



Financial Statement Analysis Bootcamp




Financial statement intro

Getting you one step closer to a
pocket protector



Why do you need to know the financial statements?

Why *everyone* in business needs to understand the financial statements:

1. Financial statements help you evaluate the performance of a product, division, new initiative, and/or the company as a whole.
 2. Financial statements are a universal language that can speak to everyone at the firm.
 3. Financial statements help evaluate new business decisions, investments, or initiatives.
- 

The 3 statements



Income statement: Shows the profitability of a company




Balance sheet: Shows the company's resources (assets) and the funding for those resources (liabilities and equity).



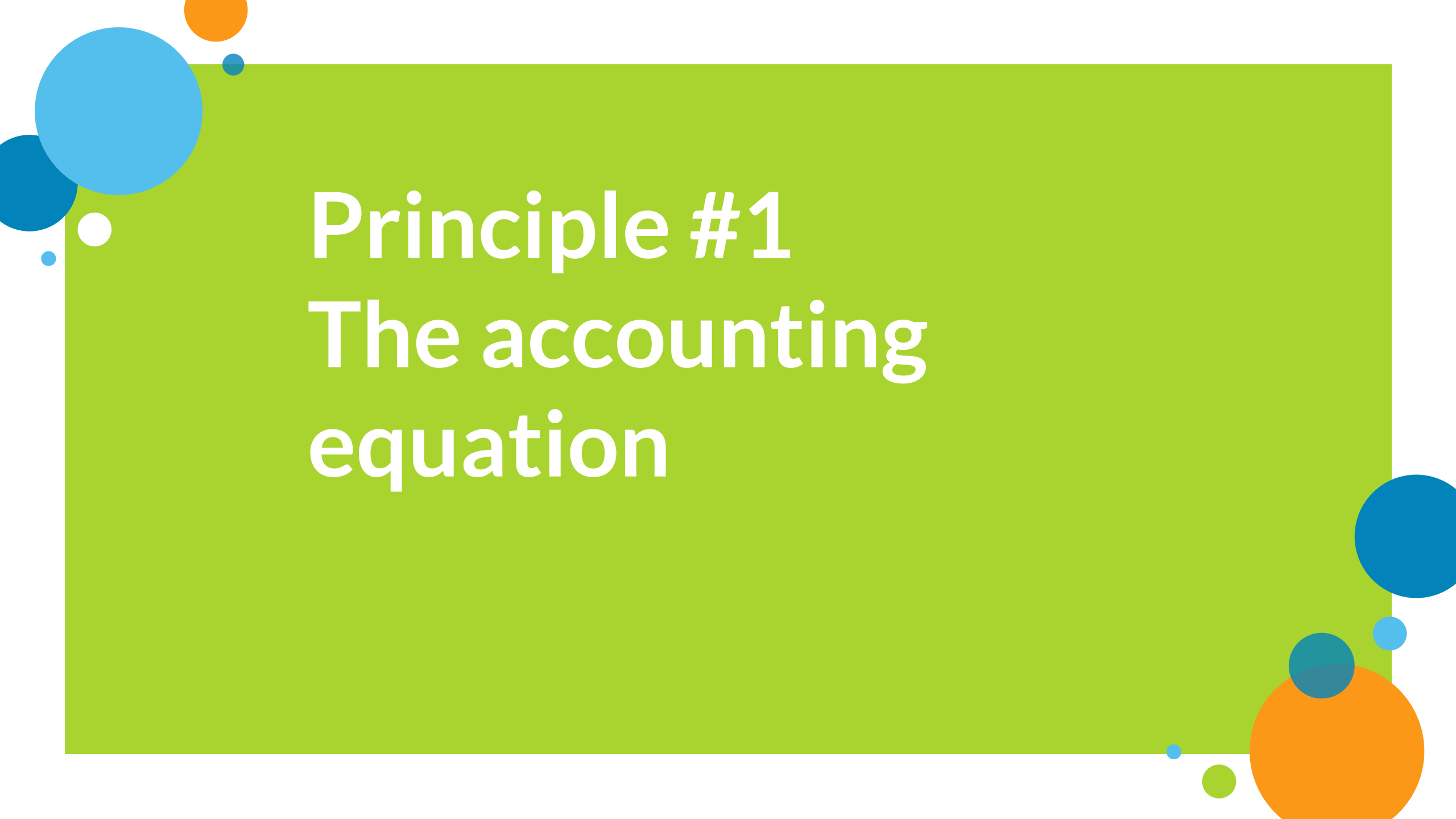
Statement of cash flows: Shows the company's cash account in more detail

ALL 3 STATEMENTS ARE 100% TIED TO EACH OTHER!



