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# Financial Statements

## CSC454 Joint Tutorial

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March/10/2003

### Agenda

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- 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.<sup>1</sup>

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- 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!

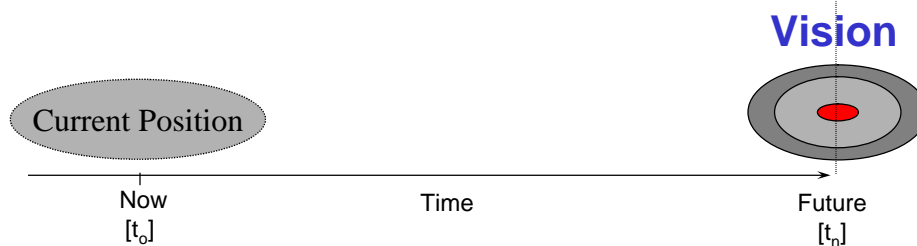
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- The real drivers of your financial forecasts (*Pro Forma* statements) are the numbers derived from your research, reflected in other parts of your business plan, such as:
  - The market size and your expected share
  - Value to customers and what 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!**

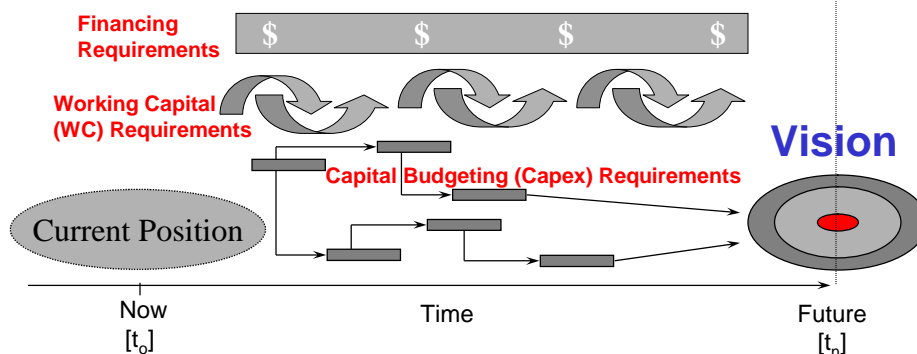
## Even with hard-core finance, everything starts with vision and strategy!

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.

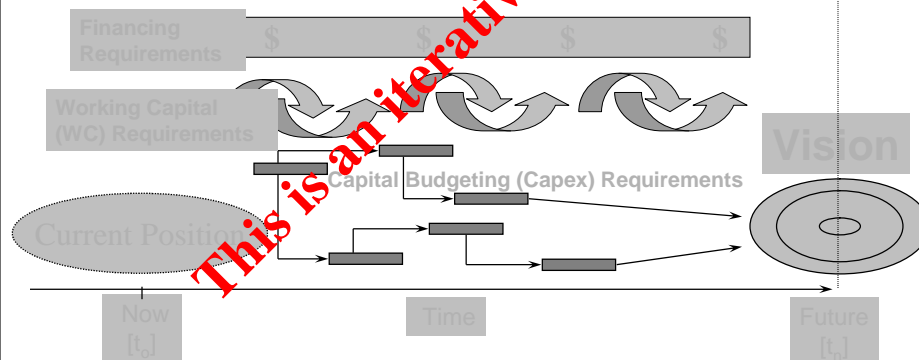
1. “Projects” determine “*capital budgeting programs*”
2. “Projects” also require “*working capital*” to operate
3. Capital and operating programs need to be “*financed*”



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

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



This will then all be captured in “Financial Forecasting”

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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*

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- 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
  - $\text{Assets} = \text{Liabilities} + \text{Stockholders' Equity}$
  - 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!

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- 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!



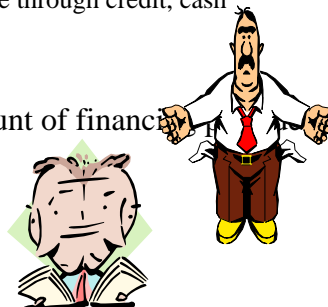
Even Enron couldn't do it!

