BANKING AT MICHIGAN

Accounting and the 3 Financial Statements

Presented by George Hill, Disha Gupta, & Jess Wang

Monday, November 14, 2022

www.bankingatmichigan.org

Agenda

- Why We Need the 3 Financial Statements
- How Longer-Term Items Affect Cash Flow
- The Income Statement
- The Balance Sheet
- Cash Flow Statement
- How To Link The Financial Statements
- Working Capital, Free Cash Flow, and Metrics and Ratios

Why We Need the 3 Financial Statements

Income Statement

lists a company's Revenue, Expenses, and Taxes, with its after-tax Profit over a period

Balance Sheet

Track company's Assets, Liabilities, and Equity

Cash Flow Statement

Track company's Adjustments to Net Income

How Long-Term Items Affect Cash Flow

How Longer-Term Items Affect Cash Flow

Capital Expenditures (CapEx) & Depreciation

CapEx: Expenditure on items that are useful for the "long term" - more than 1 year

Depreciation: Reduction of an Asset's value over time; Non-cash expense

Effect on Cash Flow:

- CapEx recorded on Cash Flow Statement initially
- Depreciation is recorded the first year after CapEx spending
- Depreciation expense is recorded gradually over time

Cash Flow Statement:	Year 1	Year 2
Cash Flow from Operating Activities:		
Net Income:	$ 195	$ 210
Depreciation:	-	10
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:	-	(50)
Change in Prepaid Expenses:	-	(30)
Change in Inventory:	-	(30)
Change in Accounts Payable:	-	15
Change in Deferred Revenue:	-	15
Cash Flow from Operations:	$ 195	$ 140
Cash Flow from Investing Activities:		
Capital Expenditures (CapEx):	$ -	$ (50)
Cash Flow from Investing:	$ -	$ (50)
Cash Flow from Financing Activities:		
Cash Flow from Financing:	$ -	$ -
Net Change in Cash:	$ 195	$ 90

Income Statement:	Year 1	Year 2
Revenue:	$ 650	$ 700
Cost of Goods Sold (COGS):	70	70
Gross Profit:	580	630
Gross Margin %:	*89.2%*	*90.0%*
Operating Expenses:		
Sales & Marketing:	150	165
Research & Development:	75	75
General & Administrative:	50	50
Total Operating Expenses:	275	290
Depreciation:	-	10
Operating Income (EBIT):	305	330
Operating Margin:	*46.9%*	*47.1%*
Other Income / (Expenses):	20	20
Interest Income / (Expense):	-	-
Pre-Tax Income (EBT):	325	350
Income Taxes:	(130)	(140)
Net Income (Profit After Taxes):	$ 195	$ 210
Net Income Margin:	*30.0%*	*30.0%*

How Longer-Term Items Affect Cash Flow

Investments & Investment Activity

Effect on Cash Flow:

- Record the initial impact on CFS
- Record the *after-effect* (interest or investment income) on the Income Statement
- Purchasing investments initially **reduces** a company's cash flow
- No associated **non-cash adjustment** on the CFS

Cash Flow Statement:	Year 1	Year 2
Cash Flow from Operating Activities:		
Net Income:	$ 195	$ 216
Depreciation:	-	10
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:	-	(50)
Change in Prepaid Expenses:	-	(30)
Change in Inventory:	-	(30)
Change in Accounts Payable:	-	15
Change in Deferred Revenue:	-	15
Cash Flow from Operations:	**$ 195**	**$ 146**
Cash Flow from Investing Activities:		
Capital Expenditures (CapEx):	$ -	$ (50)
Purchases of Short-Term Investment	-	(100)
Purchases of Long-Term Investment	-	(100)
Cash Flow from Investing:	**$ -**	**$ (250)**
Cash Flow from Financing Activities:		
Cash Flow from Financing:	**$ -**	**$ -**
Net Change in Cash:	**$ 195**	**$ (104)**

Income Statement:	Year 1	Year 2
Revenue:	**$ 650**	**$ 700**
Cost of Goods Sold (COGS):	70	70
Gross Profit:	**580**	**630**
Gross Margin %:	*89.2%*	*90.0%*
Operating Expenses:		
Sales & Marketing:	150	165
Research & Development:	75	75
General & Administrative:	50	50
Total Operating Expenses:	**275**	**290**
Depreciation:	-	10
Operating Income (EBIT):	**305**	**330**
Operating Margin:	*46.9%*	*47.1%*
Other Income / (Expenses):	20	20
Interest Income / (Expense):	-	10
Pre-Tax Income (EBT):	**325**	**360**
Income Taxes:	(130)	(144)
Net Income (Profit After Taxes):	**$ 195**	**$ 216**
Net Income Margin:	*30.0%*	*30.9%*

How Longer-Term Items Affect Cash Flow

Raising Debt & Equity

Effect on Cash Flow:

- Debt raised **only** shows up on CFS
- Debt Principal Repayment also **only** shows up on CFS
- Interest expense shows up on the Income Statement
- Overall, raising debt **boosts** cash balance
- Equity raised is a simple cash inflow on the CFS
- Raising equity means the company is selling part of itself

Cash Flow Statement:	Year 1	Year 2
Cash Flow from Operating Activities:		
Net Income:	$ 195	$ 198
Depreciation:	-	10
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:	-	(50)
Change in Prepaid Expenses:	-	(30)
Change in Inventory:	-	(30)
Change in Accounts Payable:	-	15
Change in Deferred Revenue:	-	15
Cash Flow from Operations:	**$ 195**	**$ 128**
Cash Flow from Investing Activities:		
Capital Expenditures (CapEx):	$ -	$ (50)
Purchases of Short-Term Investment	-	(100)
Purchases of Long-Term Investments	-	(100)
Cash Flow from Investing:	**$ -**	**$ (250)**
Cash Flow from Financing Activities:		
Debt Raised:	$ -	$ 300
Debt Principal Repayment:	-	(60)
Cash Flow from Financing:	**$ -**	**$ 240**
Net Change in Cash:	**$ 195**	**$ 118**

Income Statement:	Year 1	Year 2
Revenue:	**$ 650**	**$ 700**
Cost of Goods Sold (COGS):	70	70
Gross Profit:	**580**	**630**
Gross Margin %:	*89.2%*	*90.0%*
Operating Expenses:		
Sales & Marketing:	150	165
Research & Development:	75	75
General & Administrative:	50	50
Total Operating Expenses:	**275**	**290**
Depreciation:	-	10
Operating Income (EBIT):	**305**	**330**
Operating Margin:	*46.9%*	*47.1%*
Other Income / (Expenses):	20	20
Interest Income / (Expense):	-	(20)
Pre-Tax Income (EBT):	**325**	**330**
Income Taxes:	(130)	(132)
Net Income (Profit After Taxes):	**$ 195**	**$ 198**
Net Income Margin:	*30.0%*	*28.3%*

How Longer-Term Items Affect Cash Flow

Dividends & Share Repurchases

Dividends: "Small cash payments" to equity investors

Share Repurchases: Company buys back your shares; reduces the company's share count and therefore gives more ownership back to the company

Effect on Cash Flow:

- Neither appear on Income Statement
- Both are **negative** adjustments on the Cash Flow Statement

Cash Flow Statement:	Year 1	Year 2
Cash Flow from Operating Activities:		
Net Income:	$ 195	$ 189
Depreciation:	-	10
Deferred Income Taxes:	-	50
(Gains) / Losses:	-	15
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:	-	(50)
Change in Prepaid Expenses:	-	(30)
Change in Inventory:	-	(30)
Change in Accounts Payable:	-	15
Change in Deferred Revenue:	-	15
Cash Flow from Operations:	**$ 195**	**$ 184**
Cash Flow from Investing Activities:		
Capital Expenditures (CapEx):	$ -	$ (50)
Purchases of Short-Term Investment	-	(100)
Purchases of Long-Term Investments	-	(100)
Proceeds from ST Investment Sales:	-	85
Cash Flow from Investing:	**$ -**	**$ (165)**
Cash Flow from Financing Activities:		
Debt Raised:	$ -	$ 300
Debt Principal Repayment:	-	(60)
Equity Issuance:	-	100
Dividends Issued:	-	(50)
Share Repurchases:	-	(50)
Cash Flow from Financing:	**$ -**	**$ 240**
Net Change in Cash:	**$ 195**	**$ 259**

