FINANCIAL STATEMENTS AND CASH FLOW

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Reference Material: Chapter 2 and 3 of Textbook

KEY CONCEPTS

Note: This lesson is largely a review of key accounting concepts.

1. Fundamentals of Accounting
2. Financial Reporting
3. Financial Statements
    - Income statement
    - Balance Sheet
    - Cash Flow Statement
4. Free Cash Flow (New Concept)

FUNDAMENTALS OF ACCOUNTING

WHAT IS ACCOUNTING?

Accounting is the standard language of business. i.e. must speak business

- Set of rules for measuring a firm's financial performance
- GAAP: Generally Accepted Accounting Principles
- FASB: Financial Accounting Standards Board
- Accounting is used to make corporate and investment decisions

ACCOUNTING ASSUMPTIONS

1. Accounting entity: a company is a separate "living" entity
2. Going concern: a company is assumed to remain in existence indefinitely
3. Measurement: must be quantifiable in a monetary unit
4. Periodicity: in US must file one(1) annual(10K) and three(3) quarterly(10Q) reports

ACCOUNTING PRINCIPLES

1. Historical Cost
2. Revenue Recognition
3. Matching Principle
4. Full Disclosure

ACCRUAL EXERCISE

- 4/15/2019: "Ain't First Your Last"(AFYL) purchases running shoes from Nike
- 8/20/2019: AFYL receives online credit card order for the shoes
- 8/29/2019: Shoes are shipped to customer
- 10/20/2019: AFYL receives cash for selling shoes

When should you record revenue? Expense?

CONSTRAINTS

1. Estimate and Judgment
2. Materiality
3. Consistency
4. Conservatism

FINANCIAL REPORTING

OVERVIEW

"The laws and rules that govern the securities industry in the United States derive from a simple and straightforward concept: all investors, whether large institutions or private individuals, should have access to certain basic facts about an investment prior to buying it.

To achieve this, the SEC requires public companies to disclose meaningful financial and other information to the public, which provides a common pool of knowledge for all investors to use to judge for themselves if a company's securities are a good investment.

Only through the steady flow of timely, comprehensive and accurate information can people make sound investment decisions."

-SEC

PERIODIC REPORTS

10K

- Filed Annually
- Much more detail
- Audited
- Primary document for analyst

10Q

- Filed Quarterly
- Less detail
- Reviewed but not audited

MORE ON THE 10K

See Example

1. General Business Info
2. MD&A, financial info
3. Disclosure
4. Exhibit

OTHER REPORTING

- 8k: Disclosure of material event ex. acquisition
- Form 14A (DEF 14A): Known as proxy statement. Filed before annual meeting. Details on board members and executives.
- S-1: Registration statement prior to IPO
- S-4: Registration of securities, business combinations

Full list of SEC forms

SOURCES OF FINANCIAL INFORMATION

- Financial information is abundant and readily accessible.
- The following are some common sources:
- Annual reports (often on company websites)
- SEC EDGAR
  - Any required reporting for public companies can be found here
- NYSE
- NASDAQ
- Yahoo Finance
- Seeking Alpha
- Wall Street Journal
- Bloomberg
- Financial Times

LIBRARY RESOURCES

Library Business Databases

- Business Insights Global:news and company's background information.
- Business Source Complete: good resource for company's background information and industry
- Lexis Nexis Company Dossier: news and company's background information.
- Mergent Online: industry ratios and company financials
- Morningstar Investment Research Center: company financials

FINANCIAL STATEMENTS

INCOME STATEMENT (I/S)

Financial statement depicting *operating performance* of a company *over a specified period of time*

- Analyst use:components and drivers of performance
- Tells us about: growth prospects, cost structure, profitability
- Other names: Consolidated statement of earnings, Profit & Loss Statement, Statement of Revenue and Expenses

SIMPLIFIED I/S

Revenue	
Sales	+
Expenses	
Cost of Goods Sold	-
Gross Profit	Revenue - COGS
Selling, General, and Administrative	-
Research and Development	-
Depreciation (and amortization)	-
Earnings Before Interest and Taxes (EBIT)	Revenue - Operating Expenses
Net Interest Expense	-
Taxable Income	EBIT - Net Interest Expense
Taxes	Taxable Income × Tax Rate
Net Income (NI)	Taxable Income - Taxes

Disney Example Other Income Statement Items

REVENUE

Proceeds from the sale of goods and services produced or offered by the company.