Remember:

**Assets = Liabilities + Stockholders' Equity**

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- 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 transactions (e.g., through credit, cash borrowing, etc.)
  - Are sources of financing for assets
- Owners' Equity indicates the amount of financing by owners of the business
  - Contributed
  - Retained earning



The Balance Sheet can be presented in two formats - **A**

<p><b>ABC Corp.</b> Balance Sheet As of December 31, 2002 (in thousands of dollars)</p>		Note elements of heading
<p><u>Assets</u></p>		
Current assets	\$	___
Building and equip.		___
Land		___
Total assets	\$	==
<p><u>Liabilities and Owners' Equity</u></p>		
Liabilities	\$	___
Owners' Equity		
Paid-in capital		___
Retained earnings		___
Total liabilities and owners' equity	\$	==

The Balance Sheet can be presented in two formats - **B**

<p><b>ABC Corp.</b> Balance Sheet As of December 31, 2002 (in thousands of dollars)</p>			
<b>Assets</b>		<b>Liabilities + Owners' Equity</b>	
<p><u>Current Assets</u></p>	<p><u>Current Liabilities</u></p>		
<p>___ \$ ___</p>	<p>___ \$ ___</p>		
<p>___ \$ ___</p>	<p>___ \$ ___</p>		
<p>___ \$ ___</p>	<p>___ \$ ___</p>		
<p><u>Non-current Assets</u></p>	<p><u>Non-current Liabilities</u></p>		
<p>___ \$ ___</p>	<p>___ \$ ___</p>		
<p>___ \$ ___</p>	<p>___ \$ ___</p>		
<p>___ \$ ___</p>	<p><u>Owners' Equity</u></p>		
<p>___ \$ ___</p>	<p>___ \$ ___</p>		
<p>___ \$ ___</p>	<p>___ \$ ___</p>		
<p><u>Total Assets</u> \$ ___</p>	<p><u>Total L + SE</u> \$ ___</p>		

## Balance Sheet: *The Current Portion*

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

Assets			Liabilities and Owners' Equity	
<u>Current assets:</u>			<u>Current liabilities:</u>	
Cash	\$ 4,895		Accounts payable	\$ 7,156
Accounts receivable, net	5,714		Notes Payable	<u>9,000</u>
Inventories	<u>8,517</u>			
<b>Note that the totals are <u>not</u> equal</b>				
<b>Total current assets</b>	<u>\$19,126</u>		<b>Total current liabilities</b>	<u>\$ 16,156</u>

**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	
<u>Current Assets</u>			<u>Current Liabilities</u>	
—	\$ ___		—	\$ ___
—	\$ ___		—	\$ ___
—	\$ ___		—	\$ ___
<u>Non-current Assets</u>			<u>Non-current Liabilities</u>	
—	\$ ___		—	\$ ___
—	\$ ___		—	\$ ___
—	\$ ___		—	\$ ___
			<u>Owners' Equity</u>	
			—	\$ ___
			—	\$ ___
			—	\$ ___
<b>Total Assets</b>	<b>\$ ___</b>		<b>Total L + SE</b>	<b>\$ ___</b>

## Balance Sheet: *The Non-Current Portion*

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

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)

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

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)		<u>(26,980)</u>
Gross margin		10,456
Selling, general and administrative expense	(3,624)	
Research and development expenses	<u>(1,952)</u>	
		<u>(5,576)</u>
Operating Income		4,880
Interest expense		<u>(450)</u>
Income before taxes	The bottom line!	4,430
Provision for income taxes	↓	<u>(1,100)</u>
Net income		<u>\$ 3,330</u>

