

Automated Decision Making in Business and Economics

Financial Modeling and Valuation

EXERCISE 2: CASH PLUG AND PROJECTION

Simon Benninga, Financial Modeling, 4th edition.

Solve, for the year 0, for the “Cash and marketable securities” (C&MS) plug using the following assumptions.

Sales growth	10%	Interest rate on C&MS	8%
Current Assets/Sales	15%	Tax rate	40%
Current Liabilities/Sales	8%	Dividend payout ratio	40%
Net fixed Assets/Sales	77%	Sales	\$1,000
Costs of goods sold/Sales	50%	Depreciation	-\$300
Depreciation rate	10%	Long-term debt	\$320
Interest rate on debt	10%	Stock	\$450
Accumulated retained earnings	\$150		

Project the model up to five years (1,2,...,5) assuming constant debt and stock.

Income Statement =====

The Income Statement summarizes company's revenues and expenses **over a specific period**, typically a quarter or a year. Its main goal is to show the company's ability to generate profit during that period.

- **Key Components:**

1. **Revenues:** All the income generated by the company.
2. **Cost of Goods Sold (COGS):** The direct costs of producing the goods or services sold.
3. **Operating Expenses:** General and administrative expenses, sales and marketing expenses.
4. **Net Income:** The company's earnings after subtracting all expenses from revenues.

- **Key Features:**

Periodicity: the income statement shows the flow of revenues and expenses over time and is updated regularly (e.g., monthly, quarterly, annually).

Operational Performance: it also provides information on the company's operational performance, including its efficiency in generating revenues and controlling expenses.

Balance Sheet =====

The Balance Sheet provides an overview of a company's financial position **at a specific point in time**. It shows what the company owns (assets), what it owes (liabilities), and the shareholders' equity (assets-liabilities).

- **Key Components:**

1. **Assets:** Resources owned by the company, such as cash, inventory, equipment, production plants, machinery....
2. **Liabilities:** Obligations of the company, such as debts, mortgages, accounts payable, notes payable (loans).
3. **Equity:** The residual value of assets after subtracting liabilities; represents the "value" of the company to its shareholders.

- **Key Features:**

Specific Moment: Provides a "snapshot" of the company's financial position at a specific moment, like the end of a quarter or fiscal year.

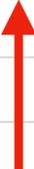
Financial Health: Indicates the company's financial health, its liquidity, capital structure, and its ability to meet short-term and long-term obligations.

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While the Income Statement focuses on the company's ability to generate profit over a given period, the Balance Sheet shows the overall financial position of the company at a specific point in time. Both are essential tools for financial analysts, investors, and company management to make informed decisions.

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00		
3	Sales growth	10%		Costs of goods sold (COGS)			
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt			
5	Current liabilities/Sales	8%		Interest earned on C&MS			
6	Net fixed assets/Sales	77%		Depreciation			
7	Costs of goods sold/Sales	50%		Profit before tax			
8	Depreciation rate	10%		Taxes			
9	Interest rate on debt	10%		Profit after tax			
10	Interest paid on C&MS	8%		Dividends			
11	Tax rate	40%		Retained earnings			
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities			
14	Cash and Marketable Securities (C&MS)	Plug		Current assets			
15				Fixed assets			
16				At cost			
17				Depreciation	-\$300.00		
18				Net fixed assets			
19				Total assets			
20							
21				Current liabilities			
22				Long term debt	\$320.00		
23				Stock	\$450.00		
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity			
26							
27				Verification			

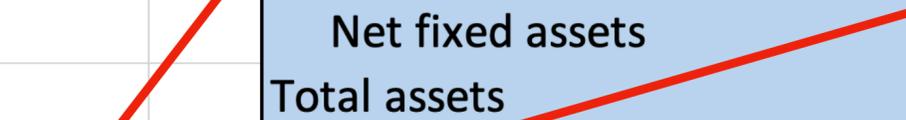
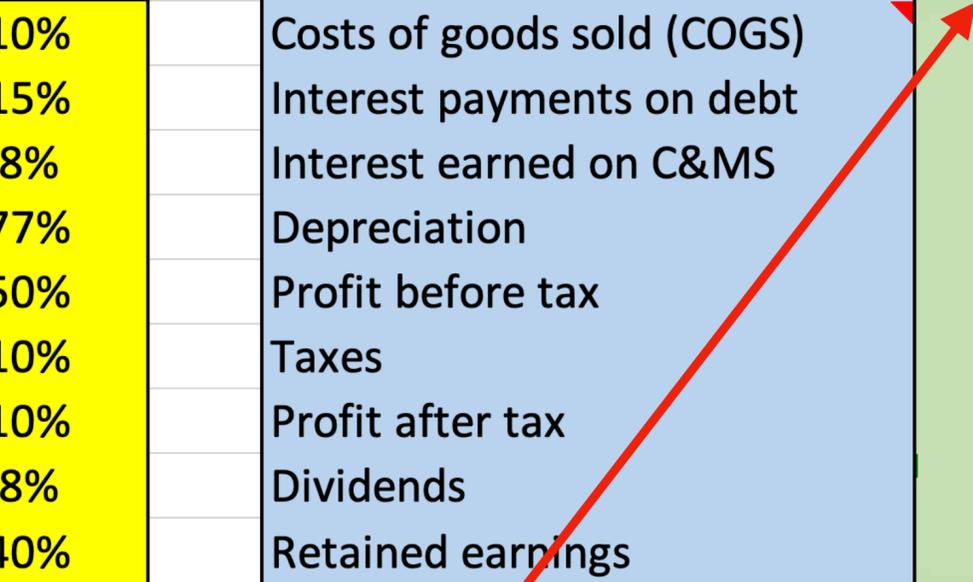
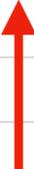
These are the assumptions.



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As well as the figures in bold ...



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Fill in the fields of the income statement and the balance sheet by scrolling through the list of assumptions and using the appropriate formula (which is always provided).

