Discounted Cash Flow: Forecast Drivers

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Last Time

Discounted Cash Flow (DCF)

- Free Cash Flow

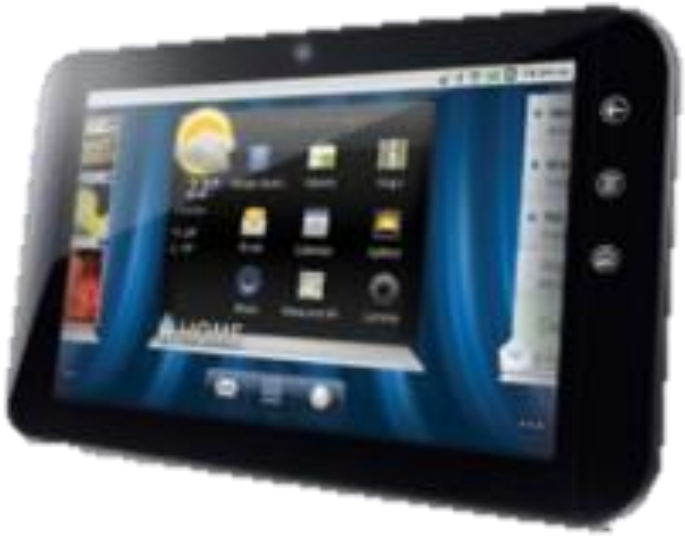
This Time

Discounted Cash Flow (DCF)

- Forecast Drivers

Forecast Drivers

FCF = (Revenue – Costs – Depreciation) x (1 – t_C)
+ Depreciation – Capital Expenditures
– Change in Net Working Capital



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$$Revenue = Market\ Size \times Market\ Share \times Price$$

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$$Revenue = Market\ Size \times Market\ Share \times Price$$

	Year					
Project Assumptions	**0 (F2008)**	**1**	**2**	**3**	**4**	**5**
Revenue Forecasts						
Market Forecasts						
Initial Market Size (Units, million)		1.00				
Market Growth Rate			2500.00%	128.0%	9.4%	3.5%
Market Size (Units, million)		1.0	26.0	59.3	64.9	67.1

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Market Size (Units, million)	1.0	26.0	59.3	64.9	67.1	
(Actual Market Size, Units Mil)	1.0	60.0	116.3	195.4	229.0	

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Market Size (Units, million)	1.0	26.0	59.3	64.9	67.1	
(Actual Market Size, Units Mil)	1.0	60.0	116.3	195.4	229.0	
Corp Market Share						
Initial Market Share	25.00%					
Market Share Annual Growth Rate		5.00%	5%	5%	5%	
Market Share	25.0%	26.3%	27.6%	28.9%	30.4%	

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Corp Market Share						
Initial Market Share		25.00%				
Market Share Annual Growth Rate			5.00%	5%	5%	5%
Market Share		25.0%	26.3%	27.6%	28.9%	30.4%
Pricing Strategy						
Initial Unit Price ($/unit)		200.00				
Bi-Annual Price Increases ($/unit)			-	49.99	-	49.99
Unit Price ($/unit)		200.00	200.00	249.99	249.99	299.98

FCF = (Revenue – Costs – Depreciation) x (1 – t_C)
+ Depreciation – Capital Expenditures
– Change in Net Working Capital

Costs = Cost Margin x Revenue

	Year					
Project Assumptions	**0 (F2008)**	**1**	**2**	**3**	**4**	**5**
Operating Expenses						
COGS						
COGS / Sales (% Sales)	80.66%	80.66%	80.66%	80.66%	80.66%	80.66%
SG&A						
1% of 2008 Company SG&A ($mil)		69.59				
SG&A Expense Growth Rate			25.00%	25.00%	25.00%	25.00%

$$FCF = (Revenue - Costs - Depreciation) \times (1 - t_C) + Depreciation - Capital\ Expenditures - Change\ in\ Net\ Working\ Capital$$

Costs = R&D Expenditures

Project Assumptions	Year 0 (F2008)	1	2	3	4	5
Operating Expenses						
COGS						
COGS / Sales (% Sales)	80.66%	80.66%	80.66%	80.66%	80.66%	80.66%
SG&A						
1% of 2008 Company SG&A ($mil)		69.59				
SG&A Expense Growth Rate			25.00%	25.00%	25.00%	25.00%
R&D						
R&D Upfront ($mil)	200.00					
R&D for Versioning ($mil)		25.00	25.00	25.00	25.00	25.00

$$FCF = (Revenue - Costs - Depreciation) \times (1 - t_C) + Depreciation - Capital\ Expenditures - Change\ in\ Net\ Working\ Capital$$

Capital Expenditures

	Year					
Project Assumptions	**0 (F2008)**	**1**	**2**	**3**	**4**	**5**
Capital Expenditures & PP&E Information						
Initial Investment (Fixed Cost, $mil)	227.70					
Future Investment (% of initial Investment)		10.0%				
Future Investment (Annual Growth)			5.0%	1.0%	1.0%	1.0%

$$FCF = (Revenue - Costs - Depreciation) \times (1 - t_C) + Depreciation - Capital\ Expenditures - Change\ in\ Net\ Working\ Capital$$