## How the Income Statement relates to the Balance Sheet...

Condensed Balance Sheet As of December 31, 2002	Income Statement For the Year 2002																																						
<table style="width: 100%; border-collapse: collapse;"> <tr><td colspan="2"><b>Assets</b></td></tr> <tr><td>Current assets</td><td style="text-align: right;">\$ 19,126</td></tr> <tr><td>Building and equip.</td><td style="text-align: right;">7,154</td></tr> <tr><td>Land</td><td style="text-align: right;"><u>981</u></td></tr> <tr><td><b>Total assets</b></td><td style="text-align: right;"><b><u>\$27,261</u></b></td></tr> <tr><td colspan="2"><b>Liabilities and Owners' Equity</b></td></tr> <tr><td>Liabilities</td><td style="text-align: right;">\$16,156</td></tr> <tr><td>Owners' Equity</td><td></td></tr> <tr><td>  Paid-in capital</td><td style="text-align: right;">2,000</td></tr> <tr><td>  Retained earnings</td><td style="text-align: right;"><u>9,105</u></td></tr> <tr><td><b>Total liabilities and owners' equity</b></td><td style="text-align: right;"><b><u>\$27,261</u></b></td></tr> </table>	<b>Assets</b>		Current assets	\$ 19,126	Building and equip.	7,154	Land	<u>981</u>	<b>Total assets</b>	<b><u>\$27,261</u></b>	<b>Liabilities and Owners' Equity</b>		Liabilities	\$16,156	Owners' Equity		Paid-in capital	2,000	Retained earnings	<u>9,105</u>	<b>Total liabilities and owners' equity</b>	<b><u>\$27,261</u></b>	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Sales revenue</td><td style="text-align: right;">\$37,436</td></tr> <tr><td>  Less cost of sales</td><td style="text-align: right;"><u>26,980</u></td></tr> <tr><td>Gross margin</td><td style="text-align: right;">10,456</td></tr> <tr><td>  Less operating exp.</td><td style="text-align: right;"><u>5,576</u></td></tr> <tr><td>Operating income</td><td style="text-align: right;">4,880</td></tr> <tr><td>Income before taxes</td><td style="text-align: right;">4,430</td></tr> <tr><td>  Provision for taxes</td><td style="text-align: right;"><u>1,100</u></td></tr> <tr><td><b>Net income, 2000</b></td><td style="text-align: right;"><b><u>\$ 3,300</u></b></td></tr> </table>	Sales revenue	\$37,436	Less cost of sales	<u>26,980</u>	Gross margin	10,456	Less operating exp.	<u>5,576</u>	Operating income	4,880	Income before taxes	4,430	Provision for taxes	<u>1,100</u>	<b>Net income, 2000</b>	<b><u>\$ 3,300</u></b>
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## Is profit a good measure of assessing a firm?

<b>ABC Corp.</b>	
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)	<u>(26,980)</u>
Gross margin	10,456
Selling, general and administrative expense	(3,624)
Research and development expenses	<u>(1,952)</u>
	<u>(5,576)</u>
Operating Income	4,880
Interest expense	<u>(450)</u>
Income before taxes	4,430
Provision for income taxes	<u>(1,100)</u>
<b>Net income</b>	<b><u>\$ 3,330</u></b>

**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)	<u>(26,980)</u>
Gross margin	10,456
Selling, general and administrative expense	(3,624)
<del>Research and development expenses</del>	<del><u>(1,952)</u></del>
	<u>(3,624)</u>
Operating Income	6,832
Interest expense	<u>(450)</u>
Income before taxes	6,382
Provision for income taxes	<u>(1,100)</u>
Net income	<u>\$ 5,282</u>

**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!<sup>1</sup>

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				
	<b>January</b>	<b>February</b>	<b>March</b>	<b>April</b>	<b>May</b>
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

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- 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

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- 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?**

## Agenda

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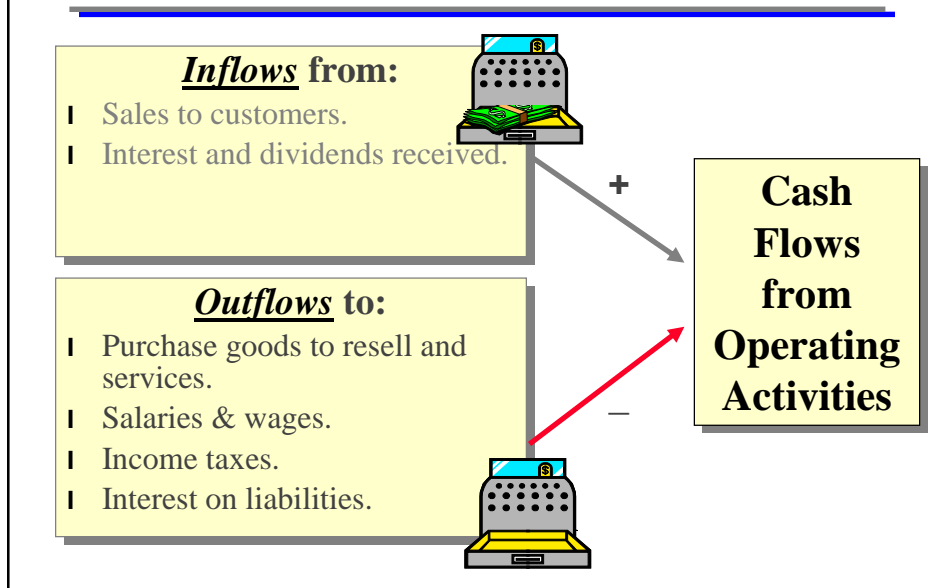
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## “Statement of Cash Flows”: The royalty of all financial statements!

