

Federal Reserve Bank of Cleveland

# Why is the Dividend Yield So Low?

by John B. Carlson

Dividends play a central role in traditional models of stock valuation. In such models, stocks have value because they hold the promise of future cash payouts. Dividends constitute the primary cash payment to stockholders—the greater the expected future stream of dividends, the greater the value of the stockholder's share.

The *dividend yield* equals a stock's total dividends per share over the most recent four quarters, divided by the current price of the stock. The resulting number is represented as a percentage and thus is comparable to an interest rate. Figure 1, showing the dividend yield on equities since 1871, reveals a striking decline in this measure over the past decade. The dividend yield now stands at around 1¼ percent, a near-record low. What explains this 10-year decline?

To address this question, it is important to understand that the dividend yield is only one part of a stock's return. Another element of return derives from appreciation in the price of a stock. Price appreciation is typically realized when firms reinvest earnings and achieve higher earnings growth that allows higher future payouts. Stock prices can also rise when a firm repurchases its shares. *Share repurchases* reduce the number of shares outstanding, increasing each remaining share's claim on earnings. If shares are repurchased in lieu of dividends, the *per share value* (the price) increases.

## ■ A Historical Perspective

Viewed over the recorded history of dividend yields, the recent decline appears to

be part of a longer-term trend. Since 1945, the dividend yield has averaged 4.1 percent, more than a full percentage point below its 1871–1945 average. This downward shift is mirrored by the decline in the average dividend payout, which is the ratio of dividends to earnings (see figure 2). The postwar dividend payout was lower because corporate managers retained a greater share of earnings and reinvested them for shareholders.

These retained earnings seem to have been well invested. Table 1 shows that the decline in the dividend yield was more than offset by increased growth in *earnings per share* (all rates adjusted for inflation). Greater earnings growth permitted greater dividend growth, and this was reflected in higher stock appreciation. Indeed, the postwar increase in the annual rate of stock appreciation more than offset the decline in average dividend yield. The sum of dividend yield and annual stock price appreciation approximates the historical average of total real equity returns (about 7 percent).

But the current dividend yield is well below its postwar average, and if this recent level becomes a new central tendency, trend earnings growth (per share basis) would have to rise substantially in order to produce total returns comparable to historical rates. To the extent that share repurchases have replaced dividends as a form of payout, one would want to account for them in assessing share valuation.

## ■ Share Repurchases

Traditionally, firms have raised dividends only when they are confident that they

**The dividend yield on stocks has dropped sharply over the last decade. Is its drop reflective of irrational exuberance, as some have claimed? This Commentary assesses alternative explanations for the diminished dividend yield.**

can sustain them. Investors thus view an increase in dividends as a sign that earnings prospects have improved permanently. Hence, firms are reluctant to raise dividends in response to what may be merely transitory increases in earnings. Because share repurchases are not viewed as a permanent policy, they provide greater flexibility for temporarily high payouts. Another advantage of repurchases is that, unlike dividends, they are exempt from personal income taxation. Although they contribute to capital gains, which are eventually taxable, capital gains tax rates are lower than rates on personal dividends.

For these and other reasons, share repurchases have become a very popular form of shareholder payout in recent years. Figure 3 illustrates the level of share repurchases relative to dividends for the nonbank component of the S&P 500. Since 1995, repurchases have exceeded dividends. Of course, while some firms are repurchasing shares, others are issuing them. When assessing the impact on earnings per share, one would want to use *net retirements*, calculated as shares repurchased minus new shares issued. Cole,

**Table 1: Dividend Yield, Earnings, Dividend Growth, and Stock Appreciation**

	1871–1945	1946–2000
Dividend yield	5.3	4.1
Earnings per share	1.0	3.6
Dividend per share	1.0	2.3
Capital appreciation	1.3	4.9

SOURCE: Robert J. Shiller, <http://www.econ.yale.edu/~shiller/data.htm>

Helwege, and Laster (1996) find that while firms issued more shares than they repurchased in the early 1990s, net repurchases turned positive in 1994.<sup>1</sup> Thus, taken alone, share repurchases provide little information about net payouts.

