are expressed as a percent.

Author	Period	Source	$n$	Type	Benchmark	<u>Event Announcement</u>		<u>Near Post-Event</u>	
						Period	CAR	Period	CAR
Dann (1981)	1962-1976	WSJ,IDD	143	FPT	portfolio mean	-1 to +1	17.01 <sup>***</sup>	+3 to +20	2.86
Comment & Jarrell (1991)	1984-1989	DJNR	84	DA, FPT ODR w/o CCN	CRSP EW	-1 to +1	11.70 <sup>NA</sup>		
	1984-1989	DJNR	48	DA, FPT not ODR w/o CCN	CRSP EW	-1 to +1	5.60 <sup>NA</sup>		
Ikenberry, Lakonishok & Vermaelen (1995)	1980-1990	WSJ	1239	OMR	CRSP VW	-2 to +2	3.54 <sup>***</sup>	+3 to +10	0.21

Source: WSJ = Wall Street Journal, DJNR = Dow Jones News Retrieval, IDD = Investment Dealer's Digest

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

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

Table 2

## Authorized repurchases by IBM

Illustrative pattern of announcements of share repurchases authorized by the board of directors of IBM over the period 1987-2002. The date of authorization is month, day, and year. The total amounts authorized are expressed in millions of dollars.

Date of Authorization*	Authorized Value (\$ millions)
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 Share Repurchase Database and SDC M&A Database

Table 3

Top 50 companies by actual share repurchases in 2000 and their frequency of repurchase announcements. The table lists the 50 industrial firms that made the largest actual share repurchases in 2000 in descending order. Industrial firms are defined as U.S. companies that are not financial (SIC 6000-6999) or utilities (SIC 4900-4949). The years between repurchase announcements are calculated by averaging the number of days between each announcement and converting the days into years by dividing by 365. A distribution of the frequencies is tabulated by three categories: less than 2 years, 2 to 3.5 years, and greater than 3.5 years. The first announcement date refers to the date of the first share repurchase; the last announcement date to the date of last share repurchase tabulated. The announcements were from the SDC M&A Database whose time coverage is longer than that of the SDC Repurchase Database. The table covers announcements for the period 1982, the earliest date available, to December 31, 2000, chosen because the economic downturn beginning in 2000 changed the nature of share repurchase behavior. Concentration patterns of share repurchases are also presented.

	Company	Actual Repurchases in 2000 (\$ million)	Number of Announcements	Average Years	First Announcement	Last Announcement
1	Oracle Corp	7,356	2	2.195	2/3/1997	4/14/1999
2	General Motors Corp	7,345	14	0.931	1/20/1986	2/9/1998
3	Intl Business Machines Corp	6,679	14	1.056	2/24/1987	10/31/2000
4	United Parcel Service Inc	5,194	1	–	12/31/1991	12/31/1991
5	Intel Corp	4,007	5	2.702	6/11/1987	3/26/1998
6	Hewlett-Packard Co	3,754	12	1.140	3/23/1988	9/22/2000
7	Merck & Co	3,545	12	1.420	7/25/1984	2/22/2000
8	Microsoft Corp	3,225	4	2.271	9/14/1989	7/3/1996
9	Exxon Mobil Corp	2,352	7	1.437	6/21/1984	1/25/1993
10	Bristol Myers Squibb	2,338	4	3.519	10/21/1987	5/6/1998
11	Verizon Communications	2,263	7	2.630	5/31/1984	3/1/2000
12	SBC Communications Inc	2,255	2	10.838	3/31/1989	1/28/2000
13	General Electric Co	2,200	8	1.915	8/2/1984	12/19/1997
14	Dell Computer Corp	2,115	5	0.603	2/22/1996	7/17/1998
15	McDonalds Corp	2,003	5	1.612	4/22/1992	9/28/1998
16	Anheuser-Busch Cos Inc	1,973	6	3.186	3/28/1984	2/23/2000
17	Ford Motor Co	1,821	6	3.146	12/31/1984	9/14/2000
18	Procter & Gamble Co	1,814	5	3.086	3/14/1984	7/10/1996
19	HCA Inc	1,534	5	1.302	12/22/1994	3/2/2000
20	Burlington Northern Santa Fe	1,496	8	2.212	6/25/1984	12/9/1999
21	ChevronTexaco Corp	1,406	2	8.068	11/27/1989	12/19/1997
22	Pepsico Inc	1,300	4	5.193	5/1/1985	11/21/2000
23	Schering-Plough	1,241	10	1.884	4/27/1983	3/29/2000
24	Sears Roebuck & Co	1,234	4	3.931	10/31/1988	8/10/2000
25	Viacom Inc -CI B	1,200	9	1.755	5/22/1986	5/26/2000
26	Kimberly-Clark Corp	1,200	9	1.546	10/21/1987	2/22/2000
27	Eastman Kodak Co	1,079	5	3.743	5/3/1984	4/16/1999
28	Colgate-Palmolive Co	1,041	6	2.483	9/12/1985	2/3/1998
29	Lilly (Eli) & Co	1,009	7	2.577	10/16/1984	3/24/2000
30	Pfizer Inc	1,005	6	1.537	1/24/1991	9/24/1998
31	Gannett Co	967	7	1.962	5/26/1988	2/23/2000
32	Tribune Co	953	14	1.007	2/18/1986	3/9/1999
33	Gillette Co	911	6	2.168	11/24/1986	9/19/1997
34	Boeing Co	896	4	4.382	10/26/1987	12/11/2000
35	Pitney Bowes Inc	883	7	2.096	10/21/1987	5/9/2000