Accounting principles bootcamp

The best videos to cure insomnia



Principle #1

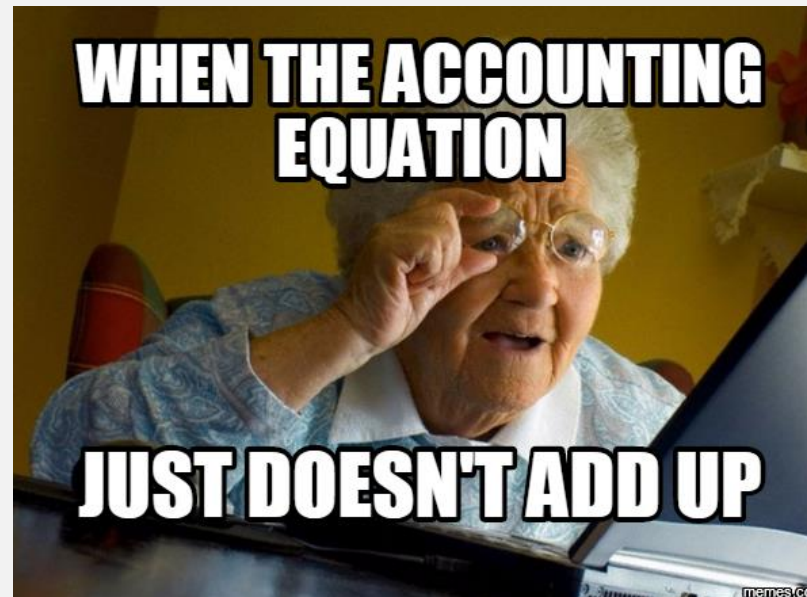
The accounting equation

The accounting equation



Balance sheet: Shows the company's resources (assets) and the funding for those resources (liabilities and equity).

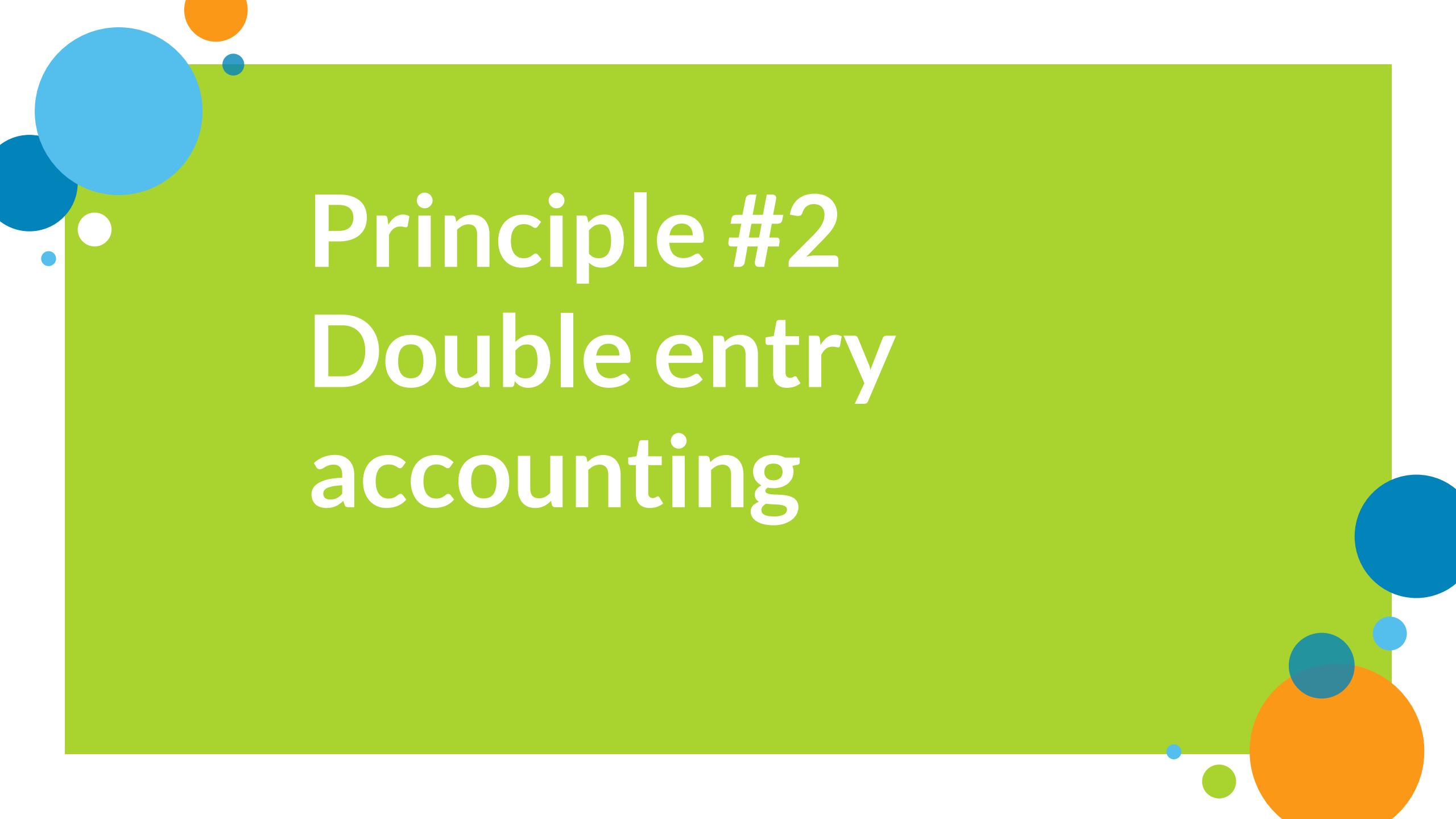
Accounting equation: $Assets = Liabilities + Equity$



