STOCK MARKET VALUATION INDICATORS: IS THIS TIME DIFFERENT?

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Record low dividend yields and record high market-to-book ratios in recent months have led many market watchers to conclude that these indicators now behave differently from how they have in the past. This paper examines the relationship between traditional market indicators and stock performance, and then addresses two popular claims that the meaning of these indicators has changed in recent years. The first is that dividend yields are permanently lower now than in the past because firms have increased their use of share repurchases as a tax-advantaged substitute for dividends. The second claim is that the implementation of Financial Accounting Standard (FAS) 106 for retiree health liabilities has seriously depressed the reported book values of many companies since the early 1990s, artificially raising their market-to-book ratios. We conclude that, even after adjusting for these factors, the current level of market indicators is a cause for concern.

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Equities tend to perform poorly when dividend yields are low and the market-to-book and price-earnings ratios are high. Given this tendency, the recent levels of these indicators should give market analysts pause (Chart 1). The dividend yield hit an all-time low of 2.5 percent in the summer of 1995, substantially below the levels generally associated with excessively high markets. The S&P 400 market-to-book ratio has been over 3 for some time, a level well in excess of its historical average of 1.9. The price-earnings ratio, which has been in its normal range in recent months, is somewhat high for this point in the business cycle.

The length of time that the dividend yield has been low and the market-to-book ratio high has led many market watchers to conclude that these indicators now behave differently from how they have in the past. This paper examines the relationship between traditional market indicators and stock performance, and then addresses two popular claims that the meaning of these indicators has changed in

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recent years. The first is that dividend yields are permanently lower now than in the past because firms have increased their use of share repurchases as a tax-advantaged substitute for dividends. The second claim is that the implementation of Financial Accounting Standard (FAS) 106 for retiree health liabilities has seriously depressed the reported book values of many companies since the early 1990s, artificially raising their market-to-book ratios. We conclude that, even after adjusting for these factors, the current level of market indicators is a cause for concern.

Predictive Power of Market Indicators

Chart 2 offers evidence of the predictive power of three market valuation indicators. For each measure, we rank the annual observations using beginning-of-the-year values for 1927-1994, and then divide the observations into quartiles. We number quartiles so that stocks are most highly valued in Quartile I and have lowest value in Quartile IV. Thus, the dividend yield is ranked from lowest to highest, while the market-to-book and P/E ratios are ranked from highest to lowest. For each observation, we consider the subsequent year's overall return on the S&P 500 as calculated by Ibbotson Associates [1995]. As a point of reference, the average annual return for the entire period was 12.2 percent.

The upper panel of Chart 2 focuses on the dividend yield. For each quartile, the height of the bar represents the number of years in which the return exceeded the historical average. The numbers in boxes above the bar state the

average return for the quartile. As the chart shows, dividend yields are closely related to subsequent-year returns. For years in the first quartile, in which the initial dividend yield on the S&P 500 was lowest (typically below 3 percent), stocks performed poorly. Returns only reached or exceeded the historical average 29 percent of the time and the mean return for the quartile was only 6.4 percent. For years in the fourth quartile, in which the dividend yield was highest, returns were above average in 71 percent of the years. The average yearly return for Quartile IV was 17.4 percent.

The middle panel of Chart 2 shows returns for the market-to-book ratio over a shorter period, due to limited historical data on aggregate book value.[2] Returns in Quartile I were above the historical average in only 27 percent of the years, whereas the low market-to-book ratios in Quartile IV were followed by strong performance 73 percent of the time.

The lower panel of Chart 2 displays the price-earnings ratio and subsequent year returns since 1927. This chart shows that returns were highest in years for which the P/E ratio was low. Quartile I returns were above normal in only 5 of the 17 years (29 percent of the time) and averaged 7.5 percent, as opposed to 18.9 percent for Quartile IV.

Throughout the first half of the 1990s, the indicators remained at levels

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[2]Because Standard and Poor's maintains a longer historical series of book values for its Industrials index than for its Composite index, we use the market-to-book ratio for the Industrials in this article.

suggesting that the market was richly valued (Table 1). The dividend yield was in Quartile I each year from 1990-1994, except for 1991, when it was in the second quartile. The market-to-book ratio has begun each year since 1990 in Quartile I. The price-to-earnings ratio was in the first quartile in three of the five years, and in Quartile II the other two. All this suggests that returns should have been below average in the past half-decade, and they have indeed been weak. Stocks have performed above average in only one of the five years, 1991, when returns were a sizzling 30.6 percent; the mean return for the period was 9.3 percent.

At the start of 1995, dividend yield and market-to-book were near record levels, signaling that the market was overvalued. Yet, the S&P 500 rose by more than 20 percent through August, pushing the two indicators to new records. The P/E ratio, meanwhile, has returned to a normal range from its record level of 1992 owing to robust earnings growth. The strength of the market in the face of these warning signals has prompted some market commentators to question the validity of the market-to-book and dividend yield measures.

The low dividend yields of the 1990s may be reconciled with contemporaneously normal P/E ratios through a change in dividend policy. If companies have channeled their payouts of excess cash flow away from dividends and into share repurchases in the last few years, the payout ratio (D/E) will be unusually low, and hence so will the dividend yield. Market analysts often point to increased share buybacks in the last few years as a reason to ignore low yields. In the next section we consider the extent to which share repurchases have replaced

dividends.

Share Repurchases

Share repurchases may be thought of as a substitute for dividends. Suppose, for example, that a firm with net earnings of $2 per share pays $1 per share in dividends. If earnings rise to $2.50 per share, and the company wants to continue to pay out half of its earnings, it has a choice. It can either raise the dividend to $1.25 or use the additional $.25 per share to buy back its own stock. If the firm raises its dividend, shareholders will immediately have to pay taxes on the proceeds. If, however, the firm repurchases its stock in the open market, only those shareholders who choose to sell their stock will pay taxes. The net result is that shareholders as a whole will pay less in taxes. Many market observers note that the number of firms choosing to repurchase shares has grown in recent years, as firms have become more aware of the case for share repurchases. They argue that current dividend yields are understated on a historic basis because aggregate dividends fail to fully reflect the total payout of free cash flow.

If we assume that share repurchases substitute dollar-for-dollar for dividends, we can adjust for repurchases simply by adding their value to that of dividends paid. Compustat data indicate that share repurchases by S&P 500 firms totaled $38.4 billion in 1994, while dividends equaled $93.1 billion. This implies an adjusted dividend yield of 4.08 percent, as opposed to the reported dividend yield of 2.82 at year-end 1994. This adjustment, if appropriate, should offer investors a

measure of comfort. The dividend yield, on this basis, is well above the 3 percent threshold that many take as a signal that the market is dangerously overpriced.