Income Statement:	Year 1	Year 2
Revenue:	**$ 650**	**$ 700**
Cost of Goods Sold (COGS):	70	70
Gross Profit:	**580**	**630**
Gross Margin %:	*89.2%*	*90.0%*
Operating Expenses:		
Sales & Marketing:	150	165
Research & Development:	75	75
General & Administrative:	50	50
Total Operating Expenses:	**275**	**290**
Depreciation:	-	10
Operating Income (EBIT):	**305**	**330**
Operating Margin:	*46.9%*	*47.1%*
Other Income / (Expenses):	20	20
Interest Income / (Expense):	-	(20)
Gains / (Losses):	-	(15)
Pre-Tax Income (EBT):	**325**	**315**
Income Taxes:	130	126
Current Portion:	130	76
Deferred Portion:	-	50
Net Income (Profit After Taxes):	**$ 195**	**$ 189**
Net Income Margin:	*30.0%*	*27.0%*

How Longer-Term Items Affect Cash Flow

Deferred Taxes

Current: Tax has been paid in cash (in the period shown)

Deferred: Tax has not been paid in cash ("defers" this portion to some later period)

Effect on Cash Flow:

- Show entire income tax expense on Income Statement
- Adjust only for the non-cash portion (the deferred portion) on CFS
- If Current > Deferred, adjustment is positive on the CFS

Cash Flow Statement:		Year 1		Year 2
Cash Flow from Operating Activities:				
Net Income:	$	195	$	189
Depreciation:		-		10
Deferred Income Taxes:		-		50
(Gains) / Losses:		-		15
Change in Operating Assets & Liabilities:				
Change in Accounts Receivable:		-		(50)
Change in Prepaid Expenses:		-		(30)
Change in Inventory:		-		(30)
Change in Accounts Payable:		-		15
Change in Deferred Revenue:		-		15
Cash Flow from Operations:	$	195	$	184
Cash Flow from Investing Activities:				
Capital Expenditures (CapEx):	$	-	$	(50)
Purchases of Short-Term Investment		-		(100)
Purchases of Long-Term Investments		-		(100)
Proceeds from ST Investment Sales:		-		85
Cash Flow from Investing:	$	-	$	(165)
Cash Flow from Financing Activities:				
Debt Raised:	$	-	$	300
Debt Principal Repayment:		-		(60)
Equity Issuance:		-		100
Cash Flow from Financing:	$	-	$	340
Net Change in Cash:	$	195	$	359

Income Statement:		Year 1		Year 2
Revenue:	$	650	$	700
Cost of Goods Sold (COGS):		70		70
Gross Profit:		580		630
Gross Margin %:		*89.2%*		*90.0%*
Operating Expenses:				
Sales & Marketing:		150		165
Research & Development:		75		75
General & Administrative:		50		50
Total Operating Expenses:		275		290
Depreciation:		-		10
Operating Income (EBIT):		305		330
Operating Margin:		*46.9%*		*47.1%*
Other Income / (Expenses):		20		20
Interest Income / (Expense):		-		(20)
Gains / (Losses):		-		(15)
Pre-Tax Income (EBT):		325		315
Income Taxes:		130		126
Current Portion:		130		76
Deferred Portion:		-		50
Net Income (Profit After Taxes):	$	195	$	189
Net Income Margin:		*30.0%*		*27.0%*

How Longer-Term Items Affect Cash Flow

Gains, Losses, Impairments, & Write-downs

Gain: Company sells an asset for *more* *than its book value*

Loss: Company sells an asset for *less than its book value*

Effect on Cash Flow:

- The cash the company received for the sold asset shows up positive on CFS
- Record the gain or loss on the Income Statement
- Have to reverse the gain/loss on CFS because it's non-cash

Cash Flow Statement:	Year 1	Year 2
Cash Flow from Operating Activities:		
Net Income:	$ 195	$ 189
Depreciation:	-	10
(Gains) / Losses:	-	15
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:	-	(50)
Change in Prepaid Expenses:	-	(30)
Change in Inventory:	-	(30)
Change in Accounts Payable:	-	15
Change in Deferred Revenue:	-	15
Cash Flow from Operations:	$ 195	$ 134
Cash Flow from Investing Activities:		
Capital Expenditures (CapEx):	$ -	$ (50)
Purchases of Short-Term Investment	-	(100)
Purchases of Long-Term Investments	-	(100)
Proceeds from ST Investment Sales:	-	85
Cash Flow from Investing:	$ -	$ (165)
Cash Flow from Financing Activities:		
Debt Raised:	$ -	$ 300
Debt Principal Repayment:	-	(60)
Cash Flow from Financing:	$ -	$ 240
Net Change in Cash:	$ 195	$ 209

Income Statement:	Year 1	Year 2
Revenue:	$ 650	$ 700
Cost of Goods Sold (COGS):	70	70
Gross Profit:	580	630
Gross Margin %:	*89.2%*	*90.0%*
Operating Expenses:		
Sales & Marketing:	150	165
Research & Development:	75	75
General & Administrative:	50	50
Total Operating Expenses:	275	290
Depreciation:	-	10
Operating Income (EBIT):	305	330
Operating Margin:	*46.9%*	*47.1%*
Other Income / (Expenses):	20	20
Interest Income / (Expense):	-	(20)
Gains / (Losses):	-	(15)
Pre-Tax Income (EBT):	325	315
Income Taxes:	(130)	(126)
Net Income (Profit After Taxes):	$ 195	$ 189
Net Income Margin:	*30.0%*	*27.0%*

How Longer-Term Items Affect Cash Flow

<u>Gains, Losses, Impairments, & Write-downs</u>

Write Down: Expense on the Income Statement that <u>reduces</u> the company's <u>Pre-Tax Income</u> & <u>Net Income</u>

Effect on Cash Flow:

- Expense on the Income Statement that reduces the company's Pre-Tax Income and Net Income
- Add it back as a non-cash expense on CFS
- Reduces PP&E on the Balance Sheet

Cash Flow Statement:	Year 1	Year 2
Cash Flow from Operating Activities:		
Net Income:	$ 195	$ 135
Depreciation:	-	10
Amortization of Intangible Assets:	-	10
Stock-Based Compensation:	-	20
Goodwill Impairment:	-	50
PP&E Write-Down:	-	10
Deferred Income Taxes:	-	50
(Gains) / Losses:	-	15
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:	-	(50)
Change in Prepaid Expenses:	-	(30)
Change in Inventory:	-	(30)
Change in Accounts Payable:	-	15
Change in Deferred Revenue:	-	15
Cash Flow from Operations:	**$ 195**	**$ 220**
Cash Flow from Investing Activities:		
Capital Expenditures (CapEx):	$ -	$ (50)
Acquisitions:	-	(250)
Purchases of Short-Term Investment	-	(100)
Purchases of Long-Term Investments	-	(100)
Proceeds from ST Investment Sales:	-	85
Cash Flow from Investing:	**$ -**	**$ (415)**
Cash Flow from Financing Activities:		
Debt Raised:	$ -	$ 300
Debt Principal Repayment:	-	(60)
Equity Issuance:	-	100
Dividends Issued:	-	(50)
Share Repurchases:	-	(50)
Cash Flow from Financing:	**$ -**	**$ 240**

Income Statement:	Year 1	Year 2
Revenue:	$ 650	$ 700
Cost of Goods Sold (COGS):	70	70
Gross Profit:	**580**	**630**
Gross Margin %:	*89.2%*	*90.0%*
Operating Expenses:		
Sales & Marketing:	150	165
Research & Development:	75	75
General & Administrative:	50	50
Total Operating Expenses:	**275**	**290**
Depreciation:	-	10
Amortization of Intangible Assets:	-	10
Stock-Based Compensation:	-	20
Operating Income (EBIT):	**305**	**300**
Operating Margin:	*46.9%*	*42.9%*
Other Income / (Expenses):	20	20
Interest Income / (Expense):	-	(20)
Goodwill Impairment:	-	(50)
PP&E Write-Down:	-	(10)
Gains / (Losses):	-	(15)
Pre-Tax Income (EBT):	**325**	**225**
Income Taxes:	130	90
Current Portion:	130	40
Deferred Portion:	-	50
Net Income (Profit After Taxes):	**$ 195**	**$ 135**
Net Income Margin:	*30.0%*	*19.3%*

How Longer-Term Items Affect Cash Flow

Stock-Based Compensation

Impact on Cash:

- Expense on Income Statement; therefore reduces **Pre-Tax Income**
- But it's a **non-cash expense**, so you add it back to CFS
- Cash Flow **goes up** because the company pays less in taxes

Company Dilution:

- SBC creates extra shares & dilutes current investors
- Accounting rules require companies to show SBC as a non-cash expense on the CFS
- But because of this dilution, you count it as a REAL cash expense when you estimate a company's cash flow

How Longer-Term Items Affect Cash Flow

Goodwill & Other Intangible Assets

So the owner has contributed some money to start this business, which explains the $100K in Equity, and has also purchased some property and equipment.