The accounting equation

Accounting equation: Assets = Liabilities + Equity

Assets	2017	2016	2015
Current assets			
Cash and cash equivalents	\$ 5,512,150	\$ 723,050	\$ 1,827,000
Accounts receivable	10,780,000	9,217,000	7,316,000
Inventory	6,135,000	5,093,000	2,268,000
Prepaid expenses and other assets	5,182,000	5,627,000	1,118,000
Total current assets	\$ 27,609,150	\$ 20,660,050	\$ 12,529,000
Property and equipment	\$ 26,598,000	\$ 22,038,000	\$ 11,296,000
Accumulated depreciation	(9,444,000)	(6,192,000)	(3,801,000)
Property and equipment, net	\$ 17,154,000	\$ 15,846,000	\$ 7,495,000
Goodwill and other intangibles, net	\$ 47,600,000	\$ 49,300,000	\$ 300,000
Other long-term assets	3,389,000	3,146,000	3,085,000
Total other assets	\$ 50,989,000	\$ 52,446,000	\$ 3,385,000
Total assets	\$ 95,752,150	\$ 88,952,050	\$ 23,409,000
Liabilities and Stockholders' Equity			
Current liabilities			
Accounts payable	\$ 10,521,000	\$ 9,753,000	\$ 4,651,000
Accrued expenses	2,016,000	1,302,000	1,296,000
Current portion of long-term debt	5,505,500	5,141,000	546,000
Other current liabilities	7,330,000	7,968,000	3,081,000
Total current liabilities	\$ 25,372,500	\$ 24,164,000	\$ 9,574,000
Long-term liabilities			
Long-term debt	\$ 13,820,000	\$ 13,461,000	\$ -
Other long-term liabilities	9,034,000	11,463,000	2,537,000
Total long-term liabilities	\$ 22,854,000	\$ 24,924,000	\$ 2,537,000
Stockholders' Equity			
Common stock	\$ 34,736,500	\$ 32,429,100	\$ 4,623,100
Accumulated earnings	12,789,150	7,434,950	6,674,900
Total stockholders' equity	\$ 47,525,650	\$ 39,864,050	\$ 11,298,000
Total liabilities and stockholders' equity	\$ 95,752,150	\$ 88,952,050	\$ 23,409,000



Principle #2

Double entry accounting

Double entry accounting

Definition: Every transaction involves two or more accounts.

Example #1 (two accounts)

You borrow \$25,000 from the bank. Your cash account (asset on the balance sheet) will increase by \$25,000 and your notes payable account (liability on the balance sheet) will also increase by \$25,000.

Equation balances:
Assets = Liabilities + SHE

Cash (asset)

↑ \$25,000

Note payable (liability)

↑ \$25,000

Double entry accounting

Example #2 (three accounts)

You record revenue for the year of \$75,000. You've been paid \$50,000 and \$25,000 remains outstanding.

You would record \$50,000 in cash (asset) and \$25,000 in accounts receivable (asset). You'd also record \$75,000 in retained earnings (stock holders equity).

Equation balances:
Assets = Liabilities + SHE

Cash (asset)