We should keep in mind, however, that stock buybacks are not a new phenomenon. As Chart 3 shows, annual share repurchases by S&P 500 firms have been substantial - over $20 billion - in each year since 1984.[3] Repurchase activity before then was fairly low, though trending upward, and never exceeded $10 billion in a single year. The frenzied merger activity of the 1980s stimulated a number of defensive recapitalizations and greenmail, pushing share repurchases to record levels. It also promoted a greater emphasis on maximizing shareholder value.

Scaling up dividend yields to reflect stock buybacks in other years substantially raises their level (Table 2). Column 4 reports the ratio of share repurchases (column 2) to dividends (column 3). The S&P dividend series, shown in column 1, is then scaled up by this factor to create an adjusted dividend yield for the years 1975 and beyond (column 5). As Table 2 shows, even assuming record share repurchase activity throughout 1995, the adjusted dividend yield is near its lowest level since 1975. Still, the adjusted yield is well above the levels observed throughout the 1960s and early 1970s, assuming that buyback activity then was

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[3]The Compustat data includes firms' purchases of preferred stock, thereby overstating the extent of common stock repurchases. According to data in the *Preferred Stock Survey*, preferred stock retirements have recently averaged less than $5 billion a year, of which only a small portion belong to the S&P 500 (public utilities issue and retire a larger amount of preferred stock). Thus, the overstatement is minimal.

minimal.

This upward adjustment to the dividend series could be overly generous. While it is constructed on the assumption that share repurchase activity has substituted for dividend payouts, this is not evident from the historical data. If stock buybacks replaced dividends, we would expect dividend growth to taper off just as repurchase activity increased. Yet the increased reliance on share repurchases since 1984 is not mirrored by changes in the dividend payout ratio (Chart 4). Throughout the 1980s, dividend payout ratios were fairly steady and close to past levels, while the repurchase payout ratio (repurchases divided by earnings) jumped sharply in the mid-1980s and leveled off thereafter.

Share repurchases also differ from indicated dividends because of their irregular nature. Unlike dividends, which are rarely cut, share repurchase programs allow firms substantial flexibility to reduce payouts. Repurchase programs can be delayed or terminated without the stigma of a dividend cut. Even announcements of programs that fail to take place are not punished like dividend cuts. Given this flexibility, repurchases resemble special dividends. Dollar for dollar, they could be less valuable to shareholders than regular dividends. The irregularity of repurchases, coupled with the lack of evidence that they substitute for dividends, means we should view the adjusted dividend yield in column (5) as an upper bound.

Even if we accept that repurchases are a substitute for dividends, we have not yet taken share issuance into account. Just as share repurchases act as pseudo-

dividends, share issuance dilutes the dividend-paying ability of a firm. If, over the course of a decade, a company both issues and repurchases a million of its shares, the net effect is nil. Yet, so far our adjustment has only taken repurchase activity into account. If we instead consider net share repurchases - repurchases less issuance - a different picture emerges. Net repurchases (Table 2, column 7), like gross repurchases (column 2), peaked in 1988. But net repurchases were positive only in certain years and, except for the late 1980s, were of modest magnitude. While adjusting for both repurchases and issuance makes the yield much higher in the late 1980s, yields seem extremely low in the 1990s even after this adjustment (column 8).

Market-to-Book

The ratio of stock prices to book value has also been signaling that the market is overheated. The ratio, which has averaged less than 2 for the S&P industrials, is currently above 4, its highest level in four decades (Chart 1). Much of the rise in the market-to-book ratio since 1990 has been due to a major accounting change, FAS 106.

FAS 106 requires firms to record liabilities for health benefits paid to their retired work force in excess of premiums collected from active workers. For firms whose work force has been growing or has remained stable, these net liabilities are not large. But the many firms that have downsized in recent years have retiree work forces that are large relative to their active ones, creating substantial FAS 106

liabilities.[4] Firms were required to charge these liabilities against earnings no later than 1993, and some took charges as early as 1990. The aggregate liability for the S&P industrials appears to have stabilized at nearly $180 billion (Table 3, column 2).

Because these figures do not account for the tax deductibility of retiree health expenses, they substantially overstate the charge to after-tax earnings. General Motors, for example, reported FAS 106 liabilities of over $33 billion, but its after-tax earnings fell by less than $24 billion as a result of the accounting change. To calculate the effect on book value of equity, we assume that only 2/3 of the total liability was charged to earnings after netting out tax effects (column 3).

Table 3 shows that the book value of S&P industrials fell by more than 10 percent from 1991 to 1993 (column 5), a decline without precedent in the post-war years. This decline is entirely an artifact of FAS 106 liabilities. Once these liabilities are added back in, book value rises in the 1990s more or less as it has in the past (column 6). Recomputing the market-to-book ratio on the basis of this adjustment reduces its current level substantially (column 8). Nevertheless, the ratio remains well above its past range and, because of the strong performance of the market this year, it is now well above 3.

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[4]This trend has been pervasive among the major industrial firms. In its most recent survey of the Fortune 500 (May 15, 1995), Fortune reported that employment fell from a 1979 peak of 16.2 million to 11.6 million in 1994. In all but two of the fifteen intervening years, the employee count declined.

Conclusion

History suggests that market valuation indicators are useful predictors of stock returns. Yet despite a dividend yield and a market-to-book ratio that imply that the market has been richly valued for some time, stocks have turned in an outstanding performance this year. Are the gauges broken?

Some maintain that today's record low dividend yield is misleading because it fails to account for the growing number of firms buying back their shares in lieu of paying dividends. We find that while taking share repurchases into account helps to explain why yields are so low it cannot account for the trend of the last five years relative to the 1980s and fails to lift today's low yield on the S&P 500 to a normal range. Chart 5 (upper panel) shows the dividend yield and two adjustments to the series based on gross and net share repurchases. The measure based on gross repurchases, which gives full credit to repurchases as dividend substitutes without regard to issuance, boosts the dividend yield to a comfortable level. But the history of share repurchases suggests that they are not merely a substitute for dividends. Moreover, netting out share issuance results in a much less sanguine view of the impact of buybacks on the dividend yield. This adjustment implies a dividend yield of 2.9 percent as of August.