	A	B	C	D	E	F	G	
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>		
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)	
3	Sales growth	10%		Costs of goods sold (COGS)				
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt				
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15				Fixed assets				
16				At cost				
17				Depreciation	-\$300.00			
18				Net fixed assets				
19	Sales growth tells us the estimated total sales for the next year, starting with the value provided.			Total assets				
20				Current liabilities				
21				Long term debt			\$320.00	
22				Stock			\$450.00	
23				Accumulated retained earnings			\$150.00	
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13	Debt and Stock	No change		Cash and marketable securities			
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2
15				Fixed assets			
16				At cost			
17				Depreciation	-\$300.00		
18				Net fixed assets			
19	Compute current assets as:			Total assets			
20	Current assets/Sales * Sales			Current liabilities			
21				Long term debt	\$320.00		
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16				At cost			
17				Depreciation	-\$300.00		
18				Net fixed assets			
19	Compute current liabilities as:			Total assets			
20	Current liabilities/Sales * Sales			Current liabilities	\$80.00		=\$B\$5*E2
21				Long term debt	\$320.00		
22				Stock	\$450.00		
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19	Compute net fixed assets as:			Total assets			
20	Net fixed assets/Sales * Sales			Current liabilities	\$80.00		=\$B\$5*E2
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1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00		
3	Sales growth	10%		Costs of goods sold (COGS)			<p>The cost of goods sold (COGS) is the sum of all direct costs associated with making a product. It appears on an income statement and typically includes money mainly spent on raw materials and labor. It does not include costs associated with marketing, sales or distribution.</p> <p>COGS includes costs such as raw materials and labor that vary depending on the amount of product you produce. It doesn't include indirect costs that the business incurs regardless of how much is produced—for example, office expenses, administrative salaries or marketing costs.</p>
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt			
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2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt			
5	Current liabilities/Sales	8%		Interest earned on C&MS			
6	Net fixed assets/Sales	77%		Depreciation			
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15				Fixed assets			
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20				Current liabilities	\$80.00		=\$B\$5*E2
21	- (Costs of goods sold/Sales * Sales)			Long term debt	\$320.00		
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3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		This is the “ Depreciation ” for the current year (flow variable).
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt			
5	Current liabilities/Sales	8%		Interest earned on C&MS			On the income statement it must be a negative quantity!
6	Net fixed assets/Sales	77%		Depreciation	\$0.00		
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10	Interest paid on C&MS	8%		Dividends			
11	Tax rate	40%		Retained earnings			
12	Dividend payout ratio	40%		Balance Sheet			<p>The “Depreciation” that appears on the Balance Sheet is always meant to be the accumulated depreciation over the years (stock variable).</p> <p>As for the income statement, it must be negative!</p> <p>At year 0, it coincides with the actual value of accumulated depreciation (typically an assumption of the model).</p> <p>At year 1,2,... it is computed as the accumulated depreciation from the previous year plus the actual depreciation that appears in the income statement.</p>
13	Debt and Stock	No change		Cash and marketable securities			
14	Cash and Marketable Securities (C&MS)	Plug		Current assets			
15				Fixed assets			
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7	Costs of goods sold/Sales	50%		Profit before tax			
8	Depreciation rate	10%		Taxes			
9	Interest rate on debt	The “ Depreciation ” on the income statement is computed as a fraction of the “ Fixed assets At cost ” using the					
10	Interest paid on debt	Depreciation rate.					
11	Tax rate	“ Fixed assets At costs ” will be computed later. Consider the following equations:					
12	Dividend payout ratio	Net fixed assets = Fixed assets at Cost-absolute value of Cumulative Depreciation. (1)					
13	Debt and Stock	Fixed assets at Cost = Net fixed assets + absolute value of Cumulative Depreciation. (2)					
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2
15				Fixed assets			
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17				Depreciation	-\$300.00		
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12	Dividend payout	Net fixed assets = Fixed assets at Cost-absolute value of Cumulative Depreciation. (1)											
13	Debt and Stock	Fixed assets at Cost = Net fixed assets + absolute value of Cumulative Depreciation. (2)											
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2						
15				Fixed assets									
16	<ul style="list-style-type: none"> • The item “Fixed assets At cost” represents the original cost of fixed assets when they were purchased or constructed. It includes the purchase price and any other costs necessary to bring the asset to a usable state (like installation costs, transportation, etc.). • The item “Cumulative depreciation” is a contra-asset account that represents the total depreciation expense that has been recorded against an asset over its life. Each year, depreciation expense is added to this account, increasing its negative balance. • The item “Net fixed assets” is calculated as “Fixed assets At cost” minus the absolute value of “Cumulative Depreciation”. It represents the book value of the fixed assets. 												
24										Accumulated retained earnings	\$150.00		
25										Total liabilities and equity			
26													
27				Verification									

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1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
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12	Dividend payout	Net fixed assets = Fixed assets at Cost-absolute value of Cumulative Depreciation. (1)					
13	Debt and Stock	Fixed assets at Cost = Net fixed assets + absolute value of Cumulative Depreciation. (2)					
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=B\$4*E2
15				Fixed assets			
16				At cost			
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		=B\$6*E2
19				Total assets			
20							In this model, we compute, from the assumptions, “ Net fixed assets ”, whence we will derive “ Fixed assted at costs ” using formula (2).
21				Current liabilities	\$80.00		
22				Long term debt	\$320.00		
23				Stock	\$450.00		
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity			
26							
27				Verification			

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt			
5	Current liabilities/Sales	8%		Interest earned on C&MS			
6	Net fixed assets/Sales	77%		Depreciation	\$0.00		=-\$B\$8*E16
7	Costs of goods sold/Sales	50%		Profit before tax			
8	Depreciation rate	10%		Taxes			
9	Interest rate on debt	10%		Profit after tax			
10	Interest paid on C&MS	8%		Dividends			
11	Tax rate	40%		Retained earnings			
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$150.00		=\$B\$4*E2
14	Cash and Marketable Securities (C&MS)	Plug		Current assets			
15				Fixed assets			
16				At cost			
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		=\$B\$6*E2
19	Compute Depreciation as:						
20							
21	- (Depreciation rate * Average fixed assets at cost over the year)				\$80.00		=\$B\$5*E2
22				Long term debt	\$320.00		
23				Stock	\$450.00		
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity			
26							
27				Verification			

The **Average fixed assets at cost over the year** is computed as:
 At year 0, it coincides with the actual value of “**Fixed assets At cost**”.
 At year 1,2,... it is computed as the average between the “**Fixed assets At cost**” of the actual year and the “**Fixed assets At cost**” of the previous year.

Compute Depreciation as:
 - (Depreciation rate * Average fixed assets at cost over the year)

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt			
5	Current liabilities/Sales	8%		Interest earned on C&MS			
6	Net fixed assets/Sales	77%		Depreciation	\$0.00		=-\$B\$8*E16
7	Costs of goods sold/Sales	50%		Profit before tax			
8	Depreciation rate	10%		Taxes			
9	Interest rate on debt	10%		Profit after tax			
10	Interest paid on C&MS	8%		Dividends			
11	Tax rate	40%		Retained earnings			
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities			
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2
15				Fixed assets			
16				At cost			
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		=\$B\$6*E2
19	Compute Depreciation as:						
20							
21	- (Depreciation rate * Average fixed assets at cost over the year)				\$80.00		=\$B\$5*E2
22				Long term debt	\$320.00		
23				Stock	\$450.00		
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity			
26							
27				Verification			

The result is temporary! We have to compute Fixed assets at cost.

