



Financial Statements and Accounting in Investment Banking

Brown Socially Responsible Investment Fund

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Financial Statements Overview

- What are the three financial statements?
- Why do we need three statements?
- How do they link together?
- **How do we use the financial statements to analyze a company?**

Income Statement - Sample

Income Statement			Year 1	Year 2
Revenue:			\$ 1,300	\$ 1,500
Cost of Goods Sold (COGS):			100	150
Gross Profit:			1,200	1,350
Operating Expenses:			200	250
Depreciation:			20	25
Stock-Based Compensation:			10	15
Amortization of Intangibles:			15	20
Operating Income:			955	1,040
Interest Income:			5	6
(Interest Expense):			(3)	(4)
Gain / (Loss) on Sale of PP&E:			1	-
Other Income / (Expense):			2	3
Pre-Tax Income:			960	1,045
Income Tax Provision:			384	418
Net Income:			\$ 576	\$ 627

Income Statement - Key Terms

- Revenue (sales) = amount of money company actually receives
 - organic revenue (organic sales) = revenue from **internal** operations (ignoring M&A, takeovers, etc)
- Revenue Growth = top-line growth
 - organic growth
- COGS
 - cost of goods sold = **direct** costs associated with making good (materials, labor costs, etc)
- **Revenue - COGS = Gross profit**
- Gross Profit Margin = Gross profit/Revenue

Income Statement - Key Terms

- Operating Expenses
 - SG&A - selling, general and administrative expenses
 - R&D - research and development (tech, bio-tech, start-ups, etc)
 - D&A - depreciation and amortization (can be hidden in COGS)
 - others (restructuring goodwill impairment, etc)
- **Gross profit - operating expenses = operating income**
- operating income/revenue = operating margin
- Other income (expense)
 - not associated with operations (investments, etc)
- operating income + “other income (expense)” = **EBIT**
- **EBIT - interest - taxes = net income**
- net income/revenue = net income margin
- EPS = net income/total # of shares
 - bottom line growth

Income Statement Items to Remember

- **EBIT**
 - Operating income
 - Will later be used in DCF Unlevered FCF formula
- **EBITDA = EBIT + D&A**
 - Important measure of a company's free cash flow
 - Capital structure neutral and often used as the denominator for deriving valuation multiples
- **Revenue and Net Income**
 - The top line and bottom line of any business

Why are these items on income statement but not others?

They have to satisfy two characteristics:

1. They do affect the **company's taxes** (e.g. paying an employee's salary reduces the company's taxable income); and
2. They **correspond to the period shown** on the Income Statement (e.g. revenue in Year 1 refers to all sales to customers in Year 1... not Year 2).

Statement of Cash Flows: Sample

Cash Flow Statement		
	Year 1	Year 2
Operating Activities:		
Net Income:	\$ 576	\$ 627
Non-Cash Expenses & Other Adjustments:		
Depreciation:	20	25
Stock-Based Compensation:	10	15
Amortization of Intangibles:	15	20
(Gain) / Loss on Sale of PP&E:	(1)	-
Changes in Operating Assets & Liabilities:		
Accounts Receivable:	5	(2)
Prepaid Expenses:	(2)	3
Inventory:	(3)	2
Accounts Payable:	4	(5)
Accrued Expenses:	1	(3)
Deferred Revenue:	9	5
Cash Flow from Operations:	634	687
Investing Activities:		
Purchase Short-Term Investments:	(2)	(1)
Sell Short-Term Investments:	3	5
Purchase Long-Term Investments:	(4)	(5)
Sell Long-Term Investments:	1	2
Capital Expenditures:	(10)	(15)
PP&E Sale Proceeds:	5	2
Cash Flow from Investing:	(7)	(12)
Financing Activities:		
Dividends Issued:	(10)	(11)
Issue Long-Term Debt:	4	5
Repay Long-Term Debt:	(1)	(2)
Issue Short-Term Debt:	2	3
Repay Short-Term Debt:	(1)	(2)
Repurchase Shares:	(5)	(5)
Issue New Shares:	6	6
Cash Flow from Financing:	(5)	(6)
Beginning Cash:	\$ 100	\$ 722
Increase / Decrease in Cash:	\$ 622	\$ 669
Cash & Cash Equivalents:	\$ 722	\$ 1,391

Statement of Cash Flows: Overview

Statement shows the cash a company receives/spends from 3 categories:
Operations, Investment and Financing sources

Cash flow is calculated by making adjustments to net income by adding or subtracting differences in revenue, expenses and credit transactions resulting from transactions

Operations

- Measures cash inflows and outflows caused by core business operations - the products and services of a business
- Accounts receivable, accounts payable, depreciation, inventory

