likely to be liquidated or sold and thus to disappear, *the value of the stock is again determined by Equation 8-1*. To see this, recognize that for any individual investor, the expected cash flows consist of expected dividends plus the expected sale price of the stock. However, the sale price the current investor receives will depend on the dividends some future investor expects. Therefore, for all present and future investors in total, expected cash flows must be based on expected future dividends. Put another way, unless a firm is liquidated or sold to another concern, the cash flows it provides to its stockholders will consist only of a stream of dividends; therefore, the value of a share of its stock must be the present value of that expected dividend stream.

The general validity of Equation 8-1 can also be confirmed by asking the following question: Suppose I buy a stock and expect to hold it for 1 year. I will receive dividends during the year plus the value $\hat{P}_1$ when I sell out at the end of the year. But what will determine the value of $\hat{P}_1$? The answer is that it will be determined as the present value of the dividends expected during Year 2 plus the stock price at the end of that year, which, in turn, will be determined as the present value of another set of future dividends and an even more distant stock price. This process can be continued ad infinitum, and the ultimate result is Equation 8-1.[4]

**SELF-TEST** **What are the two parts of most stocks' expected total return?**
**How does one calculate the capital gains yield and the dividend yield of a stock?**
**If $D_1 = \$3.00$, $P_0 = \$50$, and $\hat{P}_1 = \$52$, what is the stock's expected dividend yield, capital gains yield, and total expected return for the coming year?** (6%, 4%, 10%)

## 8.5 Constant Growth Stocks

Equation 8-1 is a generalized stock valuation model in the sense that the time pattern of $D_t$ can be anything: $D_t$ can be rising, falling, fluctuating randomly, or it can even be zero for several years, and Equation 8-1 will still hold. With a computer spreadsheet we can easily use this equation to find a stock's intrinsic value for any pattern of dividends.[5] In practice, the hard part is getting an accurate forecast of the future dividends. However, in many cases, the stream of dividends is expected to grow at a constant rate. If this is the case, Equation 8-1 may be rewritten as follows:[6]

$$\hat{P}_0 = \frac{D_0(1+g)^1}{(1+r_s)^1} + \frac{D_0(1+g)^2}{(1+r_s)^2} + \cdots + \frac{D_0(1+g)^\infty}{(1+r_s)^\infty}$$
$$= D_0 \sum_{t=1}^{\infty} \frac{(1+g)^t}{(1+r_s)^t} \qquad (8\text{-}2)$$
$$= \frac{D_0(1+g)}{r_s - g} = \frac{D_1}{r_s - g}.$$

e-resource
The last term in Equation 8-2 is derived in ***Web Extension 8A***, available on the textbook's Web site.

[3] We should note that investors periodically lose sight of the long-run nature of stocks as investments and forget that in order to sell a stock at a profit, one must find a buyer who will pay the higher price. If you analyze a stock's value in accordance with Equation 8-1, conclude that the stock's market price exceeds a reasonable value, and then buy the stock anyway, then you would be following the "bigger fool" theory of investment—you think that you may be a fool to buy the stock at its excessive price, but you also think that when you get ready to sell it, you can find someone who is an even bigger fool. The bigger fool theory was widely followed in the spring of 2000, just before the Nasdaq market lost more than one-third of its value.

[4] Actually, we can find an approximate price. If we project dividends for 100 years or more, the present value of that finite dividend stream is approximately equal to the present value of the infinite dividend stream.

[5] The last term in Equation 8-2 is derived in ***Web Extension 8A*** at the textbook's Web site.