Compute Depreciation as:
 - (Depreciation rate * Average fixed assets at cost over the year)

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		=-\$B\$9*E2
5	Current liabilities/Sales	8%		Interest earned on C&MS			
6	Net fixed assets/Sales	77%		Depreciation	\$0.00		=-\$B\$8*E16
7	Costs of goods sold/Sales	50%		Profit before tax			
8	Depreciation rate	10%		Taxes			
9	Interest rate on debt	10%		Profit after tax			
10	Interest paid on C&MS	8%		Dividends			
11	Tax rate	40%		Retained earnings			
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities			
14	Cash and Marketable Securities (C&MS)	Plug		Current assets			
15				Fixed assets			
16				Accumulated depreciation			
17				Net fixed assets	-\$300.00		
18				Current assets	\$770.00		=\$B\$6*E2
19				Fixed assets			
20				Current liabilities			
21				Long term debt			
22				Stock	\$450.00		
23				Accumulated retained earnings	\$150.00		
24				Total liabilities and equity			
25							
26							
27				Verification			

The **Average debt over the year** is computed as:
 At year 0, it coincides with the actual value of the debt (sometimes an assumption of the model).
 At year 1,2,... it is computed as the average between the debt of the actual year and the debt of the previous year.

Compute Interest payment on debt as:
 - (Interest rate on debt * Average debt over the year)

Sometimes, the debt is termed "Long term debt" to highlight that it is not a current liability.

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		=-\$B\$9*E2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$0.00		=\$B\$10*E13
6	Net fixed assets/Sales	77%		Depreciation	\$0.00		=-\$B\$8*E16
7	Costs of goods sold/Sales	50%		Profit before tax			
8	Depreciation rate	10%		Taxes			
9	Interest rate on debt	10%		Profit after tax			
10	Interest paid on C&MS	8%		Dividends			
11	Tax rate	40%		Retained earnings			
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities			
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2
15				Fixed assets			
16				At cost			
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		=\$B\$6*E2
19				Total assets			
20	Compute Interest earned on C&MS as:			Liabilities			
21	Interest paid on C&MS * Average C&MS over the year			Debt			
22				Stock			
23				Accumulated retained earnings			
24				Total liabilities and equity			
25							
26							
27				Verification			

The result is temporary!

Compute Interest earned on C&MS as:
Interest paid on C&MS * Average C&MS over the year

The **Average C&MS over the year** is computed as:
 At year 0, it coincides with the actual value of C&MS.
 At year 1,2,... it is computed as the average between the C&MS of the actual year and the C&MS of the previous year.

	A	B	C	D	E	F	G		
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>			
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)		
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7		
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		=-\$B\$9*E2		
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$0.00		=\$B\$10*E13		
6	Net fixed assets/Sales	77%		Depreciation	\$0.00		=-\$B\$8*E16		
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40		=SUM(E2:E6)		
8	Depreciation rate	10%		Taxes					
9	Interest rate on debt	10%		Profit after tax					
10	Interest paid on C&MS	8%		Dividends					
11	Tax rate	40%		Retained earnings					
12	Dividend payout ratio	40%		Balance Sheet					
13	Debt and Stock	No change		Cash and marketable securities					
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2		
15				Fixed assets					
16				At cost					
17				Depreciation	-\$300.00				
18				Net fixed assets	\$770.00		=\$B\$6*E2		
19	<div style="border: 1px solid black; padding: 5px;"> Compute Profit before tax as: Sales-COGS-Interest payments on debt+Interest earned on C&MS </div>								
20									
21							\$80.00		=\$B\$5*E2
22				\$320.00					
23				Stock	\$450.00				
24				Accumulated retained earnings	\$150.00				
25				Total liabilities and equity					
26									
27				Verification					

The result is temporary!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		=-\$B\$9*E2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$0.00		=\$B\$10*E13
6	Net fixed assets/Sales	77%		Depreciation	\$0.00		=-\$B\$8*E16
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40		=SUM(E2:E6)
8	Depreciation rate	10%		Taxes	-\$187.20		=-\$B\$11*E7
9	Interest rate on debt	10%		Profit after tax			
10	Interest paid on C&MS	8%		Dividends			
11	Tax rate	40%		Retained earnings			
12	Dividend payout ratio	40%					
13	Debt and Stock	No change		Balance Sheet			
14	Cash and Marketable Securities (C&MS)	Plug		Cash and marketable securities			
15				Current assets	\$150.00		=\$B\$4*E2
16				Fixed assets			
17				At cost			
18				Depreciation	-\$300.00		
19				Net fixed assets	\$770.00		=\$B\$6*E2
20				Total assets			
21				Current liabilities	\$80.00		=\$B\$5*E2
22				Long term debt	\$320.00		
23				Stock	\$450.00		
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity			
26							
27				Verification			

Compute Taxes as:
-(Tax rate * Profit before taxes)

The result is temporary!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		=-\$B\$9*E2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$0.00		=\$B\$10*E13
6	Net fixed assets/Sales	77%		Depreciation	\$0.00		=-\$B\$8*E16
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40		=SUM(E2:E6)
8	Depreciation rate	10%		Taxes	-\$187.20		=-\$B\$11*E7
9	Interest rate on debt	10%		Profit after tax	\$280.80		=SUM(E7:E8)
10	Interest paid on C&MS	8%		Dividends			
11	Tax rate	40%		Retained earnings			
12	Dividend payout ratio	40%					
13	Debt and Stock	No change		Balance Sheet			
14	Cash and Marketable Securities (C&MS)	Plug		Cash and marketable securities			
15				Current assets	\$150.00		=\$B\$4*E2
16				Fixed assets			
17				At cost			
18				Depreciation	-\$300.00		
19				Net fixed assets	\$770.00		=\$B\$6*E2
20				Total assets			
21				Current liabilities	\$80.00		=\$B\$5*E2
22				Long term debt	\$320.00		
23				Stock	\$450.00		
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity			
26							
27				Verification			

Compute Profit after taxes as:
 Profit before taxes+Taxes
WARNING: Taxes must be negative!

