INTRODUCTION TO FINANCE

SAMPLE CASH FLOW TEMPLATE*

* The attached template has been prepared so that you may feel comfortable preparing spreadsheet models. Recall in class I emphasized the cash flows for a typical year, and then years 0 and the final year of your analysis. The attached provides you a complete example and a template that executes the analysis. We have not given you the spreadsheet, but an image of it with detailed notes, because we want you to recreate a spreadsheet yourself. Doing so before executing the analsysis in some of the questions on the Assignments will hopefully be helpful.

Maize & Blue Medical Supply (MBMS) is a leader in the production and sales of X-ray machines. This past year, MBMS posted $35,000,000 in revenue with a cost of goods sold of $22,000,000 and SG&A expenses of $2,000,000. They are projecting a growth of these numbers of 8%, 6%, and 2%, respectively, over the next 5 years. When considering their short term assets and obligations, MBMS has $4,000,000 in accounts receivable, $3,000,000 in accounts payable and $5,000,000 of inventory. The company's revenue growth will be largely driven by spending $20,000,000 today on an equipment upgrade, which will also lead to a $2,000,000 increase in accounts receivable next year. The expenditure for the equipment upgrade can be depreciated using the straight line method over the next 5 years. MBMS faces a 21% tax rate, a 7% discount rate and they are projected to be worth $236,000,000 at the end of our valuation horizon of 5 years.

(1) Work in your teams to create a cash flow model for Maize & Blue.
(2) What is the value of MBMS today?

Maize & Blue Cash Flows & Valuation

Maize Medical Supply (MMS) is a leader in the production and sales of X-ray machines. This past year, MMS posted $35 million (M) in revenue with a cost of goods sold of $22M and SG&A expenses of $2M. They are projecting a growth of these numbers of 8%, 6%, and 2%, respectively, over the next 5 years. When considering their short term assets and obligations, MMS has $4M in accounts receivable, $3M in accounts payable and $5 of inventory. The company's revenue growth will be largely driven by spending $20M today on an equipment upgrade, which will also lead to a $2M increase in accounts receivable next year. The expenditure for the equipment upgrade can be depreciated using the straight line method over the next 5 years. MMS faces a 21% tax rate, a 7% discount rate and they are projected to be worth $236 M at the end of our valuation horizon of 5 years. What is the value of MMS today?

Information given in the problem (all dollar figures in millions)

Initial Firm Conditions		**Future Firm Conditions**		**Rates**	
Revenue	$ 35.00	Revenue Growth	8%	tax rate	21%
COGS	$ 22.00	COGS Growth	6%	disc rate	7%
SG&A	$ 2.00	SG&A Growth	2%		
Accounts Receivable	$ 4.00	One-time AR increase	$ 2.00	**Capital Expenditure**	
Inventory	$ 5.00	Terminal Value	$ 236.00	Intitial investment	$ 20.00
Accounts Payable	$ 3.00	Terminal Value Year	5	Expected life	5

Calculations

Annual depreciation during equipment life $ 4.00

Time	0	1	2	3	4	5	
Working Capital	6	8	8	8	8	8	*AR + Inv - AP*
Change in WC		2	0	0	0	0	*WC(this period) - WC(last period)*

Time	0	1	2	3	4	5	
Revenue	$ -	$ 37.80	$ 40.82	$ 44.09	$ 47.62	$ 51.43	*(Last Year's Revenue) * (1 + Revenue Growth)*
COGS	$ -	$ (23.32)	$ (24.72)	$ (26.20)	$ (27.77)	$ (29.44)	*(Last Year's COGS * (1 + COGS Growth)*
SG&A	$ -	$ (2.04)	$ (2.08)	$ (2.12)	$ (2.16)	$ (2.21)	*(Last Year's SG&A * (1 + SG&A Growth)*
Less Dep		$ (4.00)	$ (4.00)	$ (4.00)	$ (4.00)	$ (4.00)	*Investment / Expected Life [if applicable]*
EBIT	$ -	$ 8.44	$ 10.02	$ 11.77	$ 13.68	$ 15.78	*Sum of the above four items*
Tax	$ -	$ (1.77)	$ (2.11)	$ (2.47)	$ (2.87)	$ (3.31)	*(EBIT) * (Tax Rate)*
EBIT*(1-Tax rate)	$ -	$ 6.67	$ 7.92	$ 9.29	$ 10.81	$ 12.46	*Sum of the above two items*
Plus Dep		$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	
Change in Working Capital	$ -	$ (2.00)	$ -	$ -	$ -	$ -	*Less INCREASES in WC from earlier calculation*
CAPX	($20.0)	$ -	$ -	$ -	$ -	$ -	
Free Cash Flow	$ (20.00)	$ 8.67	$ 11.92	$ 13.29	$ 14.81	$ 16.46	*Sum of the above four items*
PV(FCF)	$ (20.00)	$ 8.10	$ 10.41	$ 10.85	$ 11.29	$ 11.74	*each year's FCF discounted to today's dollars*
PV(Terminal Value)						$ 168.26	*terminal value discounted to today's dollars*

