NBER WORKING PAPER SERIES

NEW DEVELOPMENTS IN CORPORATE FINANCE AND TAX AVOIDANCE: SOME EVIDENCE

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Working Paper No. 2091

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
December 1986

The research reported here is part of the NBER's research program in Taxation. Any opinions expressed are those of the author and not those of the National Bureau of Economic Research.

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ABSTRACT

The financial behavior of corporations has changed greatly in the last ten years. Previously most of the cash that stockholders received from corporations took the form of dividends, and economists' models that have dividends as the ultimate determinant of equity values were not far off the mark. This paper documents how much things have changed. There are strong tax incentives for nondividend cash payments between corporations and shareholders. These payments can take the form of a repurchase by the company of its own shares, or the acquisition of the shares in another company.

There has been tremendous growth in the magnitude of nondividend cash payments. In the early 1970s these payments amounted to roughly 15 percent of dividends. By 1984, they exceeded dividends, and in 1985 the amounted to $120 billion, or almost 50 percent more than total dividends in the economy.

The paper shows that dividends per unit equity have not fallen. Rather, the acquisition of equity has allowed firms to retain relatively constant debt equity ratios in the past five years despite strong equity markets. Firms have chosen to absorb equity and issue debt, roughly holding leverage constant, and have thus saved large amounts of taxes.

The paper estimates that the cost to the Treasury of treating share purchase payments differently than dividends was more than $25 billion in 1985. It also finds that future corporate tax collections are significantly reduced by the resulting decline in corporate equity.

The paper suggests that the existing model of dividend driven equity valuation must be discarded. It simply is not consistent with the facts. Further research on the form of payments between firms and their shareholders is clearly merited.

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NEW DEVELOPMENTS IN CORPORATE FINANCE AND TAX AVOIDANCE: SOME EVIDENCE

by

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"You know something is happening, but you don't know what it is, do you Mr. Jones." Ballad of a Thin Man, Bob Dylan, 1965.

The financial behavior of corporations has changed greatly in the last ten years. Previously, most of the cash that stockholders received from corporations took the form of dividends, and the dividend cash flow was the ultimate determinant of the value of equities. Recently, as this paper will document, dividends have been surpassed by nondividend cash distributions to shareholders. These distributions are the sum of share repurchases and cash mergers. In 1985, more than half of the money received by shareholders from corporations was for the acquisition of shares.

The growth of nondividend cash payments to shareholders has major consequences for our understanding of share valuation and investment, as well as for revenue projections of the U.S. Treasury. In particular, the fact that the financial behavior of companies has changed so significantly (and without much recognition) calls into question the forecasts that the new tax law will increase corporate tax collections by $120 billion. In order to predict tax collections in a new tax environment, one has to understand the behavior of firms. And, in terms of payments to stockholders, the times are changing.

Dividends have been central to economists' models of the valuation of corporate equity. In fact, the value of a share of a corporation's stock is

taken to be the present discounted value of future cash payments to be received by the owners of that share, where those cash payments are taken to be dividends. Further, the value of equity is important to the economy. One leading model of corporate investment has investment depending crucially on the financial valuation of the firm (see, for example, Tobin (1969) or Summers (1981)). Thus, we have dividends being the fundamental determinant of share value and share value being an important factor in the strength of investment.

There are problems, however, with pursuing this line of reasoning further. Certainly, the financial valuation of the firm is the present value of the properly discounted stream of cash payments returned to investors. The first problem with the model driven by dividends is that a large fraction of the cash payments to stockholders do not take the form of dividends, as this paper will document. Presumably, these other cash payments are determinants of the value of corporate equity. The second problem is that, as a profession, we do not have a very good explanation for the payment of dividends in the first place. Under the current tax code, dividends are a distinctly tax-disadvantaged way to transmit cash between the firm and its investors relative to other available financial strategies. Their existence presumably indicates either that dividends convey a valuable signal to stockholders about the management's perception of future earnings prospects (Miller and Rock (1984)) or that the payment of dividends restricts the actions of management in a manner which helps reduce the control problems brought about by the separation of management and ownership (Jensen and Meckling (1976)). Whether these explanations are adequate to account for the actual level of dividends, given their tax handicap, has continued to be

debated.

The tax problem with equity financing in general, and dividend paying equity in particular, is that two levels of taxation must be paid on the incremental earnings resulting from investments financed by these means. First, the corporation income tax applies with a federal marginal tax rate of 46 percent. Second, the remaining 54 percent of earnings are subject to the personal income tax if the investor is a household and if the funds are paid out as a dividend. Even if the money is retained at the corporate level, it will be implicitly taxed; the market will capitalize the fact that eventually it will be subject to personal dividend taxation when it is remitted to shareholders. Thus, an after corporate tax dollar in the corporate treasury will be valued at less than a dollar. If dividends are the only means of returning cash to investors, an after corporate tax dollar will be valued at the ratio of one minus the marginal personal tax rate of shareholders to one minus the effective marginal tax rate on accrued capital gains. However, the assumption that dividends are the only way to return cash to a firm's financiers is incorrect.

An alternative strategy, of course, is to use debt finance. Its advantage is that interest payments are deductible from the corporation income tax and thus the return to debtholders is subject to only personal taxation. Most models of optimal corporate financial structure involve the firm trading off the tax advantages of debt against its inflexibility and hence the increased chance of incurring the costs associated with bankruptcy.[1] The taxation of debt at the personal level may be reduced by the use of pension funds and other retirement accumulation tax shelters.

Even for equity, there are ways other than dividends to return cash to stockholders which involve far lower total taxes and, therefore, more value to investors. One such method is the repurchase of shares by the company. In the absence of information problems between stockholders and management, and in the absence of taxes and transaction costs, dividends and share repurchase programs are equivalent. If a company uses the same amount of money to buy back shares or pay dividends, the total value of the firm will be the same after either transaction. It will have the same debt-equity ratio, the same real assets, the same opportunities, and therefore the same value. In the share repurchase case, each shareholder can sell sufficient shares to match the cash flow he would have received in the dividend case. In the dividend case, the dividend recipient can use the proceeds to buy additional shares in the company and therefore match the percentage interest he would have had if he had been one of the stockholders who did not sell in a share repurchase program.

