Financial Statements

CSC454 Joint Tutorial

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Agenda

- Introduction: The Big Picture
- Financial and Pro Forma Statements:
  - The "***Balance Sheet***"
  - Profit, the "***Income Statement"***, and what it doesn't say
  - The importance of a "***cash budget***" and the role of the "***Statement of Cash Flows***"
- A Short Note on Modeling
  - Developing the spreadsheets
  - Some sources of interest

The business plan is the ticket of admission to the investment process.[1]

- You develop your business plan to convince potential investors or lenders about:
  1. The market-product potential
  2. Your ability, preparedness, and plan to execute
  3. The "financials"

So far, you have covered 1 and 2 in your previous submissions – now it's time for the nitty-gritty of the financials!

1) Rich & Gumpert: *Business Plans that Win $$$*

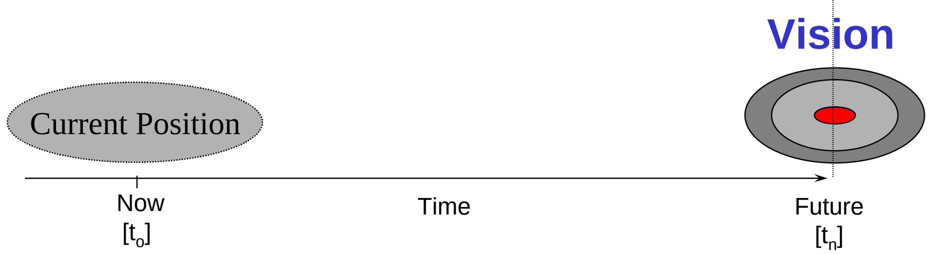
You need to quantify everything in financial terms. But beware!

- The real drivers of your financial forecasts (*Pro Forma* statements) are the numbers derived from your research, reflected in other parts of your business plan, such as:
  – The market size and your expected share
  – Value to customers and what they are willing to pay
  – Costs of producing, promoting and delivering your product/service

No degree of financial modeling wizardry can compensate for poor and unreliable input – even if you are Enron/WorldCom/Qwest!

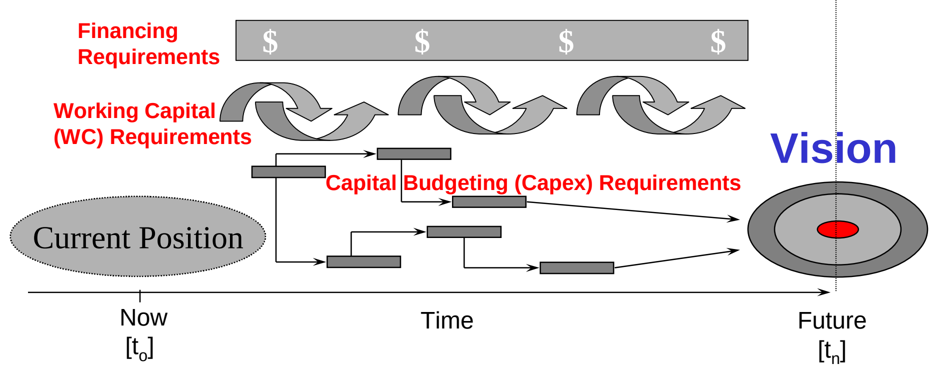
Even with hard-core finance, everything starts with vision and strategy!

1. Start with Vision of the future at t_n
2. Compare current position with vision
3. Specify gaps to be filled and capabilities to be gained
4. Develop strategy, “projects” and initiatives



Your strategy and defined “projects” create the setting for financial decision-making.

1. “Projects” determine “***capital budgeting programs***”
2. “Projects” also require “***working capital***” to operate
3. Capital and operating programs need to be “***financed***”



Your strategy and defined "projects" create the setting for financial decision-making.

