Dividend Discount Model

It can be proved mathematically that a stock is only worth the discounted value of the stream of cash flows that will result from that stock over its life. The dividend discount model uses this fact, along with an estimated growth rate in dividends and an estimated discount rate, to model the intrinsic value of dividend-paying stocks. It looks like this:

$$Intrinsic\ Value = \frac{D_1}{(r - g)}$$

$$D_1 = Dividend\ in\ the\ Next\ Period$$
$$r = Discount\ Rate$$
$$g = Growth\ Rate\ in\ Dividend$$

This model says that the intrinsic value of a stock is equal to next period's dividend divided by the difference in the discount rate associated with this stock and the expected growth in the dividend. The discount rate is dependent on (and a reflection of) how risky the dividend is. Riskier stocks will require a higher discount rate.

There are two problems with this model. First, not all firms pay a dividend. This is usually remedied by going to a free cash flow (FCF) model. A FCF model is sort of a generalized dividend discount model. It can be applied to any firm that has free cash flows, even those whose free cash flows are temporarily negative.

The second problem is the use of the discount and growth rates. The way this model is structured, if investors are off just slightly in their estimates of the discount rate or the growth rate, the effect on the intrinsic value is profound. Critics of this model contend that, theoretically, it is irrefutable. But in practice, it requires a level of accuracy that is not realistic.

The most beneficial aspect of this model is that it emphasizes the importance of dividends in valuing stocks. This model correctly recognizes that, ultimately, a stock is only worth the value of the cash that will result from that stock.