Capital Expenditures

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Capital Expenditures & PP&E Information						
Initial Investment (Fixed Cost, $mil)	227.70					
Future Investment (% of initial Investment)		10.0%				
Future Investment (Annual Growth)			5.0%	1.0%	1.0%	1.0%
PP&E Liquidation Value	50.00%	50.0%	50.0%	50.0%	50.0%	50.0%

FCF = (Revenue – Costs – Depreciation) x (1 – t_C)
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Depreciation

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Capital Expenditures & PP&E Information						
Initial Investment (Fixed Cost, $mil)	227.70					
Future Investment (% of initial Investment)		10.0%				
Future Investment (Annual Growth)			5.0%	1.0%	1.0%	1.0%
PP&E Liquidation Value	50.00%	50.0%	50.0%	50.0%	50.0%	50.0%
PP&E life for depreciation (Years)	5.00	5	5	5	5	5

*Straight line depreciation

$$\text{FCF} = (\text{Revenue} - \text{Costs} - \text{Depreciation}) \times (1 - t_C) + \text{Depreciation} - \text{Capital Expenditures} - \text{Change in Net Working Capital}$$

$$\text{Net Working Capital} = \text{Cash} + \text{Inventory} + \text{AR} - \text{AP}$$

$$FCF = (Revenue - Costs - Depreciation) \times (1 - t_C) + Depreciation - Capital\ Expenditures - Change\ in\ Net\ Working\ Capital$$

$$Net\ Working\ Capital = Cash + Inventory + AR - AP$$

	Year					
Project Assumptions	**0 (F2008)**	**1**	**2**	**3**	**4**	**5**
Working Capital Assumptions						
Cash Requirements						
% of SG&A	50.00%	50%	50%	50%	50%	50%
% R&D Expenditures	100.00%	100%	100%	100%	100%	100%

$$FCF = (Revenue - Costs - Depreciation) \times (1 - t_C) + Depreciation - Capital\ Expenditures - Change\ in\ Net\ Working\ Capital$$

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	Year					
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Working Capital Assumptions						
Cash Requirements						
% of SG&A	50.00%	50%	50%	50%	50%	50%
% R&D Expenditures	100.00%	100%	100%	100%	100%	100%
Inventory						
Inventory Days (365 x Inventory / COGS)	7.58	7.58	7.58	7.58	7.58	7.58
Excess Inventory liquidation value (% of Inventory Cost)						25.00%

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Cash Requirements						
% of SG&A	50.00%	50%	50%	50%	50%	50%
% R&D Expenditures	100.00%	100%	100%	100%	100%	100%
Inventory						
Inventory Days (365 x Inventory / COGS)	7.58	7.58	7.58	7.58	7.58	7.58
Excess Inventory liquidation value (% of Inventory Cost)						25.00%
Accounts Receivable						
Days Receivable (365 x Accounts Receivable / Sales)	38.49	38.49	38.49	38.49	38.49	38.49

FCF = (Revenue – Costs – Depreciation) x (1 – t_C)
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Net Working Capital = Cash + Inventory + AR – AP

	Year					
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Working Capital Assumptions						
Cash Requirements						
% of SG&A	50.00%	50%	50%	50%	50%	50%
% R&D Expenditures	100.00%	100%	100%	100%	100%	100%
Inventory						
Inventory Days (365 x Inventory / COGS)	7.58	7.58	7.58	7.58	7.58	7.58
Excess Inventory liquidation value (% of Inventory Cost)						25.00%
Accounts Receivable						
Days Receivable (365 x Accounts Receivable / Sales)	38.49	38.49	38.49	38.49	38.49	38.49
Accounts Payable						
Days Payable (365 x Accounts Payable / COGS)	61.54	61.54	61.54	61.54	61.54	61.54

$$\text{FCF} = (\text{Revenue} - \text{Costs} - \text{Depreciation}) \times (1 - t_C) + \text{Depreciation} - \text{Capital Expenditures} - \text{Change in Net Working Capital}$$

$$\Delta \text{ Net Working Capital} = \text{Net Working Capital (t)} - \text{Net Working Capital (t-1)}$$

where Δ = change over one period

FCF = (Revenue – Costs – Depreciation) x (1 – t_C)
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Taxes

We want the marginal tax rate (MTR)

=

Tax rate on additional $ of earnings

25.5%

This is Nonsense!

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Impossible to make accurate forecasts!

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I agree, but that's not the point!!!!

Lesson: Point of DCF is to focus discussion and analysis on relevant issues

Lesson: Successful valuation (i.e., decision making) depends critically on input from non-finance personnel

Summary

Lessons

- Forecast Drivers are the assumptions used to populate our free cash flow forecasts

- Goal is to establish framework for discussion
  - Think about value drivers

Coming up next

- Discounted Cash Flow (DCF)
  - Forecasting free cash flow