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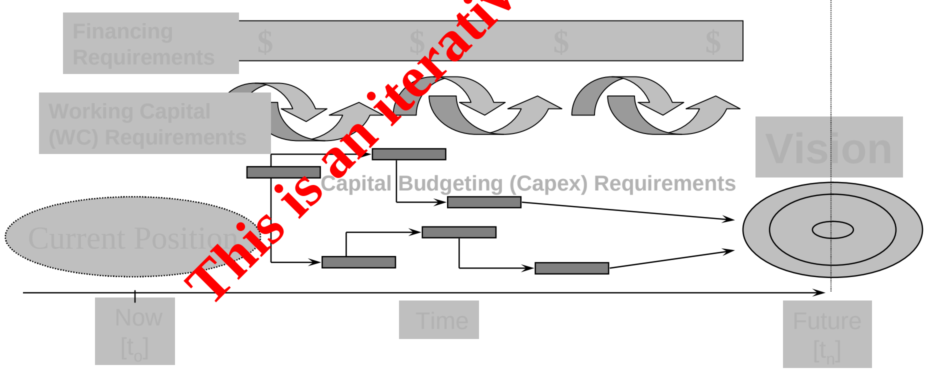
This is an iterative process.



This will then all be captured in "Financial Forecasting"

The scope of detailed Pro-Formas

- covers the firm as a whole
- time period is short: e.g. monthly, half-yearly, yearly
- It is not an accounting play, and should not be restricted to financial planners – it's a strategic issue

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The financial position of a firm is reported in a *Balance Sheet*

- By "***financial position***" we mean:
  - Assets
  - Liabilities
  - Stockholders' (Shareholders', Owners') Equity
- The Balance Sheet provides a "*snapshot*" of a firm's financial position
- It creates a relationship between elements of a firm's financial position
  - Assets = Liabilities + Stockholders' Equity
  - This is called the "**basic accounting equation**" or the "**balance sheet equation**"
  - You should whisper this even when sleeping!

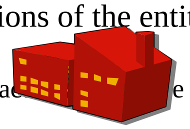
The “**basic accounting equation**” is one of the most fundamental equations of the universe!

- The barrier of light speed will one day be broken by “warp phenomenon” or “hyper-jump”, thus rendering $E=MC^2$ obsolete
- But A = L + SE can never be changed or bent!

Even Enron couldn’t do it!

Remember:
Assets = Liabilities + Stockholders’ Equity

- Assets are economic resources which are owned by a business:
  - Result from past transactions (sales on credit, inventory, etc.)
  - Are expected to benefit future operations.
- Liabilities are obligations of the entity to outside parties (“*creditors*”):
  - Result from past transa e through credit, cash borrowing, etc.)
  - Are sources of financing for assets



- Owners’ Equity indicates the amount of financ by owners of the business
  - Contributed
  - Retained earning

The Balance Sheet can be presented in two formats - A

ABC Corp.
Balance Sheet
As of December 31, 2002
(in thousands of dollars)

Note elements of heading

Assets	
Current assets	$ ___
Building and equip.	___
Land	___
Total assets	$____
Liabilities and Owners' Equity	
Liabilities	$___
Owners' Equity	
Paid-in capital	___
Retained earnings	___
Total liabilities and owners' equity	$____

The Balance Sheet can be presented in two formats - B

ABC Corp.
Balance Sheet
As of December 31, 2002
(in thousands of dollars)

Assets		**Liabilities + Owners' Equity**	
Current Assets		Current Liabilities	
__	$____	__	$____
__	$____	__	$____
__	$____	__	$____
Non-current Assets		Non-current Liabilities	
__	$____	__	$____
__	$____	__	$____
__	$____	__	$____
		Owners' Equity	
		__	$____
		__	$____
		__	$____
Total Assets	$____	Total L + SE	$____

Balance Sheet:
The Current Portion

ABC Corp.
Balance Sheet
As of December 31, 2002
(in thousands of dollars)

Assets		**Liabilities and Owners' Equity**	
Current assets:		Current liabilities:	
Cash	$ 4,895	Accounts payable	$ 7,156
Accounts receivable, net	5,714	Notes Payable	9,000
Inventories	8,517		
Total current assets	$19,126	**Total current liabilities**	$ 16,156

Note that the totals are not equal

The difference between Current Assets and Current Liabilities is called "Working Capital (WC)"

Balance Sheet:
The Non-Current Portion

ABC Corp.
Balance Sheet
As of December 31, 2002
(in thousands of dollars)

Assets		**Liabilities + Owners' Equity**	
Current Assets		Current Liabilities	
__	$____	__	$____
__	$____	__	$____
__	$____	__	$____
Non-current Assets		Non-current Liabilities	
__	$____	__	$____
__	$____	__	$____
__	$____	__	$____
		Owners' Equity	
		__	$____
		__	$____
		__	$____
Total Assets	$____	Total L + SE	$____