Taxes cause a major break in this equivalence to the disadvantage of dividends and, therefore, to the relative advantage of share repurchase. It is still true that the total equity value of the firm should be the same after the payment of an equivalent amount of cash in either dividend or share repurchase form. This equivalence rests on the idea that the firm has the same assets, capital structure, and future opportunities in either case. If the cash was paid out as a dividend, then it is fully taxable with the exception of the modest $100 exclusion offered under current law. However, if it was paid out as a repurchase, the payment results in a capital gain to shareholders of the amount of the purchase. However, most of this capital

Table 1

Example of Dividend Payment and Share Repurchase for Hypothetical Firm

Initial Financing	100 shares		
Profit		$ 1/share	$ 100
Value at End of Year		$11/share	$1,100

	Strategy A: $1 Dividend Payment/Share	Strategy B: Repurchase $100 Worth of Shares
Cash Received by Shareholders	$100	$100
Value of Firm after Transaction	1,000	1,000
Number of Shares	100	90.91
Price per Share	$10	$11
Taxes Owed*	$35	$1.27
Accrued Capital Gain**	$ 0.00	$90.91

*Assumes personal tax rate of 35 percent and holding period of more than six months.

**Accrued capital gains will generate a future tax obligation if realized. A recent estimate of the effective tax rate on accrued capital gains is about 5 percent.

gain is accrued and not realized.

To make the share repurchase strategy absolutely clear, consider the simple example outlined in Table 1. A company is originally financed by the issue of 100 shares at $10 each. The company uses the $1000 proceeds to purchase productive capital and after a year it has realized a $100 profit. The competitive market value of the firm is now $1100 ($11 per share) as the company now consists of a fully restored $1000 machine and $100 cash.

Consider two strategies of returning the $100 earnings to the shareholders. If the money is paid out as a dividend, then the personal tax bill will be $35, if the marginal tax rate of the equity holders is 35 percent. The net of tax receipts from the dividend are $65. The value of the company would return to $1000 or $10 per share after the dividend payment. On the other hand, if the firm used its $100 to buy 9.09 of its shares at a price of $11, then the total realized gain by those who sell their shares to the firm is $9.09, assuming that the sellers are among those who originally financed the firm at a $10 per share price, and the tax on that $9.09 would be at long term capital gains rates. Under current law there is a 60 percent exclusion on long term gains, so that only $3.64 would be subject to full personal taxation. If the appropriate tax rate were again 35 percent, that tax bill would amount to $1.27 and the stockholders would have net of tax proceeds of $98.73.

Note that in this example the company's shares remain at $11 after the repurchase and thus the remaining 90.91 shares each have an accrued gain of one dollar. These accrued gains will generate some taxes for the government, although the present value of those tax collections depends on average holding

periods, as well as the use of the escape of capital gains taxes which pass through estates.

This example highlights the much lower personal taxes which result from share repurchases relative to dividends. Even so, it still may exaggerate what would actually be paid with share repurchase. In the real world, investors have bought their shares at different times and at different prices, and those most likely to actually tender their shares back to the company will be those with the lowest reservation price on holding the shares. These most likely would be shareholders who have actually lost money on their investments, particularly those who have held the shares less than six months and who may be able to fully deduct their losses. This indicates that the government may actually get no immediate revenue from those who receive the corporate cash. The example also illustrates that even when the tax rate on realized capital gains was the same as that on dividends, the government's contemporaneous tax collections would be lower with share repurchase (because most of the money received is treated as a return of basis), as would the present value of its eventual tax receipts.

One interesting aspect of share repurchase is that shareholders are nearly indifferent to the price offered in a share repurchase plan which is accomplished through a tender offer. The point is that in a fundamental way they are buying the shares from themselves, so the indifference comes from their being both buyer and seller. Consider what would happen to the above example if the firm offered to buy 8 shares at $12.50 rather than 9.09 at $11.00. Shareholders as a group still get $100 cash and the firm is still worth $1000 after the transaction. In some sense there is a transfer between

those who sell and those who don't if the firm pays an above market price for the shares it recaptures, but this effect is diminished by the fact that if the offer is oversubscribed and the shares are repurchased from those who offer to sell on a pro-rata basis. As long as all shareholders have an equal right to participate, then it is again hard to argue that there is a significant transfer among shareholders. There is a secondary tax difference. In the example of Table 1, the total realized capital gain would be $20 at the $12.50 price, while it was $9.09 at $11.00 per share.

While I have emphasized the personal tax advantage of share repurchase, there are other reasons for this practice. One is that it is a mechanism for increasing the firm's debt-equity ratio. As mentioned above, the standard wisdom is that a firm's debt-equity ratio is determined by a tradeoff between the tax advantage of debt and the costs of its resulting inflexibility in times of crisis. However, if there is a change in the underlying riskiness of the firm (perhaps due to the maturing of a market or the resolution of some technological uncertainties), the firm may want to operate with a higher leverage ratio to enjoy the tax advantages of debt. Or, once the firm has achieved its desired debt-equity ratio, the stockmarket could increase the valuation of the shares and thus automatically lower leverage. The firm might want to counter the automatic unlevering that occurs with a rise in the stockmarket. Share repurchase can be a mechanism for increasing leverage. It may be a better mechanism for this transitional purpose than an increased dividend (suggested by the work of Feldstein and Green (1983)) because of the penalty that the market imposes on firms which subsequently cut their dividend.[2] Taken together with the previous observation that shareholders are

approximately indifferent regarding the price of a share repurchase, this implies that a large increase in equity values such as that of the past three years may encourage share repurchases, rather than discourage them as seems to be the conventional wisdom.

Of course, the argument that share repurchases occur to implement an optimal debt-equity ratio is itself a tax driven argument. In this case it is the corporate tax faced by equity which is being avoided by the absorption of equity, rather than the personal tax which would accompany a dividend payment.

Another reason that one might expect to observe firms buying back their own shares in preference to paying dividends is that doing so could be part of an anti-takeover strategy (Simon (1986)). If a company pays cash out as a dividend, then the cash is given to all shareholders in proportion to their share holdings. However, if the cash is used to make a share repurchase tender offer, only those who tender their shares (or a pro rata proportion of those tendered) will receive cash from the firm. Due to different transactions costs, tax situations, and expectations about the firm's prospects there exists a distribution over prices at which different shareholders are willing to sell. The cash dividend doesn't change that distribution, while the share repurchase buys out those with the lowest reservation prices, leaving behind those who would sell only when offered a premium above the tender offer price. Since a successful raider must obtain 51 percent of the outstanding shares, the fact that those with the lowest reservation prices have been taken out of the distribution by a share repurchase raises the cost of a takeover. This explanation is consistent with the empirical observation that merger activity and share repurchase have

increased simultaneously in the last few years, although other theories might also explain both practices.

In fact, I assert that, in the absence of informational problems and transactions costs, buying the shares in another company is nearly equivalent to buying back your own shares. Rather than returning cash to the shareholders, the firm instead buys a financial investment. If the market value of the acquired asset is equal to what is paid for it (and there is no evidence that the rate of return on the common stock of the acquiring firm is abnormal, whereas there is an excess return enjoyed by the holders of the securities of the acquired firm (Dennis and McConnell (1986)), then in the absence of transactions costs the acquisition is as good as cash to the holders of the stock in the acquiring firm. If there are transactions costs, they would have to be taken into account since some investors might now prefer cash and some investors may want to rebalance their portfolio after the acquisition.