Investing

- Cash use for changes in equipment, assets or investments
- Plants, Property & Equipment (PPE), purchases of investments, businesses

Financing

- Shows changes in debt, loans and dividends
- Issuance/repurchase of stock, repayments/new debt issuance, dividends

Statement of Cash Flows: CFO

- Net income from the Income Statement flows to the top of CFO
- Adjust for non-cash expenses (these expenses have reduced net income but cash is not actually paid out for these expenses)
 - D&A, Stock-Based Compensation, etc.
 - Typically add these items back
- Adjust for changes in operating assets and liabilities
 - Increase in an operating asset or a decrease in an operating liability represent a cash outflow
 - Decrease in an operating asset or an increase in an operating liability represent a cash inflow
 - E.g. If inventory went up by \$100, we subtract \$100 in the inventory line in the cash flow statement
- CFO serves as proxy for measuring the cash changes of operating activities

Statement of Cash Flows: CFI & CFF

CFI

- Any changes related to the company's investments, acquisitions, and PP&E shows up here
- Any purchase represents a cash outflow
- Any sale represents a cash inflow
- Capital Expenditure is an important line item → it represents how much a company is spending on its capital investment, which is critical for fueling the company's growth

CFF

- Items related to debt, dividends, and share issuance and repurchases are recorded in this line
- Raising additional debt = cash inflow
- Paying down debt = cash outflow
- Issuing dividends = cash outflow
- Issuing new shares = cash inflow
- Repurchasing shares = cash outflow

Statement of Cash Flows: Important Metrics

Liquidity matters = Cash most liquid

Free Cash Flow (FCF) = Operating Cash Flow - Capital Expenditures or
= EBIT (1-tax rate) + (depreciation) + (amortization) - (change in net working capital) - (capital expenditure)

- Cash that is left after paying to maintain or expand asset base. Cash to reduce debt and enhance shareholder value
 - acquisitions, pay dividends, buyback shares
- Unlevered FCF vs. Levered FCF
 - Cash available to all investors both debt & equity vs. just equity
 - Before vs. after accounting for financial obligations (interest payments and debt repayments)

Operating Cash Flow to Net Sales = OCF/Revenue

- Shows the company's ability to turn sales into cash
 - Want to see parallel or accelerating growth in this ratio

Short-term Debt Coverage = OCF/STD

- How well equipped is the company to pay down its short term debt?

Statement of Cash Flows: Important Metrics

Capital Expenditure Coverage = $OCF / CapEx$

- The larger the ratio, the more cash assets the company can work with

Dividend Coverage = $OCF / \text{Cash Dividends}$

- Gives investors a look at the safety of a company's dividend payment

Dividend Payout Ratio = $\text{Dividends per Common Share} / \text{EPS}$

- How much of earnings is being paid out in Cash to shareholders?
 - Larger companies typically have larger DPRs
 - Opposite of Plowback ratio

Balance Sheet: Sample

Balance Sheet		
	Year 1	Year 2
Assets:		
Current Assets:		
Cash & Cash-Equivalents:	\$ 722	\$ 1,391
Short-Term Investments:	99	95
Accounts Receivable:	95	97
Prepaid Expenses:	102	99
Inventory:	103	101
Total Current Assets:	1,121	1,783
Long-Term Assets:		
Plants, Property & Equipment (PP&E):	986	974
Other Intangible Assets:	185	165
Long-Term Investments:	103	106
Goodwill:	100	100
Total Long-Term Assets:	1,374	1,345
Total Assets:	\$ 2,495	\$ 3,128
Liabilities & Equity:		
Current Liabilities:		
Revolver (Short-Term Debt):	\$ 101	\$ 102
Accounts Payable:	204	199
Accrued Expenses:	201	198
Total Current Liabilities:	506	499
Long-Term Liabilities:		
Deferred Revenue:	209	214
Deferred Tax Liability:	200	200
Long-Term Debt:	103	106
Total Long-Term Liabilities:	512	520
Total Liabilities:	\$ 1,018	\$ 1,019
Shareholders' Equity:		
Common Stock & APIC:	616	637
Treasury Stock:	(105)	(110)
Retained Earnings:	866	1,482
Accumulated Other Compr. Income:	100	100
Total Shareholders' Equity:	1,477	2,109
Total Liabilities & Equity:	\$ 2,495	\$ 3,128

Balance Sheet: Overview

Shows what a company owes and owns *at a specific point in time*

- 3 parts: **Assets = Liabilities + Owner's Equity**

Assets

- Current (1 yr or less) Assets: Cash, Accounts Receivable, Inventory
 - Think of accounts receivable as payments made using a credit card
- Property, Plant, and Equipment (PP&E) and Intangibles (goodwill: brand strength, patents)