The unadjusted market-to-book ratio for the S&P industrials, which is normally about 2, has been above 3 since 1992 and, most recently over 4. We have seen that this ratio is overstated because of charges to earnings from retiree health benefits. Nevertheless, our adjusted book value series only brings the ratio

down to about 3 at year-end 1994 (Chart 5, bottom panel). Recent increases in the stock market have pushed the FAS 106-adjusted ratio still higher, to over 3.5.

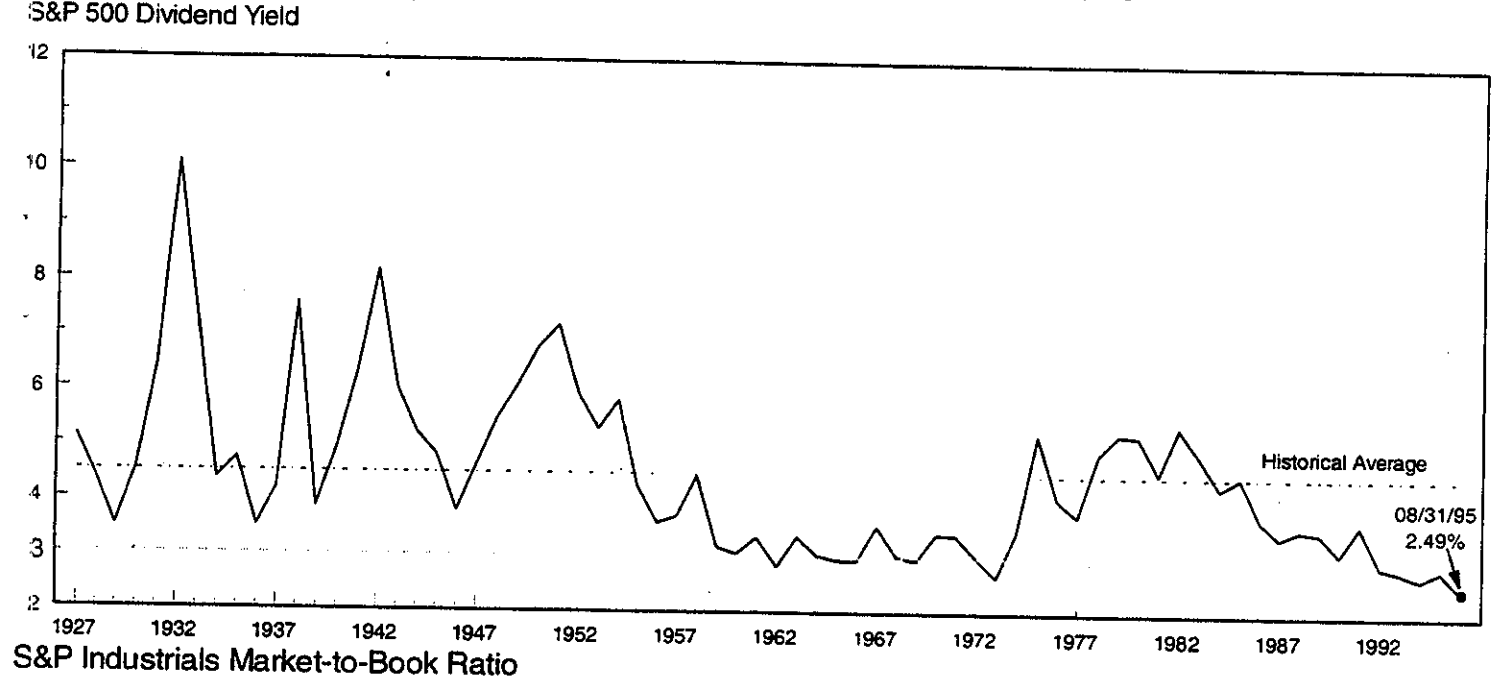
We conclude that, even adjusted for share repurchases and FAS 106, the indicators are in a danger zone that points to an overheated market. Only the P/E ratio offers comfort, and even that requires that current earnings be sustainable over the long term, not just in this phase of the business cycle. If history is any indication, the immediate prospects for the stock market are modest at best.