Another way to note the near equivalence of cash mergers and share repurchase is to consider an example with two firms. The owners of firms A and B are nearly indifferent to whether both firms buy back ten percent of their own stock or whether they buy ten percent of each other. The cash flow to the investors is the same, the individual who owns a proportion of A+B is treated exactly equivalently, and the individual who owns either A or B has a claim of equal value. One qualifier is that if either A or B pays out dividends, then each corporation will face a tax on 15 percent of the dividends it receives from the other. Also, the proposition made above that shareholders are nearly indifferent regarding the price offered in a share

repurchase tender offer program is clearly not true if the acquirer is an outside firm. Rather than the shareholders buying a fraction of outstanding shares from themselves, they now are selling them to an outsider, and therefore the common logic that the higher the price the better applies.

Cash mergers and leveraged buyouts (LBOs), much in the news of late, are just the complete purchase of all of the shares of a company by another company. They often involve large sums of money being paid from the corporate sector to stockholders and therefore are a significant determinant of the value of equity. In a merger or acquisition, the appreciation of the securities (which may reflect previous retained earnings) will be taxed as a capital gain rather than as ordinary income. Since in this case (unlike the situation with share repurchase), we are mainly comparing realized capital gains with dividends, the tax advantage of a cash merger will be diminished if the capital gains exclusion is eliminated, as now appears likely. However, a fraction of the money used for the acquisition will be a nontaxable return of basis.

So far, I have been arguing that there are significant tax advantages to paying out whatever cash is to be returned to equity investors in a form other than dividends, as well as the advantage of increased leverage. In this paper, I present data which indicates that indeed most of the cash received by stockholders from firms is the last two years has been due to share repurchase and cash mergers. In 1985, at least $125 billion was paid out in share acquisitions, whereas dividends amounted to $83.5 billion. This phenomenon is relatively new, since the the first half of the 1970s the total money paid by corporations for equity acquisition amounted to only about 15 percent of

dividends. I also demonstrate that the growth in share acquisitions is consistent with firms taking advantage of the tax treatment of debt in response to their increased market values.

The next section of the paper presents the data regarding the magnitude of these cash flows between firms and stockholders. The primary data source is the Monthly Stock Returns File of the Center for Research in Security Prices (CRSP). The second section of the paper examines where the money to make these payments comes from. One possibility is that they are directly substituting for dividends, and that dividends have declined as these practices have grown. This hypothesis is addressed by fitting aggregate time series equations for dividends and looking at the out-of-sample forecast residuals for recent years. As funds are fungible, it is always difficult to be precise as to where particular monies are coming from. Other possibilities in this case are that the money is being raised in debt markets and that effectively firms are changing their debt-equity ratios (in which case dividends and share repurchases are complements), or that declining industries are depreciating their capital in their traditional business and either returning the funds to their investors (share repurchase) or making investments on their behalf.

The third section addresses the question of what is the cost to the Treasury of these nondividend cash payments. The answer depends on what firms would do if these payments were disallowed or taxed as dividends. If firms would pay these sums out to equity holders nonetheless, then the loss depends on the difference between the current taxation applying to these payments and their taxation as dividends. However, if they would retain these earnings and

reduce borrowing, the loss is the present value of the future corporation income tax which would result from the higher level of corporate equity if these nondividend payments were not made. Both alternative scenarios are considered. The paper concludes in section four with an assessment of what we have learned regarding the nondividend payments to shareholders, and some speculation as to how the new tax bill will affect these practices.

1. How Large is It?

There is surprisingly little data regarding these non-dividend cash payments between firms and stockholders, particularly share repurchases. There is no separate entry for them in the Federal Reserve's Flow of Funds accounts and my contacts with the Fed have indicated that they do not have accurate information regarding this cash flow. There are some sources regarding mergers and acquisitions and those figures are reported here.

To gain some feel for the magnitude of share repurchases, I examined the CRSP Monthly Stock Returns File which contains monthly information on the number of shares outstanding. Only New York Stock Exchange securities were examined and the period covered was January 1970 through December 1985. Each decrease in the number of shares outstanding (adjusted for splits and reverse splits) was taken to be a share repurchase and the amount of cash represented by that share repurchase was determined by valuing the decrease in shares at the average of the price at the end of the preceeding month and the price at the end of the month in which the reduction occured. Overall, the sample covered 3,211 firms over 192 months.

Table 2

Values of Mergers and Acquisitions, Share Repurchases, and Dividends
(millions of current dollar)

Year	Value of Mergers and Acquisitions (1)	Value of Shares Repurchased (2)	Dividends (3)
1970	2,824	1,213	22,500
1971	4,037	736	22,900
1972	2,407	2,121	24,400
1973	2,186	1,585	27,000
1974	2,215	2,059	29,700
1975	1,320	2,139	29,600
1976	5,324	1,904	34,600
1977	6,020	3,368	39,500
1978	7,660	5,804	44,700
1979	13,992	5,651	50,100
1980	19,845	7,802	54,700
1981	35,342	15,464	63,600
1982	36,322	11,700	66,900
1983	26,096	24,485	70,800
1984	62,690	29,098	78,100
1985	94,809	27,294	83,500

Sources: Column 1 is the author's computations based on the CRSP tape. It represents the total value of firms which disappear from the NYSE, where value is determined by multiplying the number of shares outstanding the month before disappearance by the price at that time.

Column 2 is the author's computations based on the CRSP tape. It represents the sum of the value of all monthly decreases in the number of shares outstanding for NYSE stocks, where the value of the decrease in shares is determined using the average of the price at the end of the preceding month and the price at the end of the month in which the reduction occurred.

Column 3 is from the Economic Report of the President, February 1986, column 4, Table B-84, page 351.

The results of this procedure are shown in column 2 of Table 2. They show that the value of shares repurchased moved trendlessly between 1970 and 1976 at level of approximately $2 billion or less. By 1980, the aggregate figure had grown to almost $8 billion and it continued to grow rapidly, rising to more than $29 billion in 1984. There was a slight decline in 1985, although the figure of $27 billion is still very large.

For several reasons, the estimates of column 2 should be taken only as rough, but very conservative estimates. First, only monthly net declines in shares outstanding are valued, rather than the more appropriate, but unavailable, gross number of shares repurchased. The distinction should be made clear if you think of a firm which repurchases 100,000 shares but uses 50,000 of them to cover exercised executive stock options. The company shareholders receive cash for 100,000 of their shares, but the CRSP based technique of this paper will only record that 50,000 shares were bought by the company.[3] By examining some 1985 and 1986 NYSE data on changes in Treasury stock for listed companies, I estimate that the valuation of net rather than gross stock repurchases may cause the figures of column 2 to be underestimated by as much as 20 percent.[4]

Second, only NYSE securities are covered in the procedure behind the figures in the first two columns of Table 2. While they represent the vast majority of dividends, assets, and profits in the U.S., the strategies being examined here, particularly share repurchase, are also likely to occur in small, closely-held companies where possible information problems relating to corporate financial behavior are much less severe than in large corporate giants.