- Must be from operations (excludes interest income, legal settlement)
- Revenue recognition: *WHEN EARNED and MEASURABLE*
  - Multiple deliverables: iPhone example
  - Long Term Projects: Percentage of Completion or Completed Contract ex. Boeing

    Extra: When should expenses be recorded? Why?

WHY ACCRUAL?

- More accurate description of a company's operating results

What's problem though? Does not reflect cash!!

REVENUE MANIPULATION

- Allocation of revenue can be subjective; "Wiggle room"
- Footnotes become important
- TSAI example

Back to I/S

COST OF GOODS SOLD (COGS)

Direct cost of manufacture or procurement of a good or service that the company sells to generate revenue

- Includes: inventory (merchandise or manufactured), shipping/delivery, depreciation
- DOES NOT include: overhead, marketing and admin, R&D
- Don't forget Matching Principle

Back to I/S

SELLING, GENERAL & ADMINISTRATIVE

Operating expenses not included in cost of goods sold

- "Support" (Indirect) Expense: anything that supports goods and service but not directly related
- Store lease for retail space, sales people/cashiers, IT and office support, selling equipment, exec salaries, legal expenses

Back to I/S

RESEARCH & DEVELOPMENT

Expenses from activities directed at developing new products or procedures.

- Can be included in SG&A
- Separate line item if large
  - Research-intensive industries: healthcare, technology, energy

Back to I/S

DEPRECIATION

Allocating the cost of a tangible asset over its useful life and is used to account for declines in (book/historical) value.

- Matching Principle!
- Ex. Plant, buildings, machinery, computer software and hardware. (Land is NOT depreciated)
- Depreciation usually included in COGS or SG&A (direct or indirect to revenue)
  - Identified on Cash-flow statement
- *Non-cash expense*

METHODS OF DEPRECIATION

1. Straight-line
   - Asset depreciated evenly over useful life
   - Used by majority of companies

$$\text{Annual Depreciation Expense} = \frac{Original Cost - Salvage Value}{Useful Life}$$

2. Accelerated
   - Declining balance, Sum of years digits, Units of production

Back to I/S

AMORTIZATION

Allocation of the cost of intangible assets over the number of years that these assets are expected to help generate revenue for the company

- Similar to depreciation (often lumped together)
- Applies to acquired intangible assets
- Internally generated intangible assets are expensed as they are incurred
- Remember: historical costs! Does Coke recognize/amortize trademark?
- *Non-cash expense*

Back to I/S

D&A ASK YOURSELF

1. Is useful life indefinite? (Yes=Stop)
2. Is it less than one year? (Yes = expense)
3. Is it tangible? (Yes= Depreciate)
4. Is it internally generated? (Yes= Expense as incurred
   No=Amortize)

NET INTEREST EXPENSE

Payments made on company's outstanding debt net any income received from interest on cash holdings and investments.

- Interest is a financing (not operating) expense.
- Reduces tax burden

Back to I/S

TAX EXPENSE

Tax liability reported on income statement.

- Tax expense DOES NOT EQUAL actual cash taxes paid
- Tax expense: GAAP ("book rules")
- Taxes paid: Country's tax code ("tax rules")

Back to I/S

NET INCOME

Final measure of profitability. "Bottom line"

- AKA: Net earnings or Net profit

Back to I/S

OTHER EXPENSES

- Stock Based Compensation(SBC):Recognized as expense.
- Other operating expenses/income: Identified when large, otherwise embedded. ex. Gain/loss on sale or legal settlement, restructuring, inventory write-down
- Other non-operating expense/income: Usually netted together. Ex. gain/loss in value on investment (not related to operations)

SHARES OUTSTANDING

$$SharesOutstanding = SharesIssued - TreasurySt$$

- Outstanding: Unit of ownership.
  - Basic: Includes only the actual shareholders
  - Diluted: includes the impact of dilutive securities (can be converted into common stock, ex., options, convertible stock/debt)
- Treasury: Issued but subsequently repurchased, no longer outstanding.

