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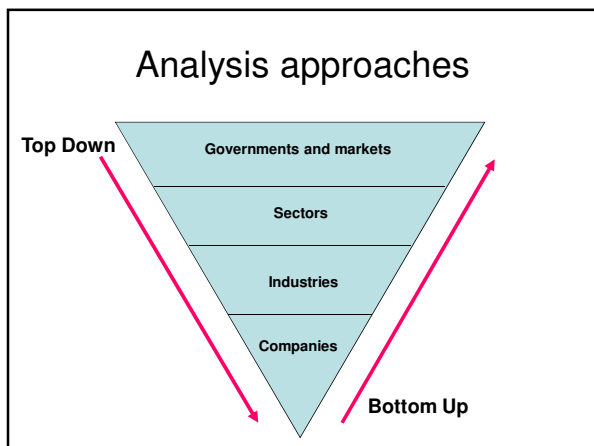
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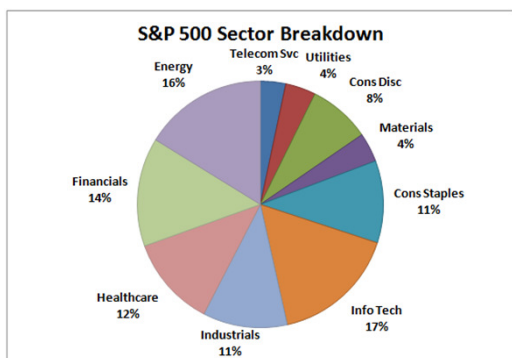*Smart investing@your library* ®

Basic Investing Classes

- **Fundamental analysis overview**
- Multiples models and dividend growth model
- Risk tolerance
- Morningstar reference materials
- Mutual fund alternative
- Questions and answers

Analysis approaches

Top Down

Governments and markets

Sectors

Industries

Companies

Bottom Up

Governments and markets

- Governments
  - Stability risk
  - Free currency
  - Degree of regulation
  - Tax levels
  - Forecast for growth
  - Demography
  - Etc

- Markets
  - Materials
  - Energy
  - Interest rates
  - Currency exchange rates
  - Food
  - Etc

S&P 500 Sector Breakdown

- Telecom Svc 3%
- Utilities 4%
- Cons Disc 8%
- Materials 4%
- Cons Staples 11%
- Info Tech 17%
- Industrials 11%
- Healthcare 12%
- Financials 14%
- Energy 16%

http://seekingalpha.com/article/121052-q4-earnings-performance-of-s-and-p-500-companies

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Sector, industry and company

- Materials
  - Aluminum
    - Alcoa
    - Aluminum Corp
  - Copper
    - Avalon Minerals
    - Copper Fox Metals
  - Steel
    - U.S. Steel
    - Tata Steel

- Industrials
  - Heavy construction
    - Axiom Corp
    - Fluor Corp
  - Lumber
    - Deltic Timber
    - Weyerhaeuser Co.
  - Textiles
    - China Fibretech
    - Deepak Spinners

Bottom up

- Company: Netflix (NASDAQ: NFLX)
  - Internet television network
  - Financials/strategies/technologies
- Industry: CATV Systems
  - Competitors: DISH, Charter, Comcast, etc.
  - Technology changes
  - Pricing
- Sector: Information technology
- Government:
  - 40 countries, 82% U.S., Mexico
  - Net neutrality regulations

NETFLIX

Intrinsic value

- Estimate **intrinsic value** of stock
  - Company's accounting statements
  - Financial and economic information

- Find **undervalued** stocks to buy and **overvalued** stocks to sell.

Intrinsic value versus price

- Intrinsic value
  - Size
  - Timing
  - Riskiness of cash flows

- Market price

Decision rule

• If estimated intrinsic value > market price
→ undervalued → <u>BUY</u>

• If estimated intrinsic value < market price
→ overvalued → <u>DON'T BUY </u>or <u>SELL</u>

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Multiples models

• **Price-earnings ratio (P/E ratio)**

• Price-cash flow ratio (P/CF ratio)

• Price-sales ratio (P/S ratio)
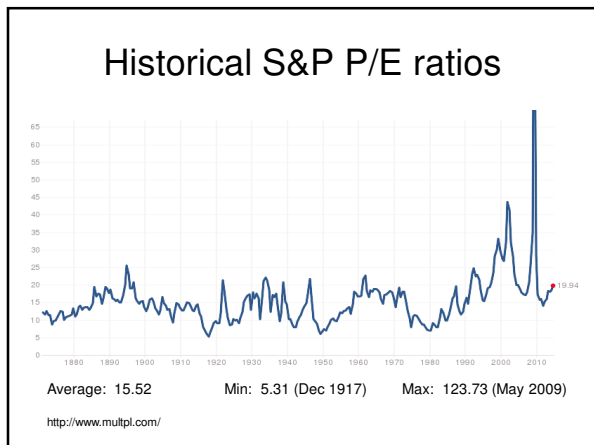
• Price-book ratio (P/B ratio)

P/E model

Price-earnings ratio (P/E ratio)

$$P/E = \frac{Price\ per\ share}{Earnings\ per\ share} = \frac{\$30.00}{\$1.00} = 30.0$$

The stock is selling for 30 times its earnings.