### ■ Employee Stock Options

A large number of the shares issued in recent years reflect widespread exercise of *employee stock options*. These contracts give employees the right to buy a certain number of stock shares at a specified price (the *strike price*) over a designated future period. If a firm's stock price rises above its strike price during that period, the contract holder has the right to purchase the stock from the firm (exercise the option) at the strike price, which is essentially at a discount. If a stock's price falls below the strike price and remains there until the option expires, the option is worthless and will not be exercised.

Stock options thus give employees a vested interest in a firm's value. This helps to explain their popularity as a form of employee compensation, particularly for top executives. But they have also become more widely applied, particularly in the technology sector, as a means of attracting skilled workers.

When a firm increases the number of its shares, it reduces the proportion of earnings to which each share is entitled, an effect known as *dilution*. Liang and Sharpe (1999) find that firms often repurchase shares that would offset the dilution that could arise from option-related issuance.<sup>2</sup> Using a sample of 177 of the largest firms in the S&P 500 over a five-year period, Liang and Sharpe calculate that retirements resulting from share repurchases have risen substantially in recent years. Increased share issuance related to employee stock options offsets much of the effect of share repurchases.

Specifically, they find that within their sample, share repurchases have reduced shares outstanding at an annual pace of about 2 percent; because of the sharp rise in options exercised, however, only about half the shares were actually retired.

But the story does not end there. Liang and Sharpe note that employee stock options involve a transfer of wealth from shareholders to the employees who exercise options. The value of this wealth transfer equals the market value of the shares at the time of issuance minus the proceeds from selling options. The proceeds equal the strike price times the number of options exercised. Because the employee stock-option payout does not accrue to other shareholders, it is not a source of shareholder value, unlike dividends or straight-up repurchases. In fact, as Liang and Sharpe note, such a payout comes at the expense of retained earnings.

To see this, consider figure 4, which shows these alternative payouts as a share of earnings over the sample period. Net retirements did amount to a substantial substitute for dividends, and their payout was about half as much as dividends; it produced a "net retirement yield" of about 1 percent of market value. What's more, the stock-option payout grew substantially. This is no surprise, since the commensurately sharp rise in stock prices induced many employees to exercise their stock options. Liang and Sharpe stress, however, that the sum of all payouts accounted for 80 percent of earnings in 1998, leaving only 20 percent for reinvestment. Thus, they argue, such high payouts are unsustainable if earnings are to continue growing at postwar rates.

Based on the recent pace of option grants in their sample, Liang and Sharpe project sustainable payouts in the long term, maintaining a total payout ratio of 50 to 60 percent. Their analysis suggests that once stock-option payouts are taken into account, payments to shareholders are limited to around 40 to 50 percent of earnings (the sum of the bottom two components in figure 4).<sup>3</sup> This implies that net retirement payouts must be lower than they were in past years if dividend yields are to remain near recent levels. Liang and Sharpe recognize that employee-option payouts may be associated with lower salaries and hence higher earnings.<sup>4</sup> If the wealth effect from the exercise of stock options were completely offset by lower costs, stock option payouts would be associated with

higher accounting earnings. This would allow for a greater total payout but still maintain historical reinvestment rates. Nevertheless, their analysis suggests that total shareholder payouts are unlikely to exceed 2 percent as a share of market value. Thus, total shareholder payout (dividend yield plus net retirement yield) is likely to be at least 2 percentage points below the postwar average for the dividend yield of 4.1 percent. One reason the dividend yield is so low going forward is that current market valuation is so high. Recall that the dividend yield is the dividend divided by the price per share.