ITEMS BELOW NI

1. EPS
   - Common profitability ratio: how much of total current period profits belong to each shareholder
   - Shares outstanding: Use basic or diluted. Weighted average throughout period.
   - Diluted EPS favored. More "real"

$$EPS = \frac{NI}{SharesOutstanding}$$

2. Dividends
   - Distribution of profits to shareholders

EBIT AND EBITDA

EBIT

- Earnings before interest and taxes
- "Operating income"
- Tied to core operations of business
- Listed on I/S

EBITDA

- Earnings before interest, taxes, depreciation, and amortization
- Adds back in non-cash expense
- More "real" depiction of core profits
- EBITDA not directly on I/S

BALANCE SHEET B/S

Reports a company's assets (resources) and liabilities and shareholder's equity (how resources were funded) at a particular point in time.

Assets=Liabilities+Equity

- Historical costs and Conservatism!
- B/S reflects book value(BV): can differ from Market value (MV)

DOUBLE ENTRY ACCOUNTING

Every transaction can be viewed as having two sides: 1) Use of funds and 2) Source of funds

Debit (Use of Funds)	**Credit (Sources of Funds)**
Increases in Assets	Decrease in Assets
Decreases in Liabilities and Equity	Increases in Liabilities and Equity

How we track movements on B/S

D(EBIT)U(SE)C(REDIT)S(OURCE)

LINK BETWEEN I/S AND B/S

Retained Earnings is the link:

- Income(revenue) increases retained earnings on B/S.
- Expenses decrease retained earnings on B/S

SIMPLIFIED B/S

Assets	**Liabilities and Equity**
Cash and Marketable Securities	Accounts Payable
Accounts Receivable	Accrued Expenses
Inventory	Short-term Debt
Prepaid Expenses	Deferred (unearned) Revenue
Total Current Assets	Total Current Liabilities
Property Plant and Equipment	Long-term Debt
Intangible Assets & Goodwill	Common stock and paid-in surplus
	Retained Earnings
Total Assets =	Total Liabilities + Shareholders' Equity
Disney Example	Leases Other Equity

ASSETS

Companies resources or use of funds

To qualify as an asset:

1. A company must own the resource
2. The resource must be of value
3. The resource must have quantifiable, measurable cost

Back to B/S

LIABILITIES AND EQUITY

Companies sources of funds

What the company owes to others(liabilities)

1. Must be measurable
2. Its occurrence must be probable
3. Transaction from which obligation arises has taken place

Equity is sourced through:

1. Equity investment (think stock)
2. Retained Earnings

Back to B/S

CASH AND MARKETABLE SECURITIES

- Extremely liquid assets
- Cash equivalents. Example U.S. Treasury bills
- Marketable securities: debt or equity investment. Can be separate line item

Back to B/S

ACCOUNTS RECEIVABLE

Cash owed, but not yet received, to the company from a completed (delivered) sale

- Example: Credit card sales.

Schrute farm sold $1000 worth of beets at the local farmer's market. They collected $600 in cash and the remainder is on credit card (to be collected in 30 days). What accounts are effected and how?

Back to B/S

INVENTORY

Direct costs associated with production and procurement of goods waiting to be sold.

- Inventory cycles out of B/S into I/S as COGS
- Hits income statement when revenue is recognized (matching!)

Beginning Inventory
+Purchases of New Inventory
-Cost of Goods Sold
=Ending Inventory

INVENTORY COSTING

1. FIFO: First in, First Out
2. LIFO: Last in, First out
    - Must disclose LIFO reserve if using LIFO
    - LIFO Inventory (COGS) +LIFO Reserve = FIFO Inventory (COGS)
3. Average cost

WRITE DOWN

- Remember can't mark up!
- Must mark down if if MV falls below historical cost
- Loss recognized as "other (non)operating expense"
- Example: Food goes bad in a restaurant

Back to B/S

PREPAID EXPENSES

Prepaid for a service that has not been received.

- Example: Insurance, rent, utilities
- Asset created due to right for future service
- Not recognized on I/S until received.