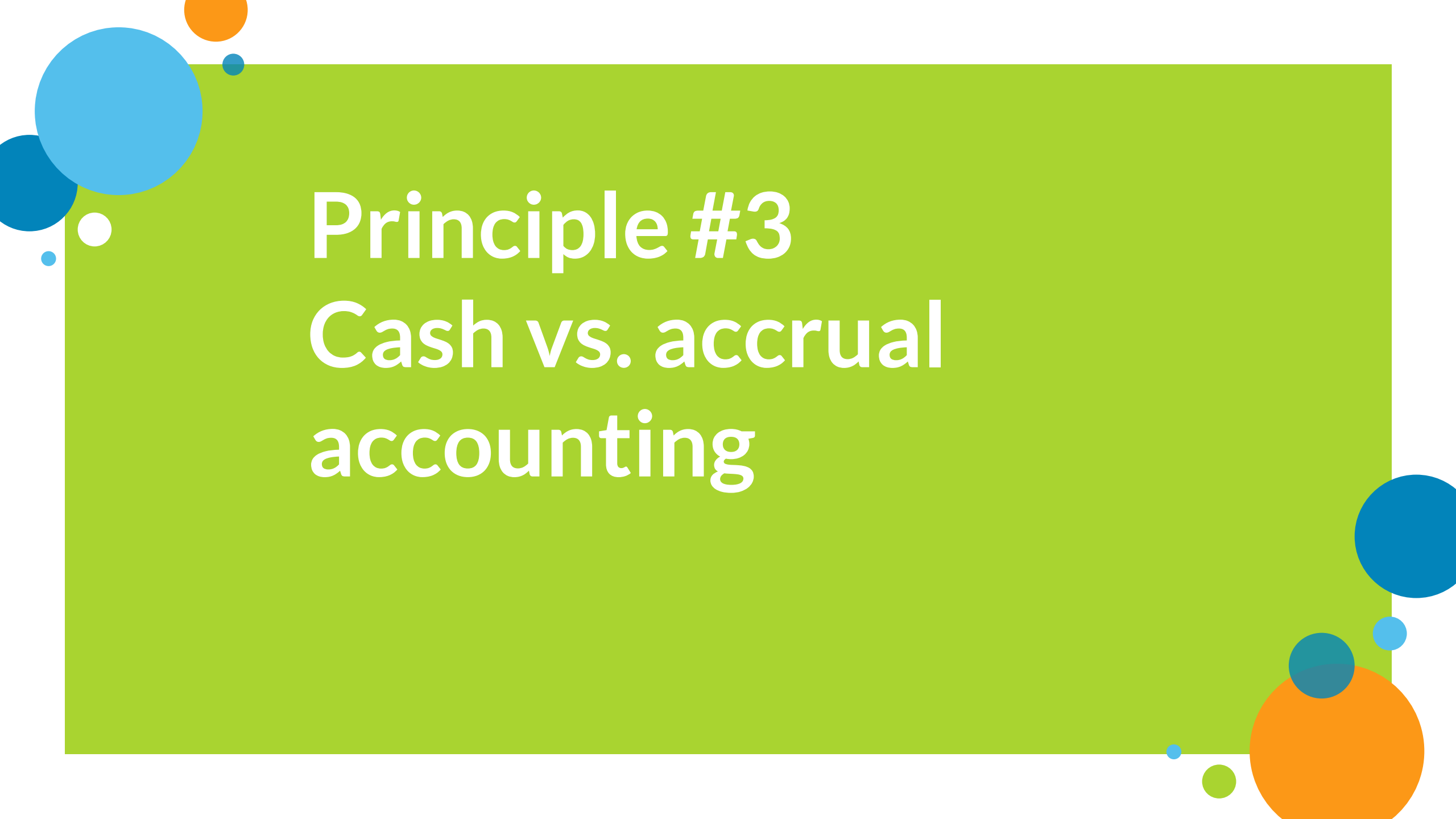
↑ \$50,000

A/R (asset)

↑ \$25,000

Retained earnings (SHE)

↑ \$75,000



Principle #3

Cash vs. accrual accounting

Cash vs. accrual

Cash accounting: Revenues and expenses are recorded when money is actually received or spent. Only small companies use this method due to ease of calculating.






Cash vs. accrual

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Example

You do \$25,000 of work in 2017 and send these invoices to customers. Of these invoices, you receive \$15,000. The remaining \$10,000 is still outstanding. **Income for 2017 would be \$15,000** (the actual cash you received).



Cash vs. accrual

Accrual accounting: Revenues and expenses are recorded when they are *incurred*. Larger companies use this method to normalize earnings and give a more accurate picture of the company.






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Example

You do \$25,000 of work in 2017 and send these invoices to customers. Of these invoices, you receive \$15,000. The remaining \$10,000 is still outstanding. **Income for 2017 would be \$25,000** (the total revenue earned during the year).






Principle #4

Depreciation and amortization



Depreciation and amortization

Definition: A reduction in the value of an asset with the passage of time. Depreciation and amortization are a non-cash expense.



Depreciation and amortization

How it works:

- 1) You buy a \$70,000 machine for your company



Depreciation and amortization

How it works:

2) You estimate that the machine has a useful life of 7 years. Because you are using it for 7 years, the accrual principle states we shouldn't expense it all in one year, but rather over 7 years (depreciate it). So, when you buy the machine, no expense is recorded. Therefore, the initial double-entry would be:

Equation balances:
Assets = Liabilities + SHE

Cash (asset)

↓ \$70,000

Property and equipment (asset)

↑ \$70,000

Depreciation and amortization

How it works:

3) You'll spread the expense of the machine (depreciate) over a 7 year period, or \$10,000/year. Notice that all the cash went out when we bought it but there was no "expense" recorded on the income stmt. We now record a \$10,000 expense each year, but it is a *non-cash expense*.

Equation balances:
Assets = Liabilities + SHE

Equipment (asset)

↓ \$10,000

Retained earnings (SHE)

↓ \$10,000

Retained earnings reduced b/c each year net income is being reduced due to the depreciation expense.



The financial statements

Answering your burning financial statement questions since 2017




Income statement



Income statement

What is the purpose of the income statement?