Therefore, by using a little math:

Estimated price per share = Normal P/E x Estimated EPS

Historical S&P P/E ratios

| Average: 15.52 | Min: 5.31 (Dec 1917) | Max: 123.73 (May 2009) |

http://www.multpl.com/

Industry P/E ratios and other values

Industry	1 Day Price Change %	Market Cap	P/E	ROE %	Div. Yield %	Long-Term Debt to Equity	Price to Book	Net Profit Margin % (mrq)	Price to Free Cash Flow (mrq)	
Accident & Health Insurance	0.77	202.8B	9.50	14.00	1.95	25.39	1.36	9.40	-5.50	Mc
Advertising Agencies	-0.23	1567.8B	25.30	15.50	1.76	77.90	-4.66	7.30	88.40	Mc
Aerospace/Defense - Major Diversified	791.01	16833.2B	14.10	19.80	1.44	63.78	-49.32	7.10	21.90	Mc
Aerospace/Defense Products & Services	0.81	341.5B	19.30	24.70	1.97	71.45	-27.81	6.30	60.10	Mc
Agricultural Chemicals	0.07	2065.5B	13.50	23.00	2.59	44.24	4.51	16.70	46.00	Mc
Air Delivery & Freight Services	0.17	1467.9B	51.30	11.70	2.01	40.41	8.26	2.60	55.50	Mc
Air Services, Other	-0.29	251.5B	33.50	7.10	2.83	35.06	3.49	7.70	-14.70	Mc
Aluminum	0.01	6593.7B	0.00	0.00	0.77	19.24	1.11	-2.30	-26.80	Mc

http://biz.yahoo.com/p/industries.html

Why multiples vary across firms

- Differences in accounting policies

- Past EPS do not reflect the future

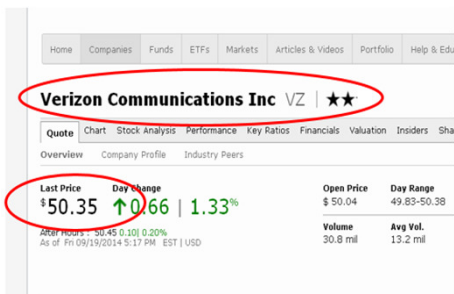- Differences in the quality of the business

- Mispricing

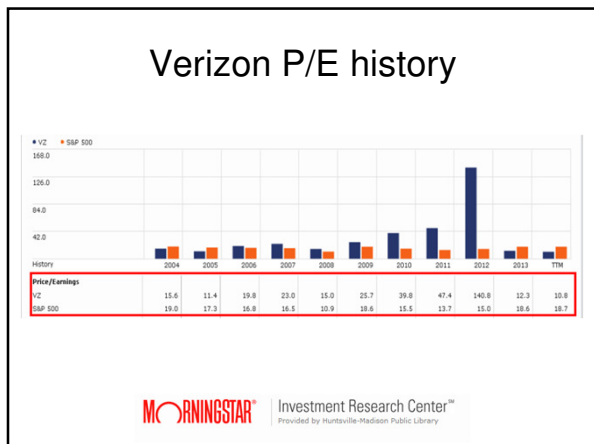
Let's look at examples

Ford

Proctor & Gamble

Southwest Airlines

General Electric

Apple

Verizon Communications Inc VZ | ★★

Quote | Chart | Stock Analysis | Performance | Key Ratios | Financials | Valuation | Insiders | Sha
Overview | Company Profile | Industry Peers

Last Price	Day Change		Open Price	Day Range
$50.35	↑ 0.66	1.33%	$ 50.04	49.83-50.38

After Hours : 50.45 0.10| 0.20%
As of Fri 09/19/2014 5:17 PM EST | USD

Volume 30.8 mil | Avg Vol. 13.2 mil

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Verizon P/E history

Which VZ P/E to use?