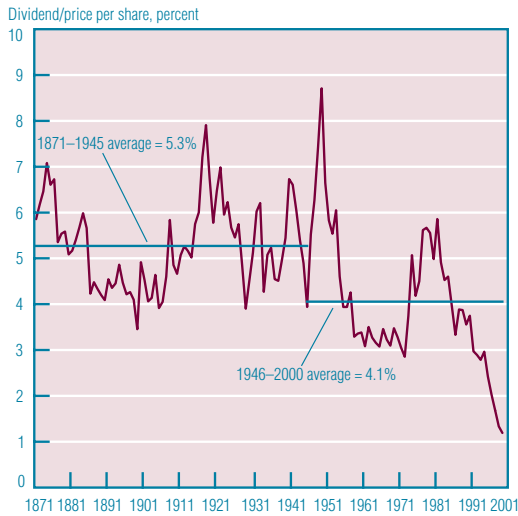
### ■ Expected Stock Returns

Table 1 shows that the postwar decline in the dividend yield was offset by a comparable increase in dividend growth and an even greater increase in the growth rate of earnings. Stock prices appreciated at an even faster rate than earnings growth. One might well ask how stock values could appreciate faster than earnings. Let's consider two explanations. The first is that stock prices reflect irrational exuberance.<sup>5</sup> In this view, the dividend yield will eventually rise as stock prices decline to rational levels.

A second explanation is that declining shareholder costs and greater diversification have made shareholder claims more valuable, reducing the required return on stocks (that is, the discount rate).<sup>6</sup> Carlson and Pelz (2000) show how such a decline leads to a one-time capital gain, simulating the change in a simple valuation framework.<sup>7</sup> Fama and French (2001) make a similar case and conclude that stock price appreciation—hence stock returns—were higher than expected in the postwar period.<sup>8</sup> Thus, historical returns are not a good predictor of expected returns.

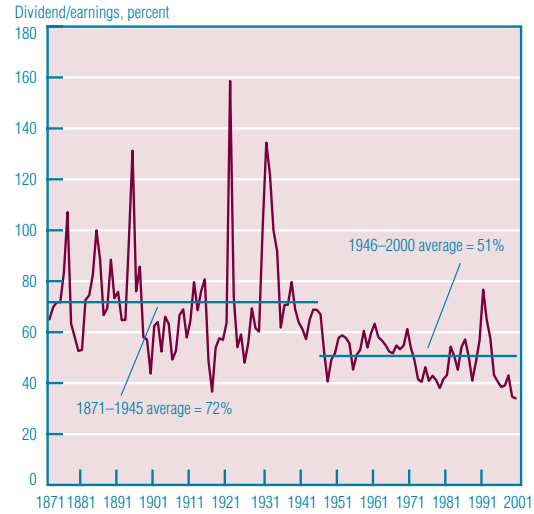
Fama and French argue that either of two simple models can approximate expected stock returns reasonably well. One model uses the sum of the average dividend (read payout) yield and the average dividend growth rate. The other uses the sum of the average dividend (read payout) yield and the average rate of earnings growth. If we take current stock valuations as rational, then we might expect future shareholder payouts to average around 2 percent, about half the postwar average for dividend yields. On the basis of postwar average growth for dividends and earnings, these models suggest real stock returns of between 4.3 percent and 5.6 percent, far below historical averages.

**FIGURE 1 DIVIDEND YIELD, S&P 500 INDEX**



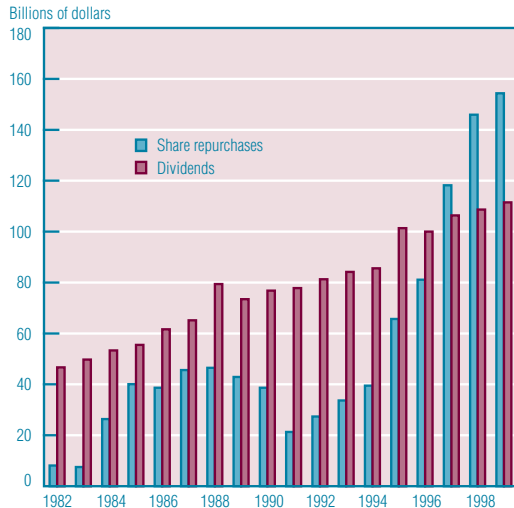
SOURCE: Robert J. Shiller, <http://www.econ.yale.edu/~shiller/data.htm>.