Total NPV	$ 200.66	*Summing present values of the free cash flows and the present value of the terminal value*
Total NPV	$ 200.66	*Computing the NPV with help from Excel's NPV function*

Sample Cash Flow Template

Maize Medical Supply (MMS) is a leader in the production and sales of X-ray machines. The company expects to post $35 million (M) in revenue with a cost of goods sold of $22M and SG&A expenses of $2M. They are projecting a growth of these numbers of 8%, 6%, and 2%, respectively, over the next four years. When considering their short term assets and obligations, MMS has $4M in accounts receivable, $3M in accounts payable and $5 of inventory. The company's revenue growth will be largely driven by spending $20M today on an equipment upgrade, which will also lead to a $2M increase in accounts receivable at the end of the year. The expenditure for the equipment upgrade can be depreciated using the straight line method over the next 5 years. MMS faces a 35% tax rate, a 14% discount rate and they are projected to be worth $30M at the end of our valuation horizon of 5 years. What is the value of MMS today?

Information given in the problem (all dollar figures in millions)

Initial Firm Conditions		**Future Firm Conditions**		**Rates**	
Revenue	$ 35.00	Revenue Growth	8%	tax rate	35%
COGS	$ 22.00	COGS Growth	6%	disc rate	14%
SG&A	$ 2.00	SG&A Growth	2%		
Accounts Receivable	$ 4.00	One-time AR increase	$ 2.00	**Capital Expenditure**	
Inventory	$ 5.00	Terminal Value	$ 30.00	Intitial investment	$ 20.00
Accounts Payable	$ 3.00	Terminal Value Year	5	Expected life	5

Calculations

Annual depreciation during equipment life $ 4.00

Time	0	1	2	3	4	5	
Working Capital	6	8	8	8	8	8	*AR + Inv - AP*
Change in WC		2	0	0	0	0	*WC(this period) - WC(last period)*

Time	0	1	2	3	4	5	
Revenue	$ -	$ 35.00	$ 37.80	$ 40.82	$ 44.09	$ 47.62	*(Last Year's Revenue) * (1 + Revenue Growth)*
COGS	$ -	$ (22.00)	$ (23.32)	$ (24.72)	$ (26.20)	$ (27.77)	*(Last Year's COGS * (1 + COGS Growth)*
SG&A	$ -	$ (2.00)	$ (2.04)	$ (2.08)	$ (2.12)	$ (2.16)	*(Last Year's SG&A * (1 + SG&A Growth)*
Less Dep		$ (4.00)	$ (4.00)	$ (4.00)	$ (4.00)	$ (4.00)	*Investment / Expected Life [if applicable]*
Operating Profit	$ -	$ 7.00	$ 8.44	$ 10.02	$ 11.77	$ 13.68	*Sum of the above four items*
Tax	$ -	$ (2.45)	$ (2.95)	$ (3.51)	$ (4.12)	$ (4.79)	*(Operating Profit) * (Tax Rate)*
NOPAT	$ -	$ 4.55	$ 5.49	$ 6.52	$ 7.65	$ 8.89	*Sum of the above two items*
Plus Dep		$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	
Change in Working Capital	$ -	$ (2.00)	$ -	$ -	$ -	$ -	*Less INCREASES in WC from earlier calculation*
CAPX	($20.0)	$ -	$ -	$ -	$ -	$ -	
Free Cash Flow	$ (20.00)	$ 6.55	$ 9.49	$ 10.52	$ 11.65	$ 12.89	*Sum of the above four items*
PV(FCF)	$ (20.00)	$ 5.75	$ 7.30	$ 7.10	$ 6.90	$ 6.69	*each year's FCF discounted to today's dollars*
PV(Terminal Value)						$ 15.58	*terminal value discounted to today's dollars*

Total NPV	$ 29.31	*Summing present values of the free cash flows and the present value of the terminal value*
Total NPV	$ 29.31	*Computing the NPV with help from Excel's NPV function*