Table 3 (continued)

	Company	Actual Repurchases in 2000 (\$ million)	Number of Announcements	Average Years	First Announcement	Last Announcement
36	First Data Corp	837	4	0.992	5/23/1997	5/10/2000
37	General Mills Inc	830	5	4.004	2/23/1984	2/21/2000
38	Federated Dept Stores	818	4	4.593	11/21/1986	8/25/2000
39	3m Co	814	16	0.987	5/8/1984	2/8/1999
40	Weyerhaeuser Co	808	5	4.005	6/12/1984	6/12/2000
41	United Technologies Corp	800	7	2.116	2/3/1986	10/5/1998
42	Amgen Inc	800	7	1.470	2/25/1992	12/12/2000
43	May Department Stores Co	797	7	1.751	8/19/1988	2/11/1999
44	Delta Air Lines Inc	790	3	4.511	7/10/1989	7/14/1998
45	Campbell Soup Co	789	5	2.658	10/22/1987	6/2/1998
46	Alcoa Inc	763	7	1.780	7/14/1989	3/10/2000
47	Halliburton Co	759	7	2.673	4/23/1984	4/26/2000
48	Sigma-Aldrich	700	1	–	12/31/1999	12/31/1999
49	Compaq Computer Corp	673	4	3.187	5/16/1991	12/1/2000
50	Toys R Us Inc	639	3	3.658	9/19/1990	1/8/1998
<i>Average years</i>		<i># of firms</i>				
	Less than 2 years	20				
	2 years to 3.5 years	16				
	Greater than 3.5 years	14				
<i>Concentration</i>						
	Top 25 firms (\$ billions)	71.6				
	fraction of total	46.7%				
	Top 50 firms (\$billions)	93.2				
	fraction of total	60.8%				
	Total for all firms (\$ billion)	153.4				
	Total number of firms	1,495				

Source: actual share repurchases from SDC Repurchase Database; announcements from SDC M&A Database.

Table 4

## Dividends plus share repurchases to after-tax profits, 1972-2002

This table presents the growth of dividends and share repurchases in relation to after-tax profits for the economy as a whole as calculated by the U.S. Department of Commerce, Bureau of Economic Analysis. The data includes industrials, utilities, financials for public firms as well as government data collected from private firms. Dividends refer to the dollar amount of cash payments. Share repurchases represent announcements. The weighted average calculations show patterns for relevant time periods. Amounts are in billions of dollars.