Currently, there's very little to this business: sales are minimal, and we want to acquire it mostly to get valuable **intellectual property**.

Even though the Balance Sheet says the company is worth only $100K, the owner won't sell for that amount.

Instead, he demands $250K for the business.

Since we *really* want this other business, we decide to accept his terms and offer $250K for it.

Here's what happens if we pay $250K in cash and combine this other company's Balance Sheet with ours:

Balance Sheet:		
		Year 1
Assets:		
Current Assets:		
Cash:	$	100
Total Current Assets:		100
Long-Term Assets:		
Property, Plant & Equipment:		30
Total Long-Term Assets:		30
Total Assets:	$	130
Liabilities & Equity:		
Current Liabilities:		
Accounts Payable:	$	30
Total Current Liabilities:		30
Long-Term Liabilities:		
Debt:		-
Total Long-Term Liabilities:		-
Equity:		100
Total Liabilities & Equity:	$	130

How Longer-Term Items Affect Cash Flow

Goodwill & Other Intangible Assets

Balance Sheets @ Year 2 End:	BIWS	Other Co.	Transaction Adjustments:	Combined:
Assets:				
Total Current Assets:	$ 531	$ 100	$ (250) <--- The cash we offer.	**$ 381**
Total Long-Term Assets:	310	30	-	**340**
Total Assets:	$ 841	$ 130	$ (250)	**$ 721**
Liabilities & Equity:				
Total Current Liabilities:	$ 60	$ 30	$ -	**$ 90**
Total Long-Term Liabilities:	290	-	-	**290**
Equity:	491	100	(100) <--- Gets wiped out!	**491**
Total Liabilities & Equity:	$ 841	$ 130	$ (100)	**$ 871**
BALANCE CHECK:	**OK!**	**OK!**		**($150)**

The Balance Sheet goes out of balance because we paid $250K, but the other company's Equity was worth only $100K.

How Longer-Term Items Affect Cash Flow

Goodwill & Other Intangible Assets

Balance Sheets @ Year 2 End:	BIWS		Other Co.		Transaction Adjustments:		Combined:	
Assets:								
Total Current Assets:	$	531	$	100	$	(250) <--- The cash we offer.	**$**	**381**
Goodwill:		-		-		100		**100**
Other Intangible Assets:		-		-		50		**50**
Total Long-Term Assets:		310		30		-		**340**
Total Assets:	$	841	$	130	$	(250)	**$**	**871**
Liabilities & Equity:								
Total Current Liabilities:	$	60	$	30	$	-	**$**	**90**
Total Long-Term Liabilities:		290		-		-		**290**
Equity:		491		100		(100) <--- Gets wiped out!		**491**
Total Liabilities & Equity:	$	841	$	130	$	(100)	**$**	**871**
BALANCE CHECK:		**OK!**		**OK!**				**OK!**

Intangible Asset: Any Asset that's not a physical asset and is also **not** a financial instrument

How Longer-Term Items Affect Cash Flow

Amortization of Intangible Assets

Income Statement:	Year 1	Year 2
Revenue:	$ 650	$ 700
Cost of Goods Sold (COGS):	70	70
Gross Profit:	580	630
Gross Margin %:	*89.2%*	*90.0%*
Operating Expenses:		
Sales & Marketing:	150	165
Research & Development:	75	75
General & Administrative:	50	50
Total Operating Expenses:	275	290
Depreciation:	-	10
Amortization of Intangible Assets:	-	10
Stock-Based Compensation:	-	20
Operating Income (EBIT):	305	300
Operating Margin:	*46.9%*	*42.9%*
Other Income / (Expenses):	20	20
Interest Income / (Expense):	-	(20)
Gains / (Losses):	-	(15)
Pre-Tax Income (EBT):	325	285
Income Taxes:	130	114
Current Portion:	130	64
Deferred Portion:	-	50
Net Income (Profit After Taxes):	$ 195	$ 171
Net Income Margin:	*30.0%*	*24.4%*

Balance Sheet:	Year 1	Year 2
Assets:		
Current Assets:		
Cash:	$ 300	$ 421
Short-Term Investments:	-	-
Accounts Receivable:	-	50
Inventory:	-	30
Prepaid Expenses:	-	30
Total Current Assets:	300	531
Long-Term Assets:		
Property, Plant & Equipment:	-	70
Goodwill:	-	100
Other Intangible Assets:	-	40
Long-Term Investments:	-	100
Total Long-Term Assets:	-	310
Total Assets:	$ 300	$ 841
Liabilities & Equity:		
Current Liabilities:		
Accounts Payable:	$ -	$ 45
Deferred Revenue:	-	15
Total Current Liabilities:	-	60
Long-Term Liabilities:		
Debt:	-	240
Deferred Tax Liability:	-	50
Total Long-Term Liabilities:	-	290
Equity:	300	491

Cash Flow Statement:	Year 1	Year 2
Cash Flow from Operating Activities:		
Net Income:	$ 195	$ 171
Depreciation:	-	10
Amortization of Intangible Assets:	-	10
Stock-Based Compensation:	-	20
Deferred Income Taxes:	-	50
(Gains) / Losses:	-	15
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:	-	(50)
Change in Prepaid Expenses:	-	(30)
Change in Inventory:	-	(30)
Change in Accounts Payable:	-	15
Change in Deferred Revenue:	-	15
Cash Flow from Operations:	$ 195	$ 196
Cash Flow from Investing Activities:		
Capital Expenditures (CapEx):	$ -	$ (50)
Acquisitions:	-	(250)
Purchases of Short-Term Investment	-	(100)
Purchases of Long-Term Investments	-	(100)
Proceeds from ST Investment Sales:	-	85
Cash Flow from Investing:	$ -	$ (415)
Cash Flow from Financing Activities:		
Debt Raised:	$ -	$ 300
Debt Principal Repayment:	-	(60)
Equity Issuance:	-	100
Dividends Issued:	-	(50)
Share Repurchases:	-	(50)
Cash Flow from Financing:	$ -	$ 240

The Income Statement

The Income Statement

- Must correspond to the given period
- Must affect a company's taxes

The Income Statement

<u>Revenue</u>: value of goods and services sold during a given period
<u>COGS</u>: the expenses that are
linked directly to the sale of those products/services.

Income Statement:		
Revenue:	$	700
Cost of Goods Sold (COGS):		70
Gross Profit:		630
Gross Margin %:		*90.0%*
Operating Expenses:		
Sales & Marketing:		165
Research & Development:		75
General & Administrative:		50
Total Operating Expenses:		290
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Operating Income (EBIT):		300
Operating Margin:		*42.9%*
Other Income / (Expenses):		20
Interest Income / (Expense):		(20)
Goodwill Impairment:		(50)
PP&E Write-Down:		(10)
Gains / (Losses) on Investment Sales		(15)
Pre-Tax Income (EBT):		225
Income Taxes:		90
Current Portion:		40
Deferred Portion:		50
Net Income (Profit After Taxes):	$	135
Net Income Margin:		*19.3%*

The Income Statement

<u>Revenue</u>: value of goods and services sold during a given period
<u>COGS</u>: the expenses that are
linked directly to the sale of those products/services.

<u>Gross Profit</u> = Revenue - COGS

Income Statement:		
Revenue:	$	700
Cost of Goods Sold (COGS):		70
Gross Profit:		630
Gross Margin %:		*90.0%*
Operating Expenses:		
Sales & Marketing:		165
Research & Development:		75
General & Administrative:		50
Total Operating Expenses:		290
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Operating Income (EBIT):		300
Operating Margin:		*42.9%*
Other Income / (Expenses):		20
Interest Income / (Expense):		(20)
Goodwill Impairment:		(50)
PP&E Write-Down:		(10)
Gains / (Losses) on Investment Sales		(15)
Pre-Tax Income (EBT):		225
Income Taxes:		90
Current Portion:		40
Deferred Portion:		50
Net Income (Profit After Taxes):	$	135
Net Income Margin:		*19.3%*

The Income Statement

Revenue: value of goods and services sold during a given period
COGS: the expenses that are
linked directly to the sale of those products/services.

Gross Profit = Revenue - COGS

Operating Expenses: Costs that are not directly linked to individual products /service sold

Income Statement:		
Revenue:	$	700
Cost of Goods Sold (COGS):		70
Gross Profit:		630
Gross Margin %:		*90.0%*
Operating Expenses:		
Sales & Marketing:		165
Research & Development:		75
General & Administrative:		50
Total Operating Expenses:		290
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Operating Income (EBIT):		300
Operating Margin:		*42.9%*
Other Income / (Expenses):		20
Interest Income / (Expense):		(20)
Goodwill Impairment:		(50)
PP&E Write-Down:		(10)
Gains / (Losses) on Investment Sales		(15)
Pre-Tax Income (EBT):		225
Income Taxes:		90
Current Portion:		40
Deferred Portion:		50
Net Income (Profit After Taxes):	$	135
Net Income Margin:		*19.3%*

The Income Statement

Revenue: value of goods and services sold during a given period
COGS: the expenses that are
linked directly to the sale of those products/services.