The result is temporary!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		=-\$B\$9*E2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$0.00		=\$B\$10*E13
6	Net fixed assets/Sales	77%		Depreciation	\$0.00		=-\$B\$8*E16
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40		=SUM(E2:E6)
8	Depreciation rate	10%		Taxes	-\$187.20		=-\$B\$11*E7
9	Interest rate on debt	10%		Profit after tax	\$280.80		=SUM(E7:E8)
10	Interest paid on C&MS	8%		Dividends	-\$112.32		=-\$B\$12*E9
11	Tax rate	40%		Retained earnings			
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities			
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2
15				Fixed assets			
16				At cost			
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		=\$B\$6*E2
19				Total assets			
20				Current liabilities	\$80.00		=\$B\$5*E2
21				Long term debt	\$320.00		
22				Stock	\$450.00		
23				Accumulated retained earnings	\$150.00		
24				Total liabilities and equity			
25							
26							
27				Verification			

Compute Dividends as:
-(Dividend payout ratio * Profit after taxes)

The result is temporary!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		=-\$B\$9*E2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$0.00		=\$B\$10*E13
6	Net fixed assets/Sales	77%		Depreciation	\$0.00		=-\$B\$8*E16
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40		=SUM(E2:E6)
8	Depreciation rate	10%		Taxes	-\$187.20		=-\$B\$11*E7
9	Interest rate on debt	10%		Profit after tax	\$280.80		=SUM(E7:E8)
10	Interest paid on C&MS	8%		Dividends	-\$112.32		=-\$B\$12*E9
11	Tax rate	40%		Retained earnings	\$168.48		=SUM(E9:E10)
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities			
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2
15				Fixed assets			
16				At cost			
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		=\$B\$6*E2
19				Total assets			
20							
21				Current liabilities	\$80.00		=\$B\$5*E2
22				Long term debt	\$320.00		
23				Stock	\$450.00		
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity			
26							
27				Verification			

Compute Retained earnings as:
 Profit after tax+Dividends
WARNING: Dividends must be negative!

The result is temporary!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		=-\$B\$9*E2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$0.00		=\$B\$10*E13
6	Net fixed assets/Sales	77%		Depreciation	\$0.00		=-\$B\$8*E16
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40		=SUM(E2:E6)
8	Depreciation rate	10%		Taxes	-\$187.20		=-\$B\$11*E7
9	Interest rate on debt	10%		Profit after tax	\$280.80		=SUM(E7:E8)
10	Interest paid on C&MS	8%		Dividends	-\$112.32		=-\$B\$12*E9
11	Tax rate	40%		Retained earnings	\$168.48		=SUM(E9:E10)
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities			
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2
15				Fixed assets			
16				At cost			
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		=\$B\$6*E2
19				Total assets			
20							
21				Current liabilities	\$80.00		=\$B\$5*E2
22				Long term debt	\$320.00		
23				Stock	\$450.00		
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity			
26							
27				Verification			

This is the plug, we fix it at the end.

	A	B	C	D	E	F	G			
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>				
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)			
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7			
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		=-\$B\$9*E2			
5	<div style="border: 1px solid black; padding: 5px;"> <p>As anticipated compute Fixed assets at cost as:</p> <p>Net fixed asset-Depreciation</p> <p>WARNING: Depreciation must be negative!</p> <p>Equivalently:</p> <p>Net fixed asset + Abs(Depreciation)</p> </div>			Interest earned on C&MS	\$0.00		=\$B\$10*E13			
6				Depreciation	\$0.00		Profit before tax	\$367.40		=-\$B\$8*E16
7							Profit after tax	\$280.80		=SUM(E2:E6)
8							Dividends	-\$187.20		=-\$B\$11*E7
9							Retained earnings	\$168.48		=SUM(E7:E8)
10							=-\$B\$12*E9			
11							=SUM(E9:E10)			
12				Balance Sheet						
13				Cash and marketable securities						
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2			
15				Fixed assets						
16				At cost	\$1,070.00		=E18-E17			
17				Depreciation	-\$300.00					
18				Net fixed assets	\$770.00		=\$B\$6*E2			
19				Total assets						
20										
21				Current liabilities	\$80.00		=\$B\$5*E2			
22				Long term debt	\$320.00					
23				Stock	\$450.00					
24				Accumulated retained earnings	\$150.00					
25				Total liabilities and equity						
26										
27				Verification						

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		=-\$B\$9*E2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$0.00		=\$B\$10*E13
6	Net fixed assets/Sales	77%		Depreciation	\$0.00		=-\$B\$8*E16
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40		=SUM(E2:E6)
8	Depreciation rate	10%		Taxes	-\$187.20		=-\$B\$11*E7
9	Interest rate on debt	10%		Profit after tax	\$280.80		=SUM(E7:E8)
10	Interest paid on C&MS	8%		Dividends	-\$112.32		=-\$B\$12*E9
11	Tax rate	40%		Retained earnings	\$168.48		=SUM(E9:E10)
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities			
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2
15				Fixed assets			
16				At cost	\$1,070.00		=E18-E17
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		=\$B\$6*E2
19				Total assets	\$920.00		=E18+E14+E13
20				Current liabilities	\$80.00		
21				Term debt	\$320.00		
22				Accumulated retained earnings	\$450.00		
23					\$150.00		
24				Total liabilities and equity			
25							
26							
27				Verification			

Compute Total assets as:
C&MS + Current assets + Net fixed assets

The result is temporary!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		=-\$B\$9*E2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$0.00		=\$B\$10*E13
6	Net fixed assets/Sales	77%		Depreciation	\$0.00		=-\$B\$8*E16
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40		=SUM(E2:E6)
8	Depreciation rate	10%		Taxes	-\$187.20		=-\$B\$11*E7
9	Interest rate on debt	10%		Profit after tax	\$280.80		=SUM(E7:E8)
10	Interest paid on C&MS	8%		Dividends	-\$112.32		=-\$B\$12*E9
11	Tax rate	40%		Retained earnings	\$168.48		=SUM(E9:E10)
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities			
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2
15				Fixed assets			
16				At cost	\$1,070.00		=E18-E17
17	Compute Total liabilities and equity as:						
18							=\$B\$6*E2
19	Current liabilities + Long term debt + Stock + Accumulated retained earnings						=E18+E14+E13
20							
21				Current liabilities	\$80.00		=\$B\$5*E2
22				Long term debt	\$320.00		
23				Stock	\$450.00		
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		=SUM(E21:E24)
26							
27				Verification			

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		=-\$B\$9*E2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$0.00		=\$B\$10*E13
6	Net fixed assets/Sales	77%		Depreciation	\$0.00		=-\$B\$8*E16
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40		=SUM(E2:E6)
8	Depreciation rate	10%		Taxes	-\$187.20		=-\$B\$11*E7
9	Interest rate on debt	10%		Profit after tax	\$280.80		=SUM(E7:E8)
10	Interest paid on C&MS	8%		Dividends	-\$112.32		=-\$B\$12*E9
11	Tax rate	40%		Retained earnings	\$168.48		=SUM(E9:E10)
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities			
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2
15				Fixed assets			
16	We are ready to close by fixing the plug!			At cost	\$1,070.00		=E18-E17
17				Depreciation	-\$300.00		
18	Add the verification formula before closing the computation.				\$770.00		=\$B\$6*E2
19				Total assets	\$920.00		=E18+E14+E13
20							
21				Current liabilities	\$80.00		=\$B\$5*E2
22				Long term debt	\$320.00		
23				Stock	\$450.00		
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		=SUM(E21:E24)
26							
27				Verification			=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Fix the plug in such a way that

Total assets = Total liabilities and equity.