Balance Sheet:
The Non-Current Portion

Assets		Liabilities and Owners' Equity	
Noncurrent assets:		Noncurrent liabilities:	
Property, plant, equipment at cost	$10,135		
Less: Accumulated Depreciation	(2,000)	Total liabilities	16,156
Property, plant, equipment net	8,135	Owners' Equity	
		Common stock	2,000
		Retained earnings	9,105
		Total owners' equity	11,105
Total assets	$27,261	**Total liabilities and owners' equity**	$ 27,261

Note that the totals are equal now

The Balance Sheet:
All things put together

ABC Corp.
Balance Sheet
As of December 31, 2002
(in thousands of dollars)

Assets		**Liabilities + Owners' Equity**	
Current Assets		Current Liabilities	
Cash	$ 4,895	Accounts Payable	$ 7,156
Accounts Receivable	$ 5,714	Notes Payable	$ 9,000
Inventories	$ 8,517		
Non-current Assets		Non-current Liabilities	
Property, Plant & Eqpmt	$10,135	Long term debt	$ -
Less Depreciation	$(2,000)		
Net PPE	$ 8,135	Total Liabilities	$16,156
		Owners' Equity	
		Common Stock	$ 2,000
		Retained Earnings	$ 9,105
		Total Owners' Equity	$11,105
Total Assets	**$27,261**	Total L + SE	**$27,261**

As a brand new venture:
Do not start with a Balance Sheet

- As a brand new venture you do not start preparing your pro forma financial statements with the balance sheet because:
  - You don't have "past" transactions"
  - You don't have long term assets
  - You might or might not have long-term liabilities
- Your Pro-Forma Balance Sheets should be developed based on your assessment of projected earnings, cash flow, required investments, required financing, and their timing

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What should be a firm's objective as a business?

- Some people think that "maximizing the profit" is the main objective of a business.
- What is the profit we want to maximize?
  - Profit is the excess of total revenues over total expenses.
  - Accountants use the terms *Net Income* or *Net Earnings.*
  - It is also called the "bottom line". Why?

The Income Statement (I/S)

ABC Corp.
Income Statement
For the Year Ended December 31, 2002
(in thousands of dollars)

Sales revenue		$ 37,436
Less cost of sales (Cost of Goods Sold - COGS)		(26,980)
Gross margin		10,456
Selling, general and administrative expense	(3,624)	
Research and development expenses	(1,952)	
		(5,576)
Operating Income		4,880
Interest expense		(450)
Income before taxes		4,430
Provision for income taxes		(1,100)
Net income		$ 3,330

The bottom line!

How the Income Statement relates to the Balance Sheet…

Condensed Balance Sheet
As of December 31, 2002

Assets	
Current assets	$ 19,126
Building and equip.	7,154
Land	981
Total assets	$27,261
Liabilities and Owners' Equity	
Liabilities	$16,156
Owners' Equity	
Paid-in capital	2,000
Retained earnings	9,105
Total liabilities and owners' equity	$27,261

Income Statement
For the Year 2002

Sales revenue	$37,436
Less cost of sales	26,980
Gross margin	10,456
Less operating exp.	5,576
Operating income	4,880
Income before taxes	4,430
Provision for taxes	1,100
Net income, 2000	$ 3,300

Statement of Retained Earnings

Retained earnings Jan 1	$6,805
Add net income	3,300
	10,105
Less dividends	1,000
Retained earnings Dec 31	$9,105

Is profit a good measure of assessing a firm?

ABC Corp.
Income Statement
For the Year Ended December 31, 2002
(in thousands of dollars)

Sales revenue		$ 37,436
Less cost of sales (Cost of Goods Sold - COGS)		(26,980)
Gross margin		10,456
Selling, general and administrative expense	(3,624)	
Research and development expenses	(1,952)	
		(5,576)
Operating Income		4,880
Interest expense		(450)
Income before taxes		4,430
Provision for income taxes		(1,100)
Net income		$ 3,330

How can we increase the profit?