Gross Profit = Revenue - COGS

Operating Expenses: Costs that are not directly linked to individual products /service sold

Depreciation and Amortization: method of allocating the cost of a tangible (or intangible) asset over its useful life to account for declines in value over time.

Income Statement:		
Revenue:	$	700
Cost of Goods Sold (COGS):		70
Gross Profit:		630
Gross Margin %:		*90.0%*
Operating Expenses:		
Sales & Marketing:		165
Research & Development:		75
General & Administrative:		50
Total Operating Expenses:		290
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Operating Income (EBIT):		300
Operating Margin:		*42.9%*
Other Income / (Expenses):		20
Interest Income / (Expense):		(20)
Goodwill Impairment:		(50)
PP&E Write-Down:		(10)
Gains / (Losses) on Investment Sales		(15)
Pre-Tax Income (EBT):		225
Income Taxes:		90
Current Portion:		40
Deferred Portion:		50
Net Income (Profit After Taxes):	$	135
Net Income Margin:		*19.3%*

The Income Statement

Revenue: value of goods and services sold during a given period
COGS: the expenses that are
linked directly to the sale of those products/services.

Gross Profit = Revenue - COGS

Operating Expenses: Costs that are not directly linked to individual products /service sold

Depreciation and Amortization: method of allocating the cost of a tangible (or intangible) asset over its useful life to account for declines in value over time.

Stock Based Compensation: the cost of paying employees with stock or stock options rather than cash.

Income Statement:		
Revenue:	$	700
Cost of Goods Sold (COGS):		70
Gross Profit:		630
Gross Margin %:		*90.0%*
Operating Expenses:		
Sales & Marketing:		165
Research & Development:		75
General & Administrative:		50
Total Operating Expenses:		290
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Operating Income (EBIT):		300
Operating Margin:		*42.9%*
Other Income / (Expenses):		20
Interest Income / (Expense):		(20)
Goodwill Impairment:		(50)
PP&E Write-Down:		(10)
Gains / (Losses) on Investment Sales		(15)
Pre-Tax Income (EBT):		225
Income Taxes:		90
Current Portion:		40
Deferred Portion:		50
Net Income (Profit After Taxes):	$	135
Net Income Margin:		*19.3%*

The Income Statement

Revenue: value of goods and services sold during a given period
COGS: the expenses that are
linked directly to the sale of those products/services.

Gross Profit = Revenue - COGS

Operating Expenses: Costs that are not directly linked to individual products /service sold

Depreciation and Amortization: method of allocating the cost of a tangible (or intangible) asset over its useful life to account for declines in value over time.

Stock Based Compensation: the cost of paying employees with stock or stock options rather than cash.

Other Income and Expenses: items that don't occur during the normal course of business operation.

Income Statement:		
Revenue:	$	700
Cost of Goods Sold (COGS):		70
Gross Profit:		630
Gross Margin %:		*90.0%*
Operating Expenses:		
Sales & Marketing:		165
Research & Development:		75
General & Administrative:		50
Total Operating Expenses:		290
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Operating Income (EBIT):		300
Operating Margin:		*42.9%*
Other Income / (Expenses):		20
Interest Income / (Expense):		(20)
Goodwill Impairment:		(50)
PP&E Write-Down:		(10)
Gains / (Losses) on Investment Sales		(15)
Pre-Tax Income (EBT):		225
Income Taxes:		90
Current Portion:		40
Deferred Portion:		50
Net Income (Profit After Taxes):	$	135
Net Income Margin:		*19.3%*

The Income Statement

Pre-Tax Income: EBT = Earnings before Tax

Income Statement:		
Revenue:	$	700
Cost of Goods Sold (COGS):		70
Gross Profit:		630
Gross Margin %:		*90.0%*
Operating Expenses:		
Sales & Marketing:		165
Research & Development:		75
General & Administrative:		50
Total Operating Expenses:		290
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Operating Income (EBIT):		300
Operating Margin:		*42.9%*
Other Income / (Expenses):		20
Interest Income / (Expense):		(20)
Goodwill Impairment:		(50)
PP&E Write-Down:		(10)
Gains / (Losses) on Investment Sales		(15)
Pre-Tax Income (EBT):		225
Income Taxes:		90
Current Portion:		40
Deferred Portion:		50
Net Income (Profit After Taxes):	$	135
Net Income Margin:		*19.3%*

The Income Statement

Pre-Tax Income: EBT = Earnings before Tax

Income Taxes: tax levied by the government on income generated by a business

Income Statement:		
Revenue:	$	700
Cost of Goods Sold (COGS):		70
Gross Profit:		630
Gross Margin %:		*90.0%*
Operating Expenses:		
Sales & Marketing:		165
Research & Development:		75
General & Administrative:		50
Total Operating Expenses:		290
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Operating Income (EBIT):		300
Operating Margin:		*42.9%*
Other Income / (Expenses):		20
Interest Income / (Expense):		(20)
Goodwill Impairment:		(50)
PP&E Write-Down:		(10)
Gains / (Losses) on Investment Sales		(15)
Pre-Tax Income (EBT):		225
Income Taxes:		90
Current Portion:		40
Deferred Portion:		50
Net Income (Profit After Taxes):	$	135
Net Income Margin:		*19.3%*

The Income Statement

Pre-Tax Income: EBT = Earnings before Tax

Income Taxes: tax levied by the government on income generated by a business

Net Income: how much in after-tax profits it has earned

Income Statement:		
Revenue:	$	700
Cost of Goods Sold (COGS):		70
Gross Profit:		630
Gross Margin %:		*90.0%*
Operating Expenses:		
Sales & Marketing:		165
Research & Development:		75
General & Administrative:		50
Total Operating Expenses:		290
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Operating Income (EBIT):		300
Operating Margin:		*42.9%*
Other Income / (Expenses):		20
Interest Income / (Expense):		(20)
Goodwill Impairment:		(50)
PP&E Write-Down:		(10)
Gains / (Losses) on Investment Sales		(15)
Pre-Tax Income (EBT):		225
Income Taxes:		90
Current Portion:		40
Deferred Portion:		50
Net Income (Profit After Taxes):	$	135
Net Income Margin:		*19.3%*

The Income Statement

Always on	Never on
Revenue, COGS, Operating Expenses, Depreciation, Amortization, Stock-Based Compensation, Interest Income and Expense, Gains / (Losses), Write-Downs, Impairments, Other Income / (Expenses), Taxes, and Net Income.	Capital Expenditures, Purchasing or Selling Investments or PP&E (Plants, Property & Equipment), Dividends, Issuing or Repaying Debt Principal, Issuing or Repurchasing Shares, and Changes to Balance Sheet Items such as Cash, Debt, Accounts Receivable, or Accounts Payable.

The Balance Sheet

The Balance Sheet

Shows the company's **resources** - its Assets - and how it **paid for** those resources - its Liabilities & Equity - at a <u>specific point in time</u>

The Balance Sheet

Think about your personal Balance Sheet:

- Maybe you've invested $50k in the stock market
- You have $30k in cash in your bank account
- And you own a house worth $500k

How did you pay for the cash, your house, and your investments

- First, you **saved up money**
- You also **borrowed money**

So your "personal Balance Sheet" might look like this:

Personal Balance Sheet:			
Assets:			
Current Assets:			
Cash:	$	30	<-- Cash in your checking account.
Total Current Assets:		30	
Long-Term Assets:			
House:		500	<-- What you paid for that house when you first bought it.
Stock Market Investments:		50	<-- What it sounds like; could also be "short-term."
Total Long-Term Assets:		550	
Total Assets:	$	580	
Liabilities & Equity:			
Current Liabilities:			
Credit Card Debt:	$	-	<-- You're smart and have no credit card debt!
Total Current Liabilities:		-	
Long-Term Liabilities:			
Home Mortgage:		380	<-- But you did borrow to buy that house.
Total Long-Term Liabilities:		380	
Equity:	$	200	<-- Saved-up, after-tax earnings from your job.
Total Liabilities & Equity:	$	580	
BALANCE CHECK:		OK!	

These MUST equal each other; if you have $580K in resources, you must have gotten the money from somewhere.