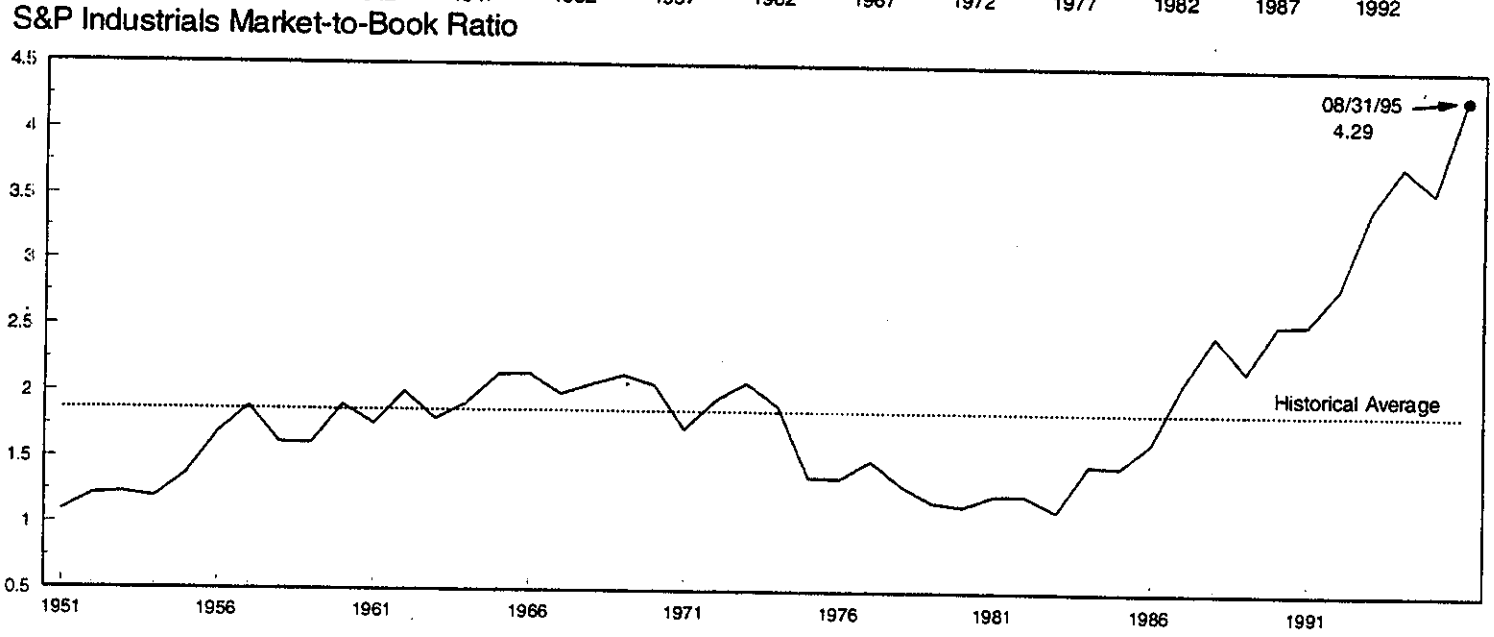
References

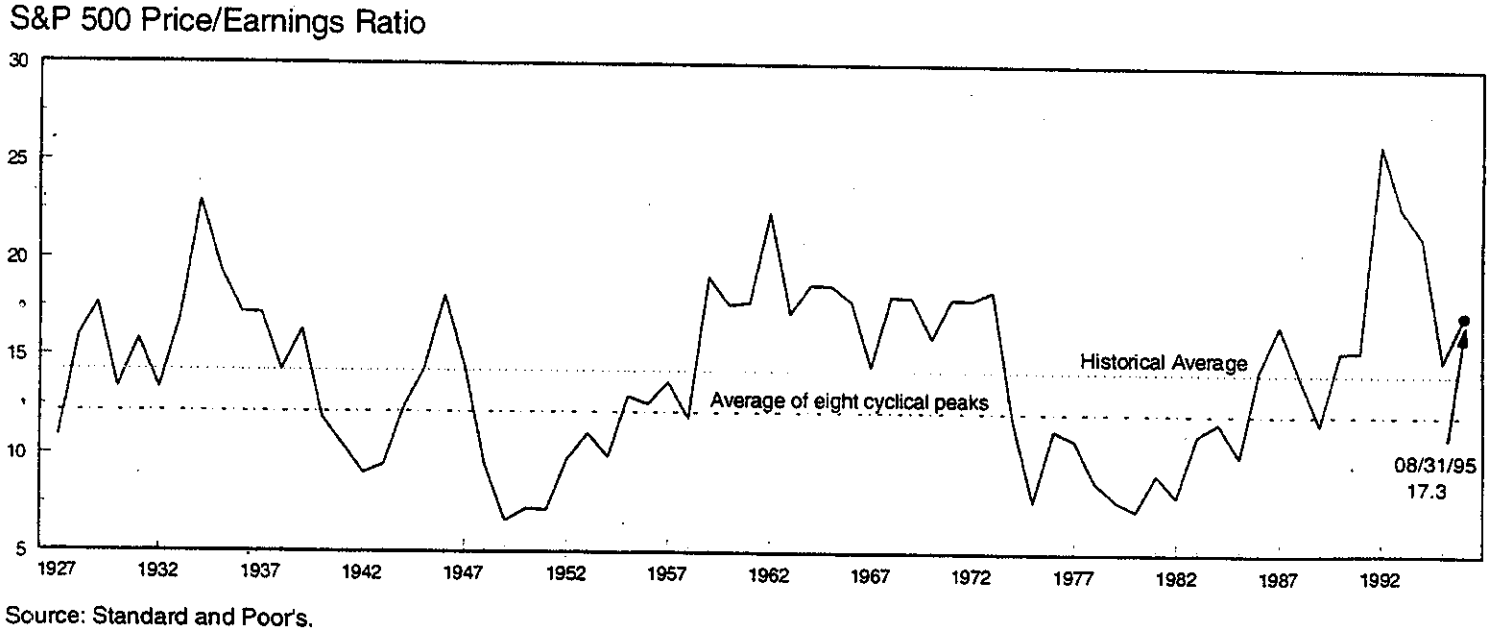
Ibbotson Associates (1995) *Stocks, Bonds, Bills and Inflation.*

Chart 1

Historical Levels of Stock Market Valuation Indicators







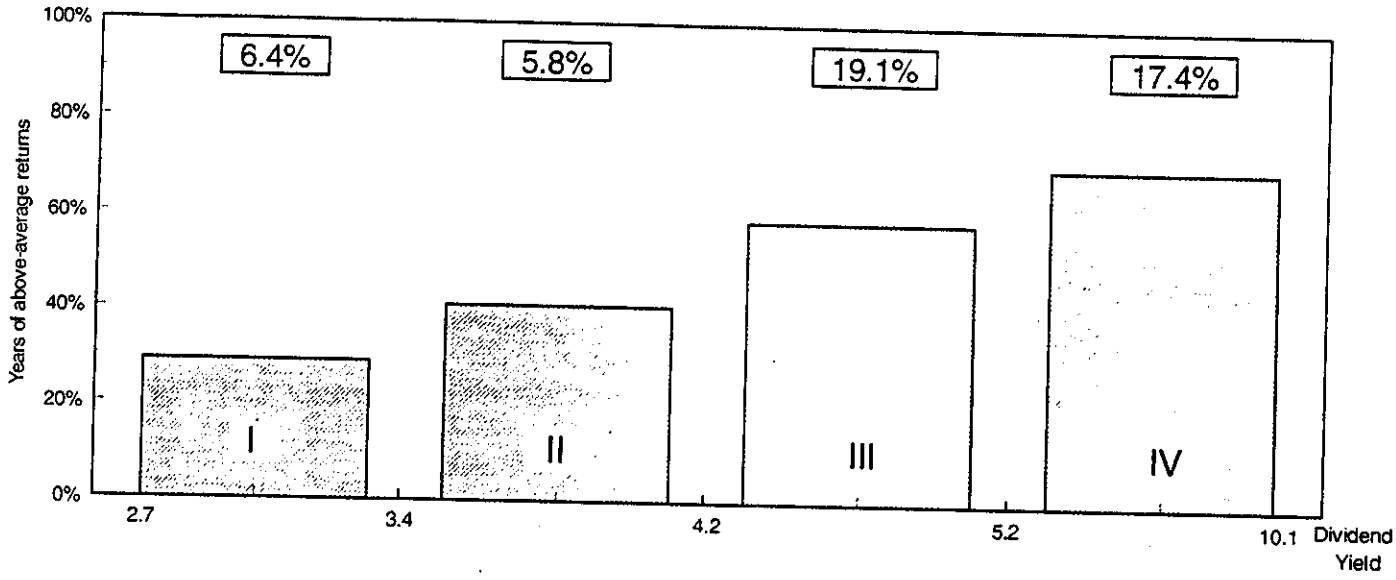
Source: Standard and Poor's.