The Income Statement (I/S)
Let's Increase the Profit

ABC Corp.
Income Statement
For the Year Ended December 31, 2002
(in thousands of dollars)

Sales revenue		$ 37,436
Less cost of sales (Cost of Goods Sold - COGS)		(26,980)
Gross margin		10,456
Selling, general and administraive expense	(3,624)	
~~Research and development expenses~~	~~(1,952)~~	
		(3,624)
Operating Income		6,832
Interest expense		(450)
Income before taxes		6,382
Provision for income taxes		(1,100)
Net income		$ 5,282

Here we have undermined the long-term sustainability of the business to achieve short-term gains

What should be a firm's objective as a business?

- Profit Maximization Objective Functions?
  - Issue of profitability measures and time frame
  - What if:
    - A hi-tech company cuts down on R&D
    - A manufacturer cuts down on maintenance costs
    - A producer cuts down on raw material quality

  to increase profitability?

This is why modern corporate finance does not set "profit maximization" per se as the main objective of firms.

But, at the end of the day, the business needs to make a profit!

Another shortcoming of the income statement: How to go broke … while making a profit![1]

Take the case of another ABC company.

- ABC makes a new widget.
- They produce the widget at $0.75 a piece and sell it for $1.
- They always keep 30 days supply in inventory
- They always pay their bills promptly
- They allow customers to pay in 30 days (net 30 days)
- We start analyzing them in January 1. They have:
  - $1000 in cash
  - 1000 units in stock, and
  - already sold 1000 units last December

1) Business Week, April 28, 1956

An "undercapitalized" business can go broke while making a profit!

ABC Corp.
Cash Budget
January – May 2002

Rules					
1/ widgets	cost	selling price	Net Income per Widget		
	$ 0.75	$ 1.00	$ 0.25		
2/ Keep a 30-day supply in inventory, pay bills promptly, but bill customers based on a 30-day net.					
3/ Monthly growth rate of sales	20%				
4/ Initial Cash	$ 1,000				
	January	*February*	*March*	*April*	*May*
Projected Sales (# of widgets)	1000	1200	1440	1728	2074
Monthly Profit	$ 250	$ 300	$ 360	$ 432	$ 518
Cumulative Profit	$ 250	$ 550	$ 910	$ 1,342	$ 1,860
Cash Inflows					
(collection of prior month receivables)	$ 1,000	$ 1,000	$ 1,200	$ 1,440	$ 1,728
Cash Outflows					
(inventory replacement per policy)	$ 900	$ 1,080	$ 1,296	$ 1,555	$ 2,625
Cash Surplus (deficit)	$ 100	$ (80)	$ (96)	$ (115)	$ (897)
Cumulative Cash Surplus (Deficit)	***$ 1,100***	***$ 1,020***	***$ 924***	***$ 809***	***$ (88)***

The same can happen to a service company

- In the previous example, assume you are delivering a service rather than producing a widget
- To provide the service, you incur costs to:
  - Recruit employees
  - Train newly employed staff
  - Provide for them in terms of software, hardware, office space and supplies, etc.
  - Pay for your staff during provision of service
- Oftentimes you get paid not incrementally, but in installments, after having provided the service
- The "cash conversion period" (from the time you pay to the time you get paid) is the drain on your resources and can sink you

Lack of proper planning can lead to "under-capitalization" and cash constraints

- A very well-prepared Pro-Forma "*Income Statement*" (projection of revenues and expenses), would have shown this firm very profitable indeed.
- As we have seen, reported revenues (or expenses) do not always equal cash collected (or paid out) during the period. Hence, net income ***usually*** is not the actual cash on hand.
- Furthermore, there are other cash in/outflows that are not captured by the Income Statement.

How do we monitor the inflow and outflow of cash?

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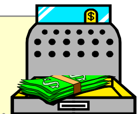
"Statement of Cash Flows": The royalty of all financial statements!

- ***Cash flow is King!*** We saw how a profitable company can go broke if cash is not managed well.
- Many bankers consider the "Statement of Cash Flows" as the most important statement they use to estimate whether a firm can afford to pay their debt.
- Cash inflows/outflows are reported in three categories:
  - Operating
  - Investing
  - Financing

Cash Flows from Operating Activities

Inflows **from:**

- Sales to customers.
- Interest and dividends received.



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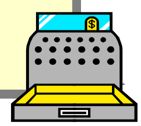
Outflows **to:**

- Purchase goods to resell and services.
- Salaries & wages.
- Income taxes.
- Interest on liabilities.