The Balance Sheet

Key Rules:

1. The Balance Sheet shows the company's resources (**Assets**) and how it paid for those resources (**Liabilities & Equity**) - at a specific point in time
   - Shows the company's resources **ON** January 1, 20XX or **ON** December 31, 20XX
2. Assets **must always** equal Liabilities & Equity - if the Balance Sheet doesn't balance, it's wrong
   - Ex: If you want a house - an asset - that costs $1 million, could you use a $380k mortgage and $200k saved-up income to pay for it?
   - NO! The Balance Sheet would go out of balance - have to borrow or save more
3. An **Asset** is something that will result in - directly or indirectly - **additional cash** in the future, or is something that can be sold for **cash**
   - Assets are typically split up into:
     - "Current"/ "Short-Term" → Anything that lasts for less than 1 year
     - "Non-Current"/ "Long-Term" → Anything that lasts for more than 1 year

The Balance Sheet

Key Rules:

4. A **Liability** is something that will result in - directly or indirectly - **less cash** in the future
   - Also split into "Current" and "Non-Current"
   - Liabilities are usually related to **external parties** → Lenders, Suppliers, or the Government
5. An **Equity** line item is a funding source, like a Liability, but it **will not** result in **less cash** in the future
   - *Like* Liabilities, the items in the "Equity" category are also funding sources
   - *Unlike* Liabilities, the Equity line items don't *necessarily* result in less cash in the future.
   - They also tend to relate more to the company's internal operations and how it's saving money over time
     - Whereas Liabilities relate more to external parties such as lenders

The Balance Sheet

Assets:	Start of Period	End of Period	
Current Assets:			**Assets - Generate cash or can be sold for cash**
Cash:	$ 300	$ 610	
Short-Term Investments:	-	-	Earn Interest - more cash - or can be sold for cash
Accounts Receivable:	-	50	Will get more cash from customers eventually
Inventory:	-	30	Will turn into products and sell for cash
Prepaid Expenses:	-	30	Will reduce taxes in the future, saving us cash
Total Current Assets:	**300**	**720**	
Long-Term Assets:			
Property, Plant & Equipment:	-	30	Can be used to manufacture goods, producing cash
Goodwill:	100	50	Possible future synergies will produce more cash
Other Intangible Assets:	50	40	Customer relationships, brand, etc. result in more sales
Long-Term Investments:	-	100	Earn interest - more cash - or can be sold for cash
Total Long-Term Assets:	**150**	**220**	
Total Assets:	**$ 450**	**$ 940**	

The Balance Sheet

Liabilities & Equity:		Start		End	
Current Liabilities:					
Accounts Payable:	$	-	$	15	Recorded the expense, but must pay **CASH** in the future
Accrued Expenses:		-		10	Recorded the expense, but must pay **CASH** in the future
Deferred Revenue:		-		15	Must pay expense and taxes on this revenue in the future
Total Current Liabilities:		-		40	
Long-Term Liabilities:					
Debt:		-		240	Must pay interest and repay debt principal
Deferred Tax Liability:		-		50	Must pay higher cash taxes in the future
Total Long-Term Liabilities:		-		290	
Equity:					**Equity - Funding, but no cash cost**
Common Stock & Additional Paid-In Capit		50		170	Stock issued to others to fund the business
Retained Earnings:		400		485	"Saved up, after-tax earnings" - add NI, subtract Dividens
Treasury Stock:		-		(50)	Always record repurchases as a negative
Accumulated Other Comprehensive Incor		-		5	FX rate effects, unrealized gains/losses, misc. items
Total Equity:	$	450	$	610	
Total Liabilities & Equity:	$	450	$	940	

Liabilities - Will cost the company cash

The Balance Sheet

Definitions of Key Assets:

- **Cash**: Just like cash in your bank account
- **Short-Term Investments:** Anything that generates some interest income and is less liquid than cash - a money-market account, for example
- **Accounts Receivable:** The company has recorded this as revenue on its Income Statement but hasn't received it in cash yet; it's like an "IOU" from a customer; And it will turn into cash when the customer pays
- **Inventory:** The physical parts and supplies that the company needs to manufacture and sell products
- **Prepaid Expense:** The company has paid these expenses in cash but hasn't recorded them as expenses on the Income Statement yet because they haven't been incurred

The Balance Sheet

Most Common Long-Term Assets:

- **Property, Plant, & Equipment (PP&E):** Factories, buildings, land, and equipment that will be useful for more than a year and contribute to the company's core business
- **Goodwill:** The cumulative premiums that the company has paid over other companies' Shareholders' Equity when acquiring them
- **Other Intangible Assets:** The cumulative values of patents, trademarks, and intellectual property from acquired companies; Unlike Goodwill, this balance amortizes over time because these items have fixed useful lives
- **Long-Term Investments:** These also generate interest or investment income, but are less liquid and longer-lasting than Cash or Short-Term Investments

The Balance Sheet

Definitions of Key Liabilities:

- **Short-Term Debt or “Revolver”:** Borrowing that incurs interest expense and that is owed back in less than a year; It’s sort of like a credit card because it represents short-term borrowing
- **Accounts Payable:** The company has recorded these as expense on the Income Statement, but hasn’t yet paid them in cash - it’s used for one-time items with specific invoices, such as legal services
- **Accrued Expenses:** The company has recorded these as expenses on the Income Statement, but hasn’t yet paid them in cash - it’s used for recurring monthly items without invoices, such as employee wages, utilities, and rent
- **Deferred Revenue:** The company has collected cash in advance from customers for products/services that it has not yet delivered; it will recognize Deferred Revenue as real revenue over time as it delivers the products/services

The Balance Sheet

Most Common Long-Term Liabilities:

- **Deferred Tax Liability:** This represents a **timing difference** in taxes; For some reason, the company paid less in taxes than what it owed in some earlier period, and it must make up the difference by paying more to the government in the future
- **Long-Term Debt:** Similar to a mortgage, a car loan, or a student loan: debt that must be repaid in over a year's time

The Balance Sheet

Definitions of Key Equity Line Items:

- **Common Stock & Additional Paid-In Capital (APIC):** This item represents the market value of shares **at the time the company issued those shares**; when a company goes public, the total dollar value of shares issued shows up here
- **Retained Earnings:** This item represents the company's saved-up, after-tax profits, minus any dividends it has issued
- **Treasury Stock:** This item represents the cumulative value of shares the company has repurchased from shareholders
- **Accumulated Other Comprehensive Income (AOCI):** This is a section for "miscellaneous saved-up income" - items like the effect of foreign currency exchange rate changes go here, as well as "unrealized" gains and losses on certain types of securities

The Balance Sheet

Extra Notes on Key Equity Line Items:

- With Common Stock & APIC, let's say a company issues 100 million shares. The par value of each share is $1.00, and the market value of each share is $10.00
  - Common Stock would increase by 100 million * $1.00, or $100 million
  - APIC would increase by $100 million * ($10.00 - $1.00), or $90 million
- With Treasury Stock, let's say the company repurchases $500 million in shares at a price of $50 per share
  - You'd record that as a negative $500 million on the Cash Flow Statement and *reduce* Treasury Stock by $500 million, **making it even more negative**

BANKING AT MICHIGAN

Cash Flow Statement

The Cash Flow Statement

- Tracks changes in cash inflow and outflow over a period of time

Cash Flow Statement:		
Cash Flow from Operating Activities:		
Net Income:	$	135
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Goodwill Impairment:		50
PP&E Write-Down:		10
Deferred Income Taxes:		50
(Gains) / Losses on Investment Sales		15
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:		(50)
Change in Inventory:		(30)
Change in Prepaid Expenses:		(30)
Change in Accounts Payable:		15
Change in Accrued Expenses:		10
Change in Deferred Revenue:		15
Cash Flow from Operations:	**$**	**230**

Cash Flow from Investing Activities:		
Capital Expenditures (CapEx):	$	(50)
Purchases of Short-Term Investment		(100)
Purchases of Long-Term Investment		(100)
Proceeds from ST Investment Sales:		85
Cash Flow from Investing:	**$**	**(165)**

Cash Flow from Financing Activities:		
Debt Raised:	$	300
Debt Principal Repayment:		(60)
Equity Issuance:		100
Dividends Issued:		(50)
Share Repurchases:		(50)
Cash Flow from Financing:	**$**	**240**
FX Rate Effects:		5
Net Change in Cash:	**$**	**310**
Beginning Cash Balance:	**$**	**300**
Ending Cash Balance:	**$**	**610**

Why Does the Cash Flow Statement Exist?