	Verizon
Price	$50.35
TTM P/E	10.8
2013 P/E	12.3
5-year avg	53.2
5-year avg without outlier	31.3
10-year avg	35.1
10-year avg without outlier	23.4
Forward P/E	12.6
Telecom (domestic) avg	12.7

AT&T P/E history
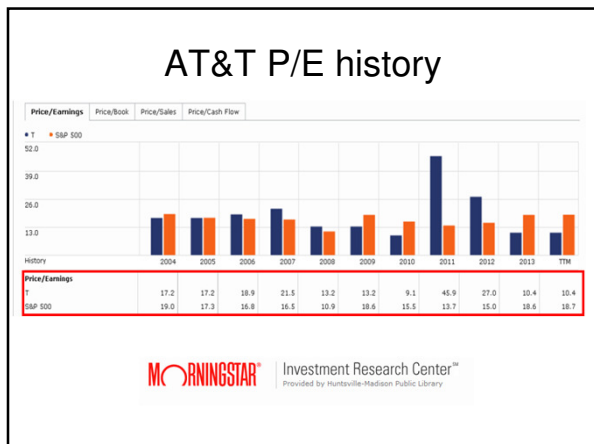
Which AT&T P/E to use?

	AT&T
Price	$35.47
TTM P/E	10.4
2013 P/E	10.4
5-year avg	21.1
5-year avg without outlier	14.9
10-year avg	19.7
10-year avg without outlier	16.7
Forward P/E	13.2
Telecom (domestic) avg	12.7

Data summary

	Verizon	AT&T
Price	$50.35	$35.47
TTM P/E	10.8	10.4
2013 P/E	12.3	10.4
5-year avg	53.2	21.1
5-year avg without outlier	31.3	14.9
10-year avg	35.1	19.7
10-year avg without outlier	23.4	16.7
Forward P/E	12.6	13.2
Telecom (domestic) avg	12.7	12.7

Morningstar data 9/27/2014

Verizon P/E model

Current Price = $50.35

	P/E x	EPS =	Estimated Value	Buy Signal?
TTM P/E	10.8	$3.92	$42.34	No
2013 P/E	12.3	$3.92	$48.22	No
5-yr avg	53.2	$3.92	$208.54	Yes
5-yr avg without outlier	31.3	$3.92	$122.70	Yes
10-yr avg	35.1	$3.92	$137.59	Yes
10-yr avg without outlier	23.4	$3.92	$91.73	Yes
Forward P/E	12.6	$3.92	$49.39	No
Telecom avg	12.7	$3.92	$49.78	No

Morningstar data 9/27/2014

AT&T P/E model

Current Price = $35.47

	P/E x	EPS =	Estimated Value	Buy Signal?
TTM P/E	10.4	$2.69	$27.98	No
2013 P/E	10.4	$2.69	$27.98	No
5-yr avg	21.1	$2.69	$56.76	Yes
5-yr avg without outlier	14.9	$2.69	$40.08	Yes
10-yr avg	19.7	$2.69	$52.99	Yes
10-yr avg without outlier	16.7	$2.69	$44.92	Yes
Forward P/E	13.2	$2.69	$35.51	No
Telecom avg	12.7	$2.69	$34.16	No

Morningstar data 9/27/2014

Decision

- Is either AT&T or Verizon worth buying?

- Which is better?

- Why do multiples vary across firms?

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Why multiples vary across firms

- ~~Differences in accounting policies~~

- Past EPS do not reflect the future

- Differences in the quality of the business
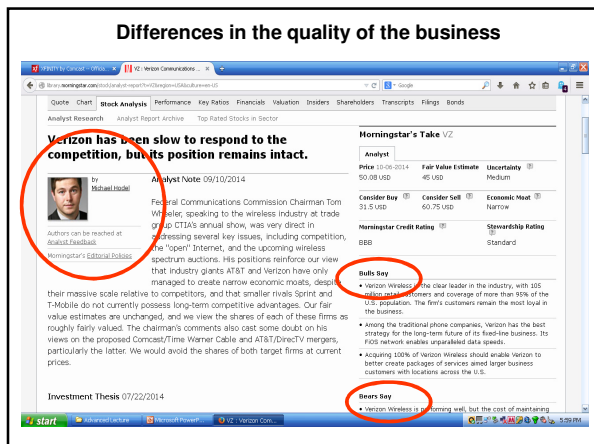
- Mispricing

EPS history

VZ

	2009	2010	2011	2012	2013	TTM
Price	$30.97	$35.78	$40.12	$43.27	$49.14	$49.43
EPS	$1.21	$0.90	$0.85	$0.31	$4.00	$4.59
P/E	25.7	39.8	47.4	140.8	12.3	10.8