Note: Observations refer to start-of-year price relative to previous year dividends and earnings.

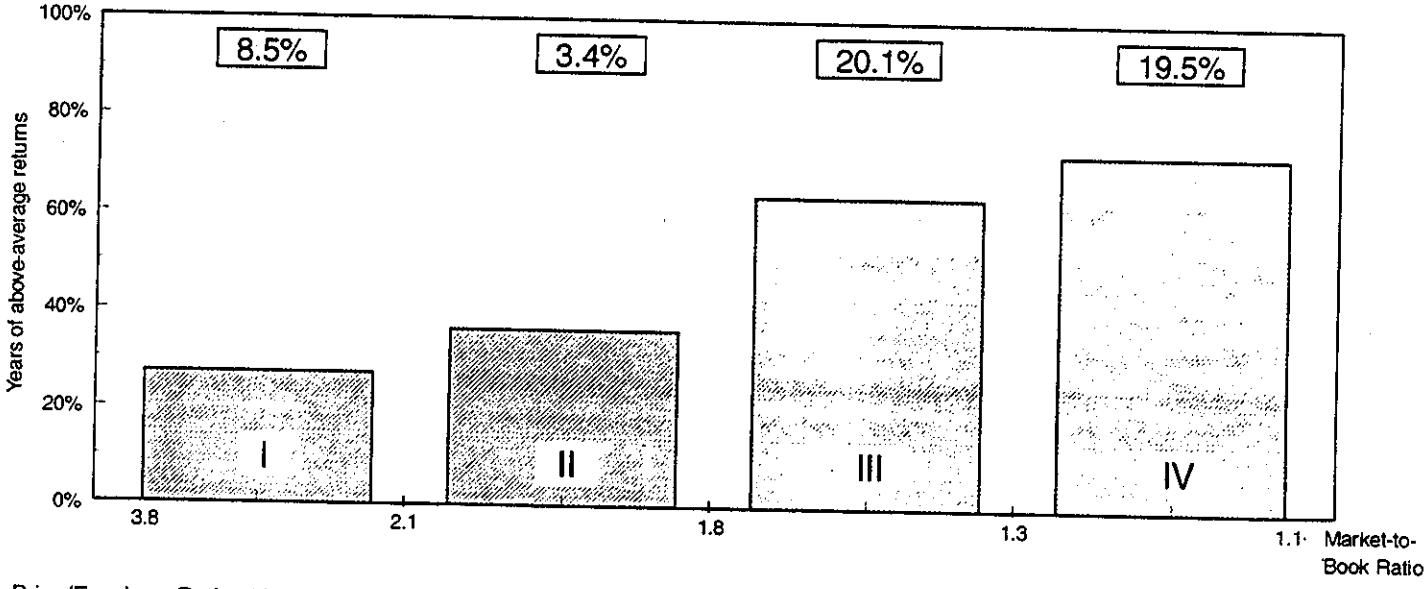
Chart 2

Relative Performance by Valuation Quartile

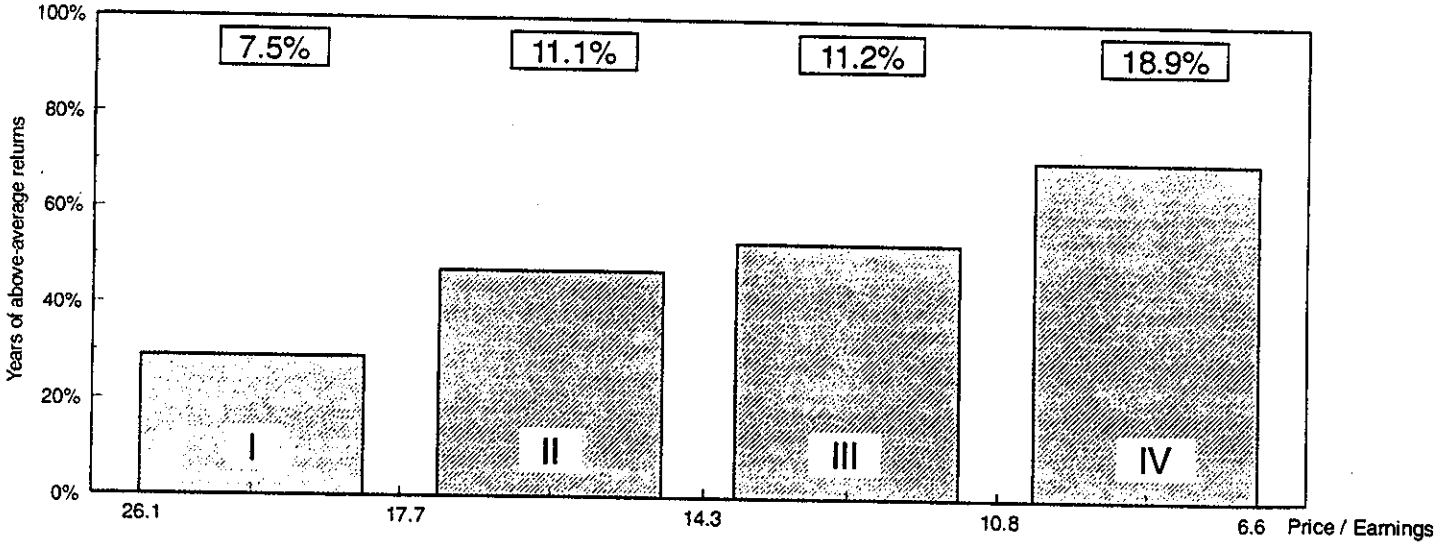
Dividend Yield, 1927-1994



Market-to-Book Ratio, 1950-94



Price/Earnings Ratio, 1927-94



Notes: The height of each bar represents the percentage of years in a given quartile with returns above the historical average. The boxed number above each bar represents the mean return for the years in a given quartile.

Sources: Standard and Poor's and Ibbotson Associates.