Year	After-Tax Profits	Dividends	Share Repurchases	As Percent of After-Tax Profits		
				Ratio <u>Repurchases</u> Dividends	Dividends	Share Repurchases
1972	67.9	26.8	1.5	5.6%	39.5%	2.2%
1973	74.7	29.9	3.1	10.4%	40.0%	4.2%
1974	62.7	33.2	1.6	4.7%	53.0%	2.5%
1975	82.1	33.0	0.8	2.6%	40.2%	1.0%
1976	96.4	39.0	1.6	4.1%	40.5%	1.7%
1977	117.9	44.8	3.6	8.1%	38.0%	3.1%
1978	133.7	50.8	4.3	8.5%	38.0%	3.2%
1979	134.5	57.5	5.4	9.5%	42.8%	4.0%
1980	113.7	64.1	6.6	10.3%	56.4%	5.8%
1981	137.8	73.8	6.3	8.5%	53.6%	4.5%
1982	138.2	76.2	10.6	13.9%	55.1%	7.6%
1983	176.9	83.6	9.2	11.0%	47.3%	5.2%
1984	215.7	91.0	27.3	30.0%	42.2%	12.7%
1985	225.9	97.7	20.3	20.8%	43.2%	9.0%
1986	194.2	106.3	28.2	26.5%	54.7%	14.5%
1987	219.5	112.2	55.0	49.0%	51.1%	25.1%
1988	267.9	129.6	37.4	28.9%	48.4%	14.0%
1989	254.2	155.0	63.7	41.1%	61.0%	25.1%
1990	268.0	165.6	36.1	21.8%	61.8%	13.5%
1991	297.7	178.4	20.4	11.4%	59.9%	6.9%
1992	309.9	185.5	35.6	19.2%	59.9%	11.5%
1993	345.1	203.1	38.3	18.9%	58.9%	11.1%
1994	386.5	234.9	73.8	31.4%	60.8%	19.1%
1995	457.8	254.2	99.5	39.1%	55.5%	21.7%
1996	530.4	297.7	176.3	59.2%	56.1%	33.2%
1997	596.6	335.2	181.8	54.2%	56.2%	30.5%
1998	538.6	348.7	224.2	64.3%	64.7%	41.6%
1999	558.0	328.4	154.1	46.9%	58.9%	27.6%
2000	528.7	376.1	152.6	40.6%	71.1%	28.9%
2001	532.3	409.6	156.1	38.1%	76.9%	29.3%
2002	574.1	434.3	119.2	27.4%	75.6%	20.8%
Weighted Average						
1984-2001				39.4%	59.6%	23.5%
1984-1998				38.6%	56.7%	21.9%
1995-1998				55.2%	58.2%	32.1%
1999-2002				37.6%	70.6%	26.5%

Source: *Economic Report of the President, 2003, Table B-90; Thomson Financial Securities Data; share repurchase data for 1972-83 are from Grullon and Michaely (2002)*

Table 5

## Changes in dividend and earnings concentration

Table 5 uses data from DeAngelo, DeAngelo, and Skinner (2003). This table demonstrates the high real earnings growth between 1978 and 2000 of the 25 industrial firms that paid the largest dividends in 2000. In contrast all industrials experienced modest growth in real earnings during the same period. This highlights the decline in real earnings and in real dividends between 1978 and 2000 of the *all other* category which represents the total number of industrial firms less the 25 firms which accounted for the largest dividends paid in 2000. Dollar amounts are in millions.

	Real Earnings			Real Dividend		
	1978	2000	% change	1978	2000	% change
Top 25 dividend payers in 2000	\$24,084	\$50,300	108.9%	\$11,925	\$21,124	77.1%
All other industrial firms	<u>60,880</u>	<u>47,548</u>	-21.9%	<u>19,417</u>	<u>17,337</u>	-10.7%
Total for all industrials	\$84,964	\$97,848	15.2%	\$31,342	\$38,461	22.7%

Source: DeAngelo, DeAngelo, and Skinner (2003), Table 4, 6, and 9.

Table 6

## Top 50 industrial companies by share repurchases in 2000

This table uses the Compustat measure of actual share repurchases (data item 115) based on the cash flow statements of firms. Industrial firms are defined as U.S. companies that are not financial (SIC 6000-6999) or utilities (SIC 4900-4949). We use this alternative data source as a check on the SDC Share Repurchase Database used in Table 3. The two sources give confirming results.