- 1) Shows all of the revenues and expenses of the company over a *period of time*.
 - 2) As a result, shows the profitability of a company. But, net income doesn't tell you the whole profitability story.
 - 3) Due to accrual accounting and one-off expenses/income, net income might be under or over stated.
- 

Components of the income statement

Revenue: The \$\$ received from the sale of goods or services. Also called sales, net sales, or sales revenue.

Cost of goods sold (COGS): The costs to produce the goods being sold. These include the materials, labor, and other resources required to make the good.

Gross profit: The difference between revenue and COGS. Assesses efficiency at using labor/supplies.

Revenue	\$1,000,000
COGS	\$250,000
Gross profit	\$750,000




Components of the income statement

Selling, general, and administrative (SG&A): Includes selling expenses, advertising expenses, rent, general operating expenses, executive salaries, and everything related to the general administration of the company.

Depreciation and amortization: The allocation of an asset's cost over the useful life of that asset.

Other operating expenses: Any other expense that is related to the operation of the company. This does NOT include one-time event items like merger expenses or write-offs.






Components of the income statement

Interest expense: The interest, but NOT the principal, paid on debt obligations. This is not considered an operating expense and is put below the operating items mentioned before.

Taxes: The federal and state taxes paid on the company's earnings. Does not include payroll taxes.

Net income: The revenue plus/minus all other income/expenses at the company.






EBITDA

EBITDA (*pronounced e-bit-dah*): **E**arnings **B**efore **I**nterest **T**ax, **D**epreciation, and **A**mortization

EBITDA is a way to evaluate a company's performance without factoring in financing decisions, one-time events, tax environments, and non-cash accounting items.

Generally, EBITDA more accurately shows the company's profitability.

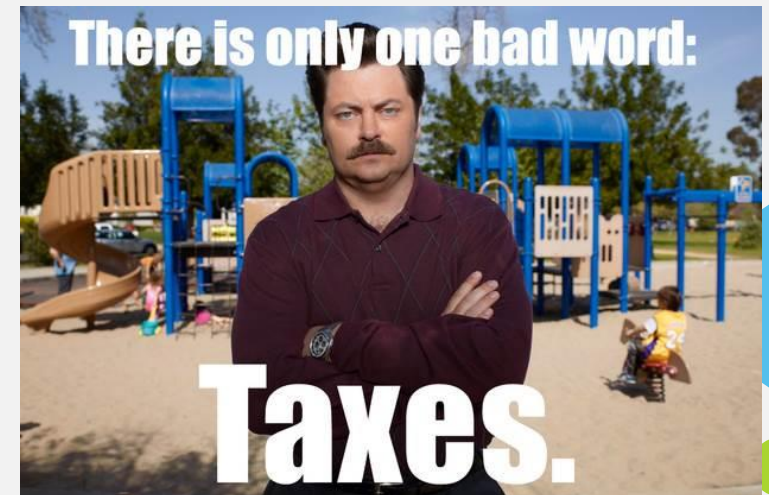


EBITDA

EBITDA (*pronounced e-bit-dah*): Earnings Before Interest Tax, Depreciation, and Amortization

Example

Net income	\$500,000
+ Taxes	\$75,000
+ Interest	\$25,000
+ Depr & amort	\$50,000
+/- One-time items	(\$15,000)
EBITDA	\$635,000



EBITDA

Real-life example

Snapchat's financial results

	Three Months Ended March 31,	
	2017	2016
	(dollars in thousands)	
	(NM = Not Meaningful)	
Revenue	\$ 149,648	\$ 38,798
Net loss ⁽¹⁾	\$ (2,208,837)	\$ (104,576)
Adjusted EBITDA ⁽²⁾	\$ (188,243)	\$ (93,234)

Net loss was \$2.2 billion! But EBITDA showed “only” a loss of \$188 million. Why such a big difference?

EBITDA

Real-life example

	Three Months Ended March 31,	
	2017	2016
Revenue	\$ 149,648	\$ 38,798
Costs and expenses:		
Cost of revenue	163,358	75,773
Research and development	805,848	28,098
Sales and marketing	219,733	14,737
General and administrative	1,174,476	24,011
Total costs and expenses	<u>2,363,415</u>	<u>142,619</u>
Loss from operations	(2,213,767)	(103,821)
Interest income	2,424	359
Interest expense	(695)	–
Other income (expense), net	187	(993)
Loss before income taxes	<u>(2,211,851)</u>	<u>(104,455)</u>
Income tax benefit (expense)	3,014	(121)
Net loss	<u>\$ (2,208,837)</u>	<u>\$ (104,576)</u>

We start at “Loss from operations” since this excludes taxes, interest, and other non-operating items.

EBITDA

Real-life example

	Three Months Ended March 31,	
	2017	2016
Cash flows from operating activities		
Net loss	\$ (2,208,837)	\$ (104,576)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	12,450	5,049
Stock-based compensation	1,992,121	5,538

Depreciation, amortization, and stock-based compensation are both “accounting” / non-cash expenses so we can add these back in.