In order to do that we compute C&MS according to:

$$\text{C\&MS} = \text{Total liabilities and equity} - \text{Current Assets} - \text{Net fixed assets} \quad (1)$$

WARNING: You must activate **Iterative Computation!**

By using equation (1) we guarantee that assets will be equal to liabilities+equity.

	E	F	G
	Year 0	Year 1	
	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
	-\$500.00		=-E2*\$B\$7
	-\$32.00		=-\$B\$9*E22
	\$0.00		=\$B\$10*E13
	\$0.00		=-\$B\$8*E16
	\$367.40		=SUM(E2:E6)
	-\$187.20		=-\$B\$11*E7
	\$280.80		=SUM(E7:E8)
	-\$112.32		=-\$B\$12*E9
	\$168.48		=SUM(E9:E10)
Dividend payout ratio			
Debt and Stock			
Cash and Marketable Securities (C&MS)			
	40%		
	No change		
	Plug		
	Balance Sheet		
	Cash and marketable securities		=E25-E14-E18
	Current assets	\$150.00	=\$B\$4*E2
	Fixed assets		
	At cost	\$1,070.00	=E18-E17
	Depreciation	-\$300.00	
	Net fixed assets	\$770.00	=\$B\$6*E2
	Total assets	\$920.00	=E18+E14+E13
	Current liabilities	\$80.00	=\$B\$5*E2
	Long term debt	\$320.00	
	Stock	\$450.00	
	Accumulated retained earnings	\$150.00	
	Total liabilities and equity	\$1,000.00	=SUM(E21:E24)
	Verification		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

A

B

C

D

E

F

G

Financial interpretation of the Plug.

Simon Benninga, Financial Modeling, 4th edition, p. 130

By defining the plug to be cash and marketable securities we are also making a statement about how the firm finances itself.

In our model the firm sells no additional stock, does not pay back any of its debt and does not raise any more debt.

This definition means that all incremental financing (if needed) for the firm will come from the cash and marketable securities account; it also means that if the firm has additional cash, it will go into this account.

Year 0

Year 1

\$1,000.00

\$1,100.00

=E2*(1+\$B\$3)

-\$500.00

=-E2*\$B\$7

-\$32.00

=-\$B\$9*E22

\$0.00

=\$B\$10*E13

\$0.00

=-\$B\$8*E16

\$367.40

=SUM(E2:E6)

-\$187.20

=-\$B\$11*E7

\$280.80

=SUM(E7:E8)

-\$112.32

=-\$B\$12*E9

\$168.48

=SUM(E9:E10)

Dividend payout ratio

40%

Balance Sheet

Debt and Stock

No change

Cash and marketable securities

=E25-E14-E18

Cash and Marketable Securities (C&MS)

Plug

Current assets

\$150.00

=\$B\$4*E2

Fixed assets

At cost

\$1,070.00

=E18-E17

Depreciation

-\$300.00

Net fixed assets

\$770.00

=\$B\$6*E2

Total assets

\$920.00

=E18+E14+E13

Current liabilities

\$80.00

=\$B\$5*E2

Long term debt

\$320.00

Stock

\$450.00

Accumulated retained earnings

\$150.00

Total liabilities and equity

\$1,000.00

=SUM(E21:E24)

Verification

=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		=-\$B\$9*E2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40		=\$B\$10*E13
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00		=-\$B\$8*E16
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40		=SUM(E2:E6)
8	Depreciation rate	10%		Taxes	-\$146.96		=-\$B\$11*E7
9	Interest rate on debt	10%		Profit after tax	\$220.44		=SUM(E7:E8)
10	Interest paid on C&MS	8%		Dividends	-\$88.18		=-\$B\$12*E9
11	Tax rate	40%		Retained earnings	\$132.26		=SUM(E9:E10)
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00		=E25-E14-E18
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2
15				Fixed assets			
16				At cost	\$1,070.00		=E18-E17
17				Depreciation	-\$300.00		
				Net fixed assets	\$770.00		=\$B\$6*E2
				Total assets	\$1,000.00		=E18+E14+E13
20				Current liabilities	\$80.00		=\$B\$5*E2
21				Long term debt	\$320.00		
22				Stock	\$450.00		
23				Accumulated retained earnings	\$150.00		
24				Total liabilities and equity	\$1,000.00		=SUM(E21:E24)
25							
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

We have found an equilibrium (consistent choice of the plug) that respect the balance equation.



	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		=-E2*\$B\$7
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		=-\$B\$9*E2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40		=\$B\$10*E13
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00		=-\$B\$8*E16
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40		=SUM(E2:E6)
8	Depreciation rate	10%		Taxes	-\$146.96		=-\$B\$11*E7
9	Interest rate on debt	10%		Profit after tax	\$220.44		=SUM(E7:E8)
10	Interest paid on C&MS	8%		Dividends	-\$88.18		=-\$B\$12*E9
11	Tax rate	40%		Retained earnings	\$132.26		=SUM(E9:E10)
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00		=E25-E14-E18
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		=\$B\$4*E2
15				Fixed assets			
16				At cost	\$1,070.00		=E18-E17
17	Now we project the income statement and the balance sheet into the future ...			Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		=\$B\$6*E2
19				Total assets	\$1,000.00		=E18+E14+E13
20							
21				Current liabilities	\$80.00		=\$B\$5*E2
22				Long term debt	\$320.00		
23				Stock	\$450.00		
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		=SUM(E21:E24)
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00		
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		
5	Current liabilities/Sales		Already computed	Interest earned on C&MS	\$6.40		
6	Net fixed assets/Sales			Depreciation	-\$107.00		
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40		
8	Depreciation rate	10%		Taxes	-\$146.96		
9	Interest rate on debt	10%		Profit after tax	\$220.44		
10	Interest paid on C&MS	8%		Dividends	-\$88.18		
11	Tax rate	40%		Retained earnings	\$132.26		
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00		
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		
15				Fixed assets			
16				At cost	\$1,070.00		
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		
19				Total assets	\$1,000.00		
20	Assumed constant			Current liabilities	\$80.00		
21				Long term debt	\$320.00	\$320.00	=E22
22				Stock	\$450.00	\$450.00	=E23
23				Accumulated retained earnings	\$150.00		
24				Total liabilities and equity	\$1,000.00		
25							
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=-\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00		
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40		
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00		
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40		
8	Depreciation rate	10%		Taxes	-\$146.96		
9	Interest rate on debt	10%		Profit after tax	\$220.44		
10	Interest paid on C&MS	8%		Dividends	-\$88.18		
11	Tax rate	40%		Retained earnings	\$132.26		
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00		
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		
15				Fixed assets			
16				At cost	\$1,070.00		
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		
19				Total assets	\$1,000.00		
20							
21				Current liabilities	\$80.00		
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Use the hand fill feature!