Third, while CRSP offers accurate data on the change in the number of shares

outstanding, I have no information on the price at which those shares were removed from the market. The procedures of using an average of the end of previous month's price and the price at the end of the month in which the repurchase occurred is probably downward biased. In fact, those repurchase programs which are accomplished using a tender offer usually involve a premium above market price, and therefore involve more cash than the procedure of this paper will record.[5]

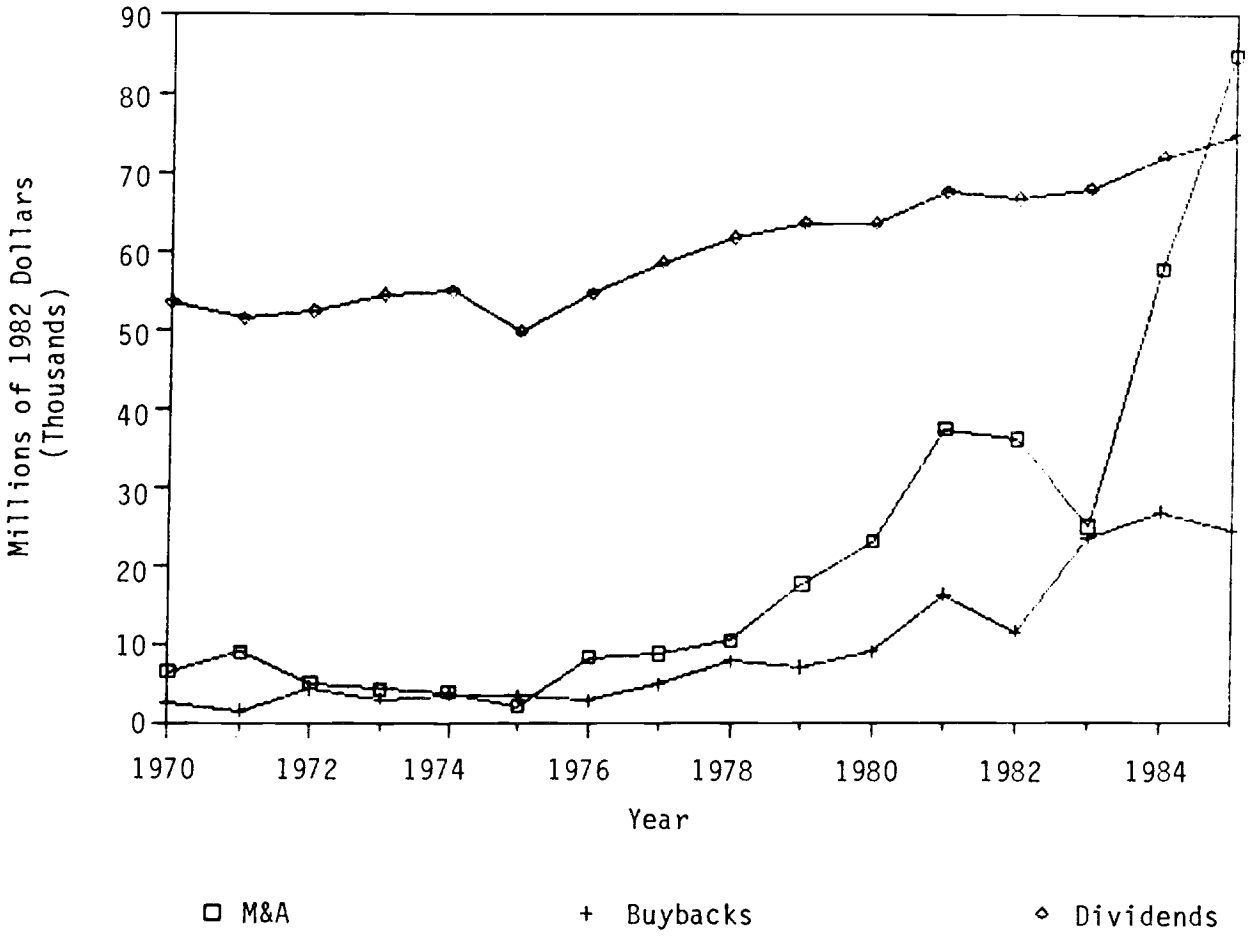
The first column of Table 2 contains information about mergers and acquisitions from the same sample of months and firms. The figures represent the value of shares of companies which disappear from the NYSE, where value is determined by multiplying the number of shares outstanding at the end of the month before disappearance by the price at that time. The results again show a series with no tendency to growth from 1970 to 1975. During that period, aggregate mergers and acquisitions averaged less than $2.5 billion compared to dividends which averaged about $25 billion. By 1979, total mergers and acquisitions were almost $14 billion and in 1985 they surpassed dividends by totalling almost $95 billion. In fact in 1985 total dividends in the economy were only 68 percent as large as the value of NYSE mergers and share repurchases.

As with column 2, the figures of column 1 should be treated as rough approximations. They cover only NYSE securities, they do not include partial acquisitions, the price at which the shares are valued is certainly biased downwards in this case, and they do not separate cash from stock-swap mergers. In recent years, at least 83 percent of the largest mergers and acquisitions have used cash or equivalents rather than an equity exchange,[6] but it is difficult to summarize the magnitude of the bias in the figures in column 1.

FIGURE 1

MERGERS, BUYBACKS, AND DIVIDENDS

In Constant 1982 Dollars



It is my personal assessment that the numbers are once again fairly conservative. The third column of Table 2 reports aggregate dividends of the corporate sector. It is an extremely stable series as is well documented (Lintner (1956), Brittain (1966), and Shiller (1981)).

Figure 1 displays the same information, although now expressed in constant 1982 dollars, where the GNP deflator has been used to deflate the figures of Table 2. The figure clearly shows that both mergers and share repurchases were relatively insignificant until 1978, but since then they have experienced explosive growth.