	Company	Repurchases (\$ million)		Company	Repurchases (\$ million)
1	Intl Business Machines Corp	6,073	26	Eastman Kodak Co	1,125
2	Hewlett-Packard Co	5,570	27	Colgate-Palmolive Co	1,041
3	United Parcel Service Inc	5,465	28	Sara Lee Corp	1,032
4	Microsoft Corp	4,896	29	Pfizer Inc	1,005
5	Oracle Corp	4,341	30	Anheuser-Busch Cos Inc	987
6	Intel Corp	4,007	31	Johnson & Johnson	973
7	Philip Morris Cos Inc	3,597	32	Gannett Co	967
8	Merck & Co	3,545	33	Gillette Co	944
9	Dell Computer Corp	2,700	34	Tribune Co	923
10	Boeing Co	2,357	35	Schering-Plough	855
11	Exxon Mobil Corp	2,352	36	May Department Stores Co	828
12	Bristol Myers Squibb	2,338	37	3M Co	814
13	Verizon Communications	2,294	38	Weyerhaeuser Co	808
14	SBC Communications Inc	2,255	39	United Technologies Corp	800
15	McDonalds Corp	2,023	40	Amgen Inc	800
16	Viacom Inc -Cl B	1,945	41	Bellsouth Corp	779
17	Ford Motor Co	1,821	42	Seagate Technology	776
18	Procter & Gamble Co	1,766	43	Halliburton Co	769
19	General Motors Corp	1,613	44	Alcoa Inc	763
20	First Data Corp	1,510	45	Publix Super Markets Inc	751
21	Burlington Northern Santa Fe	1,496	46	AT&T Corp	733
22	Pepsico Inc	1,430	47	Sigma-Aldrich	700
23	ChevronTexaco Corp	1,329	48	HCA Inc	677
24	Sears Roebuck & Co	1,233	49	Pitney Bowes Inc	664
25	Kimberly-Clark Corp	1,191	50	Autozone Inc	640
				Top 25 (\$ billion)	69.1
				Fraction of total	44.9%
				Top 50 (\$ billion)	90.3
				Fraction of total	58.7%
				Total for all firms (\$ billion)	153.9
				Total number of firms	5,496

Source: Compustat

Table 7

Top 50 industrial firms by average dividends paid during the period 1996-2000

Table 7 ranks companies by the average dollar amount of dividends paid during the period 1996 to 2000 based on Compustat data item 21. Only U.S. industrial firms which are defined as not financial (SIC 6000-6999) or utilities (SIC 4900-4949) are included. Average share repurchases based on Compustat data item 115 and the SDC Share Repurchase Database are shown in column 2 and 3 respectively. Somewhat different numbers are found in the alternative data sources, but confirm that high dividend payers also account for large amounts of share repurchases.

	Company	(1)	Average Repurchase	
		Average Dividend (\$ million)	(2) Compustat	(3) SDC
1	Exxon Mobil Corp	4,768	1,893	2,352
2	General Electric Co	4,237	2,240	2,888
3	Philip Morris Cos Inc	4,102	2,162	1,184
4	Ford Motor Co	2,791	723	1,821
5	Verizon Communications	2,565	1,008	1,298
6	AT&T Corp	2,360	1,762	3,030
7	Merck & Co	2,355	3,164	3,170
8	SBC Communications Inc	2,254	933	2,255
9	GTE Corp	1,815	714	869
10	Mobil Corp	1,665	421	
11	Bristol Myers Squibb	1,642	1,466	1,474
12	ChevronTexaco Corp	1,552	531	630
13	Coca-Cola Co	1,476	899	895
14	General Motors Corp	1,440	2,638	4,609
15	Bellsouth Corp	1,431	1,032	867
16	Du Pont (E I) De Nemours	1,427	721	692
17	Procter & Gamble Co	1,376	1,662	1,648
18	Pfizer Inc	1,341	1,206	893
19	Amoco Corp	1,335	731	1,500
20	Johnson & Johnson	1,324	757	
21	Ameritech Corp	1,263	531	409
22	Wyeth	1,119	378	30
23	Chrysler Corp	1,046	2,086	1,429
24	Nynex Corp	1,035	18	
25	Abbott Laboratories	941	641	801
26	Lilly (Eli) & Co	940		1,350
27	Texaco Inc	934	258	296
28	Qwest Communication Intl Inc	917	9	
29	Atlantic Richfield Co	906	87	203
30	3M Co	877	896	907
31	Intl Business Machines Corp	806	6,051	6,758
32	Dow Chemical	766	814	1,017
33	Starwood Hotels&Resorts Wrld	758	132	173
34	Pepsico Inc	757	1,811	1,293
35	Wal-Mart Stores	749	655	604
36	RJ Reynolds Tobacco Hldgs	648	72	117
37	Schering-Plough	632	404	475
38	Infinity Broadcasting Corp	631	162	410

Table 7 (continued)