EBITDA

Real-life example

Net loss from operations	(\$2,213,767)
+ Depreciation & amortization	\$12,450
+ Stock-based compensation	\$1,992,121
EBITDA	(\$209,196)

There are other components we did not include, but we can get close enough to their reported number.




Balance sheet



Balance sheet

What is the purpose of the balance sheet?

- 1) Shows all of the company's resources (assets) and how those resources are funded (liabilities and shareholders' equity) at a *single point in time*.
 - 2) Gives a fuller picture of the company's financial position.
 - 3) Helps understand (in conjunction with the income statement) the solvency and liquidity of the company
- 



Assets vs.
liabilities vs.
stockholders'
equity

Assets: Something the company owns that will provide future economic benefits.

Liabilities: The company's future obligations to either pay money or perform a service.

Stockholders' equity: The amount of equity (on the books) held by the company's equity investors.

Accounting equation: $Assets = Liabilities + Equity$






Components of the balance sheet

Current assets: Assets that are expected to be converted into cash in the next year. Includes cash, short-term investments, accounts receivable (outstanding invoices), and inventory.

Property, plant, and equipment (PP&E): Any property, buildings, machinery, computers, systems, etc. Value usually shown as net, in other words, excluding the accumulated depreciation.

Goodwill: An intangible asset (not a physical one) that is the result of an acquisition of another company (paying more than the assets are worth).






Components of the balance sheet

Current liabilities: Liabilities that are debts or obligations that are due in the next year. Includes accounts payable (\$ you owe other companies), accrued expenses (expenses not yet paid for, like salaries), and short-term debt (like a credit card).

Long-term liabilities: A debt or obligation that is due after one year. The biggest long-term liability is usually longer-term debt.

Accumulated earnings (retained earnings): The accumulated sum of the company's net income, less any dividends paid, from the beginning of time.



The link between
the income
statement and
balance sheet

Income
statement

+

Balance
sheet

=

Net income
Less: Dividends

*Retained
earnings*






Statement of cash flows



Statement of cash flows


What is the purpose of the cash flow statement?

- 1) Provides much greater detail of the cash line item on the balance sheet (hint, this is how they are linked to each other)
 - 2) Gives a fuller picture of the income statement (helps us calculate EBITDA).
 - 3) Shows exactly how the company's cash is being used and where cash is coming from.
- 



Components of the cash flow statement

Cash from operating activities: Cash coming in and going out of the company as a result of day-to-day operations. It's usually calculated by starting with net income, adding non-cash items, and adding and subtracting the difference between current assets and liabilities from one period to another.



Components of the cash flow statement

Example

Revenue
+\$10,000

Cash flow statement
+\$10,000



BUT!!!

Accounts Receivable

<u>2016</u>	<u>2017</u>	=	\$1,000 increase in A/R
\$1,000	\$2,000		

So...

Only received \$9,000 in cash


\$10,000 in revenue - \$1,000 in increase in A/R



Components of the cash flow statement

Cash from operating activities: Cash coming in and going out of the company as a result of day-to-day operations. It's usually calculated by starting with net income, adding non-cash items, and adding and subtracting the difference between current assets and liabilities from one period to another.


Cash from investing activities: Cash going out (almost always going out) to buy long-term assets like property or machinery.





Components of the cash flow statement

Cash from financing activities: Cash going out to investors (interest, dividends, etc.) and cash coming in from investors (debt proceeds, bonds, stock sales, etc.)



Link between
income
statement, BS,
and cash flow
statement

$$\begin{array}{l} \text{Income} \\ \text{statement} \end{array} + \begin{array}{l} \text{Cash flow} \\ \text{statement} \end{array} + \begin{array}{l} \text{Balance} \\ \text{sheet} \end{array} =$$

Net income → *Cash from ops*
+ Cash from financing
+ Cash from investing
+ Beg. cash balance
= Ending cash

*Cash and cash
equivalents
(current asset)*





Analyzing the financial statements

Turning you into the ultimate, but
awesome, nerd



Growth metrics



Revenue growth

Revenue growth: The annual (or monthly/quarterly) growth of top-line revenue.