The **Average debt over the year** is computed as:

At year 0, it coincides with the actual value of the debt (sometimes an assumption of the model).

At year 1,2,... it is computed as the average between the debt of the actual year and the debt of the previous year.

8	Depreciation rate	10%
9	Interest rate on debt	10%
10	Interest paid on C&MS	8%
11	Tax rate	40%
12	Dividend payout ratio	40%
13	Debt and Stock	No change
14	Cash and Marketable Securities (C&MS)	Plug

	D	E	F	G
	Income Statement	<i>Year 0</i>	<i>Year 1</i>	
	Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
	Costs of goods sold (COGS)	-\$500.00	-\$550.00	=\$B\$7*F2
	Interest payments on debt	-\$32.00	-\$32.00	=\$B\$9*(E22+F22)/2
	Interest earned on C&MS	\$6.40		
	Depreciation	-\$107.00		
	Profit before tax	\$367.40		
	Taxes	-\$146.96		
	Profit after tax	\$220.44		
	Dividends	-\$88.18		
	Retained earnings	\$132.26		
	Balance Sheet			
	Cash and marketable securities	\$80.00		
	Current assets	\$150.00		
	Fixed assets			
	At cost	\$1,070.00		
	Depreciation	-\$300.00		
	Net fixed assets	\$770.00		
	Total assets	\$1,000.00		
	Current liabilities	\$80.00		
	Long term debt	\$320.00	\$320.00	=E22
	Stock	\$450.00	\$450.00	=E23
	Accumulated retained earnings	\$150.00		
	Total liabilities and equity	\$1,000.00		
	Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

The average between this year and the previous year.

The **Average C&MS over the year** is computed as:

At year 0, it coincides with the actual value of C&MS (in this model: the PLUG).

At year 1,2,... it is computed as the average between the C&MS of the actual year and the C&MS of the previous year.

Interest rate on debt	10%
Interest paid on C&MS	8%
Tax rate	40%
Dividend payout ratio	40%
Debt and Stock	No change
Cash and Marketable Securities (C&MS)	Plug

Income Statement

	Year 0	Year 1
Sales	\$1,000.00	\$1,100.00
Costs of goods sold (COGS)	-\$500.00	-\$550.00
Interest payments on debt	-\$32.00	-\$32.00
Interest earned on C&MS	\$6.40	\$3.20
Depreciation	-\$107.00	
Profit before tax	\$367.40	
Taxes	-\$146.96	
Profit after tax	\$220.44	
Dividends	-\$88.18	
Retained earnings	\$132.26	

=E2*(1+\$B\$3)

=-\$B\$7*F2

=-\$B\$9*(E22+F22)/2

=\$B\$10*(E13+F13)/2

Balance Sheet

Cash and marketable securities	\$80.00	
Current assets	\$150.00	
Fixed assets		
At cost	\$1,070.00	
Depreciation	-\$300.00	
Net fixed assets	\$770.00	
Total assets	\$1,000.00	
Current liabilities	\$80.00	
Long term debt	\$320.00	\$320.00
Stock	\$450.00	\$450.00
Accumulated retained earnings	\$150.00	
Total liabilities and equity	\$1,000.00	

=E22

=E23

Verification

OK

=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

The average between this year and the previous year.

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=-\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=-\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	\$3.20	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$53.50	=-\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40		
8	Depreciation rate	10%		Taxes	-\$146.96		
9	Interest rate on debt	10%		Profit after tax	\$220.44		
10	Interest paid on C&MS	8%		Dividends	-\$88.18		
11	Tax rate	40%		Retained earnings	\$132.26		
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00		
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		
15				Fixed assets			
16				At cost	\$1,070.00		
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		
19				Total assets	\$1,000.00		
20	The average between this year and the previous year.			Current liabilities	\$80.00		
21				Long term debt	\$320.00	\$320.00	=E22
22				Stock	\$450.00	\$450.00	=E23
23				Accumulated retained earnings	\$150.00		
24				Total liabilities and equity	\$1,000.00		
25							
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=-\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=-\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	\$3.20	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$53.50	=-\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$467.70	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96		
9	Interest rate on debt	10%		Profit after tax	\$220.44		
10	Interest paid on C&MS	8%		Dividends	-\$88.18		
11	Tax rate	40%		Retained earnings	\$132.26		
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00		
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		
15				Fixed assets			
16				At cost	\$1,070.00		
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		
19				Total assets	\$1,000.00		
20							
21				Current liabilities	\$80.00		
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Use the hand fill feature!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=-\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=-\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	\$3.20	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$53.50	=-\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$467.70	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$187.08	=-\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44		
10	Interest paid on C&MS	8%		Dividends	-\$88.18		
11	Tax rate	40%		Retained earnings	\$132.26		
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00		
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		
15				Fixed assets			
16				At cost	\$1,070.00		
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		
19				Total assets	\$1,000.00		
20							
21				Current liabilities	\$80.00		
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Use the hand fill feature!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=-\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=-\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	\$3.20	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$53.50	=-\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$467.70	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$187.08	=-\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$280.62	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18		
11	Tax rate	40%		Retained earnings	\$132.26		
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00		
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		
15				Fixed assets			
16				At cost	\$1,070.00		
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		
19				Total assets	\$1,000.00		
20							
21				Current liabilities	\$80.00		
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Use the hand fill feature!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=-\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=-\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	\$3.20	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$53.50	=-\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$467.70	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$187.08	=-\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$280.62	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18	-\$112.25	=-\$B\$12*F9
11	Tax rate	40%		Retained earnings	\$132.26		
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00		
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		
15				Fixed assets			
16				At cost	\$1,070.00		
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		
19				Total assets	\$1,000.00		
20							
21				Current liabilities	\$80.00		
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Use the hand fill feature!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=-\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=-\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	\$3.20	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$53.50	=-\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$467.70	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$187.08	=-\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$280.62	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18	-\$112.25	=-\$B\$12*F9
11	Tax rate	40%		Retained earnings	\$132.26	\$168.37	=F9+F10
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00		
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		
15				Fixed assets			
16				At cost	\$1,070.00		
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		
19				Total assets	\$1,000.00		
20							
21				Current liabilities	\$80.00		
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Use the hand fill feature!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=-\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=-\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	\$3.20	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$53.50	=-\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$467.70	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$187.08	=-\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$280.62	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18	-\$112.25	=-\$B\$12*F9
11	Tax rate	40%		Retained earnings	\$132.26	\$168.37	=F9+F10
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00	\$0.00	=F25-F14-F18
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00		
15				Fixed assets			
16				At cost	\$1,070.00		
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		
19				Total assets	\$1,000.00		
20							
21				Current liabilities	\$80.00		
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Use the hand fill feature!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	-\$3.40	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$53.50	=\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$461.10	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$184.44	=\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$276.66	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18	-\$110.66	=\$B\$12*F9
11	Tax rate	40%		Retained earnings	\$132.26	\$166.00	=F9+F10
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00	\$0.00	=F25-F14-F18
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00	\$165.00	=\$B\$4*F2
15				Fixed assets			
16				At cost	\$1,070.00		
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		
19				Total assets	\$1,000.00		
20							
21				Current liabilities	\$80.00		
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