Table 1

Position in valuation indicator quartiles at start of year and market return, 1990-95

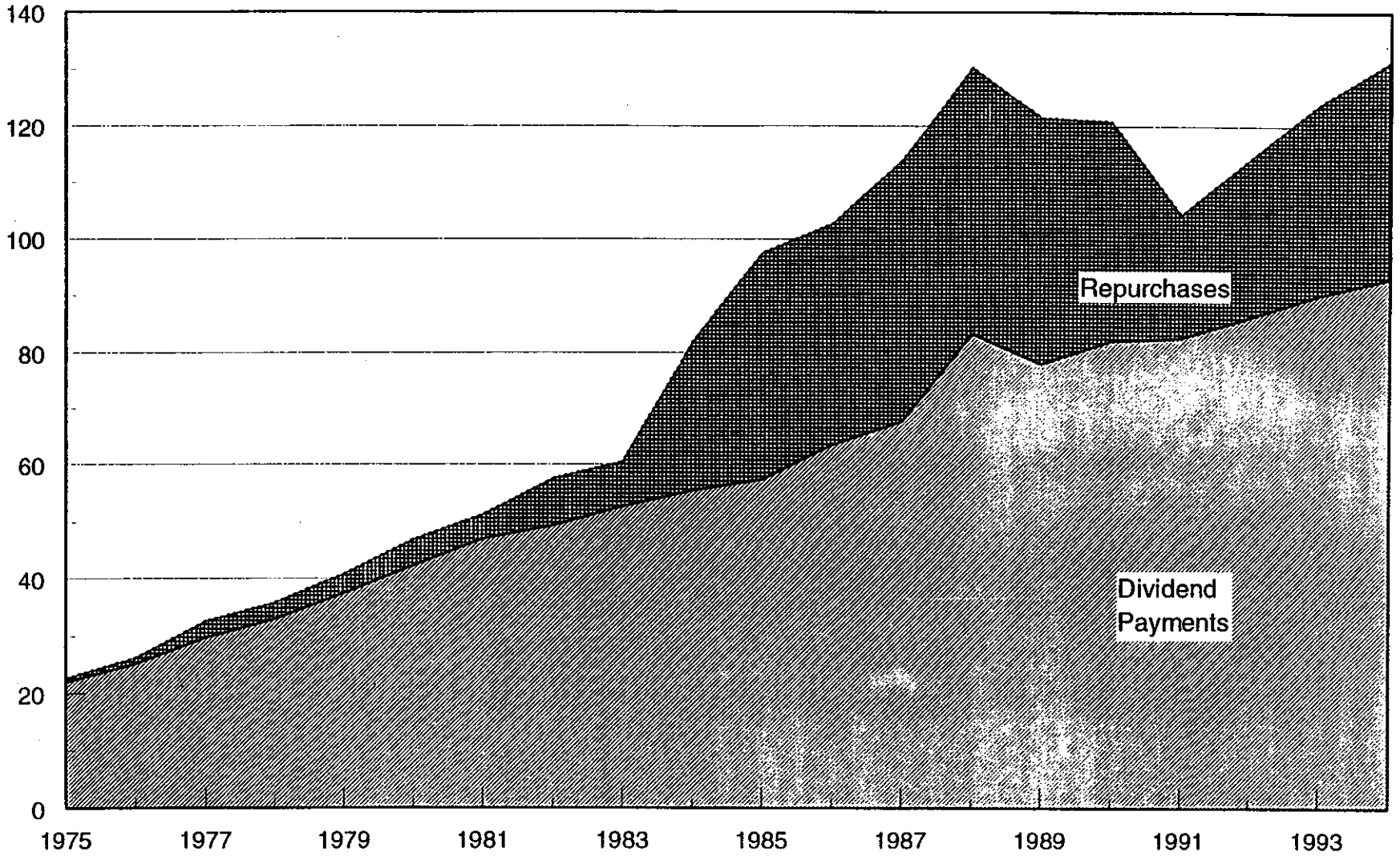
	Market-to-Book	Price/Earnings	Dividend Yield	Return
1990	I	II	I	-3.17
1991	I	II	II	30.55
1992	I	I	I	7.67
1993	I	I	I	10.00
1994	I	I	I	1.31
1995	I	II	I	-

Sources: Standard and Poor's, Ibbotson Associates.

Chart 3

Total Dividend Payments and Repurchases

$ Billions



Source: Compustat.

Table 2

Adjustment of Dividend Yield for Share Repurchases and Issuance

	Dividend Yield (percent)	Share Repurchases ($ billions)	Dividends ($ billions)	Ratio (2)/(3)	Gross Adjusted Dividend Yield (percent)	Share Issuance ($ billions)	Net Share Repurchases ($ billions)	Net Adjusted Dividend Yield (percent)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1975	4.1	0.7	21.9	0.03	4.2	7.7	-7.0	2.8
1976	3.8	1.1	25.1	0.05	3.9	9.1	-8.0	2.6
1977	4.9	2.8	29.7	0.10	5.4	9.9	-7.0	3.7
1978	5.3	2.8	33.0	0.09	5.7	9.4	-6.6	4.2
1979	5.2	3.4	37.5	0.09	5.7	13.1	-9.6	3.9
1980	4.5	4.7	42.3	0.11	5.0	17.4	-12.7	3.2
1981	5.4	4.4	47.1	0.09	5.9	22.7	-18.4	3.3
1982	4.9	8.2	49.5	0.17	5.7	25.6	-17.4	3.2
1983	4.3	7.8	52.7	0.15	4.9	30.1	-22.3	2.5
1984	4.5	26.4	55.5	0.48	6.6	19.8	6.6	5.0
1985	3.7	40.1	57.4	0.70	6.3	26.6	13.5	4.6
1986	3.4	38.8	63.5	0.61	5.5	29.5	9.3	3.9
1987	3.6	45.9	67.6	0.68	6.0	24.5	21.3	4.7
1988	3.5	46.7	83.3	0.56	5.5	14.2	32.5	4.9
1989	3.1	42.9	78.0	0.55	4.8	26.6	16.3	3.8
1990	3.7	38.6	82.0	0.47	5.4	17.0	21.7	4.6
1991	2.9	21.3	82.6	0.26	3.7	32.4	-11.1	2.5
1992	2.8	27.7	86.1	0.32	3.8	38.3	-10.6	2.5
1993	2.7	33.7	90.1	0.37	3.7	39.6	-6.0	2.5
1994	2.9	38.4	93.1	0.41	4.1	27.9	10.5	3.2
1995	2.5	52.0e	93.1e	0.56	3.9	27.9e	24.1	2.9