Table 3 contains information on the 25 largest mergers and acquisitions in 1984 and Table 4 has the same information for 1985. The data were compiled by Mergers and Acquisitions. For 1984, the 25 largest deals amounted to almost half of the value of all mergers and acquisitions. Even the top 25 were dominated by the largest three, all involving oil companies buying other oil companies. The total cost of the acquisitions of Gulf, Getty, and Superior alone amounted to almost $30 billion, or nearly 25 percent of all such activity. Table 4 shows that no 1985 merger was as large as the three giant oil deals in 1984. However, total mergers and acquisitions were larger, with even the 25th largest deal amounting to $1 billion. Table 4 also shows that foreign investors became a major factor in equity mergers and acquisitions in 1985. The purchase of U.S. firms by non-U.S. firms went from $8 billion in 1984 to almost $18 billion in 1985. I note that the aggregate information shown for 1984 and 1985 in Tables 3 and 4 exceeds the corresponding figures in Table 2 and Figure 1. Part of the explanation is that the Mergers and Acquisitions data of Tables 3 and 4 include partial

Table 3
Value of 25 Largest Completed Mergers and Acquisitions in 1984

Acquiring Company	Acquired Company	Total Value (million $)	Cash and Equivalents (million $)
Chevron	Gulf	13,300.0	13,300.0
Texaco	Getty Oil	10,125.0	10,125.0
Mobil	Superior Oil	5,700.0	5,700.0
Kiewit-Murdock Invest.	Continental Group	2,750.0	2,750.0
Beatrice	Esmark	2,710.0	2,710.0
General Motors[1]	Electronic Data Sys.	2,600.7	2,600.7
Broken Hill	Utah International	2,400.0	2,400.0
Champion International	St. Regis	1,826.9	1,100.0
Phillips Petroleum	energy subs. of RJR Ind.	1,700.0	1,700.0
Manufacturers Hanover	C.I.T. Financial	1,510.0	1,510.0
Dun & Bradstreet	A.C. Nielson	1,339.0	0.0
IBM	ROLM	1,260.0	1,260.0
Pace Industries	part of City Invest.	1,251.0	1,251.0
American General	ins. subs. Gulf United	1,200.0	0.0
American Stores	Jewel	1,150.0	0.0
J.W.K. Acquisition Co.	Metromedia	1,130.0	1,130.0
Penn Central	14.5% Gulf	1,110.0	811.0
General Electric	Employers Reinsurance	1,075.0	1,075.0
Texas Eastern	Petrolane	1,040.0	1,040.0
Kohlbery, Kravis, Roberts	Wometco Enterprises	977.4	842.0
Schlumberger	SEDCO Inc.	958.7	431.0
ARA Holding Co.	ARA Services	882.5	882.5
American Medical Intl.	Lifemark	863.0	0.0
American Express	Invest. Divers. Service	774.6	373.7
Gulf & Western	Prentice Hall	705.3	705.3
Total Value of 25 Largest Completed Mergers and Acquisitions		60,340.0	53,697.2
Value of all Mergers and Acquisitions between U.S. Firms		114,996.8	
Non-U.S. Firms Acquiring U.S. Firms		8,207.2	
U.S. Firms Acquiring Non-U.S. Firms		2,024.8	
Total Value of All Mergers and Acquisitions		125,228.8	

Cash and Equivalents include cash, bonds and debentures, and preferred stock. The figures shown are lower bound estimates of cash and equivalents.

1. EDS stockholders had an option to exchange stock instead of cash.

Sources: First three columns, Mergers and Acquisitions, Vol. 19, No. 5 (May/June 1985).
Fourth column, various issues of Mergers and Acquisitions and the Value Line Investment Survey.

Table 4
Value of 25 Largest Completed Mergers and Acquisitions in 1985

Acquiring Company	Acquired Company	Total Value (millions $)	Cash and Equivalents (millions $)
Royal Dutch Shell	Shell Oil	5,670.0	5,670.0
Phillip Morris	General Foods	5,627.6	5,627.6
General Motors	Hughes Aircraft	5,025.0	2,700.0
R.J. Reynolds	Nabisco Brands	4,904.5	4,904.5
Allied Corp.	Signal Cos.	4,850.8	1,000.0
Baxter Travenol[1]	Amer. Hosp. Supply	3,702.6	3,702.6
Nestle SA	Carnation	2,893.6	2,893.6
Monsanto	G.D. Searle	2,717.1	2,717.1
Coastal Corp.	Amer. Nat. Resources	2,454.4	2,454.4
InterNorth	Houston Natural Gas	2,260.4	*
MacAndrews & Forbes	Revlon	1,741.6	1,741.6
Kohlberg, Kravis, Roberts	Union Texas Petrol.	1,700.0	1,700.0
Rockwell International	Allen-Bradley	1,651.0	1,651.0
SCI Holdings	Storer Communications	4,196.7	1,491.9
Textron Inc.	Avco Corp.	1,380.0	1,380.0
Cooper Industries	McGraw-Edison	1,377.0	1,100.0
Cox Enterprises	Cox Communications	1,265.2	1,265.2
Procter & Gamble	Ricahrdson-Vicks	1,245.7	1,245.7
Midcon Corp.	United Energt. Res.	1,241.9	742.0
Chesebrough-Ponds	Stauffer Chemical	1,218.0	1,218.0
Farley Industries	Northwest Industries	1,158.5	1,158.5
HHF Corp.	Levi Strauss	1,110.0	1,110.1
Wickes Corp.	parts of Gulf & Western	1,073.0	1,000.0
Mesa Partners II	13.6% of Unocal	1,052.0	1,052.0
Management led	MGIC Investment	1,000.0	*
Total Value of 25 Largest Completed Mergers and Acquisitions		59,816.7	49,525.8
Value of all Mergers and Acquisitions between U.S. Firms		120,217.9	
Non-U.S. Firms Acquiring U.S. Firms		17,793.1	
U.S. Firms Acquiring Non-U.S. Firms		1,115.2	
Total Value of All Mergers and Acquisitions		139,126.2	

Cash and Equivalents include cash, bonds and debentures, and preferred stock. The figures shown are lower bound estimates of cash and equivalents.

*Details regarding merger terms could not be determined.
1. American Hospital Supply stockholders had an option to exchange stock instead of cash.

Sources: First three columns, Mergers and Acquisitions, Vol. 20, No. 5 (May/June 1986). Fourth column, various issues of Mergers and Acquisitions and the Value Line Investment Survey.

Table 5

Value of 25 Largest Share Repurchase Programs in 1985

Company	Total Value of Shares Repurchased (millions $)
Phillips Petroleum	4,500
Unocal	4,178
Arco	3,100
Exxon	2,748
Litton Ind.	1,320
Westinghouse	975
CBS	955
AMOCO	742
Revlon Inc.	575
Scott Paper	546
PPG Inds. Inc.	530
Chrysler Corp.	472
Times Mirror Co.	459
Pepsico	458
Ford Motor	449
RJ Reynolds Inds.	403
Mapco Inc.	398
Coca Cola	380
Colgate Palmolive	371
Eastman Kodak	353
Knight Ridder Newspapers	334
Raytheon	333
Santa Fe Southn Pacific Corp.	302
Consolidated Edison Co. NY Inc.	289
General Electric	283

Source: The values of shares repurchased were obtained from SEC 10-K filings and annual reports for 1985.