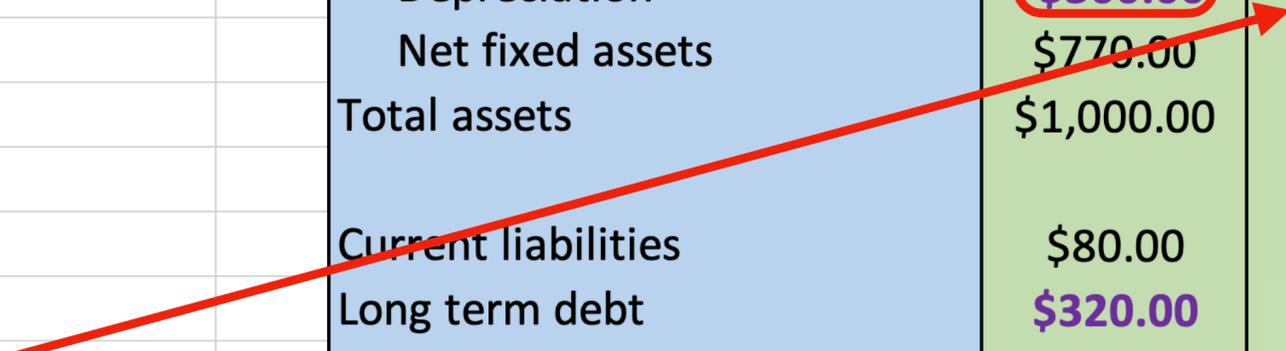
Use the hand fill feature!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	-\$3.40	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$53.50	=\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$461.10	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$184.44	=\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$276.66	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18	-\$110.66	=\$B\$12*F9
11	Tax rate	40%		Retained earnings	\$132.26	\$166.00	=F9+F10
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00	\$0.00	=F25-F14-F18
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00	\$165.00	=\$B\$4*F2
15				Fixed assets			
16				At cost	\$1,070.00	\$0.00	=F18-F17
17				Depreciation	\$300.00		
18				Net fixed assets	\$770.00		
19				Total assets	\$1,000.00		
20							
21				Current liabilities	\$80.00		
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Use the hand fill feature!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	-\$3.40	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$53.50	=\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$461.10	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$184.44	=\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$276.66	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18	-\$110.66	=\$B\$12*F9
11	Tax rate	40%		Retained earnings	\$132.26	\$166.00	=F9+F10
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00	\$0.00	=F25-F14-F18
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00	\$165.00	=\$B\$4*F2
15				Fixed assets			
16				At cost	\$1,070.00	\$0.00	=F18-F17
17				Depreciation	-\$300.00		
18				Net fixed assets	\$770.00		
19				Total assets	\$1,000.00		
20				Current liabilities	\$80.00		
21				Long term debt	\$320.00	\$320.00	=E22
22				Stock	\$450.00	\$450.00	=E23
23				Accumulated retained earnings	\$150.00		
24				Total liabilities and equity	\$1,000.00		
25							
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Cumulated depreciation!



	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=-\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=-\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	-\$3.40	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$72.11	=-\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$442.49	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$177.00	=-\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$265.50	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18	-\$106.20	=-\$B\$12*F9
11	Tax rate	40%		Retained earnings	\$132.26	\$159.30	=F9+F10
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00	-\$165.00	=F25-F14-F18
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00	\$165.00	=\$B\$4*F2
15				Fixed assets			
16				At cost	\$1,070.00	\$372.11	=F18-F17
17				Depreciation	-\$300.00	-\$372.11	=E17+F6
18				Net fixed assets	\$770.00		
19				Total assets	\$1,000.00		
20							
21				Current liabilities	\$80.00		
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Cumulated depreciation!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=-\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=-\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	-\$37.28	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$116.68	=-\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$364.04	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$145.61	=-\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$218.42	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18	-\$87.37	=-\$B\$12*F9
11	Tax rate	40%		Retained earnings	\$132.26	\$131.05	=F9+F10
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00	-\$1,012.00	=F25-F14-F18
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00	\$165.00	=\$B\$4*F2
15				Fixed assets			
16				At cost	\$1,070.00	\$1,263.68	=F18-F17
17				Depreciation	-\$300.00	-\$416.68	=E17+F6
18				Net fixed assets	\$770.00	\$847.00	=\$B\$6*F2
19				Total assets	\$1,000.00		
20							
21				Current liabilities	\$80.00		
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Use the hand fill feature!

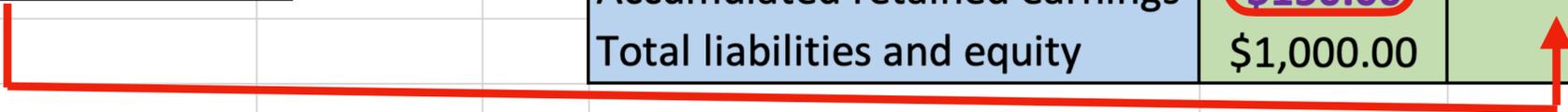
	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	-\$37.28	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$116.68	=\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$364.04	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$145.61	=\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$218.42	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18	-\$87.37	=\$B\$12*F9
11	Tax rate	40%		Retained earnings	\$132.26	\$131.05	=F9+F10
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00	-\$1,012.00	=F25-F14-F18
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00	\$165.00	=\$B\$4*F2
15				Fixed assets			
16				At cost	\$1,070.00	\$1,263.68	=F18-F17
17				Depreciation	-\$300.00	-\$416.68	=E17+F6
18				Net fixed assets	\$770.00	\$847.00	=\$B\$6*F2
19				Total assets	\$1,000.00	\$0.00	=F13+F14+F18
20							
21				Current liabilities	\$80.00		
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Use the hand fill feature!