Back to B/S

PLANT PROPERTY & EQUIPMENT (FIXED ASSETS)

Long-term, tangible, assets vital to business operations and not easily converted into cash.

- New purchases of PP&E called capital expenditures (CAPEX)
- PP&E cycles out of B/S into I/S as depreciation
- PP&E is reported net of accumulated depreciation
- Must be written down
- Gain/loss on asset sale recorded on I/S

Beg. PP&E+Capex-Depreciation-Sales/Write offs=End PP&E

Back to B/S

INTANGIBLE ASSETS & GOODWILL

Intangible Asset

- Non-physical and acquired
- Link to I/S through amortization
- Similar to PP&E
- Examples: Customer lists, licenses, franchises, patents, trademarks

Goodwill

- Amount by which purchase price exceeds fair market value in an acquisition
- Accounting plug
- Not amortized but rather tested annually
- Loss of value (impairment) expensed on I/S
- Time Warner write down

Back to B/S

ACCOUNTS PAYABLE

Amounts owed by the company to suppliers for prior purchases or services

What happens to B/S if Schrute farm purchases $10,000 worth of phosphorus on credit to be paid in 90 days. Was cash impacted?

Back to B/S

ACCRUED EXPENSES

Expenses that have already been incurred but not yet paid.

- Are accrued expenses recognized on I/S?
- Examples: Wages, Insurance, taxes, dividends, litigation costs

Back to B/S

DEFERRED (UNEARNED) REVENUE

Revenue received for services (goods) not yet provided.

- Long-term liability if revenue expected to be recognized in more than a year.
- Unwind when revenue earned
- Examples: Gift cards, sports/theater tickets, iPhone

Back to B/S

SHORT-TERM DEBT

- Debt obligations owed within 12-months
- Includes portion of long-term debt which is due within the year

Back to B/S

LONG-TERM DEBT

- Debt with a maturity greater than one-year
- Often sizeable

Back to B/S

COMMON STOCK (APIC)

Book value of equity

Two components (due to old conventions)

1. Common stock par value: Nominal value to issued share
2. Additional paid in capital (APIC): Excess value of share issued over par value
3. Reported together.
4. Example Google par value $0.01 and APIC is $84.99

Back to B/S

RETAINED EARNINGS

Cumulative earnings over a companies entire existence.

$$Beg.\,RE + NI - Dividends = EndRE$$

Back to B/S

Finance leases

- Economic Ownership
- Lease treats underlying asset as PP&E and lease as debt obligation
- Lease value/liability is PV of lease payments
- Asset is depreciated; Lease liability accrues interest; Reduce liability with lease payment
- I/S reduced by depreciation and interest expense(decreases over life of lease)

Operating Lease

- No economic ownership
- Initial impact the same
- I/S reduced by lease payment
- Loss of value (impairment) expensed on I/S