We considered as potential candidates firms evidencing large repurchase by either of two sources: either being amongst the 45 largest as derived by our CRSP manipulations, or having significant increases in the shares of Treasury stock holdings, and thus repurchase value, as obtained by our NYSE Treasury stock report manipulations.

acquisitions, non NYSE firms, and even non-U.S. firms. However, I do not mean to imply that the two sources could be exactly reconciled. On the other hand, both indicate the same order of magnitude for the value of mergers and acquisitions.

Table 5 shows the 25 largest share repurchase programs for 1985. The list was generated by identifying the 45 firms with the largest net share acquisition programs from the CRSP file, and augmenting that sample by those firms whose share repurchase programs appear to be large in the New York Stock Exchange data. The annual reports and SEC 10-K forms for all of these firms were examined, and the values here are derived from these reports. The oil companies are extremely prominent on the list, as they are on the mergers and acquisitions tables above. The oil companies were experiencing large cash flows due to the high price of crude, but had excess capacity in refining as the high prices had reduced demand. This so-called "cash-cow" situation is exactly the type of situation where one would expect the firm to transmit cash or value to shareholders via a non-dividend technique. Exxon alone repurchased more than $5 billion of its shares in the two years 1984 and 1985, a sum which exceeds Exxon's dividends for the same two years. The non-oil company's on the list also appear to be mature companies in slow growth industries. In subsequent research, I intend to examine econometrically the determinants of which firms are most likely to engage in repurchase programs.

The overall conclusion that I reach from the data gathered so far is that non-dividend forms of payment have been growing rapidly, now exceed dividends in aggregate, and that this may be a mechanism for investment to be reallocated away from slow growth sectors of the economy to other areas

offering higher growth. In this regard, it should be noted that even when one oil company absorbs another with a cash merger, some cash is reallocated out of the industry since equity holders receive cash from the acquiring firm, which they then can reallocate in whatever manner they choose.

2. Have Firms Reduced Dividends?

Corporations are now paying out over $100 billion per year in non-dividend cash to equity holders. At some level it is impossible to track down the origins of that money, since the interchangeability of funds renders it fundamentally impossible to match sources and uses. However, it still is interesting to investigate what other behavior has accompanied the growth in cash flows from share absorption.

The first source suspected might be dividends. If it has become recognized that share repurchases and cash mergers are tax-preferred relative to dividends, then one would expect dividends to have declined as these practices have grown. It has long been known that aggregate dividends are a very smooth series, with dividend levels adjusting to changes in earnings with fairly long lags (see, for example, Lintner (1956), Brittain (1966), and Auerbach (1982)).

I wish to test this substitutability hypothesis. Thus, I have fit simple partial adjustment models similar to those used by Auerbach (1982). In the equations shown in Table 6, dividends depend on the previous year's dividends, profits, a correction for the real inflation-adjusted cost of debt, and q (the ratio of the financial valuation of the firm to the replacement cost of its

Table 6

Alternative Models of Corporate Dividend Behavior
(Annual Data: 1960 to 1982)

Dependent Variable: Dividends			
Independent Variable:	Equation 1	Equation 2	Equation 3
Intercept	3.78 (0.73)*	9.80 (1.48)	7.16 (1.18)
Dividends (Lagged)	0.80 (6.97)	0.88 (9.80)	0.84 (7.84)
Profits (Adjusted, After Tax)	0.06 (2.47)	--	0.06 (2.45)
Inflation Gain on New Debt	0.09 (0.85)	--	-0.03 (-0.21)
q	--	-2.04 (-0.75)	-3.96 (-1.07)
$\bar{R}^2$	.89	.86	.89
Durbin-Watson Statistic	1.59	1.65	1.94

Out of Sample Predictions: Dividends				
Year	Actual	Predicted Equation 1	Predicted Equation 2	Predicted Equation 3
1983	68.2	66.3 [2.8]+	66.9 [1.9]	67.5 [1.1]
1984	72.2	68.0** [5.8]	66.9 [7.4]	69.8 [2.6]
		69.6*** [3.7]	68.0 [5.8]	70.4 [2.6]
1985	74.8	--	66.7** [11.0]	--
		--	71.4*** [4.5]	--

*T-statistics in parenthesis.
**Using predicted lagged dividends.
***Using actual lagged dividends.
†Percentage prediction error in brackets.

assets).[7] Three alternative specifications are estimated.

The 1960-82 aggregate data used in the estimations are shown in Table 6. The resulting estimated equations are then used to predict the level of dividends in 1983 and 1984. The results strongly suggest that the source of the cash is not a lowering of dividends. All three specifications of the dividend equation continue to track dividends rather well, with the residuals in 1983 and 1984 always being positive. This indicates that dividends were slightly higher than the equations would have forecasted. Equation 1 and Equation 3 show profits to be a significant variable in determining dividends. The long run equilibrium payout rate out of inflation adjusted profits ranges from 30 to 37.5 percent. Of course, the stability of dividends and the market penalty for failing to fulfill expectations regarding dividends is well known. Once the practice of paying dividends and periodically increasing them is established, the market makes it difficult to not satisfy this expectation.

Despite the cash payouts for share acquisition, the total sources of funds raised or generated by the corporate sector have continued to increase in the last few years. Total internal cash generated in the corporate sector increased 66 percent between 1981 and 1985, going from $213 billion to almost $355 billion (Flow of Funds (1986)). This increase alone is more than sufficient to account for the increase in equity absorption. The fungibility point made earlier is highlighted when one notes that the corporate sector has been increasing its bond and bank debts by over $100 billion per year in the last several years. This source is also large enough to fund the share acquisitions.

The available aggregate information weakly supports the hypothesis that

Table 7

Debt and Equity for U.S. Corporations
(billions $)

	Net New Debt	Total Value of Debt at Year End	Net Stock Issuance	Stock Appreciation	Total Value of Corporate Stock at Year End	Debt-Equity Ratio
1980	38.6	418.8	11.6	381.2	1,572.3	.266
1981	30.4	449.2	-23.5	-43.8	1,505.0	.298
1982	48.0	497.2	-20.3	236.4	1,721.1	.289
1983	46.2	543.4	25.8	275.3	2,022.3	.269
1984	80.8	624.2	-82.8	82.7	2,378.2	.262

Source: "Prospects for Financial Markets," 1980-1985, New York, NY: Salomon Brothers Inc.

firms are repurchasing equity with debt-financed funds to achieve their target leverage ratios. The aggregate debt-equity ratio of U.S. corporations in 1984 and 1985 was approxiamtely the same as it had been in 1979-1981, despite the large increase in equity values. The aggregate figures compiled by Salomon Brothers are shown in Table 7. It shows that U.S. corporations have been on average absorbing equity and issuing debt, so that the net effect has been relatively constant leverage rates, despite the rally in equity market values.