Liabilities

- Current Liabilities: Accounts Payable, Short-Term Debt
- Long-Term Debt

Owner's Equity

- Common Stock, Preferred Stock, Retained Earnings
 - Retained Earnings: earnings not paid out in dividends that are reinvested into the company

Balance Sheet: Important Line Items

Assets

- **Cash:** Typically include cash and cash equivalent assets that have high liquidity and can be converted into cash easily
- **Inventories:** Represent values of goods available for sale and raw materials ready to be produced into goods for sale; important for retail businesses
- **Accounts Receivable:** Outstanding invoices that a company has or the money that clients owe to the company
- **Property, Plants & Equipment (PP&E):** Represent the hard asset of a business, including its land, buildings, machineries, and other equipments; this part of asset typically needs to be depreciated over time and incur depreciation and amortization expense
- **Goodwill:** Non-operating asset; represent the value that a company has overpaid for its target in prior acquisitions; goodwill is not depreciated over time but can be impaired if the value of the acquired assets are below expectations

Balance Sheet: Important Line Items

Liabilities

- **Revolver:** Similar to a “credit card” for a company; it borrows money as needed and must repay it quickly.
- **Accounts Payable:** The company has recorded them as expenses on the Income Statement but hasn’t paid them out in cash yet - used for one-time items with specific invoices
- **Accrued Expenses:** The company has recorded these as expenses on the Income Statement, but hasn’t yet paid them out in cash yet – 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 yet to be delivered, and it will recognize this as real revenue over time.
- **Long-Term Debt:** Similar to a mortgage or a car loan: debt that is due and must be repaid in over a year’s time.

Shareholder’s Equity

- This represents the company’s saved up, after-tax profits (minus any dividends it has issued). This is like the \$200K you saved up, after-taxes, in our “personal Balance Sheet” example above.

Balance Sheet: Important Metrics

Book Value (Net Asset Value): Assets - Intangible Assets - Liabilities

- Shows what company is worth in terms of liquidation value

Price to Book Value: (Price/Book Value)

- How much you are paying for a company relative its net worth
 - S&P 500 Average: 2.74
 - Low of 1.78 in Mar. 2009 and High of 5.06 in Mar. 2000
 - Can expect this to rise as more value comes from intangibles
- Lower P/B: company possibly undervalued
- Higher P/B: company possibly overvalued or in the case of a growth company, reflects the fact that higher valuation is based off of future potential earnings power and not net worth

Debt to Equity Ratio = Total Debt / Shareholder's Equity

- Has company X used debt or equity to finance its growth?
- Higher D/E: can be bad because it means that a company will have to be pay out relatively a lot in interest payments (doesn't go to shareholders)
- S&P 500 Average: 1.22

Balance Sheet: Important Metrics

Interest Coverage Ratio = $\text{EBIT} / \text{Interest Expense}$

- Can a company afford its interest payments?
- Higher interest coverage ratio: almost always better because it means that a company has more money available to spend on other projects
 - Lower ratio: run the risk of the company not being able to pay interest if business goes bad = potential bankruptcy
- S&P 500 Average: 8.58

Leverage Ratio = $\text{Total Debt} / \text{EBITDA}$

- Indicated the level of debt that is incurred in its balance in relation to the EBITDA of the company; generally higher leverage ratio means a higher leverage and a higher capital structure risk for a given company

Current Ratio = $\text{Current Assets} / \text{Current Liabilities}$

- AKA working capital ratio
- Can a company meet its short-term obligations (accounts payable and debt payments)?
- Measures short-term financial health
- S&P 500 Average: 1.55

How Do the 3 Financial Statements Connect?

Some Examples:

1. **Net income** from the bottom of the income statement links to the balance sheet and cash flow statement. On the balance sheet, it feeds into **retained earnings** and on the cash flow statement, it is the starting point for the cash from operations section.
2. **Depreciation** on the income statement need to be added back to net income to calculate the **cash flow from operations**. Depreciation flows out of the balance sheet from **Property Plant and Equipment (PP&E)** onto the income statement as an expense, and then gets added back in the cash flow statement. **Capital expenditures** add to the PP&E account on the balance sheet and flow through **cash from investing** on the cash flow statement.
3. **Working Capital**- Changes in current assets and current liabilities on the balance sheet are related to **revenues and expenses** on the income statement but need to be adjusted on the cash flow statement (**cash from operations**) to reflect the actual amount of cash received or spent by the business.
4. **Cash Balance**- the sum of cash from operations, cash from investing, and cash from financing are added to the prior period closing cash balance, and the result becomes the current period closing cash balance on the balance sheet.