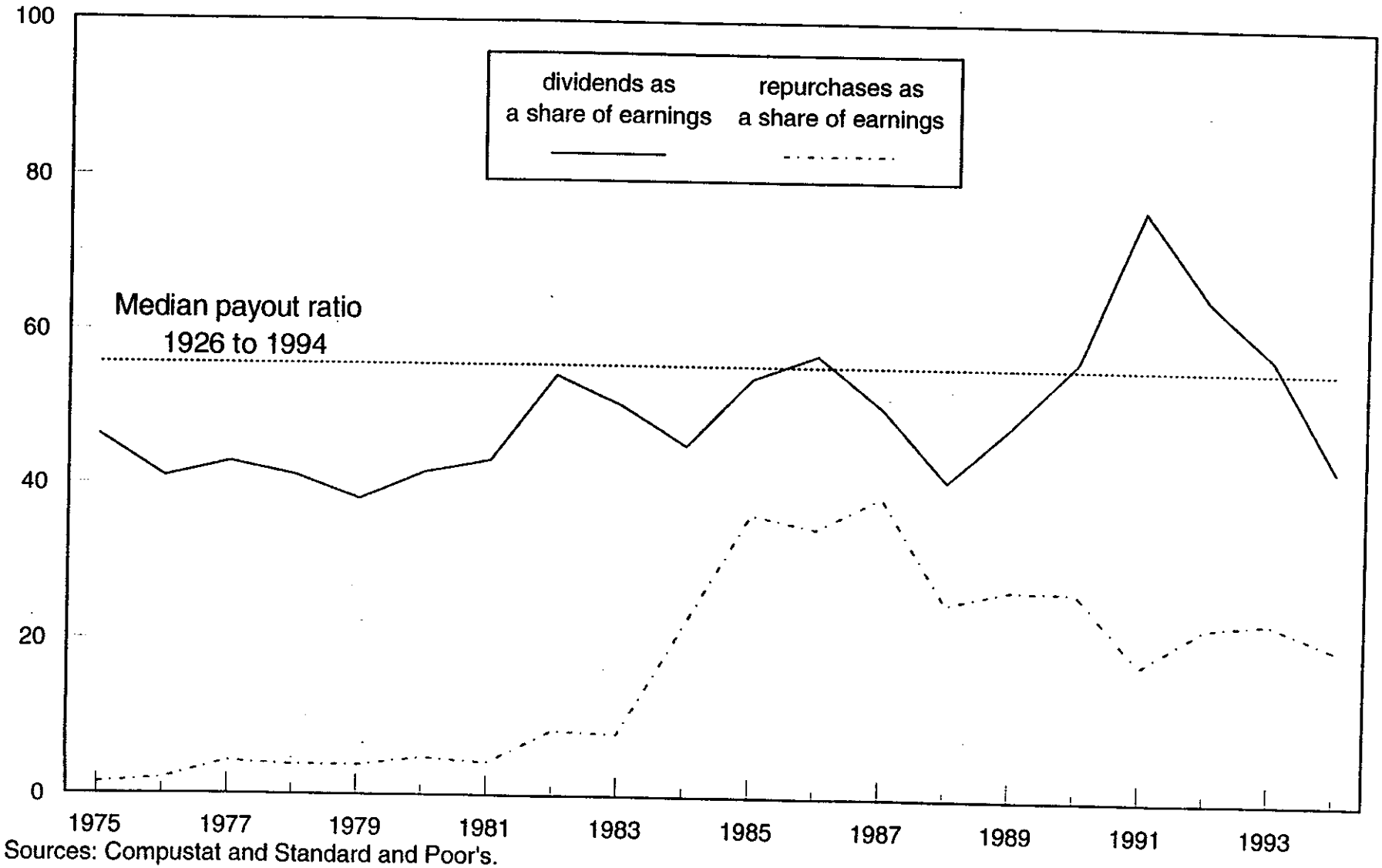
Sources: Standard and Poor's and Compustat.

Notes: For 1995, repurchases are annualized from first quarter data, and share issuance and dividends are based on 1994 data. 1995 Dividend yields are calculated using the S&P 500 price level on August 31, 1995.

Chart 4

Payout Ratio for S&P 500

1976-94 compared to historical average



Sources: Compustat and Standard and Poor's.

Table 3

Book Value of Equity Adjusted for FAS 106 Retiree Health Liabilities

	Book value ($ billions)	Retiree liabilities ($ billions)	Estimated retiree liabilities after tax ($ billions)	Retiree liabilities as a share of book value (percent)	Reported book value scaled to S&P industrials	Adjusted book value scaled to S&P industrials	S&P Industrials index	Reported market-to-book ratio	Adjusted market-to-book ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1989	812.8	0.0	0.0	0.0	145.34	145.34	370.49	2.55	2.55
1990	856.2	0.2	0.2	0.0	152.71	152.71	390.97	2.56	2.56
1991	879.6	12.7	8.5	1.0	157.05	158.56	445.88	2.84	2.81
1992	827.6	136.4	90.9	11.0	142.46	158.11	490.59	3.44	3.10
1993	832.7	177.4	118.3	14.2	136.91	156.36	517.19	3.78	3.31
1994	925.7	179.5	119.6	12.9	151.08	170.61	540.06	3.57	3.17
1995	-	-	-	12.9	154.63e	174.61	663.66e	4.29	3.80

