

The Dividend Discount Model

Equity valuation is a concept that mesmerizes those searching for returns and prosperity in the equity market. The last article I penned exhibited the fact that despite present market conditions, a longer term horizon can in fact bring significant rewards to an investment. The Dividend Discount Model (DDM) is just one of the discounted cash flow techniques devised to determine the present value of a stock from its future cash flows over different time horizons. This approach stipulates that the value of a stock is worth the present value of all dividends to be paid on the stock.

The concept of determining the present value is important. As we all know, a dollar today will not be worth the same in the future. The present value is known as the current value of future cash flows discounted at the appropriate discount rate. Hence, by applying an appropriate rate we can discount a future cash flow, and so, estimate the value of an investment at this point in time.

In exploring the Dividend Discount Model, there are three time horizons to contemplate:

1. One-Year Holding Period. This, of course, means holding the stock for only one year and subsequently disposing of it. This would constitute a short term investment.
2. Multiple-year Holding Period – keeping the stock for several years before disposal.
3. Infinite Period Model – Holding on to the stock indefinitely which would imply that one bought the stock solely for its dividend reward.

I am going to focus on the multiple year holding period, in particular five years, since the Trinidad & Tobago Equity Market is at a point where we believe medium to long term investments are more prudent than those held for short term and will bring more value. Ideally, this is the period you should be considering at this point in time.

In order to value a stock for a five year period using the Dividend Discount Model, we would have to employ the following formula:

$$PV = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \frac{D_3}{(1+k)^3} + \frac{D_4}{(1+k)^4} + \frac{D_5}{(1+k)^5} + \frac{SP_5}{(1+k)^5}$$

Where

$D_i \equiv$ Dividend for a given period

$SP_5 \equiv$ Selling price at the end of period 5

$k \equiv$ required rate of return

In order to approximate the dividends for a given period, I looked at the rate at which dividends grew over the period 2000 to 2005 and found an average growth rate. I used this range because I thought that it would produce a fair average as it would include boom and slump cycles in the Company's history.

After calculating the approximate growth rate, I calculated the approximate present value of dividends for each period using compounded interest. For example, in the case of Neal & Massy (NML), the last dividend paid was 88 cents and the average growth rate of the dividends was found to be 11.15 per cent. Hence, the calculation for each period will be as follows:

$$D_1 = 0.88 \times (1.1115)^1$$

$$D_2 = 0.88 \times (1.1115)^2$$

$$D_3 = 0.88 \times (1.1115)^3$$

$$D_4 = 0.88 \times (1.1115)^4$$

$$D_5 = 0.88 \times (1.1115)^5$$

The selling price at the end of year five was calculated by approximating an expected earnings per share (EPS) at the end of year five. The EPS at year 5 was calculated much in the same way as the dividends. I examined EPS growth for the Company over the same 2000-2005 years. Again, taking the example of NML, the growth rate of the EPS was found to be 15.71 per cent. Therefore, using the last EPS, at the end of year five this would translate to an EPS of $\$2.80 \times 1.115^5$ which is equal to of \$5.81. This EPS was then multiplied by a price/earnings ratio which in my view was fair to the company due to the multiple at which it usually trades. In the case of NML, a price/earnings ratio of 15 was used. This would result in a price of \$47.29 at year 5.

All of these cash flows, that is, the expected dividends and the selling price at year five, were discounted using a required rate of return in order to determine the present value. If the market value is greater than the present value at the required rate you wish to achieve, this would mean that you should not buy the stock.

Table 2 shows the calculated dividends of NML, RBL and RBTT and Table 3 shows the relevant figures used to calculate the present value of the share. A price/earnings ratio of 12 was used for RBTT in comparison to 15 for the other shares due to liquidity of RBTT shares which steers it to trade at a lower multiple.

Table 2

NML		RBL		RBTT	
Expected Dividends		Expected Dividends		Expected Dividends	
Growth rate : 11.15%		Growth rate : 19.22%		Growth rate : 22.76	
Year 1	0.98	Year 1	2.68	Year 1	1.45
Year 2	1.09	Year 2	3.20	Year 2	1.78
Year 3	1.21	Year 3	3.81	Year 3	2.18
Year 4	1.34	Year 4	4.55	Year 4	2.68
Year 5	1.49	Year 5	5.42	Year 5	3.29

Table 3

	NML	RBL	RBTT
Estimated EPS at Year 5	5.81	11.55	7.28
Expected PE Multiple at Year 5	15	15	12
Approximate Selling Price (Year 5)	87.12	173.21	87.41
Required rate of return, k	0.15	0.15	0.15
Present Value, PV	47.29	98.67	50.66

Table 4

	Market Price as at 08/02/06	PV according to DDM
NML	44.49	47.29
RBL	88.02	98.67
RBTT	36.50	50.66

Table 4 shows the relation between that the three stocks illustrated and the present market value (assuming a holdings period of five years). According to the model, NML, RBL and RBTT currently have a higher present value than its market value. This would imply that at this current time, these shares are attractively priced as they are trading at a discount to the calculated net present value due to present depressed market conditions.

While clients seeking short term interest are frowning due to the present soft market environment, clients seeking value are wearing broad smiles on their faces as this may likely be a very good time for considering investing in the analyzed shares or any other that may prove fervent from such analysis. Clients therefore should take advantage of the current market conditions and regard these shares as a part of any medium term portfolio.

These three shares were chosen for illustrative purposes only. There are other listed companies that exhibit these same traits but space only permits a limited selection. In addition, the DDM is one model of valuing stocks. There are other models of valuation and none should be taken in isolation. An appropriate and prudent approach is to consider all factors before making an investment decision.