Equity Discounted Cash Flows Approach to Valuation
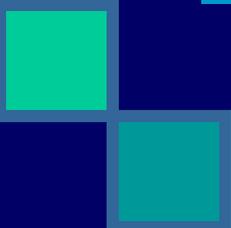
Ram Kumar Kakani
SPJCM Singapore

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 …
Hindustan Unilever – November 2007

- All data from Anand Rathi Securities and Reuters

- Last years Dividend = 6.00 and DP Ratio = 87%

- R_m = 13%, Beta = 0.81, R_f = 8%

- Long-term Growth Rate can be taken as …

- ROE X Retention Ratio

- Intrinsic value of Hindustan Lever per share as per above computations would be around …

Financials Rs (in Crores)	Hindustan Unilever Limited					
For the year	612	512	412	312		
No. of Shares (in crore)	220.7	220.1	220.1	220.1		
Adjusted EPS (Rs)	6.8	5.8	5.3	7.8		
Book value per Share (Rs)	12.3	10.5	9.5	9.7	87.7%	Ploughl
Dvdnd per Share (Rs)	6.0	5.0	5.0	5.5	12.0%	Ke
Lt Debt Equity	0.0	0.0	0.6	0.6	6.8%	G
Return on Equity (%)	55.4%	55.8%	55.3%	80.3%	122.7	IV

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: Essel Propack, Kilburn Chemicals, Monsanto India, …

- 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 … Punjab National Bank – November 2007

Punjab National Bank	2007	2006	2005	2004	2003	2002
Existing payout ratio	30.7%	15.0%	14.0%	10.8%	11.5%	11.6%
Return on Equity	15.5%	16.4%	21.4%	23.3%	23.1%	17.5%
Expected growth rate in EPS	0.107721					
Beta current	0.82					
Beta estimated for stable phase	0.85					
Cost of equity for high growth phase	11.42%					
Cost of equity for stable growth phase	12.90%					
Stable Period Assumed Growth Rate	5.50%					
Stable Period Payout ratio	57.36%					
Current Dividend Per Share	15.00	6.84				
Current Earnings Per Share	48.84	45.65				

Valuing a Firm with the Two-Stage Dividend Discount Model … Punjab National Bank – November 2007 (copy paste scenario)

Punjab National Bank \ Year ==>	2007	2006				
DPS	15.00	6.84				
EPS	48.84	45.65				
BV/Share	330.97	297.38				
ROE	15.55%					
Payout Ratio	30.71%					
High Growth Rate	10.77%					
Stable Growth Rate	5.50%					
Dividends	15.00					
Cost of Equity (High Growth)	12.42%	0.075	0.135			
Cost of Equity (Stable Growth)	12.90%					
ROE in Stable Period	12.90%					
Estimated Retention Ratio in Stable Phase	42.64%					
Estimated EPS in 2013	85.93					
Estimated Dividend in 2013	49.29					
PNB	2008	2009	2010	2011	2012	2013
Estimated Dividend	16.62	18.41	20.39	22.58	25.02	49.29
Estimated Terminal Value					666.1478	
Estimated DDM	16.62	18.41	20.39	22.58	691.16	
Share Price (Intrinsic)	$442.75					

Valuing a Firm with the Two-Stage Dividend Discount Model … Punjab National Bank – November 2007 (TTM Adjustment)

Punjab National Bank \ Year ==>	2007ttm	2006				
DPS	15.00	6.84				
EPS	61.39	45.65				
BV/Share	330.97	297.38				
ROE	19.54%					
Payout Ratio	24.43%					
High Growth Rate	14.77%					
Stable Growth Rate	5.50%					
Dividends	15.00					
Cost of Equity (High Growth)	12.42%	0.075	0.135			
Cost of Equity (Stable Growth)	12.90%					
ROE in Stable Period	12.90%					
Estimated Retention Ratio in Stable Phase	42.64%					
Estimated EPS in 2013	128.95					
Estimated Dividend in 2013	73.97					
PNB	2008	2009	2010	2011	2012	2013
Estimated Dividend	17.21	19.76	22.67	26.02	29.86	73.97
Estimated Terminal Value					999.5873	
Estimated DDM	17.21	19.76	22.67	26.02	1029.45	
Share Price (Intrinsic)	$636.50					