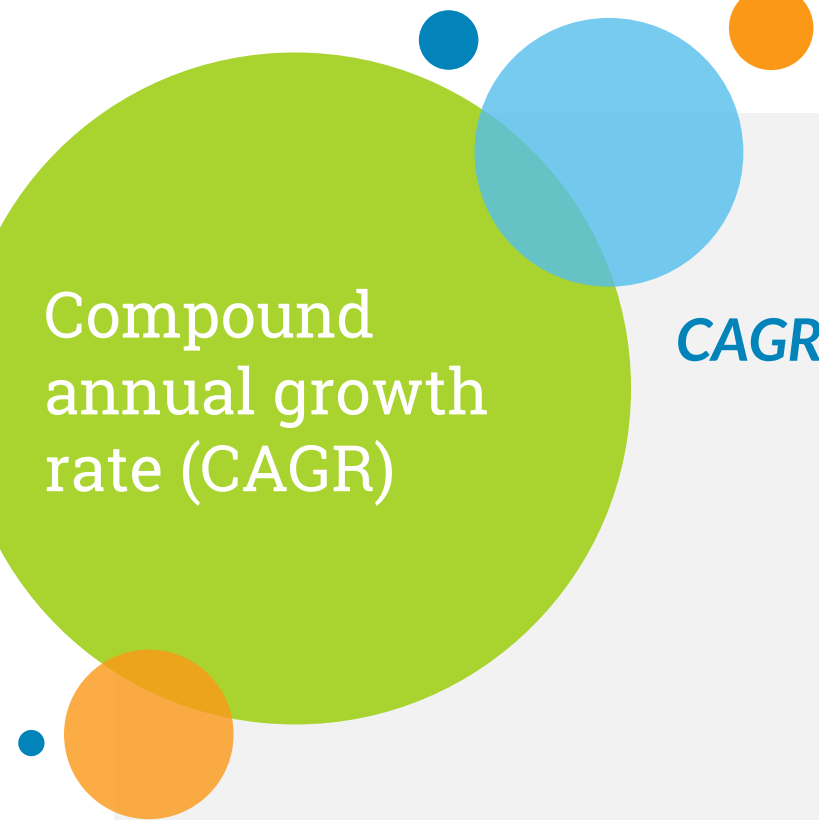
Calculation

(New value – Old value)/Old value

Example

Revenue in 2017 was \$100,000 and \$75,000 in 2016. The growth would be 33.3% calculated as: $(\$100,000 - \$75,000) / \$75,000$.

General Rule: What is considered a “good” growth rate depends on your industry, size of company, etc. You should compare your growth rate to your closest competitors.



Compound annual growth rate (CAGR)

CAGR: The average growth rate over a period of time.

Calculation

$$\left(\frac{\text{Ending value}}{\text{Beginning value}} \right)^{\left(\frac{1}{\#years} \right)} - 1$$

Example

Revenue was \$75,000, \$100,000, and \$125,000 from 2015-2017.
The CAGR would be $[(\$125,000/\$75,000)^{(1/2)}] - 1 = 29.1\%$

Caution: This is not the actual growth rate each year, it is just a convenient way to “normalize” the growth rate to one number.



EBITDA growth

EBITDA growth: The annual (or monthly/quarterly) growth of EBITDA.

Calculation

(New value – Old value)/Old value

Example

EBITDA in 2017 was \$50,000 and \$35,000 in 2016. The growth rate would be 42.9% calculated as: $(\$50,000 - \$35,000) / \$35,000$.

General Rule: EBITDA growth rate should be (hopefully) larger than the revenue growth rate. This indicates the company is better managing or optimizing their expenses.



Net income growth

Net income growth: The annual (or monthly/quarterly) growth of net income.

Calculation

(New value – Old value)/Old value

Example

Net income in 2017 was \$25,000 and \$20,000 in 2016. The growth would be 25.0% calculated as: $(\$25,000 - \$20,000) / \$20,000$

Caution: Remember, net income includes non-cash items, one-time events (like write-offs), etc. As a result, the net income growth rate is not the best performance indicator.



Liquidity metrics



Quick ratio

Quick ratio: Measures how well a company can cover its short-term obligations (current liabilities).


Calculation

(Current assets – Inventory)/Current liabilities

Example

A company has current assets (including inventory) of \$100,000, inventory of \$25,000 and current liabilities of \$60,000. The quick ratio would be 1.25x calculated as: $(\$100,000 - \$25,000)/\$60,000$

General rule: The quick ratio should be above 1.0x. This means the company can theoretically meet all of its short-term obligations. We exclude inventory from the calculation since it is not easy to liquidate.



Leverage (debt-to-EBITDA)

Leverage (debt-to-EBITDA): Measures how much debt a company has compared to EBITDA.

Calculation

(Long-term debt + short-term debt)/EBITDA

Example

Company has \$100,000 in long-term debt, \$25,000 in short-term debt, and EBITDA of \$40,000. Leverage would be 3.1x calculated as: $(\$100,000 + \$25,000)/\$40,000$

General rule: Leverage should be below 3.5x (depending on industry). Anything above that is an excessive amount of debt, and the ability for the company to service that debt would come into question.



Fixed charge coverage ratio

Fixed charge coverage ratio (FCC): Measures how well the company can service its fixed payment obligations with its earnings.

Calculation

$EBITDA / \text{Total fixed charges}^*$

**Fixed charges include: Interest (income stmt), taxes (income stmt), debt principal payments (cash flow stmt), capital expenditures (cash flow stmt), and lease payments (income stmt).*

Example

Company has \$100,000 in EBITDA and \$125,000 in fixed charges. The FCC would be 0.8 calculated as: $\$100,000 / \$125,000$.

General rule: FCC should be above 1.0x. If it is below that, the company must raise \$\$\$ (debt or equity) to cover these fixed charges.