<u>2 main reasons:</u>

1. Recorded non-cash revenue, expenses, or taxes on Income Statement
   - Need to make adjustment on CFS to reflect this
   - Cash/non-cash differences are why the 3 financial statements exist in the first place!
2. Additional cash inflows and outflows that have NOT appeared on the Income Statement
   - Ex: Capital expenditures and dividends

CFS Components

Cash Flow from Operations (CFO)

- Think of section as net income, non-cash adjustments, and change in operational Balance Sheet items
- Cash, investments, and debt do NOT show up here

Cash Flow Statement:		
Cash Flow from Operating Activities:		
Net Income:	$	135
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Goodwill Impairment:		50
PP&E Write-Down:		10
Deferred Income Taxes:		50
(Gains) / Losses on Investment Sales		15
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:		(50)
Change in Inventory:		(30)
Change in Prepaid Expenses:		(30)
Change in Accounts Payable:		15
Change in Accrued Expenses:		10
Change in Deferred Revenue:		15
Cash Flow from Operations:	**$**	**230**

CFS Components

Cash Flow from Investing (CFI)

- Anything related to the company’s investments, acquisitions, and PP&E
- Purchases are negative because they use up cash
- Sales are positive because they result in more cash

Cash Flow from Investing Activities:		
Capital Expenditures (CapEx):	$	(50)
Purchases of Short-Term Investment		(100)
Purchases of Long-Term Investment		(100)
Proceeds from ST Investment Sales:		85
Cash Flow from Investing:	**$**	**(165)**

CFS Components

Cash Flow from Financing (CFF)

- Items related to debt, dividends, and issuing or repurchasing shares
- Ex: Debt Raised, Debt Principal Repayment, Equity Issuance, Dividends, Share Repurchases

Cash Flow from Financing Activities:		
Debt Raised:	$	300
Debt Principal Repayment:		(60)
Equity Issuance:		100
Dividends Issued:		(50)
Share Repurchases:		(50)
Cash Flow from Financing:	**$**	**240**
FX Rate Effects:		5
Net Change in Cash:	**$**	**310**
Beginning Cash Balance:	**$**	**300**
Ending Cash Balance:	**$**	**610**

How To Link The Financial Statements

Principle #1

Each item on the BS must have a corresponding line item on the CFS, and vice versa

- The change in each item on the BS must be reflected once and only once on the CFS
- Ex: When an asset goes up, cash flow goes down, and when a liability goes up, cash flow goes up, and vice versa.

How To Link The Financial Statements

Principle #2

The CFO section of the Cash Flow Statement is derived from the Income Statement and operational items on the Balance Sheet, and the CFI and CFF sections are projected directly on the CFS and then flow into the Balance Sheet

- Don't "project" items like the "Change in Accounts Receivable" directly on the CFS
- Instead, these items are based on how the company's BS has changed over time

Cash Flow Statement:		
Cash Flow from Operating Activities:		
Net Income:	$	135
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Goodwill Impairment:		50
PP&E Write-Down:		10
Deferred Income Taxes:		50
(Gains) / Losses on Investment Sales		15
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:		(50)
Change in Inventory:		(30)
Change in Prepaid Expenses:		(30)
Change in Accounts Payable:		15
Change in Accrued Expenses:		10
Change in Deferred Revenue:		15
Cash Flow from Operations:	**$**	**230**

Cash Flow from Investing Activities:		
Capital Expenditures (CapEx):	$	(50)
Purchases of Short-Term Investment		(100)
Purchases of Long-Term Investment		(100)
Proceeds from ST Investment Sales:		85
Cash Flow from Investing:	**$**	**(165)**

Cash Flow from Financing Activities:		
Debt Raised:	$	300
Debt Principal Repayment:		(60)
Equity Issuance:		100
Dividends Issued:		(50)
Share Repurchases:		(50)
Cash Flow from Financing:	**$**	**240**
FX Rate Effects:		5
Net Change in Cash:	**$**	**310**
Beginning Cash Balance:	**$**	**300**
Ending Cash Balance:	**$**	**610**

How To Link The Financial Statements

Principle #3

When you're linking in items from the CFS to the BS, SUBTRACT when you're on the Assets side and ADD when you're on the Liabilities & Equity side

- **PP&E** – **Subtract** both Depreciation and CapEx when you link them to the PP&E on the BS
- **Debt** – **Add** both debt issuances and repayments when you link them to Debt
- **Investments** – **Subtract** Gains and Losses, purchases, and proceeds from sales

Cash Flow Statement:		
Cash Flow from Operating Activities:		
Net Income:	$	135
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Goodwill Impairment:		50
PP&E Write-Down:		10
Deferred Income Taxes:		50
(Gains) / Losses on Investment Sales		15
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:		(50)
Change in Inventory:		(30)
Change in Prepaid Expenses:		(30)
Change in Accounts Payable:		15
Change in Accrued Expenses:		10
Change in Deferred Revenue:		15
Cash Flow from Operations:	**$**	**230**

Steps To Link The Financial Statements

1. Project the entire Income Statement first and link Net Income at the top of the CFS
2. Adjust for Non-Cash Items on the Income Statement
3. Project the items in CFI and CFF separately
4. Sum up all the sections to calculate the Net Change in Cash
5. Link Net Income and the Net Change in Cash to the Balance Sheet
6. Link each Non-Cash Adjustment to the appropriate line item on BS
7. Link each CFI and CFF item to the appropriate line item on BS
8. Check that the Balance Sheet balances

Steps To Link The Financial Statements

1. **Project entire Income Statement first and link in Net Income at the top of the CFS**
   - Link Net Income from the Income Statement in as the top line of the Cash Flow Statement
2. **Adjust for Non-Cash Items on the Income Statement**
   - Make positive adjustments for Depreciation & Amortization and Write-Downs because they’re non-cash expenses
3. **Project the items in CFI and CFF separately**
   - Forecast CapEx & investing activities, plans on equity and debt issuances, share repurchases, etc
4. **Sum up all the sections to calculate the Net Change in Cash**
   - Add up CFO, CFI, CFF, and FX Rate Effects to calculate the Net Change in Cash at the bottom

Steps To Link The Financial Statements

5. Link Net Income and the Net Change in Cash to the Balance Sheet

- Cash at the bottom of the Cash Flow Statement flows into Cash on the Balance Sheet
- Net Income at the top of the CFS flows into Retained Earnings

6. Link each Non-Cash Adjustment to the appropriate line item

- Ex: link Depreciation to PP&E and the Amortization of Intangibles to Other Intangible Assets on BS
- On the ASSETS side, you subtract links; on the LIABILITIES & EQUITY side, you add links

7. Link each CFI and CFF item to the appropriate line item on the Balance Sheet

- Link many CFI items to Long-Term Assets, and you link many CFF items to Long-Term Liabilities and Equity
- Ex: link CapEx under CFI to PP&E; link Share Repurchases under CFF to Treasury Stock

8. Check that the Balance Sheet balances

BANKING AT MICHIGAN

Steps To Link The Financial Statements

Income Statement:		
Revenue:	$	700
Cost of Goods Sold (COGS):		70
Gross Profit:		630
Gross Margin %:		*90.0%*
Operating Expenses:		
Sales & Marketing:		165
Research & Development:		75
General & Administrative:		50
Total Operating Expenses:		290
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Operating Income (EBIT):		300
Operating Margin:		*42.9%*
Other Income / (Expenses):		20
Interest Income / (Expense):		(20)
Goodwill Impairment:		(50)
PP&E Write-Down:		(10)
Gains / (Losses) on Investment Sales		(15)
Pre-Tax Income (EBT):		225
Income Taxes:		90
Current Portion:		40
Deferred Portion:		50
Net Income (Profit After Taxes):	$	135
Net Income Margin:		*19.3%*

Cash Flow Statement:		
Cash Flow from Operating Activities:		
Net Income:	$	135
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Goodwill Impairment:		50
PP&E Write-Down:		10
Deferred Income Taxes:		50
(Gains) / Losses on Investment Sales		15
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:		(50)
Change in Inventory:		(30)
Change in Prepaid Expenses:		(30)
Change in Accounts Payable:		15
Change in Accrued Expenses:		10
Change in Deferred Revenue:		15
Cash Flow from Operations:	$	230
Cash Flow from Investing Activities:		
Capital Expenditures (CapEx):	$	(50)
Purchases of Short-Term Investment		(100)
Purchases of Long-Term Investment		(100)
Proceeds from ST Investment Sales:		85
Cash Flow from Investing:	$	(165)
Cash Flow from Financing Activities:		
Debt Raised:	$	300
Debt Principal Repayment:		(60)
Equity Issuance:		100
Dividends Issued:		(50)
Share Repurchases:		(50)
Cash Flow from Financing:	$	240
FX Rate Effects:		5
Net Change in Cash:	$	310

Adjust for non-cash items from the Income Statement here.