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: Yes Bank, Cipla, Larsen & Toubro, Infosys Technologies, Pantaloons India, …

Valuing a Firm with the Three-Stage Dividend Discount Model … Hexaware Technology – November 2007

Hexaware Technologies Limited	2006	2005	2004	2003	2002
PAT for common equity	114	78	43	30	6
Net worth for common equity	560	326	261	228	212
Return on Equity	25.6%	26.4%	17.7%	13.8%	
Dividend Payout Ratio	22.6%	21.1%	30.6%	16.8%	
Expected Growth Rate	19.8%				
Cost of Equity in High Growth Period	12.60%				

Valuing a Firm with the Three-Stage Dividend Discount Model … Hexaware Technologies – November 2007 (copy paste scenario)

Year	EPS	Expected Growth Rate	Payout Ratio	Dividends	Cost of Equity	Cumulated Cost of Equity	Present Value of DPS
Current	8.6		22.63%	1.9			
1	10.3	19.84%	22.63%	2.3	12.60%	1.126	2.1
2	12.4	19.84%	22.63%	2.8	12.60%	1.268	2.2
3	14.8	19.84%	22.63%	3.4	12.60%	1.428	2.3
4	17.8	19.84%	22.63%	4.0	12.60%	1.608	2.5
5	21.3	19.84%	22.63%	4.8	12.60%	1.810	2.7
6	25.5	19.84%	22.63%	5.8	12.60%	2.038	2.8
7	30.6	19.84%	22.63%	6.9	12.60%	2.295	3.0

PV of Dividends in High Growth Phase   17.6

Hexaware Technologies Limited	2007ttm	
EPS for common equity	9.2	
book value for common equity	53.8	
Return on Equity	17.1%	
Dividend Payout Ratio	17.4%	
Expected Growth Rate	14.1%	
Cost of Equity in High Growth Period	12.60%	
High Growth Period	7 years	
Transition Phase Period	5 years	
Cost of Equity in Stable Period	12.90%	(increased beta)
Estimated Return on Equity for Stable	12.90%	(equal to cost of capital)
Estimated Growth Rate for Stable Period	5.50%	
Stable Period Payout Ratio	57.4%	

Valuing a Firm with the Three-Stage Dividend Discount Model … Hexaware Technologies – November 2007 (TTM Adjustment)

Year	EPS	Expected Growth Rate	Payout Ratio	Dividends	Cost of Equity	Cumulated Cost of Equity	Present Value of DPS
Current			17.43%	0.0			
1	9.2	14.08%	17.43%	1.6	12.60%	1.126	1.4
2	10.5	14.08%	17.43%	1.8	12.60%	1.268	1.4
3	11.9	14.08%	17.43%	2.1	12.60%	1.428	1.5
4	13.6	14.08%	17.43%	2.4	12.60%	1.608	1.5
5	15.5	14.08%	17.43%	2.7	12.60%	1.810	1.5
6	17.7	14.08%	17.43%	3.1	12.60%	2.038	1.5
7	20.2	14.08%	17.43%	3.5	12.60%	2.295	1.5
PV of Dividends in High Growth Phase							10.3
9	22.7	12.08%	25.43%	5.8	12.65%	2.585	2.2
10	25.0	10.08%	34.43%	8.6	12.70%	2.914	3.0
11	27.0	8.08%	43.43%	11.7	12.75%	3.285	3.6
12	28.6	6.08%	50.23%	14.4	12.80%	3.706	3.9
13	30.2	5.50%	57.36%	17.3	12.90%	4.184	4.1
PV of Dividends in Transition Phase					12.90%	4.723	16.8
EPS for year 14	31.9						
Terminal price	260.6						
PV of Dividends in Transition Phase							55.2
Value of Hexaware Technologies							82.3

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]