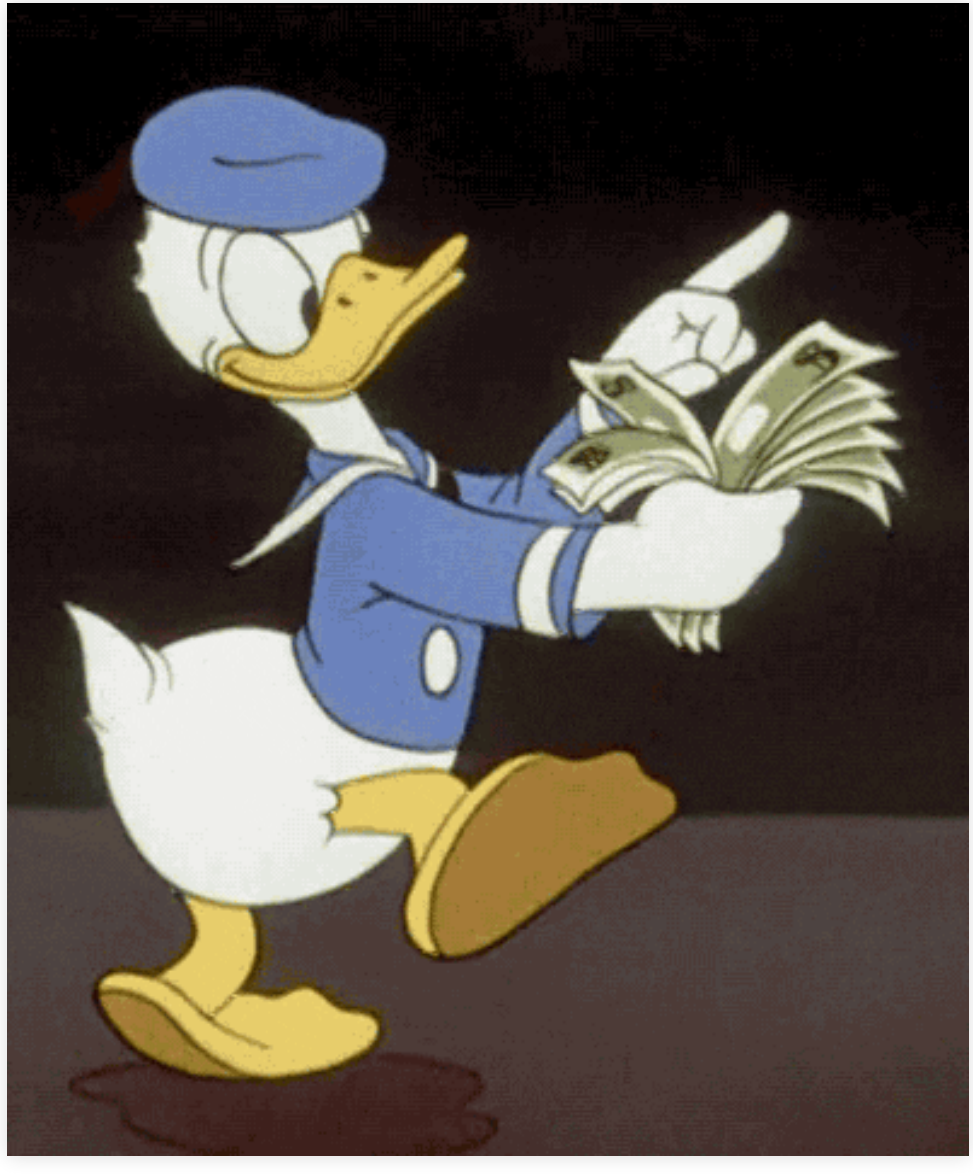
Excel Example

OTHER EQUITY

- Preferred stock: special rights and priority over common stock
- Treasury stock; Issued common stock that has been reacquired by the company. Contra equity account
- Other comprehensive income(loss): Income(loss) not directly recognized on I/S. Ex. foreign currency transactions

Lastly! What does B/S tell us about 3 major corporate finance questions?

ISSUE WITH I/S AND B/S



I/S CASH ISSUES

1. Revenue and Expenses are accrued
2. Depreciation(and amortization) are non-cash expense (so are Stock based compensation and write-downs)
3. Cash spent on investments only appears on B/S
4. Cash cost of financing for debt on I/S but not for equity

CASH FLOW STATEMENT (CFS)

Summarizes sources and uses of cash over a specified period

- Reconciles NI to a company's actual change in cash
- Most companies follow the indirect method: accrual based
- Identifies period-over-period change for every B/S line item that affects cash
- Not perfect; we will use I/S to estimate Free cash flow

THREE SECTIONS OF CFS

1. Cash flow from Operations: captures CA, CL, and D&A
2. Cash flow from Investing: captures Long-term assets
3. Cash flow from Financing: captures long term liabilities and equities

CASH FLOW FROM OPERATIONS

Adjust NI for non-cash items, working capital and cash from non-operating activities

Working Capital (CA and CL)

	A	**L**
+	Cash Out	Cash In
-	Cash In	Cash Out

Non-cash items include D&A, impairment, SBC

Disney Example

CASH FLOW FROM INVESTING (CFI)

Tracks additions and reductions to fixed assets.

-CAPEX
-Purchases of Intangibles
+Asset sales
+(-)Sale(Purchase) of debt/equity security$

Disney Example

CASH FLOW FROM FINANCING (CFF)

Tracks changes in companies sources of debt and equity.