**FIGURE 2 DIVIDEND PAYOUT RATIO, S&P 500 INDEX**



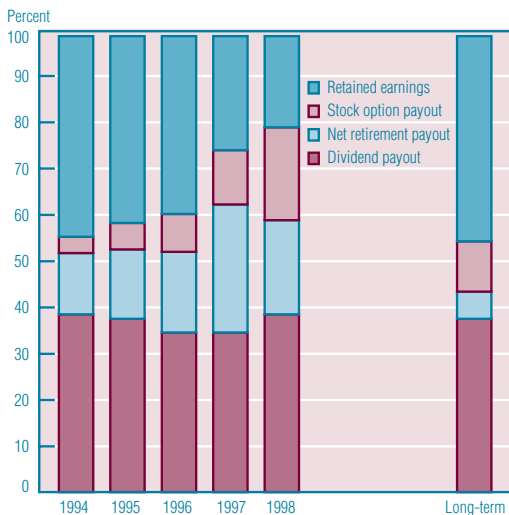
SOURCE: Robert J. Shiller, <http://www.econ.yale.edu/~shiller/data.htm>.

**FIGURE 3 SHARE REPURCHASES AND DIVIDENDS**



SOURCE: Liang and Sharpe (note 2).

**FIGURE 4 DISTRIBUTION OF EARNINGS**



SOURCE: Liang and Sharpe (note 2).

### Conclusion

Why is the dividend yield so low? One possible explanation is that shareholder repurchases have become increasingly popular as an alternative form of shareholder payout. But some repurchases are made to avoid dilution related to the exercise of employee stock options. In 1998, for example, option-related issuance amounted to about one-half the level of share repurchases. On net, less than 1 percent of shares were retired in that year. We thus conclude that the recent increase in the pace of stock repurchases explains only a small part of the recent decline in dividend yield.

The decline may also reflect a continuation of the postwar trend in dividend policy, in which an increasing share of earnings is retained and invested productively. In the postwar period, lower dividend yields have been more than offset by higher earnings growth and hence higher stock-price appreciation; indeed, total stock returns increased. The analysis above, however, suggests that the share of earnings retained declined substantially in the late 1990s. Thus, it is not clear that total stock returns can be sustained at historical rates.

A third reason why the dividend yield is so low is that stock prices are so high. The dividend yield is simply

the ratio between the dividend and the stock price. Thus, the question becomes, why are stock prices so high? One answer is that stocks are overpriced. The other is that they are considered more valuable now than they previously were. Lower transactions costs and greater diversification provide one fundamental explanation for higher prices relative to dividends. But the second answer suggests that future stock returns will be lower than their historical average.

### Footnotes

1. Kevin Cole, Jean Helwege, and David Laster, "Stock Market Valuation Indicators: Is This Time Different?" *Financial Analysts Journal* (May/June 1996), pp. 56-64.
2. J. Nellie Liang and Steven A. Sharpe, "Share Repurchases and Employee Stock Options and their Implications for S&P 500 Share Retirements and Expected Returns," Board of Governors of the Federal Reserve System, *Finance and Economics Discussion Paper Series*, no. 99/59 (November 1999).
3. Liang and Sharpe (see note 2) abstract from tax benefits that corporations would gain if options were accounted like other compensation. Such benefits would boost the range by about 2½ percentage points.

4. Liang and Sharpe (see note 2) also recognize another possible benefit of stock options—that they create stronger incentives for corporate managers to generate more rapid earnings growth. Fenn and Liang find that the growth in option plans has not led to greater long-run payouts (George W. Fenn and J. Nellie Liang, “Corporate Payout Policy and Managerial Stock Incentives,” *Journal of Financial Economics*, vol. 60, no. 1 (April 2001), pp. 45–72.

5. For evidence concerning this view, see John Y. Campbell and Robert J. Shiller, “Valuation Ratios and the Long-Run Stock Market Outlook: An Update,” *NBER Working Paper Series*, no. 8221, April 2001.

6. See Jeremy J. Siegel, “The Shrinking Equity Premium,” *Journal of Portfolio Management*, vol. 26, no. 1 (Fall 1999), pp. 10–17; and Eugene F. Fama and Kenneth R. French, “Disappearing Dividends: Changing Firm Characteristics or Lower Propensity to Pay?” *Journal of Financial Economics*, vol. 60, no. 1 (April 2001), pp. 3–43.

7. John B. Carlson and Eduard A. Pelz, “Investor Expectations and Fundamentals: Disappointment Ahead?” Federal Reserve Bank of Cleveland, *Economic Commentary* (May 1, 2000).

8. See Fama and French (2001), note 5.

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