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=-\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=-\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	-\$37.28	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$116.68	=-\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$364.04	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$145.61	=-\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$218.42	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18	-\$87.37	=-\$B\$12*F9
11	Tax rate	40%		Retained earnings	\$132.26	\$131.05	=F9+F10
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00	-\$1,012.00	=F25-F14-F18
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00	\$165.00	=\$B\$4*F2
15				Fixed assets			
16				At cost	\$1,070.00	\$1,263.68	=F18-F17
17				Depreciation	-\$300.00	-\$416.68	=E17+F6
18				Net fixed assets	\$770.00	\$847.00	=\$B\$6*F2
19				Total assets	\$1,000.00	\$0.00	=F13+F14+F18
20							
21				Current liabilities	\$80.00	\$88.00	=\$B\$5*F2
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00		
25	Use the hand fill feature!			Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

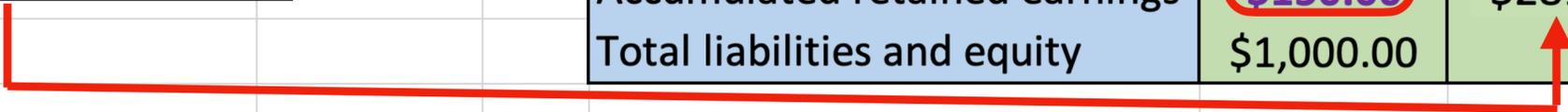
	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=-\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=-\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	-\$37.28	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$116.68	=-\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$364.04	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$145.61	=-\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$218.42	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18	-\$87.37	=-\$B\$12*F9
11	Tax rate	40%		Retained earnings	\$132.26	\$131.05	=F9+F10
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00	-\$1,012.00	=F25-F14-F18
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00	\$165.00	=\$B\$4*F2
15				Fixed assets			
16				At cost	\$1,070.00	\$1,263.68	=F18-F17
17				Depreciation	-\$300.00	-\$416.68	=E17+F6
18				Net fixed assets	\$770.00	\$847.00	=\$B\$6*F2
19				Total assets	\$1,000.00	\$0.00	=F13+F14+F18
20							
21				Current liabilities	\$80.00	\$88.00	=\$B\$5*F2
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00		
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Cumulated earnings!



	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=-\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=-\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	-\$37.28	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$116.68	=-\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$364.04	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$145.61	=-\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$218.42	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18	-\$87.37	=-\$B\$12*F9
11	Tax rate	40%		Retained earnings	\$132.26	\$131.05	=F9+F10
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00	-\$1,012.00	=F25-F14-F18
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00	\$165.00	=\$B\$4*F2
15				Fixed assets			
16				At cost	\$1,070.00	\$1,263.68	=F18-F17
17				Depreciation	-\$300.00	-\$416.68	=E17+F6
18				Net fixed assets	\$770.00	\$847.00	=\$B\$6*F2
19				Total assets	\$1,000.00	\$0.00	=F13+F14+F18
20							
21				Current liabilities	\$80.00	\$88.00	=\$B\$5*F2
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00	\$281.05	=E24+F11
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

Cumulated earnings!



	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	-\$37.28	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$116.68	=\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$364.04	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$145.61	=\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$218.42	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18	-\$87.37	=\$B\$12*F9
11	Tax rate	40%		Retained earnings	\$132.26	\$131.05	=F9+F10
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00	-\$1,012.00	=F25-F14-F18
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00	\$165.00	=\$B\$4*F2
15				Fixed assets			
16				At cost	\$1,070.00	\$1,263.68	=F18-F17
17				Depreciation	-\$300.00	-\$416.68	=E17+F6
18				Net fixed assets	\$770.00	\$847.00	=\$B\$6*F2
19	Use the hand fill feature!			Total assets	\$1,000.00	\$0.00	=F13+F14+F18
20							
21				Current liabilities	\$80.00	\$88.00	=\$B\$5*F2
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00	\$281.05	=E24+F11
25				Total liabilities and equity	\$1,000.00		
26							
27				Verification	OK		=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

	A	B	C	D	E	F	G
1	Building a Financial Model			Income Statement	<i>Year 0</i>	<i>Year 1</i>	
2	Assumptions			Sales	\$1,000.00	\$1,100.00	=E2*(1+\$B\$3)
3	Sales growth	10%		Costs of goods sold (COGS)	-\$500.00	-\$550.00	=-\$B\$7*F2
4	Current assets (excluding cash)/Sales	15%		Interest payments on debt	-\$32.00	-\$32.00	=-\$B\$9*(E22+F22)/2
5	Current liabilities/Sales	8%		Interest earned on C&MS	\$6.40	\$8.95	=\$B\$10*(E13+F13)/2
6	Net fixed assets/Sales	77%		Depreciation	-\$107.00	-\$116.68	=-\$B\$8*(E16+F16)/2
7	Costs of goods sold/Sales	50%		Profit before tax	\$367.40	\$410.26	=F2+F3+F4+F5+F6
8	Depreciation rate	10%		Taxes	-\$146.96	-\$164.11	=-\$B\$11*F7
9	Interest rate on debt	10%		Profit after tax	\$220.44	\$246.16	=F7+F8
10	Interest paid on C&MS	8%		Dividends	-\$88.18	-\$98.46	=-\$B\$12*F9
11	Tax rate	40%		Retained earnings	\$132.26	\$147.69	=F9+F10
12	Dividend payout ratio	40%		Balance Sheet			
13	Debt and Stock	No change		Cash and marketable securities	\$80.00	\$143.69	=F25-F14-F18
14	Cash and Marketable Securities (C&MS)	Plug		Current assets	\$150.00	\$165.00	=\$B\$4*F2
15				Fixed assets			
16				At cost	\$1,070.00	\$1,263.68	=F18-F17
17				Depreciation	-\$300.00	-\$416.68	=E17+F6
18				Net fixed assets	\$770.00	\$847.00	=\$B\$6*F2
19	Iterative computation will complete the job!			Total assets	\$1,000.00	\$1,155.69	=F13+F14+F18
20							
21				Current liabilities	\$80.00	\$88.00	=\$B\$5*F2
22				Long term debt	\$320.00	\$320.00	=E22
23				Stock	\$450.00	\$450.00	=E23
24				Accumulated retained earnings	\$150.00	\$297.69	=E24+F11
25				Total liabilities and equity	\$1,000.00	\$1,155.69	=F21+F22+F23+F24
26							
27				Verification	OK	OK	=IF(ABS(E25-E19)<0.01,"OK","NOT OK")