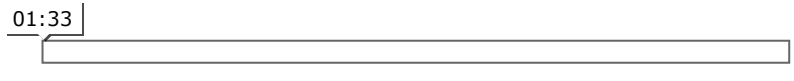
+(-) Issuance (repayment) of debt
+(-) Common stock issued (repurchased)
- Dividends

Disney Example

LEMONADE STAND

The Office - LI5 Surplus

from **Ryan Faucett**



CASH FLOW

CASH FLOW

Difference between number of dollars that came in and number of dollars that came out.

Cash flow identity:

$$\text{Cash flow from assets} = \text{Cash flow to creditors} + \text{Cash flow to stockholders}$$

CASH FLOW FROM ASSETS (CFFA)

$$\text{CFFA} = \text{Cash Flow to Creditors} + \text{Cash Flow to Sto}$$

- Known as *free cash flow*

$$\text{CF}_{\text{Assets}} = \text{OCF} - \text{NCS} - \Delta\text{NWC},$$

where:

$$\text{OCF} = \text{Operating Cash Flow}$$

$$\text{NCS} = \text{Net Capital Spending}$$

$$\Delta\text{NWC} = \text{Change in Net Working Capital}$$

OPERATING CASH FLOW (OCF)

OCF=EBIT +Depreciation-Taxes

Revenue		
Net Sales	+	1,509
Expenses		
Cost of Goods Sold	-	750
Depreciation	-	65
Earnings Before Interest and Taxes (EBIT)	Revenue - Operating Expenses	694
Interest Paid	-	70
Taxable Income	EBIT - Interest Paid	624
Taxes	Taxable Income × Tax Rate	131
Net Income (NI)	Taxable Income - Taxes	493

OPERATING CASH FLOW (OCF)

OCF=EBIT +Depreciation-Taxes

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Expenses		
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Net Income (NI)	Taxable Income - Taxes	493

OCF=694 +65-131=628

NET CAPITAL SPENDING (NCS)

NCS_t = Fixed Assets$_t$ - Fixed Assets$_{t-1}$ + Depreciation

Assets	**2017**	**2016**	**Liabilities**	**2017**	**2016**
Current Assets			Current Liabilities		
Cash	1,500	1,300	Accounts Payable	600	800
Accounts Receivable	500	800	Notes Payable	300	150
Inventory	750	1000			
Total	2,750	3,100	Total	900	950
Fixed Assets					
Property Plant and Equipment	5,000	4,500	Long-term Debt	3,500	3,200

NET CAPITAL SPENDING (NCS)

$NCS_t = \text{Fixed Assets}_t - \text{Fixed Assets}_{t-1} + \text{Depreciation}$

Assets	**2017**	**2016**	**Liabilities**	**2017**	**2016**
Current Assets			Current Liabilities		
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Accounts Receivable	500	800	Notes Payable	300	150
Inventory	750	1000			
Total	2,750	3,100	Total	900	950
Fixed Assets					
Property Plant and Equipment	5,000	4,500	Long-term Debt	3,500	3,200

NCS=5000-4500+65=565

CHANGE IN NET WORKING CAPITAL(ΔNWC)

NWC_t =Current Assets$_t$ - Current Liabilities$_t$

$\Delta NWC_t = NWC_t - NWC_{t-1}$

Assets	**2017**	**2016**	**Liabilities**	**2017**	**2016**
Current Assets			Current Liabilities		
Cash	1,500	1,300	Accounts Payable	600	800
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CHANGE IN NET WORKING CAPITAL(ΔNWC)

$$NWC_t = \text{Current Assets}_t - \text{Current Liabilities}_t$$

$$\Delta NWC_t = NWC_t - NWC_{t-1}$$

Assets	2017	2016	Liabilities	2017	2016
Current Assets			Current Liabilities		
Cash	1,500	1,300	Accounts Payable	600	800
Accounts Receivable	500	800	Notes Payable	300	150
Inventory	750	1000			
Total	2,750	3,100	Total	900	950
Fixed Assets					
Property Plant and Equipment	5,000	4,500	Long-term Debt	3,500	3,200

