

Testing Sample

Future value (FV) of a cash flow, where r is the stated discount rate per period and t is the number of compounding periods, is as follows:

$$FV_t = PV(1 + r)^t \quad (1)$$

If the number of compounding periods t is very large, that is, $t \rightarrow \infty$, we compound the initial cash flow on a continuous basis as follows:

$$FV_t = PVe^{rt} \quad (2)$$

If dividend cash flows continue to grow at g indefinitely, then we may rewrite Equation 10 as follows:

$$PV_t = \sum_{i=1}^{\infty} \frac{D_t(1 + g)^i}{(1 + r)^i} \quad (13)$$

The example in Exhibit 6 shows a company with an initial higher short-term dividend growth of g_s for the first three years, followed by lower long-term growth (g_l , where $g_s > g_l$) indefinitely thereafter. If we generalize the initial growth phase to n periods followed by indefinite slower growth at g_l , we obtain a modified version of Equation 14 as follows:

$$PV_t = \sum_{i=1}^n \frac{D_t(1 + g_s)^i}{(1 + r)^i} + \sum_{j=n+1}^{\infty} \frac{D_{t+n}(1 + g_l)^j}{(1 + r)^j} \quad (15)$$

Note that the second expression in Equation 15 involves constant growth starting in n periods, for which we can substitute the geometric series simplification:

$$PV_t = \sum_{i=1}^n \frac{D_t(1+g_s)^i}{(1+r)^i} + \frac{E(S_{t+n})}{(1+r)^n} \quad (16)$$

where the stock value of the stock in n periods ($E(S_{t+n})$ is referred to as the terminal value) and is equal to the following:

$$E(S_{t+n}) = \frac{D_{t+n+1}}{r - g_l} \quad (17)$$