These items all come from how the Balance Sheet has changed.

Project these items independently on the Cash Flow Statement.

Balance Sheet:		Start of Period		End of Period
Assets:				
Current Assets:				
Cash:	$	300	$	610
Short-Term Investments:		-		-
Accounts Receivable:		-		50
Inventory:		-		30
Prepaid Expenses:		-		30
Total Current Assets:		300		720
Long-Term Assets:				
Property, Plant & Equipment:		-		30
Goodwill:		100		50
Other Intangible Assets:		50		40
Long-Term Investments:		-		100
Total Long-Term Assets:		150		220
Total Assets:	$	450	$	940
Liabilities & Equity:				
Current Liabilities:				
Accounts Payable:	$	-	$	15
Accrued Expenses:		-		10
Deferred Revenue:		-		15
Total Current Liabilities:		-		40
Long-Term Liabilities:				
Debt:		-		240
Deferred Tax Liability:		-		50
Total Long-Term Liabilities:		-		290
Equity:				
Common Stock & APIC:		50		170
Retained Earnings:		400		485
Treasury Stock:		-		(50)
Accumulated Other Compr. Income:		-		5
Total Equity:	$	450	$	610

Cash comes from the bottom of the CFS; ST Investments from CFI.

These are projected independently on the BS.

These all flow in from the Cash Flow Statement.

These are projected independently on the Balance Sheet.

These flow in from the CFS.

These mostly flow in from the CFS; Net Income flows into Retained Earnings.

Working Capital, Free Cash Flow, Metrics and Ratios

Free Cash Flow

$$\textbf{Company Value} = \frac{\text{Cash Flow}}{(\text{Discount Rate - Cash Flow Growth Rate})}$$

Free Cash Flow = Cash Flow from Operations - Capital Expenditure (CapEx)

assumed to be required for business – earning Net Income, paying for Inventory, collecting Receivables, etc.

buildings, factories, and equipment

Positive Free Cash Flow

- Hire more employees
- Spend more on Working Capital
- Spend more on Capital Expenditures
- Invest in other assets
- Repay Debt
- Return money to shareholders
- Acquire other companies

Other variations of Free Cash Flow and what they mean

- FCF is positive, but sales are declining
- FCF consistently declining

Where FCFs are used

- Discounted Cash Flows
- Leveraged Buyouts

Components of Free Cash Flow: Working Capital

The *official* definition of **Working Capital** is "Current Assets minus Current Liabilities"

Balance Sheet:				
Assets:		Start of Period		End of Period
Current Assets:				
Cash:	$	300	$	660
Short-Term Investments:		-		-
Accounts Receivable:		-		50
Inventory:		-		30
Prepaid Expenses:		-		30
Total Current Assets:		**300**		**770**
Long-Term Assets:				
Property, Plant & Equipment:		-		30
Goodwill:		100		50
Other Intangible Assets:		50		40
Long-Term Investments:		-		100
Total Long-Term Assets:		**150**		**220**
Total Assets:	**$**	**450**	**$**	**990**
Liabilities & Equity:				
Current Liabilities:				
Revolver (Short-Term Debt):	$	-	$	50
Accounts Payable:		-		15
Accrued Expenses:		-		10
Deferred Revenue:		-		15
Total Current Liabilities:		**-**		**90**

Working Capital = $300 - $0 = $300 at the start of the period, and $770 - $90 = $680 at the end of the period, according to the "official definition" of it.

But by itself, this definition doesn't mean much. You care most about the **CHANGE** in Working Capital!

Also, you have to exclude cash, investments, and debt.

Components of Free Cash Flow: Working Capital

Cash Flow Statement:		
Cash Flow from Operating Activities:		
Net Income:	$	135
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Goodwill Impairment:		50
PP&E Write-Down:		10
Deferred Income Taxes:		50
(Gains) / Losses on Investment Sales		15
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:		(50)
Change in Inventory:		(30)
Change in Prepaid Expenses:		(30)
Change in Accounts Payable:		15
Change in Accrued Expenses:		10
Change in Deferred Revenue:		15
Cash Flow from Operations:	**$**	**230**

These items are what you *really* care about with "Working Capital": **the changes in operational items on the Balance Sheet.**

So you exclude cash, investments, and debt, and you also include any *longer-term* items that are, in fact, related to the company's operations.

Components of Free Cash Flow: Working Capital

The *most* **useful** definition of **Working Capital** is:
"Current Assets (Excluding Cash & Investments) - Current Liabilities (Excluding Debt)"

Δ in Working Capital = Old Working Capital – New Working Capital

Components of Free Cash Flow: Working Capital

Setup:

- In Year 2, it has $200 in inventory
- In Year 1, it has $100 in inventory
- It has no other operationally-related Current Assets or Liabilities

Therefore, its Working Capital was $100 in Year 1 & $200 in Year 2

Components of Free Cash Flow: Working Capital

Setup:

- In Year 2, it has $200 in inventory
- In Year 1, it has $100 in inventory
- It has no other operationally-related Current Assets or Liabilities

Therefore, its Working Capital was $100 in Year 1 & $200 in Year 2

So, to calculate the Change in Working Capital on the CFS, you must use the <u>Old WC - New WC</u>

Components of Free Cash Flow: Working Capital

Balance Sheet:				
Assets:		**Start of Period**		**End of Period**
Current Assets:				
Cash:	$	300	$	660
Short-Term Investments:		-		-
Accounts Receivable:		-		50
Inventory:		-		30
Prepaid Expenses:		-		30
Total Current Assets:		300		770
Long-Term Assets:				
Property, Plant & Equipment:		-		30
Goodwill:		100		50
Other Intangible Assets:		50		40
Long-Term Investments:		-		100
Total Long-Term Assets:		150		220
Total Assets:	$	450	$	990
Liabilities & Equity:				
Current Liabilities:				
Revolver (Short-Term Debt):	$	-	$	50
Accounts Payable:		-		15
Accrued Expenses:		-		10
Deferred Revenue:		-		15
Total Current Liabilities:		-		90

Cash Flow Statement:		
Cash Flow from Operating Activities:		
Net Income:	$	135
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Goodwill Impairment:		50
PP&E Write-Down:		10
Deferred Income Taxes:		50
(Gains) / Losses on Investment Sales:		15
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:		(50)
Change in Inventory:		(30)
Change in Prepaid Expenses:		(30)
Change in Accounts Payable:		15
Change in Accrued Expenses:		10
Change in Deferred Revenue:		15
Cash Flow from Operations:	$	230
Cash Flow from Investing Activities:		
Capital Expenditures (CapEx):	$	(50)
Purchases of Short-Term Investments:		(100)
Purchases of Long-Term Investments:		(100)
Proceeds from ST Investment Sales:		85
Cash Flow from Investing:	$	(165)

These items add up to negative $70 here. That negative sign indicates that **Current Assets (excluding cash and investments) are increasing by MORE than Current Liabilities (excluding debt)**.

Current Assets have gone from $0 to $130, but Current Liabilities have only gone from $0 to $40.

Components of Free Cash Flow: Working Capital

The Point:

The Change in Working Capital tells you whether a company has to spend money BEFORE it can grow, or whether it generates extra money as a RESULT of its growth

Companies such as:

- Retailers tend to have **negative Changes in Working Capital** because they have to spend on inventory upfront before being able to sell anything
- Subscription-Based Software companies tend to have **positive Changes in Working Capital** because they collect cash from customers upfront, but take months or years to recognize it as revenue

Components of Free Cash Flow: Working Capital

Wal-Mart - Working Capital Excerpt from Cash Flow Statement:

Changes In Certain Assets and Liabilities:		Year 1	Year 2	Year 3
Accounts Receivable:		$ (796)	$ (614)	$ (566)
Inventories:		(3,727)	(2,759)	(1,667)
Accounts Payable:		2,687	1,061	531
Accrued Liabilities:		(935)	271	103
Accrued Taxes:		994	981	(1,224)
Net Change in (Operating) Working Capital:		**(1,777)**	**(1,060)**	**(2,823)**
Annual Revenue:	$ 421,395	$ 446,509	$ 468,651	$ 476,294
Change in Annual Revenue:		25,114	22,142	7,643
Annual Net Income:		16,387	17,756	16,695
Net Change as a % of Revenue:		(0.4%)	(0.2%)	(0.6%)
Net Change as a % of Change in Revenue:		(7.1%)	(4.8%)	(36.9%)
Net Change as a % of Net Income:		(10.8%)	(6.0%)	(16.9%)

The Change in Working Capital tells you if the company needs to spend in ADVANCE of its growth

OR

If it generates extra money as a RESULT of its growth – and as a direct result, the company's Free Cash Flow is lower, making it less valuable, or higher, making it more valuable.