3. How Much Does It Cost?

The next question I address is how much does the Treasury lose because of the use of non-dividend forms of payment between firms and their stockholders. It is a somewhat difficult issue for a number of reasons. Fundamentally, we do not know what the firm would have done if share repurchase and cash mergers were disallowed. One possibility is that they would increase dividends as the only remaining mechanism to absorb equity in establishing their desired debt-equity ratio. Of course, the optimal debt-equity ratio itself is a function of the tax laws. A second possibility is that the funds would be retained in the corporation and the firm's new borrowing would have been reduced. Either of these possibilities imply that share repurchase and acquisition cost the Treasury large amounts of tax revenue. I will assess this cost for these two scenarios.

If the alternative would have been an equal amount of payments as dividends, the revenue loss to the Treasury is the difference between the average marginal tax rate on dividends and the effective tax rate on the share

purchase cash payments. The average marginal tax rate applying to dividend distributions depends on a number of factors. First, within households, some will have not used up the $100 per person ($200 per couple) dividend exclusion. Second, one would expect that people would arrange their portfolios such that those with low marginal tax rates hold assets which are heavily taxed (e.g. stocks which offer high dividend yields such as utilities) while those with high marginal tax rates would hold more lightly taxed securities (such as companies which retain earnings or repurchase shares, or, at the extreme, municipal bonds). Certainly, these clientele effects exist, although their empirical strength is somewhat uncertain.[8] Of course, substantial amounts of equity are held by insurance companies, pension funds, and non-profit institutions, which are not taxed. Feldstein and Jun (1986) have estimated a time series of the effective average marginal tax rates on dividends, taking into account the proportion of stocks held by households, insurance companies, and nontaxable holders. Their series is reproduced as the second column of Table 8. Using these rates, it is rather simple to determine how much tax would have been paid if these nondividend payments to stockholders continued and were taxed as dividends or, in fact, companies replaced them with increased dividends.[9] However, to know how much extra the government would collect, we must know how much tax was indeed collected from these payments in the current situation.

The effective tax rate applying to the non-dividend cash payments under current law is undoubtedly quite low. As was demonstrated in the example of Table 1, share repurchases create a capital gain of equivalent magnitude to

Table 8

Loss in Tax Revenues Due to Nondividend Cash Payments
Assuming Alternative is Increased Dividends

Year	Tax Rate on Dividends	Additional Taxes on Cash Mergers (millions $)	Additional Taxes on Share Repurchases (millions $)	Total Additional Taxes (millions $)
1970	0.339	816.0	350.6	1,166.6
1971	0.338	1,162.6	212.0	1,374.6
1972	0.327	666.7	587.6	1,254.4
1973	0.319	587.9	426.4	1,014.3
1974	0.323	604.7	562.1	1,166.8
1975	0.322	359.1	581.8	940.8
1976	0.333	1,506.6	538.9	2,045.5
1977	0.343	1,763.9	986.9	2,750.8
1978	0.346	2,267.2	1,717.8	3,985.1
1979	0.360	4,337.6	1,751.7	6,089.4
1980	0.359	6,132.0	2,410.7	8,542.7
1981	0.358	10,885.4	4,762.9	15,648.3
1982	0.301	9,116.8	2,936.7	12,053.6
1983	0.285	6,132.6	5,753.9	11,886.5
1984	0.275	14,105.2	6,547.0	20,652.2
1985	0.275	21,332.0	6,141.2	27,473.2

Sources: Tax rate on dividends column was taken from Column 3, Table A-4, of Feldstein and Jun (1986).

Additional tax revenues were derived by multiplying the magnitudes in columns 1 and 2 of Table 1 of this paper by the tax rate on dividends less 5 percent. The 5 percent represents the effective marginal tax rate on accrued capital gains and is roughly consistent with Protopapadakis (1983).

the cash payment of dividends, but most of that capital gain is accrued rather than realized. Most of the money received by the actual sellers is a return of basis, with the remainder being taxed at capital gains rates. Under current law, only 40 percent of realized long term capital gains are taxed. The effective rate of taxation on accrued gains is much lower, due to both deferral and the fact that the gains on assets which pass through estates completely escape taxation. A recent times series of estimates of effective marginal tax rates on accrued capital gains, taking these considerations into account, put those rates between 4 and 6 percent (Protopapadakis (1983)).

The tax situation with cash mergers is similar to share repurchase. Relative to the payment of a dividend, the holders of the acquiring company experience an accrued capital gain. The owners of the acquired company pay capital gains taxes on the appreciation of their securities, but again the majority of the money received is usually a non-taxed return of basis. With this background, I have assumed that the tax rate applicable to the non-dividend cash flows was 5 percent over the entire 1970 to 1985 period. This is consistent with Protopapadakis' estimates and, further, small errors in this figure are relatively insignificant compared to the magnitude of the tax rate on dividends shown in Table 8.

With these tax rate assumptions, Table 8 indicates that the practice of share acquisition costs the government very little between 1970 and 1975 (roughly $1 billion per year), but that its cost has risen sharply since, to more than $27 billion in 1985. This assumes that the alternative to acquisition is the increase of dividend payments. Interestingly, this $27 billion per year exceeds the intended shift between the personal and corporate

taxation in the new tax bill. This exercise provides one indication how the adjustment of household and firm behavior can significantly affect revenue projections, from any proposed change of incentives in the tax code.

In the previous section, we found that dividends have not declined relative to equity earnings, thus it can be argued that dividends are not likely to be the behavior which is depressed as a result of share acquisition. What may be depressed is the outstanding quantity of corporate equity. If share purchases effectively reduce equity and increase debt (i.e. if the acquisitions are financed by borrowing), then the Treasury loses in present value terms much more than is reflected in Table 8. The loss is not immediate, but results from the lower future corporation income tax receipts. By absorbing equity, the corporate sector is escaping from the double taxation imposed on equity. This opportunity exists because the corporate tax applied only to equity investments, since interest is deductible.

At a marginal corporate income tax rate of 46 percent, the value of the government's equity claim on an extra dollar's worth of earnings is 85 percent as large as the value of the claim of the investors. The government gains 46 cents from a marginal dollar of pre-tax profit, while the company keeps 54 cents.[10]

Table 9 shows the loss in present value terms of the Treasury's tax receipts, under the assumption that share acquisition programs have reduced corporate equity. The figures indicate that the loss to the Treasury is insignificant before 1975, but exceeds $100 billion in 1985. That is, the absorption of corporate equity which occurred in 1985 reduces the present value of the corporate tax receipts by slightly more than $100 billion. The annual loss, of course, is much lower than this, perhaps only $5 billion.

