Equity Discounted Cash Flows Approach to Valuation

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Dividend Discount Model …

- The model is flexible enough to allow for time varying discount rates, where the time variation is caused by expected changes in interest rates or risk across time.

Gordon Growth Model …

- The growth rate taken should always be less than or equal to the growth rate of the economy
- Cannot be used when there is volatility in earnings
- Can be used when …
- [a] A firm has a average growth rate that is close to stable growth rate; [b] the dividend payout policies of the firm are well-established and expected to continue (in future)
- Reason – [a] dividends are smoothed even while earnings fluctuate; [b] mathematical affects of using an average growth rate rather than a constant growth rate are small

Valuation with Stable-Growth Dividend Discount Model …
SBI – March 2015

- Data from Anand Rathi Securities, RBI and Reuters
- Last years Dividend = 13 and DP Ratio = 80%
- R_m = 10.9%, Beta = 1.46, R_f = 7.8%
- Long-term Growth Rate can be taken as …
- ROE X Retention Ratio
- Intrinsic value of SBI per share as per above computations would be around …

Ke	0.123
RoE	0.111
DP Ratio	0.181
RR	0.819
Growth	0.091
Last Div.	3.000
IV	100.146

Two-Stage Dividend Discount Model …

- Best suited for firms that are in high growth and expect to maintain that growth rate for a specific time period, after which the sources of the high growth are expected to disappear.
- Example: Bata India, Chambal Fertilizers, State Bank of India, Cipla, Larsen & Toubro, …
- Characteristics of the firm in the stable period should be consistent with the assumption of stability
- So, for a stable period … a beta of 0.8 to 1.2 is okay

Valuing a Firm with the Two-Stage Dividend Discount Model … Bata India Limited – June 2013

Financials Rs (in Crores)	Bata In	Rf	7.2%	Rm	14.2%	Beta
For the year	1303	1203	1103	1003	903	803
Return on Equity	28.0%	36.5%	62.1%	24.5%		
Retention Ratio	78%	77%	88%	71%	74%	73%
Expected growth rate in EPS	32.86%					
Beta current	0.7					
Beta estimated for stable phase	0.8					
Cost of equity for high growth	12.10%					
Cost of equity for stable growth	12.80%					
Stable Period Assumed Growth	6.00%					
Stable Period Payout ratio	53%					
Current Dividend Per Share	6.00	6.00				
Current Earnings Per Share	27.10	25.80				

Bata India \ Year ==>	2013	2012				
DPS	6.00	6.00				
EPS	27.10	25.80				
BV/Share	109.0	84.8				
Average ROE (of past three years)	42.20%					
Payout Ratio	22.14%					
High Growth Rate	32.86%					
Stable Growth Rate	6.00%					
Dividends	6.00					
Cost of Equity (High Growth)	12.10%	7.2%	14.2%			
Cost of Equity (Stable Growth)	12.80%					
ROE in Stable Period	13.05%					
Estimated Retention Ratio in Stable	45.98%					
Estimated EPS in 2019	118.90					
Estimated Dividend in 2019	64.23					
Bata India \ Year ==>	2014	2015	2016	2017	2018	2019
Estimated Dividend	7.97	10.59	14.07	18.69	24.83	64.23
Estimated Terminal Value					944.59	
Estimated DDM	7.97	10.59	14.07	18.69	969.42	
Share Price (Intrinsic)	$584.99					

Three-Stage Dividend Discount Model …

- Highly useful for firms whose earnings are growing at high rates, are expected to continue growing at those rates for an initial period, but are expected to start declining gradually toward a stable rate as the firm becomes larger and loses its competitive advantages.
- Example: Relaxo Footwear, Mercator Lines, Yes Bank, Infosys Tech., Pantaloons India, Onmobile India, …

Relaxo Footwear Limited	703	803	903	1003	1103	1203	1303
EPS	5.8	8.8	11.9	31.4	22.3	33.3	37.3
Book Value (Rs)	42.8	50.7	61.6	91.6	112.2	143.7	181.0
Return on Equity	12.3%	18.8%	21.1%	41.0%	21.8%	26.0%	23.0%
Retention Ratio	87%	91%	94%	95%	93%	95%	95%
Expected Growth Rate	21.8%						
Cost of Equity in High Growth Period	9.30%						
High Growth Period	7 years						
Transition Phase Period	5 years						
Cost of Equity in Stable Period	13.77%	(increased beta)					
Estimated Return on Equity for Stable Pha	13.77%	(equal to cost of capital)					
Estimated Growth Rate for Stable Period	6.00%						
Stable Period Payout Ratio	56.4%						

Year	EPS	Expected Growth Rate	Payout Ratio	Dividends	Cost of Equity	Cumulated Cost of Equity	Present Value of DPS
Current	37.3		5.4%	2.0			
1	45.4	21.8%	5.4%	2.4	9.30%	1.093	2.2
2	55.3	21.8%	5.4%	3.0	9.30%	1.195	2.5
3	67.3	21.8%	5.4%	3.6	9.30%	1.306	2.8
4	82.0	21.8%	5.4%	4.4	9.30%	1.427	3.1
5	99.9	21.8%	5.4%	5.3	9.30%	1.560	3.4
6	121.6	21.8%	5.4%	6.5	9.30%	1.705	3.8
7	148.1	21.8%	5.4%	7.9	9.30%	1.864	4.3
PV of Dividends in High Growth Phase							22.0
9	175.8	18.8%	15.4%	27.0	10.20%	2.054	13.1
10	203.6	15.8%	25.4%	51.6	11.10%	2.282	22.6
11	229.6	12.8%	35.4%	81.2	12.00%	2.555	31.8
12	252.0	9.8%	45.4%	114.3	12.90%	2.885	39.6
13	267.1	6.0%	56.4%	150.7	13.77%	3.282	45.9
PV of Dividends in Transition Phase					13.77%	3.734	153.1
EPS for year 14	283.1						
Terminal price	2179.5						
PV of Dividends in Transition Phase							583.7
Value of Relaxo Footwear							758.8

Applicability of DDM

It is useful for firms with stable earnings, especially in mature businesses, that try to calibrate their dividends to available cash flows. Large Power and FMCG Firms are good examples.

Sectors where cash flow estimation is difficult (for example, financial services sector)

- Extension of model for equity buyback
- Modified dividend payout = [dividends + stock buybacks – long-term debt issues] / [net income]
- Modified growth rate = [1 – Modified payout ratio] X [return on equity]