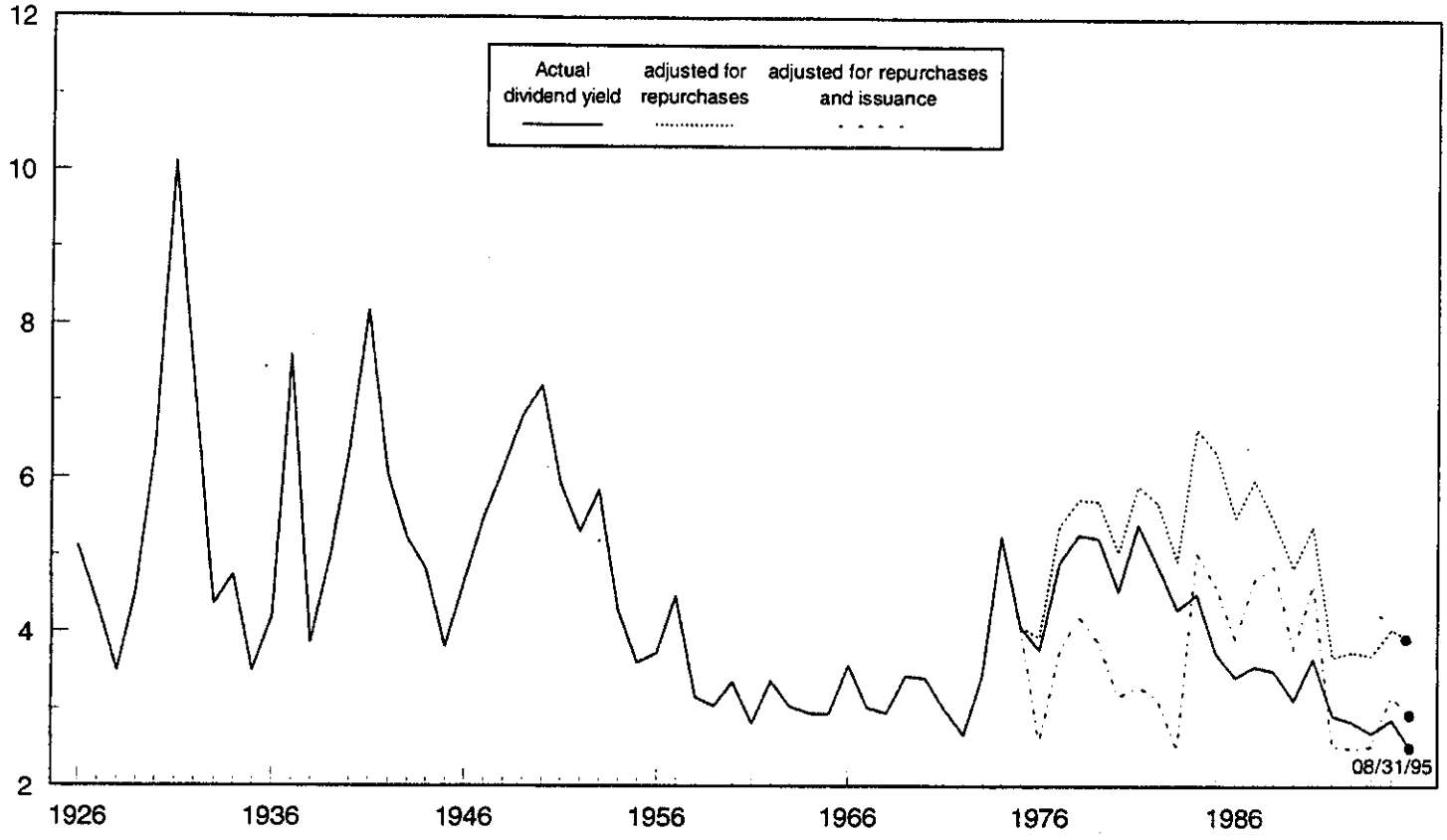
Sources: Standard and Poor's and Compustat.

Notes: For 1995, the reported S&P industrials book value is estimated by adding first quarter earnings and estimated second quarter earnings to 1994 book value, then subtracting first and second quarter dividends. The 1995 S&P industrials index is reported as of August 31, 1995.

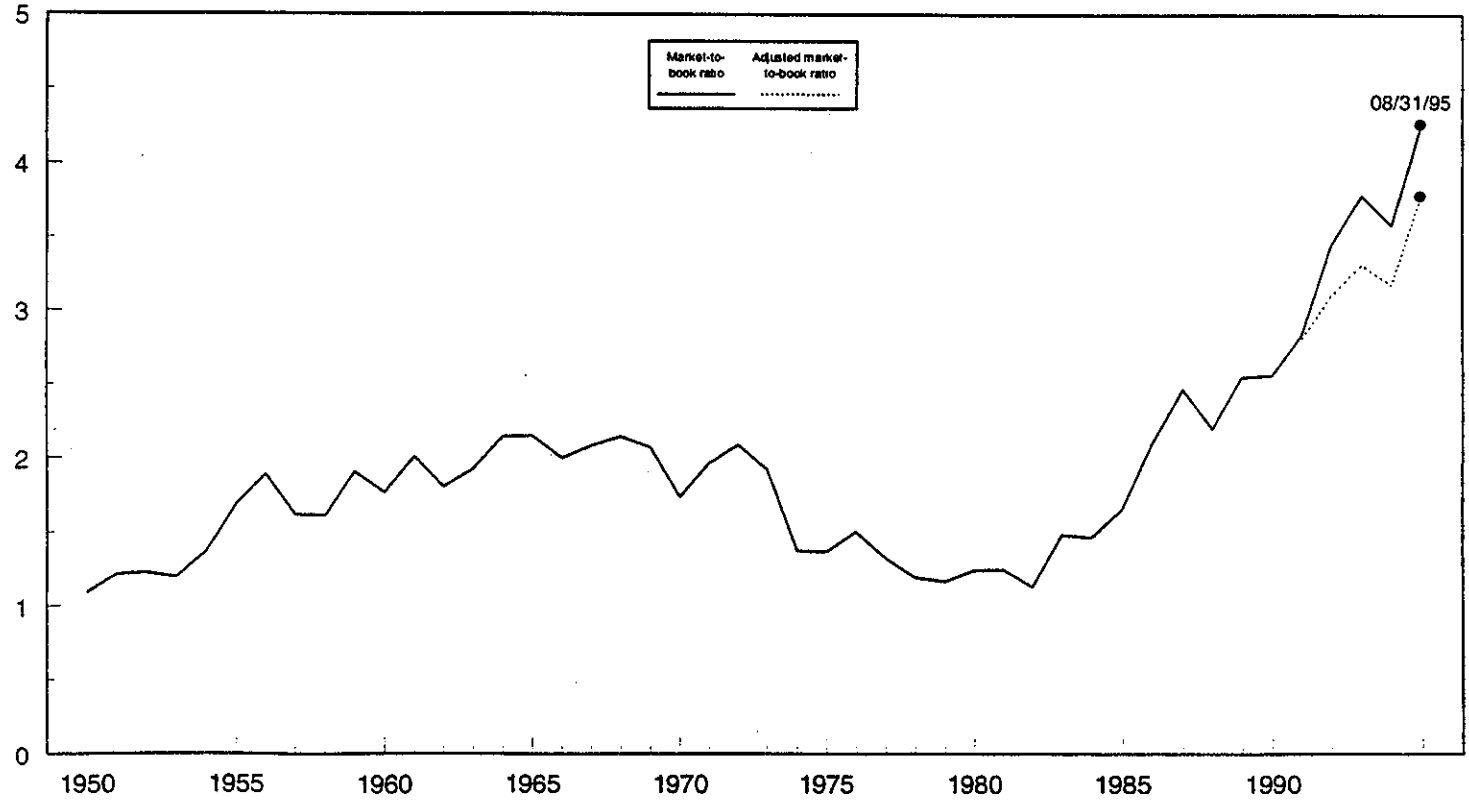
Chart 5

Adjusted Valuation Indicators

S&P 500 Dividend Yield



S&P Industrials Market-to-Book Ratio



Sources: Standard and Poor's and Compustat.

Note: End-of-year data.