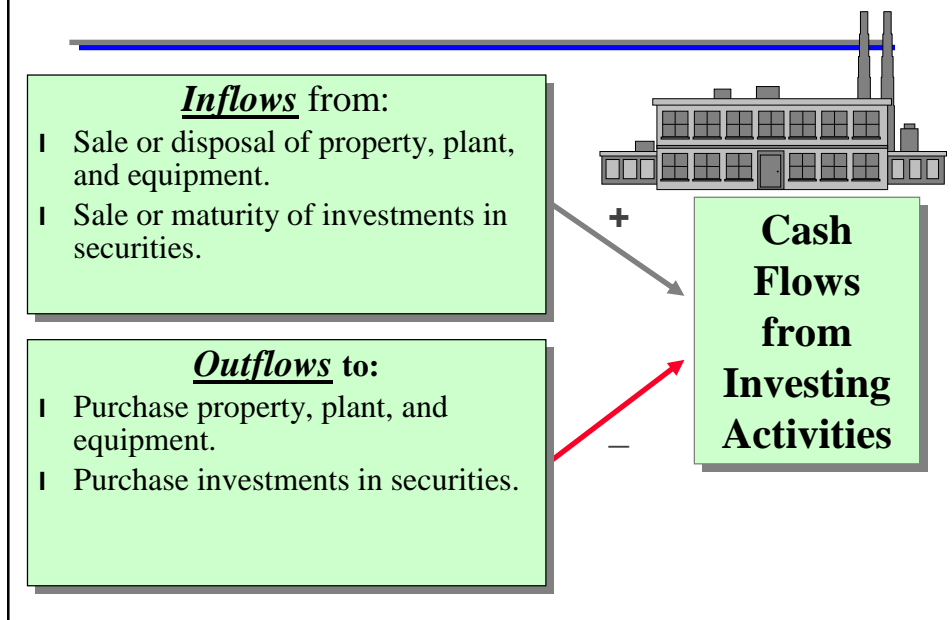
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- *Cash flow is King!* We saw how a profitable company can go broke if cash is not managed well.
- Many bankers consider the “Statement of Cash Flows” as the most important statement they use to estimate whether a firm can afford to pay their debt.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

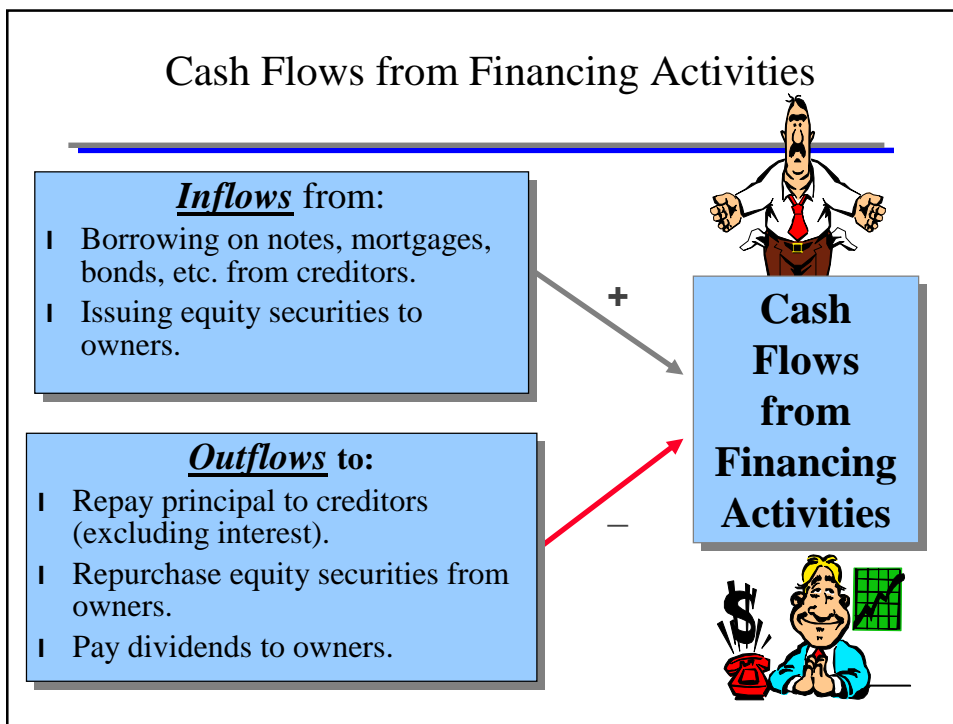
## Cash Flows from Operating Activities



## Cash Flows from Investing Activities



## 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)

<b><u>Cash flows from operating activities</u></b>		
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	
<b><u>Cash flows from investing activities</u></b>		
Cash paid to purchase equipment	(1,625)	
Net cash flow from investing activities	(1,625)	
<b><u>Cash flows from financing activities</u></b>		
Bank loan received	1,400	
Dividends	(1,000)	
Net cash flow from financing activities	400	
<b>Net decrease in cash during the year</b>	<b>(156)</b>	
<b>Cash at beginning of year</b>	<b>5,051</b>	
<b>Cash at end of year</b>	<b>4,895</b>	