	Company	(1) Average Dividend (\$ million)	Average Repurchase (\$ million)	
			(2) Compustat	(3) SDC
39	Hewlett-Packard Co	579	2,490	2,114
40	Gillette Co	573	819	819
41	Eastman Kodak Co	556	891	850
42	Pharmacia & Upjohn Inc	551	119	100
43	Kimberly-Clark Corp	548	830	812
44	United Parcel Service Inc	538	1,387	5,194
45	Emerson Electric Co	524	339	334
46	Anheuser-Busch Cos Inc	518	876	958
47	Boeing Co	516	1,545	1,705
48	Warner-Lambert Co	496	145	
49	Heinz (H J) Co	481	393	389
50	Penney (J C) Co	468	190	219
	Top 25 dividend paying firms (\$ billion)	48,659	30,315	34,743
	fraction of total	44.1%	19.8%	18.7%
	Top 50 dividend paying firms (\$ billion)	65,328	51,690	61,840
	fraction of total	59.2%	33.8%	33.3%
	Total for all firms (\$ billion)	110,440	153,018	185,444
	Total number of firms	8,575	8,257	2,730

Source: Compustat and SDC Share Repurchase Database

Table 8

Earnings for the 25 nondividend-paying firms in 2000 with the highest reported earnings

This table shows the SIC codes for the 25 nondividend paying industrial firms with the highest reported earnings in 2000. Earnings are defined as income before extraordinary items and are obtained from Compustat data item 18.

The concentration percentages for earnings based on the sample of nondividend paying firms are calculated and compared with share repurchase activity in 2000 and their concentration using both the Compustat (data item 115) and SDC Repurchase Database measures. Dollar amounts are in millions.

	Company	SIC	Earnings 2000	Cumulative Earnings as a Fraction of Total Earnings of All Nonpayers with Positive Earnings in 2000	Share Repurchases in 2000	
					Compustat	SDC
1	Microsoft Corp	7372	\$9,421	8.9%	\$4,896	\$3,225
2	Cisco Systems Inc	3576	\$2,668	11.4%	\$0	
3	WorldCom Inc-WorldCom Group	4813	\$2,609	13.9%	\$190	
4	Oracle Corp	7372	\$2,561	16.3%	\$4,341	\$7,356
5	Dell Computer Corp	3571	\$2,236	18.4%	\$2,700	\$2,115
6	Applied Materials Inc	3559	\$2,064	20.4%	\$177	\$177
7	Comcast Corp -CI A Spl	4841	\$2,045	22.3%	\$325	\$325
8	Cox Communications -CI A	4841	\$1,925	24.1%	\$212	\$314
9	Sun Microsystems Inc	3571	\$1,854	25.9%	\$631	\$553
10	EMC Corp	3572	\$1,782	27.5%	\$0	
11	Micron Technology Inc	3674	\$1,504	29.0%	\$0	
12	Liberty Media Corp -Ser A	4833	\$1,488	30.4%	\$0	\$269
13	AOL Time Warner Inc	7812	\$1,232	31.5%		
14	Amgen Inc	2836	\$1,139	32.6%	\$800	\$800
15	Safeway Inc	5411	\$1,092	33.6%		
16	Advanced Micro Devices	3674	\$1,006	34.6%	\$0	
17	Kroger Co	5411	\$880	35.4%	\$581	\$419
18	ADC Telecommunications Inc	3661	\$868	36.2%	\$0	
19	Apple Computer Inc	3571	\$786	37.0%	\$116	\$116
20	AMR Corp/DE	4512	\$779	37.7%	\$0	
21	Tellabs Inc	3661	\$760	38.4%	\$126	\$127
22	Agilent Technologies Inc	3825	\$757	39.1%	\$0	
23	Tenet Healthcare Corp	8062	\$678	39.8%	\$0	
24	Burlington Resources Inc	1311	\$675	40.4%	\$121	\$86
25	Qualcomm Inc	3663	\$670	41.1%		
						Average
	Top 25 firms		\$43,479	41.1%	\$15,216	\$15,881
	fraction of firms with earnings > 0		41.1%		42.3%	46.1%
	fraction of total firms				34.8%	39.5%
						37.2%
	Total for firms with earnings > 0		\$105,916		\$35,996	\$34,461
	Number of firms with earnings > 0		2,026		1,852	623
	Total for all nondividend payers		-\$60,282		\$43,703	\$40,220
	Total number of nondividend payers		5,182		4,518	885

Source: Compustat and SDC Repurchase Database

Table 9

## Industry distribution of nondividend payers with share repurchases

Table 9 groups the distribution of nondividend payers with their share repurchases during the 5-year period 1996-2000. The distribution is based on two-digit SIC codes presented in column 1. Concentration measures are calculated based on the number of companies in column 3 and by the dollar amount in column 5. The industries are ranked based on total share repurchases between 1996 and 2000. Measures for share repurchases are based on Compustat data item 115. The shares of the top 7 industries based on share repurchases are also calculated.