Table 9

Loss in the Present Value of Tax Revenues Due to Nondividend Cash Payments
Assuming Alternative is Less Borrowing

Year	Corporate Tax Rate On Pre-Tax Earnings	Effective Corporate Tax Rate on Post-Tax Earnings	Loss in Present Value Of Taxes Oue to Cash Mergers	Loss in Present Value Of Taxes Due To Share Repurchases	Total Present Value Loss in Tax Collection
1970	.492	.9685	2,734.625	1,175.036	3,909.661
1971	.480	.923	3,725.897	679.460	4,405.357
1972	.480	.923	2,221.660	1,958.112	4,179.772
1973	.480	.923	2,017.360	1,462.926	3,480.286
1974	.480	.923	2,044.462	1,900.572	3,945.034
1975	.480	.923	1,218.488	1,974.106	3,192.594
1976	.480	.923	4,913.642	1,757.588	6,671.230
1977	.480	.923	5,556.678	3,108.917	8,665.595
1978	.480	.923	7,069.812	5,356.655	2,426.467
1979	.460	.852	11,921.454	4,814.445	16,735.899
1980	.460	.852	16,907.578	6,647.019	23,554.597
1981	.460	.852	30,111.670	13,175.314	43,286.984
1982	.460	.852	30,946.398	9,968.533	40,914.931
1983	.460	.852	22,234.051	20,860.831	43,094.882
1984	.460	.852	53,411.811	24,791.368	78,203.179
1985	.460	.852	80,777.070	23,254.706	104,031.776

Sources: Column 1 is column 7 of Table B1 of Feldstein and Jun (1986).
Column 2 is column (1)/(1 - column 1).
Column 3 is column 2 * column 1 of Table 2.
Column 4 is column 2 * column 2 of Table 2.

This table assumes that the personal tax bill is equivalent for corporate debt and equity, and that the transfer of capital between the two forms simply cuts corporate collections. While the tax rates faced by households on the return to debt may exceed the rates on equity return, a large fraction of debt is held in tax sheltered investments such as pension funds.

Each of the two hypotheses indicate that the Treasury losses are extremely large due to these practices. The former theory implies that the government is losing tax on dividends, while the latter suggests that it is losing corporation income tax revenue. Relative to models which do not incorporate behavioral change, each of the alternative hypotheses suggest massive revenue effects.

4. Conclusion

Corporations in the United States are now making nondividend cash payments to shareholders the sum of which exceeds that of dividends. These payments have not received much attention by research economists, but their growth in magnitude challenges the conventional model of share valuation, and certainly affects estimates of the taxes collected on corporate source income.

Share acquisitions (both share repurchase and cash mergers) may well be motivated by tax minimizing behavior. In fact, there are two potential sources of tax savings from these activities. First, if because of share acquisition, dividends are lower than they otherwise would have been, then there is a tax saving at the personal level. With share acquisition by corporations, most of the cash returned to shareholders is a return of basis.

The magnitude of the taxable capital gain depends on the form of the share acquisition. In the case of a firm repurchasing its own shares, most of the resulting capital gains are accrued rather than realized. The deferral advantage of accrued capital gain will continue to exist even when realized capital gains are fully taxed under the new federal law.

The second tax motivation for share acquisition is simply to escape the double taxation of equity. Both dividends and share acquisition eliminate equity. The tax saving results from the fact that equity earnings are subject to the corporation income tax whereas debt interest is not. As the market expects increases in dividends to be sustained, repurchase is an attractive mechanism to decrease equity. The tax advantage of leverage will continue with the new tax law.

A leading model of optimal financial policy has firms balancing the tax advantages of debt against the increased chance of incurring bankruptcy costs. The tremendous rise in equity values of the past three years may have given firms a capacity to carry more debt and absorb some equity. This hypothesis is consistent with the observations of explosive growth in non-cash payments to equity holders and the fact that dividends are, if anything, also greater than their historic pattern.

In evaluating corporate behavior and tax policy, it is almost certainly useful to know what is happening. In 1985, corporations purchased well over $100 billion of equities and, in present value terms, this may cost the U.S. Treasury as much as $100 billion. Clearly, there has been a major change in corporate financial behavior which necessitates future research.

Footnotes

*Stanford University and National Bureau of Economic Research.

Preliminary draft of a paper to be presented at the Economics of Tax Policy conference of the National Bureau of Economic Research to be held in Washington, D.C. on November 17, 1986. It is not for quotation without permission. This work was made possible by the tireless work and intellectual stimuli provide by Laurie B. Simon, who is also doing research on this subject. It also benefited greatly from the research assistance of Karen Prindle and Karen Van Nuys. Larry Summers and Jim Poterba gave me extremely useful advice.

1. While under the assumptions of Modigliani-Miller (1958) (in the world without taxes and bankruptcy costs), "the market value of one firm is independent of its capital structure (p. 268)," the optimal capital structure becomes 100% debt with the incorporation of corporate taxes (Modigliani-Miller (1963)). However, there exists voluminous literature on the effect of bankruptcy costs limiting the use of this tax-advantaged debt. See, for example, Stiglitz (1972), Kraus and Litzenberger (1973), Kim (1978), and more recently Modigliani (1982) and Gordon (1982), where it is argued "that the tax advantage to using debt is in equilibrium just offset at the margin by the additional agency costs and possible bankruptcy costs incurred as a result of the extra debt" (Gordon (1982), p. 462).

2. The fact that capital markets punish dividend cuts with large stock-price reductions is documented in Charest (1978), Aharony and Swary (1980), and Jensen (1986).

3. For example, in the first quarter of 1985, IBM repurchased 1.575 million shares, but issued 1.35 million as part of defined contribution saving plans and stock options for employees.

4. This estimate is made by examining the monthly gross increases and decreases from Treasury stock in data made available by New York Stock Exchange for 1985.

5. Dann (1981) cites that "the tender offer price is usually higher than the market price at the time of the offer (p. 114, footnote 3)," and that while "open market repurchases occur more frequently than do tender offers to repurchase ... (they) are generally of much smaller magnitude (p. 115)."

6. This calculation is the result of the comparison between total value and cash and equivalence of the 1985 Mergers and Acquisitions in Table 4.

7. The partial adjustment model can be represented as

$$D_t - D_{t-1} = \lambda(D_t^* - D_{t-1})$$

where D_t is dividends for year t and D_t^* is the long run equilibrium or desired level of dividends. D* is assumed to depend on corporate profits corrected for inflation (i.e., with the capital consumption adjustments, inventory valuation adjustment, and a recognition of the gain on the net corporate debt due to inflation) and q.

8. The clientele effect was originally suggested by Modigliani-Miller (1961), and has been quantified by Elton and Gruber (1970), and Pettit (1977).

9. This assumes that the effective average marginal tax rate for the pool of firms using repurchase is the same as for the market at large. We will not consider issues of self-selection here.

10. In fact, the Treasury's claim may be worth more than 85 percent of the

value of the investor's claim, since the 54 cents faces further taxation at the personal level.

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