## How the Statement of Cash Flows relates to the Balance Sheet...

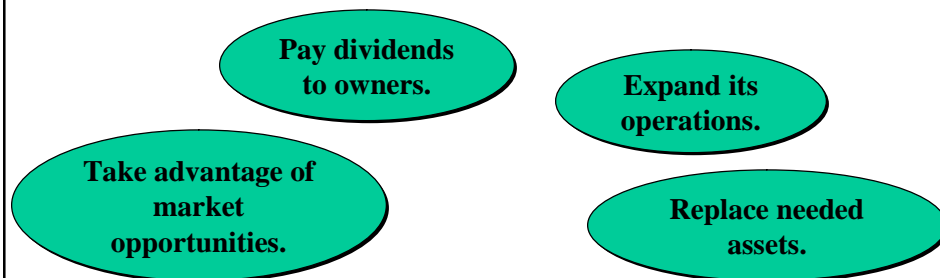
Condensed Balance Sheet As of December 31, 2002	Statement of Cash Flows For the Year 2002																																												
<table style="width: 100%; border-collapse: collapse;"> <tr><td colspan="2" style="text-align: center; border-top: 1px solid black;">Assets</td></tr> <tr><td>Cash</td><td style="text-align: right; border: 1px solid red;">\$ 4,895</td></tr> <tr><td>Accounts Receivable</td><td style="text-align: right;">\$ 5,714</td></tr> <tr><td>Inventories</td><td style="text-align: right;">\$ 8,517</td></tr> <tr><td>Building and equip.</td><td style="text-align: right;">7,154</td></tr> <tr><td>Land</td><td style="text-align: right;">981</td></tr> <tr><td>Total assets</td><td style="text-align: right; border-top: 1px solid black;">\$27,261</td></tr> <tr><td colspan="2" style="text-align: center; border-top: 1px solid black;">Liabilities and Owners' Equity</td></tr> <tr><td>Liabilities</td><td style="text-align: right;">\$16,156</td></tr> <tr><td colspan="2" style="text-align: center;">Owners' Equity</td></tr> <tr><td>Paid-in capital</td><td style="text-align: right;">2,000</td></tr> <tr><td>Retained earnings</td><td style="text-align: right;">9,105</td></tr> <tr><td>Total liabilities and owners' equity</td><td style="text-align: right; border-top: 1px solid black;">\$27,261</td></tr> </table>	Assets		Cash	\$ 4,895	Accounts Receivable	\$ 5,714	Inventories	\$ 8,517	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	<table style="width: 100%; border-collapse: collapse;"> <tr><td colspan="2" style="text-align: center; border-top: 1px solid black;">Net Cash Flow from Operating Activities</td><td style="text-align: right;">\$1,069</td></tr> <tr><td colspan="2" style="text-align: center;">Net Cash Flow from Investing Activities</td><td style="text-align: right;">\$(1,625)</td></tr> <tr><td colspan="2" style="text-align: center;">Net Cash Flow from Financing Activities</td><td style="text-align: right;">\$ 400</td></tr> <tr><td colspan="2" style="text-align: center;">Net Decrease in Cash</td><td style="text-align: right;">\$ (156)</td></tr> <tr><td colspan="2" style="text-align: center;">Cash at Beginning of Year</td><td style="text-align: right;">\$5,051</td></tr> <tr><td colspan="2" style="text-align: center;">Cash at End of Year</td><td style="text-align: right; border: 1px solid red;">\$4,895</td></tr> </table>	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
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## 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 . . .

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**This is why Cash Flow is Considered King!**

## Agenda

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- 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

## Detailed Pro-Formas

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- 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<sup>1</sup>

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- 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

## Agenda

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- Introduction: The Big Picture
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## Some sources of interest

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- 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&unct=features](http://bdc.ca/scripts/site/display-tools.asp?language=eng&node_ID=38&module_ID=39&module_code=tools_business_plan&unct=features)

Question?

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