(1) 2-digit SIC	(2) Description of Industry	Companies		Repurchases	
		(3) Number	(4) Percent	(5) Amounts (\$ millions)	(6) Percent
73	Business Services	304	16.0%	37,840	28.9%
35	Industrial & Commercial Machinery/ Computer Equipment	153	8.0%	17,883	13.7%
45	Transportation by Air	18	0.9%	9,424	7.2%
48	Communications	53	2.8%	8,316	6.4%
28	Chemicals & Allied Products	126	6.6%	7,489	5.7%
36	Electronic & Other Electrical Equipment	172	9.0%	6,895	5.3%
38	Measuring & Analyzing Instruments	153	8.0%	4,404	3.4%
	All Other 50 Industries	926	48.6%	38,484	29.4%
	Total	1,905	100.0%	130,736	100.0%
	Shares of Top 7 Industries		51.4%		70.6%

Source: Compustat

Table 10

## Shares outstanding and authorized for Dow Jones 30 Industrial Companies

This table presents for the Dow Jones 30 Industrial Companies the total shares outstanding in column 1 as of December 31, 2001. In column 2 the total shares authorized as of December 31, 2001, are presented. Calculations of the excess of shares authorized over share outstanding are performed in columns 3 and 4. Total shares outstanding are from Compustat. Total shares authorized are from Mergent FIS. Values are in millions except for column 4.

	(1) Shares Outstanding	(2) Shares Authorized	(3) Authorized Less Outstanding	(4) 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 11

Dow Jones Industrial Companies with share reductions, 1994-2001

Table 11 uses the Compustat measure of shares outstanding adjusted for splits between the years 1994-2001. The percentage reduction in the number of shares outstanding is calculated for the 16 companies for which declines took place.

	Adjusted Shares Outstanding (millions)		
	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 12

## Stock price movements, 1967-2002

This table calculates compound annual growth rates for three leading measures of stock price movements. The time segments are chosen to reflect significantly different growth characteristics.

Period	S&P Composite	Dow Jones	Nasdaq
1967-1982	1.8%	0.0%	
1982-1989	15.2%	16.1%	12.8%
1989-1993	8.7%	8.8%	13.1%
1994-1999	23.6%	22.5%	29.4%
2000-2002	-16.5%	-7.3%	-36.2%

Source: *Economic Report of the President, February 2003, Table B-95.*

Table 13

Dividend payout ratio in 1978 and in 2000 of the 25 industrial firms that paid the largest dividends in 2000

Table 13 is based on data from Table 9 of DeAngelo, DeAngelo, and Skinner (2003). The first group of three columns calculates changes in dividend payout ratios between 1978 and 2000. The second set of three columns calculates the compound annual growth rates (CAGR) in real earnings over the same time period. The rank in changes in real dividend payout ratios are related to the rank based on compound annual growth rates in real earnings in the third set of two columns. The squared differences in ranks are calculated to obtain the Spearman's rank correlation coefficient which is significant at the 1 percent level. A basis is thus established that changes in real dividend payout ratios responded to differences in the growth rates of real earnings.

	(1) Real Dividend Payout Ratio			(2) Real Earnings			(3) Rank		(4) Squared Differences in Ranks
	1978	2000	Change in Payout	1978	2000	CAGR	Change in Payout	CAGR	
Exxon Mobil	53.3%	38.3%	-15.0%	2,763	6,054	3.6%	18	13	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
Verizon	—	40.9%	—	—	4,093	—	—	—	—
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	15	169
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%	16	21	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%	17	14	9
Coca-Cola	57.3%	77.4%	20.1%	375	824	3.6%	4	12	64
Procter & Gamble	43.6%	47.4%	3.9%	512	1,341	4.5%	10	11	1
Du Pont	44.2%	62.9%	18.7%	787	876	0.5%	5	18	169
BellSouth	—	33.7%	—	—	1,598	—	—	—	—
General Motors	48.8%	29.1%	-19.8%	3,508	1,686	-3.3%	19	20	1
American Home Products	59.5%	-133.4%	-192.9%	348	-341	-10.0%	22	22	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%	15	9	36
Texaco	63.7%	38.5%	-25.3%	852	962	0.6%	20	17	9
3M	41.6%	49.5%	7.9%	563	703	1.0%	8	16	64
IBM	56.7%	11.2%	-45.4%	3,111	3,064	-0.1%	21	19	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
								Sum =	832
								Spearman's Rank Correlation ( $\rho$ ) =	0.530