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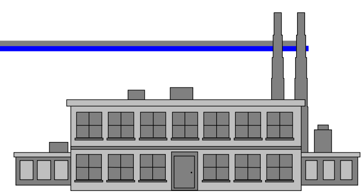
Cash Flows from Operating Activities

Cash Flows from Investing Activities



Inflows from:

- Sale or disposal of property, plant, and equipment.
- Sale or maturity of investments in securities.

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Outflows **to:**

- Purchase property, plant, and equipment.
- Purchase investments in securities.

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Cash Flows from Investing Activities

Cash Flows from Financing Activities

Inflows **from:**

- Borrowing on notes, mortgages, bonds, etc. from creditors.
- Issuing equity securities to owners.

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Outflows **to:**

- Repay principal to creditors (excluding interest).
- Repurchase equity securities from owners.
- Pay dividends to owners.

—

Cash Flows from Financing Activities

The Statement of Cash Flows informs us where cash came from and where it was spent

ABC Corp.
Statement of Cash Flows
As of December 31, 2002
(in thousands of dollars)

Cash flows from operating activities		
Cash collected from customers	33,563	
Cash paid for suppliers and employees	(30,854)	
Cash paid for interest	(450)	
Cash paid for taxes	(1,190)	
Net cash flow from operating activities		1,069
Cash flows from investing activities		
Cash paid to purchase equipment	(1,625)	
Net cash flow from investing activities		(1,625)
Cash flows from financing activities		
Bank loan received	1,400	
Dividends	(1,000)	
Net cash flow from financing activities		400
Net decrease in cash during the year		(156)
Cash at beginning of year		5,051
Cash at end of year		4,895

How the Statement of Cash Flows relates to the Balance Sheet…

Condensed Balance Sheet As of December 31, 2002 Assets	
Cash	$ 4,895
Accounts Receivable	$ 5,714
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Owners' Equity	
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Retained earnings	9,105
Total liabilities and owners' equity	$27,261

Statement of Cash Flows For the Year 2002	
Net Cash Flow from Operating Activities	$1,069
Net Cash Flow from Investing Activities	$(1,625)
Net Cash Flow from Financing Activities	$ 400
Net Decrease in Cash	$ (156)
Cash at Beginning of Year	$5,051
Cash at End of Year	$4,895

Realistic projections of future cash flows is probably the most important element in a plan

- Cash Budget is a forecasted summary of a firm's expected cash inflows and cash outflows as well as its expected cash and loans balances.
- There are basically two different methods/ approaches for cash budgeting: Direct (receipts/disbursements) and Indirect (Adjusted NI) (beyond the scope of this course).
- Simply include a pro forma statement of cash flows

Positive cash flows permit a company to . . .

Pay dividends to owners.

Expand its operations.

Take advantage of market opportunities.

Replace needed assets.

This is why Cash Flow is Considered King!

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Detailed Pro-Formas

- Sketch out the true economic and financial relationships from the firm's Vision, Strategy and Value Chain
- Specify financial policies and assumptions
  - sales, costs of operation, working capital, capex, financing, dividends
- Create a detailed spreadsheet model of the likely future financial statements (called ***pro-formas***) based on the financial policies and anticipated economic assumptions
- Validate the model
- Consider modeling balance sheet, income statement, and cash flow statement for up to four different scenarios:
  - aggressive growth plan (large capital budget) vs. normal growth plan (moderate capex)
  - retrenchment (survival capex)
  - divestiture

Developing the Spreadsheets[1]

- Understand the problem and the desired solution (template)
- Make thumbnail sketches
- Enter global formats
- Build a text skeleton
- Specify financial model equations by statement type
- Develop a set of pro-forma input parameters in separate cells outside of model computation area
- List assumptions in a separate area outside of model computation area
- Enter data and formulas
- Check for reasonableness of results
- Document the spreadsheets

1) Professor John Harris – Rotman School of Management

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Some sources of interest

- Office Depot
  - Business Tools/Forms
  - http://www.officedepot.com/BusinessTools/forms/default.asp?SID=&PP=1
- Michigan Small Business Development Center
  - Business Planning Tools/Cash Flow Spreadsheets
  - http://www.mi-sbdc.org/BusinessPlanningTools.asp
- Business Development Bank
  - Interactive Business Plan
  - http://bdc.ca/scripts/site/display-tools.asp?language=eng&node_ID=38&module_ID=39&module_code=tools_business_plan&funct=features

Question?