Components of Free Cash Flow: Working Capital

Wal-Mart - FCF Excerpt from Financial Statements:

Free Cash Flow Calculation:		Year 1	Year 2	Year 3
Cash Flow from Operations:	$ 23,643	$ 24,255	$ 25,591	$ 23,257
(-) Capital Expenditures:	(12,699)	(13,510)	(12,898)	(13,115)
Free Cash Flow:	**$ 10,944**	**$ 10,745**	**$ 12,693**	**$ 10,142**

Changes In Certain Assets and Liabilities:	Year 1	Year 2	Year 3
Accounts Receivable:	$ (796)	$ (614)	$ (566)
Inventories:	(3,727)	(2,759)	(1,667)
Accounts Payable:	2,687	1,061	531
Accrued Liabilities:	(935)	271	103
Accrued Taxes:	994	981	(1,224)
Net Change in (Operating) Working Capital:	**(1,777)**	**(1,060)**	**(2,823)**

Annual Revenue:	$ 421,395	$ 446,509	$ 468,651	$ 476,294
Annual Net Income:	16,993	16,387	17,756	16,695

Net Change in WC % Change in Revenue:	*(7.1%)*	*(4.8%)*	*(36.9%)*
Free Cash Flow Growth Rate:	*(1.8%)*	*18.1%*	*(20.1%)*
CapEx as a % of Cash Flow from Operations:	*55.7%*	*50.4%*	*56.4%*
CapEx as a % of Revenue:	*3.0%*	*2.8%*	*2.8%*
Revenue Growth Rate:	*6.0%*	*5.0%*	*1.6%*
Cash Flow from Operations Growth Rate:	*2.6%*	*5.5%*	*(9.1%)*

Wal-Mart needs to spend *in advance* of its growth because of its inventory requirements

Key Metrics and Ratios on the Financial Statements

Net Income

company's after-tax profits

Income Statement:		
Revenue:	$	**700**
Cost of Goods Sold (COGS):		70
Gross Profit:		**630**
Gross Margin %:		*90.0%*
Operating Expenses:		
Sales & Marketing:		165
Research & Development:		75
General & Administrative:		50
Total Operating Expenses:		**290**
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Operating Income (EBIT):		**300**
Operating Margin:		*42.9%*
Other Income / (Expenses):		20
Interest Income / (Expense):		(20)
Goodwill Impairment:		(50)
PP&E Write-Down:		(10)
Gains / (Losses) on Investment Sales		(15)
Pre-Tax Income (EBT):		**225**
Income Taxes:		90
Current Portion:		40
Deferred Portion:		50
Net Income (Profit After Taxes):	$	**135**
Net Income Margin:		*19.3%*

Cash Flow Statement:		
Cash Flow from Operating Activities:		
Net Income:	$	135
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Goodwill Impairment:		50
PP&E Write-Down:		10
Deferred Income Taxes:		50
(Gains) / Losses on Investment Sales		15
Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:		(50)
Change in Inventory:		(30)
Change in Prepaid Expenses:		(30)
Change in Accounts Payable:		15
Change in Accrued Expenses:		10
Change in Deferred Revenue:		15
Cash Flow from Operations:	$	**230**
Cash Flow from Investing Activities:		
Capital Expenditures (CapEx):	$	(50)
Purchases of Short-Term Investment		(100)
Purchases of Long-Term Investment		(100)
Proceeds from ST Investment Sales:		85
Cash Flow from Investing:	$	**(165)**
Cash Flow from Financing Activities:		
Debt Raised:	$	300
Debt Principal Repayment:		(60)
Equity Issuance:		100
Dividends Issued:		(50)
Share Repurchases:		(50)
Cash Flow from Financing:	$	**240**
FX Rate Effects:		5
Net Change in Cash:	$	**310**

Free Cash Flow

= Cash Flow from Operations – CapEx

Change in Operating Assets & Liabilities:		
Change in Accounts Receivable:		(50)
Change in Inventory:		(30)
Change in Prepaid Expenses:		(30)
Change in Accounts Payable:		15
Change in Accrued Expenses:		10
Change in Deferred Revenue:		15
Cash Flow from Operations:	$	**230**

Cash Flow from Investing Activities:		
Capital Expenditures (CapEx):	$	(50)
Purchases of Short-Term Investment		(100)
Purchases of Long-Term Investment		(100)
Proceeds from ST Investment Sales:		85
Cash Flow from Investing:	$	**(165)**

Key Metrics and Ratios on the Financial Statements

EBIT (Earnings Before Interest and Taxes): Company's Operating Income on the Income Statement, sometimes with "adjustments"

EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization): Operating Income + Depreciation and Amortization taken from the Cash Flow Statement

NOPAT (Net Operating Profit After Taxes): a company's After-Tax Profits if you ignored its interest income and expense, income from side activities, write-downs, and impairments

= Operating Income * (1 – Tax Rate)

Income Statement:		
Revenue:	$	**700**
Cost of Goods Sold (COGS):		70
Gross Profit:		**630**
Gross Margin %:		*90.0%*
Operating Expenses:		
Sales & Marketing:		165
Research & Development:		75
General & Administrative:		50
Total Operating Expenses:		**290**
Depreciation:		10
Amortization of Intangible Assets:		10
Stock-Based Compensation:		20
Operating Income (EBIT):		**300**
Operating Margin:		*42.9%*

Key Metrics and Ratios on the Financial Statements

Return on Equity (ROE): Net Income / Average Equity

- For each $1.00 of equity raised or saved up, how much in after-tax profits does the company generate?

Return on Assets (ROA): Net Income / Average Total Assets

- For each $1.00 in assets created or generated, how much in after-tax profits does the company generate?

Return on Invested Capital (ROIC): NOPAT / Average Equity + Debt

- Measures how much it costs the business to grow
- For each $1.00 of debt and equity raised, how much in after-tax Operating Income does the company generate?

Key Metrics and Ratios on the Financial Statements

Leverage Ratio: Total Debt / EBITDA

- How much debt does a company have relative to its ability to repay that debt?

Interest Coverage Ratio: EBITDA / Net Interest Expense

- How easily can a company pay the interest on its debt?

Dividend Payout Ratio: Dividends / Net Income

- How much of the company's after-tax profits is it returning to shareholders?

Useful Balance Sheet-Based Ratios

Working Capital or **Operating Working Capital**: measures a company's cash requirements as its business grows

Asset Turnover Ratio: Revenue / Average Total Assets

- How dependent is a company on its assets to generate sales?
- lower ratio indicates greater dependency

Current Ratio: Current Assets / Current Liabilities

- Can a company pay off its Current Liabilities using its Current Assets?

Useful Balance Sheet-Based Ratios

Inventory Turnover: COGS / Average Inventory

- How many times does a company turn its entire Inventory balance into finished products and sell them each year?

Receivables Turnover: Revenue / Average Accounts Receivable

- How many times does a company collect the entire Receivables balance from customers each year?

Payables Turnover: COGS or OpEx / Average Accounts Payable

- How many times does a company pay the full balance of invoices and owed payments each year?

Related Balance Sheet-Based Ratios

Days Inventory Outstanding: 365 / Inventory Turnover

- how many days the Inventory balance remains outstanding

Days Receivables Outstanding: 365 / Receivables Turnover

- how many days the Receivables balance remains outstanding

Days Payables Outstanding: 365 / Payables Turnover

- how many days the Payables balance remains outstanding

Interview Question

1. **What's the most important financial statement?**

2. **If you could use only 2 statements to assess a company's prospects, which ones would you use?**

Interview Question

1. **Cash Flow Statement**
   - Tells you how much cash a company is generating
   - Income Statement is misleading because it includes non-cash revenue and expenses and excludes cash spending such as Capital Expenditures
2. **Income Statement and Balance Sheet**
   - You can create the Cash Flow Statement from the Income Statement and Balance Sheet

Interview Question

A company begins offering 12-month installment plans to customers so that they can pay for $500 or $1000 over a year instead of all up front. How will its cash flow change?

Interview Question Answer

In the short term - during THIS year - the company's cash flow will decrease because some customers no longer pay upfront in cash.

So a $1,000 payment in Month 1 now turns into $83 in Month 1, $83 in Month 2, and so on

This situation corresponds to Accounts Receivable: The Asset on the Balance Sheet that represents owed future payments from customers

The long-term impact depends on how much sales grow as a result of this change

If sales grow substantially and the company's Revenue and Net Income increase, that might be enough to offset the reduced cash flow and make the company better off