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Common Type of Questions You Will Encounter

- 1. 3 Statement Basics**
- 2. Reasoning Behind Certain Accounting Practices**
- 3. Changes on the Statements (Single step scenario and multi step scenarios)**

Accounting in Investment Banking Interviews

Problem: Walk me through the 3 financial statements.

The 3 major financial statements are the Income Statement, Balance Sheet and Cash Flow Statement.

The Income Statement shows the company's revenue and expenses over a period of time, and goes down to Net Income, the final line on the statement.

The Balance Sheet shows the company's Assets – its resources – such as Cash, Inventory and PP&E, as well as its Liabilities – such as Debt and Accounts Payable – and Shareholders' Equity – at a specific point in time. Assets must equal Liabilities plus Shareholders' Equity.

The Cash Flow Statement begins with Net Income, adjusts for non-cash expenses and changes in operating assets and liabilities (working capital), and then shows how the company has spent cash or received cash from Investing or Financing activities; at the end, you see the company's net change in cash.

Accounting in Investment Banking Interviews

Problem: If I were stranded on a desert island and only had one financial statement and I wanted to review the overall health of a company, which statement would I use and why?

You would use the Cash Flow Statement because it gives a true picture of how much cash the company is actually generating – the Income Statement is misleading because it includes non-cash expenses and excludes actual cash expenses such as Capital Expenditures. And that's the #1 thing you care about when analyzing the financial health of any business – its true cash flow.

Accounting in Investment Banking Interviews

Problem: Let's say that you have a non-cash expense (Depreciation or Amortization, for example) on the Income Statement. Why do you add back the entire expense on the Cash Flow Statement?

Because you want to reflect that you've saved on taxes with the non-cash expense.

Let's say you have a non-cash expense of \$10 and a tax rate of 40%. Your Net Income decreases by \$6 as a result... but then you add back the entire non-cash expense of \$10 on the CFS so that your cash goes up by \$4.

Accounting in Investment Banking Interviews

Problem: If cash collected is not recorded as revenue, what happens to it?

It goes into the Deferred Revenue balance on the Balance Sheet under Liabilities.

Over time, as the services or products are delivered, the Deferred Revenue balance turns into real revenue on the Income Statement and the Deferred Revenue balance decreases.

Problem: Wait, so what's the difference between Accounts Receivable and Deferred Revenue?

1. Accounts Receivable has not yet been collected in cash from customers, whereas Deferred Revenue has been.
2. Accounts Receivable is for a product/service the company has already delivered but hasn't been paid for yet, whereas Deferred Revenue is for a product/service the company has not yet delivered.

Problem: What's the difference between cash-based and accrual accounting?

Cash-based accounting recognizes revenue and expenses when cash is actually received or paid out; accrual accounting recognizes revenue when collection is reasonably certain (i.e. after an invoice has been sent to the customer and the customer has a track record of paying on time) and recognizes expenses when they are incurred rather than when they are paid out in cash.

All large companies use accrual accounting because it more accurately reflects the timing of revenue and expenses; small businesses may use cash-based accounting to simplify their financial statements (you no longer need a Cash Flow Statement if everything is cash-based).

Problem: A company has had positive EBITDA for the past 10 years, but it recently went bankrupt. How could this happen?

- 1. The company is spending too much on Capital Expenditures – these are not reflected in EBITDA but represent true cash expenses, so CapEx alone could make the company cash flow-negative.**
- 2. The company has high Interest Expense and is no longer able to afford its Debt.**
- 3. The company's Debt all matures on one date and it is unable to refinance it due to a “credit crunch” – and it runs out of cash when paying back the Debt.**
- 4. It has significant one-time charges (from litigation, for example) that have been excluded from EBITDA and those are high enough to bankrupt the company.**

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Accounting in Investment Banking Interviews

Problem: Walk me through how Depreciation going up by \$10 would affect the statements.

Income Statement: Operating Income and Pre-Tax Income would decline by \$10 and, assuming a 40% tax rate, Net Income would go down by \$6.

Cash Flow Statement: The Net Income at the top goes down by \$6, but the \$10 Depreciation is a non-cash expense that gets added back, so overall Cash Flow from Operations goes up by \$4. There are no changes elsewhere, so the overall Net Change in Cash goes up by \$4.

Balance Sheet: Plants, Property & Equipment goes down by \$10 on the Assets side because of the Depreciation, and Cash is up by \$4 from the changes on the Cash Flow Statement.

Overall, Assets is down by \$6. Since Net Income fell by \$6 as well, Shareholders' Equity on the Liabilities & Equity side is down by \$6 and both sides of the Balance Sheet balance.