AT&T

	2009	2010	2011	2012	2013	TTM
Price	$28.03	$29.38	$30.24	$33.71	$35.16	$35.24
EPS	$2.12	$3.23	$0.66	$1.25	$3.39	$3.39
P/E	13.2	9.1	45.9	27.0	10.4	10.4

Why multiples vary across firms

- ~~Differences in accounting policies~~

- Past EPS do not reflect the future

- Differences in the quality of the business

- Mispricing

Differences in the quality of the business

Why multiples vary across firms

- ~~Differences in accounting policies~~

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Verizon P/E model

Current Price = $50.35

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TTM P/E	$42.34	No
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5-yr avg	$208.54	Yes
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10-yr avg	$137.59	Yes
10-yr avg without outlier	$91.73	Yes
Forward P/E	$49.39	No
Telecom avg	$49.78	No

Morningstar data 9/27/2014

Morningstar analyst's valuation of Verizon

AT&T P/E model

Current Price = $35.47

	Estimated Value	Buy Signal?
TTM P/E	$27.98	No
2013 P/E	$27.98	No
5-yr avg	$56.76	Yes
5-yr avg without outlier	$40.08	Yes
10-yr avg	$52.99	Yes
10-yr avg without outlier	$44.92	Yes
Forward P/E	$35.51	No
Telecom avg	$34.16	No

Morningstar data 9/27/2014

Morningstar analyst's valuation of AT&T

Advantages & disadvantages of multiples models

- Disadvantages
  - Simplistic
  - Static
  - Difficult to compare

- Advantages
  - Usefulness
  - Simplicity
  - Relevance

P/E model with growth example

MedCath is an innovative provider with earnings growth potential above the industry average. The industry average P/E ratio is 21. Let's adjust MedCath's P/E up by 10% relative to the industry average. Its estimated earnings are $2.65 per share. What is MedCath's estimated stock value?

Estimated price per share = (21 × 1.10) x $2.65 = $61.22

P/E model with lower growth

Suppose MedCath's earnings are falling behind in the health care industry. Let's adjust MedCath's P/E of 21 down by 10% relative to the industry average. Its estimated earnings are $2.65 per share. What is MedCath's estimated stock value?
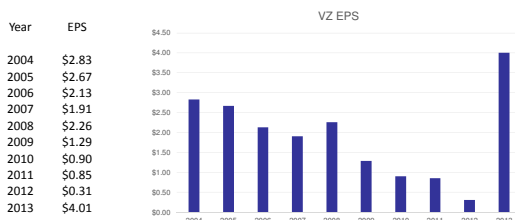
Estimated price per share = (21 × 0.90) x $2.65 = $50.09

How to estimate growth?

- Project history into the future

- Adjust future projection with government, industry, company information

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VZ EPS growth history

Year	EPS
2004	$2.83
2005	$2.67
2006	$2.13
2007	$1.91
2008	$2.26
2009	$1.29
2010	$0.90
2011	$0.85
2012	$0.31
2013	$4.01

VZ EPS

Change 2004-2012: ($0.31/$2.83) − 1 = -89%

Change 2009-2013: ($4.01/$1.29) − 1 = +211%

Other multiples models

- *Price-cash flow ratio (P/CF ratio)*

  $$P/CF = \frac{Price\ per\ share}{Cash\ flow\ per\ share}$$

- Price-sales ratio (P/S ratio)

  $$P/S = \frac{Price\ per\ share}{Sales\ per\ share}$$

- Price-book ratio (P/B ratio)

  $$P/B = \frac{Price\ per\ share}{Book\ value\ per\ share}$$

P/CF model

Price-cash flow ratio (P/CF ratio)
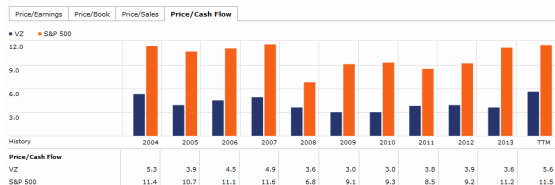
$$P/CF = \frac{Price\ per\ share}{Cash\ flow\ per\ share} = \frac{\$30.00}{\$0.50} = 60.0$$

The stock is selling for 60 times more than its cash flow.