$$\Delta NWC = (2{,}750 - 900) - (3{,}100 - 950) = -300$$

CASH FLOW FROM ASSETS

CFFA=Cash Flow to Creditors+Cash Flow to Stockholder

CF_{Assets}=OCF-NCS-ΔNWC

CF_{Assets}=628-565-(-300)=363

CASH FLOW TO CREDITORS

CFFA=Cash Flow to Creditors+Cash Flow to Stockholder

$CF_{Creditors}$=Interest Paid - Net New Borrowing

$CF_{Creditors}$=Interest Paid - (Long Term $Debt_t$ - Long term $Debt_{t-1}$)

Balance Sheet			**Income Statement**	
Liabilities	2017	2016	Net Sales	1509
Current Liabilities			Cost of Goods Sold	750
Accounts Payable	600	800	Depreciation	65
Notes Payable	300	150	EBIT	694
			Interest paid	70
Total	900	950	Taxable Income	624
			Taxes	131
Long-term Debt	3,500	3,200	Net Income	493

$CF_{Creditors}$=70-(3,500-3,200)=-230

CASH FLOW TO SHAREHOLDERS

CFFA=Cash Flow to Creditors+Cash Flow to Stockholder

$CF_{Stockholders}$=Dividends Paid-Net New Equity Issuance

$CF_{Stockholders}$=Dividends Paid-(Common Stock$_t$ - Common Stock$_{t-1}$)

Balance Sheet

	2017	2016
Shareholder's Equity		
Common Stock	1,000	1,300
Retained Earnings	2,350	2,150
Total	3,350	3,450

Income Statement

EBIT	694
Interest paid	70
Taxable Income	624
Taxes	131
Net Income	493
Dividends	293
Retained Earnings	200

$CF_{Stockholders}$=293-(1,000-1,300)=593

DOES IT BALANCE?

CFFA=Cash Flow to Creditors+Cash Flow to Stockholder

CF_{Assets}=363

$CF_{Creditors}$=-230

$CF_{Stockholders}$=593

$$363 = -230 + 593$$

$$363 = 363$$

SUMMARY

Cash Flow Identity

$$\text{CF}_{Assets} = \text{CF}_{Stockholders} + \text{CF}_{Creditors}$$

Cash Flow from Assets

CF_{Assets}=OCF-NCS-ΔNWC, where:

OCF=EBIT+Depreciation-Taxes

NCS=Net Fixed Assets$_t$-Net Fixed Assets$_{t-1}$+Depreciation

ΔNWC=NWC$_t$-NWC$_{t-1}$=(CA$_t$-CL$_t$)-(CA$_{t-1}$-CL$_{t-1}$)

Cash Flow to Creditors

$\text{CF}_{Creditors}$=Interest Paid-Net New Borrowing=Interest Paid-(Long Term Debt$_t$-Long Term Debt$_{t-1}$)

Cash Flow to Stockholders

$\text{CF}_{Stockholders}$=Dividends Paid-Net New Equity Raised =Dividends Paid-(Common Stock$_t$-Common Stock$_{t-1}$)

CASH FLOW PROBLEM

Sales=600
CGS=300
Depreciation=150
Interest=30
Taxes=21% (round to nearest integer)
Dividends=30
Beg NFA=500 End NFA=750, NFA=Net Fixed Assets
Beg CA=2130 End CA=2260 Beg CL=1620 End CL=1710
No new equity

What is CF to creditor and net new borrowing?

CASH FLOW PROBLEM

Sales=600
CGS=300
Depreciation=150
Interest=30
Taxes=21% (round to nearest integer)
Dividends=30
Beg NFA=500 End NFA=750, NFA=Net Fixed Assets
Beg CA=2130 End CA=2260 Beg CL=1620 End CL=1710
No new equity

What is CF to creditor and net new borrowing?
CF_C=-195 Net New Borrowing=225

KEY LEARNING OUTCOMES

- Accounting principles, assumptions, and constraints
- Financial reporting (when, why, and how)
- Three financial statements
- How they are made and interact with each other
- Cash Flow

NEXT TIME

Financial Statement Analysis