Profitability ratios



Gross profit and EBITDA margin

Gross profit and EBITDA margin: Gross profit margin mainly measures a company's *production efficiency*. The EBITDA margin measures a company's *profitability*.

Calculation

Gross profit (or EBITDA)/Revenue

Example

Company has \$100,000 in revenue and \$25,000 in COGS. The gross profit margin would be 75% calculated as:

$(\$100,000 - \$25,000) / \$100,000$

General rule: Either ratio should be compared to competitors in your field. Obviously, the higher the better.



Accounts payable / receivable days

AR/AP days: Measures the length of time it takes to receive your receivables or pay your payables.

Calculation

(Accounts receivable/Revenue) x 365 days

(Accounts payable/COGS) x 365 days

Example

Company has \$100,000 in accounts receivable and \$750,000 in revenue. The AR days would be 46 calculated as:

(\$100,000/\$750,000) x 365.

General rule: You want AR days to be as low as possible (get cash sooner) and AP days as long as possible (cash out later).



Free cash flow

Free cash flow (FCF): The cash a company generates after spending the \$\$ required to maintain its assets.

Calculation

Net cash provided by (used in) operating activities – Capital expenditures

Example

*Company generated \$100,000 in operating cash flow and had \$25,000 in capital expenditures. The FCF would be \$75,000 calculated as:
\$100,000 - \$25,000.*

General rule: FCF is difficult to compare across companies since its not “normalized” as a ratio. However, it is an essential tool when looking at an individual company and is essential when valuing a company.



ROA and ROE

Return on assets (ROA) : Measures how profitable a company is compared to its assets.

Return on equity (ROE) : Measures how profitable a company is compared to its equity.

Calculation

Net income/Total assets (ROA)

Net income/Average shareholders' equity (ROE)

Example

*Company has \$1,000,000 in assets and \$125,000 in net income.
The ROA would be 12.5% calculated as: \$125,000/\$1,000,000.*



ROA and ROE

General rule: These ratios may seem similar, but they tell you two distinct things about the company.

The item that separates the two is debt. Remember the accounting equation? $\text{Assets} = \text{Liabilities} + \text{Equity}$. Therefore, if a company has zero liabilities (no leverage), then the ROA and ROE will be the same (since assets would equal equity at that point).

When a company takes on leverage, it increases assets while decreasing the relative size of equity. Therefore, debt “supercharges” ROE (the numerator, net income, stays the same in both equations while the denominator for ROE becomes smaller).

If the company is highly levered, the ROE might paint a rosier picture than reality. By using ROA, you can see the full picture.

ROA and ROE

Example:

Net income = \$10,000

No leverage

Assets	=	Liabilities	Equity
\$100,000	=	\$0	\$100,000

ROA = 10% ($\$10,000 / \$100,000$)

ROE = 10% ($\$10,000 / \$100,000$)

Leverage

Assets	=	Liabilities	Equity
\$100,000	=	\$50,000	\$50,000

ROA = 10% ($\$10,000 / \$100,000$)

ROE = 20% ($\$10,000 / \$50,000$)



Putting it all together

Comparing the financials of 3
different companies

Comparing Airline Carriers

	<u>Spirit</u>	<u>Southwest</u>	<u>United</u>
Revenue growth	8.4%	4.0%	(3.5%)
EBITDA growth	1.6%	4.1%	(5.2%)

When revenue grows faster than EBITDA, that means margins are decreasing (company is less profitable). High growth companies will usually sacrifice margin for growth.

Comparing Airline Carriers

	<u>Spirit</u>	<u>Southwest</u>	<u>United</u>
Revenue growth	8.4%	4.0%	(3.5%)
EBITDA growth	1.6%	4.1%	(5.2%)
Gross profit margin	39.4%	37.4%	37.4%
EBITDA margin	23.6%	24.8%	18.7%
Quick ratio	1.6x	0.6x	0.5x
Debt-to-EBITDA	1.8x	0.7x	1.7x
Free cash flow	\$ (248)	\$ 822	\$ 1,612

High growth companies will sacrifice positive free cash flow for the sake of growth. This strategy is only sustainable if the company can successfully raise more debt or equity. If it can't, it'll eventually go bankrupt.

Comparing Airline Carriers

	<u>Spirit</u>	<u>Southwest</u>	<u>United</u>
Revenue growth	8.4%	4.0%	(3.5%)
EBITDA growth	1.6%	4.1%	(5.2%)
Gross profit margin	39.4%	37.4%	37.4%
EBITDA margin	23.6%	24.8%	18.7%
Quick ratio	1.6x	0.6x	0.5x
Debt-to-EBITDA	1.8x	0.7x	1.7x
Free cash flow	\$ (248)	\$ 822	\$ 1,612
Free cash flow margin	(10.7%)	4.0%	4.4%

So, which is the healthiest company? Probably Southwest. They have a sustainable growth rate, increasing margins, low leverage, and positive free cash flow.