Therefore, by using a little math:

Estimated price per share = Normal P/CF x Estimated CF per share

---

Verizon P/CF ratio

| Price/Earnings | Price/Book | Price/Sales | **Price/Cash Flow** | | | | | | | |

Price/Cash Flow	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	TTM
VZ	5.3	3.9	4.5	4.9	3.6	3.0	3.0	3.8	3.9	3.6	5.6
S&P 500	11.4	10.7	11.1	11.6	6.8	9.1	9.3	8.5	9.2	11.2	11.5

Estimated price per share = Normal P/CF x Estimated CF per share
= 3.46 x $7.53 = $26.05

Estimate price per share from the P/E models: $42.34-$208.54

P/S model

Price-sales ratio (P/S ratio)

$$P/S = \frac{Price\ per\ share}{Sales\ per\ share} = \frac{\$30.00}{\$3.00} = 10.0$$

The stock is selling for 10 times more than its sales.

Therefore, by using a little math:

Estimated price per share = Normal P/S x Estimated sales per share

P/B model

Price-book value ratio (P/B ratio)

P/B = Price per share = $30.00 = 3.0
Book value per share $10.00

The stock is selling for 3 times more than its book value.

Therefore, by using a little math:

Estimated price per share = Normal P/B x Estimated book value per share

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- Fundamental analysis overview
- **Multiples models and dividend growth model**
- Risk tolerance
- Morningstar reference materials
- Mutual fund alternative
- Questions and answers

End of Part I

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Start Part II

P/E model refresher

Price-earnings ratio (P/E ratio)

$$P/E = \frac{Price \ per \ share}{Earnings \ per \ share} = \frac{\$30.00}{\$1.00} = 30.0$$

The stock is selling for 30 times its earnings.

Therefore, by using a little math:

**Estimated price per share = Normal P/E x Estimated EPS
= 30 x $1.50 = $45.00**

P/E model with growth example

MedCath is an innovative provider with earnings growth potential above the industry average. The industry average P/E ratio is 21. Let's adjust MedCath's P/E up by 10% relative to the industry average. Its estimated earnings are $2.65 per share. What is MedCath's estimated stock value?
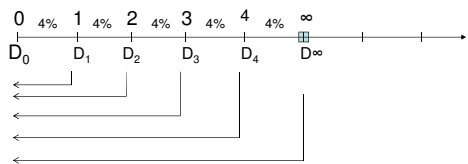
Estimated price per share = (21 × 1.10) x $2.65 = $61.22

Dividend growth model

• Key assumptions

 – Company pays dividends each year forever

 – Each dividend grows by the same rate (g) each year. You estimate g.

 – You decide what return (r) you must earn to compensate you for the risk of owning the stock

Dividend growth model

Example: 4% growth expected forever. Assume D_0 = $2.15, r = 18%

$$
V_o = \frac{D_1}{r - g} = \frac{\$2.15\,(1.04)}{.18 - .04} = \$15.97
$$

Caveats for models

1. The intrinsic value depends on **estimates** of various parameters.
2. The decision rule will work only if your estimates are **correct**, **AND**
3. You are correct **before** the rest of the market, **AND**
4. The rest of the market comes to **realize** that you are correct.

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Risk tolerance

- Source of risk
  - Loss of principal
  - Volatility

- Why is knowing your risk tolerance important?
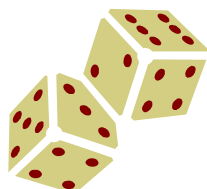
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Risk tolerance tools

- Finra Investor Knowledge
  - *http://www.finra.org/Investors/ToolsCalculators/P11694 0*

- Risk tolerance quizzes
  - *https://njaes.rutgers.edu/money/riskquiz/*

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Portfolio risk

- Market's beta

- Stock's beta

- Portfolio's beta

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Finding a stock's beta

Market Data VZ

Beta	0.03
Below 52-Week High	-5.91%
50-Day Moving Average	49.63
200-Day Moving Average	48.84

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Calculating portfolio betas

Stock	Investment	% of Portfolio	Beta
General Motors	$5,000	50%	1.68
WalMart	$3,000	30%	0.35
Harley Davidson	$2,000	20%	1.05

Beta (Portfolio) = (.5)(1.68) + (.3)(0.35) + (.2)(1.05) = 1.155

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Overwhelmed?

- Go with index mutual funds
  - Fully diversified
  - Low costs
  - Convenient
  - Low effort
- Sources of information
  - Morningstar
  - Finra (Financial Industry Regulatory Authority)
    - http://apps.finra.org/fundanalyzer/1/fa.aspx
    - Find mutual funds and compare their performance and cost.

Actively-managed vs index funds

- Index funds
  - S&P 500, Wilshire 5000, Russell 3000

- Actively-managed funds
  - Large-cap value funds, emerging market equity

- Which performs better on average?

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Create a portfolio

- Set up account on-line or download, fill out, and mail application.

- Read the prospectus!!!

- Transfer money from checking account or write and mail check.

- Indicate the fund you want.

- Confirm receipt of funds.

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