AnalystSolutions

AnalystSolutions

Apply Practical Valuation Techniques for More Accurate Price Targets
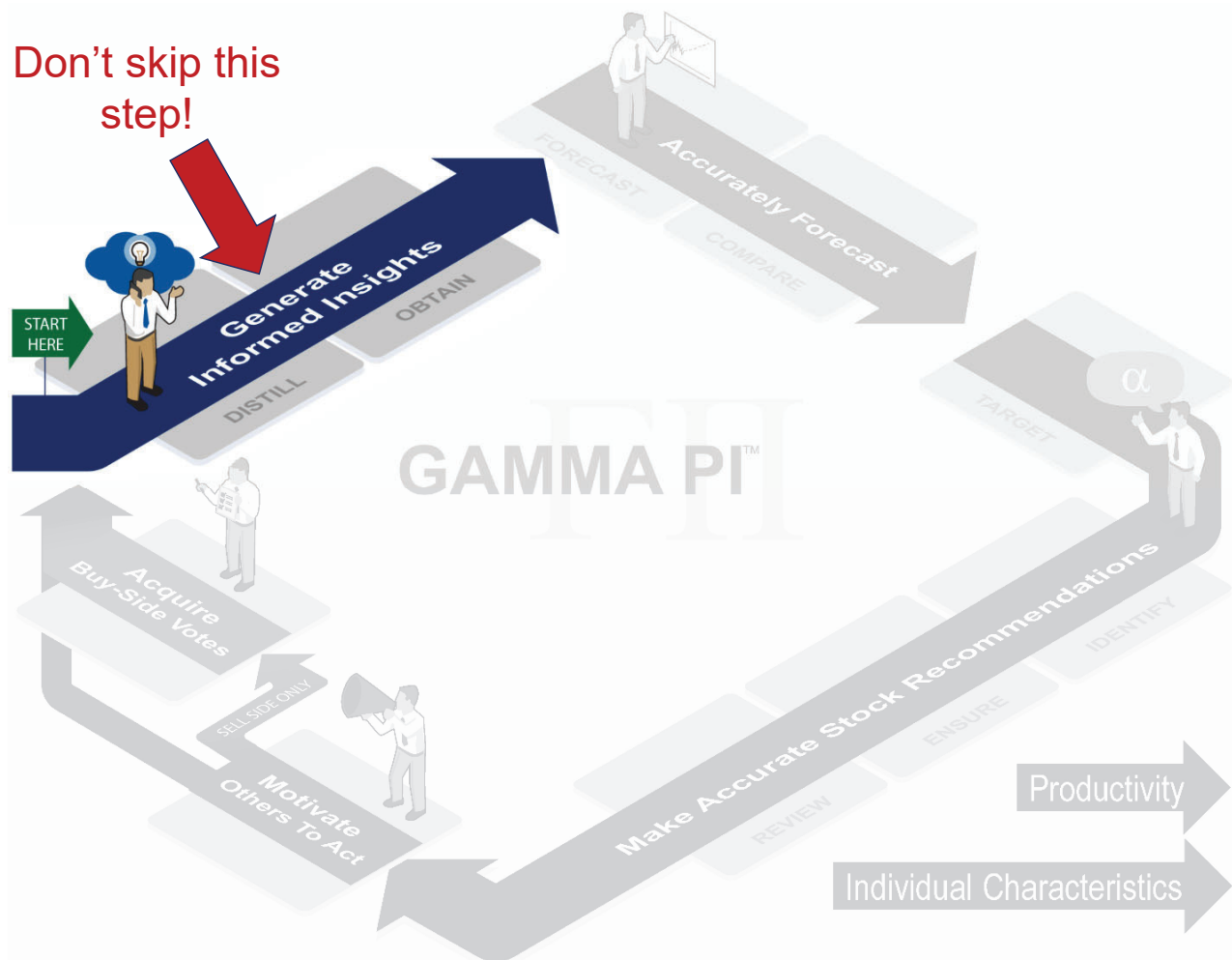
CE Qualified Activity

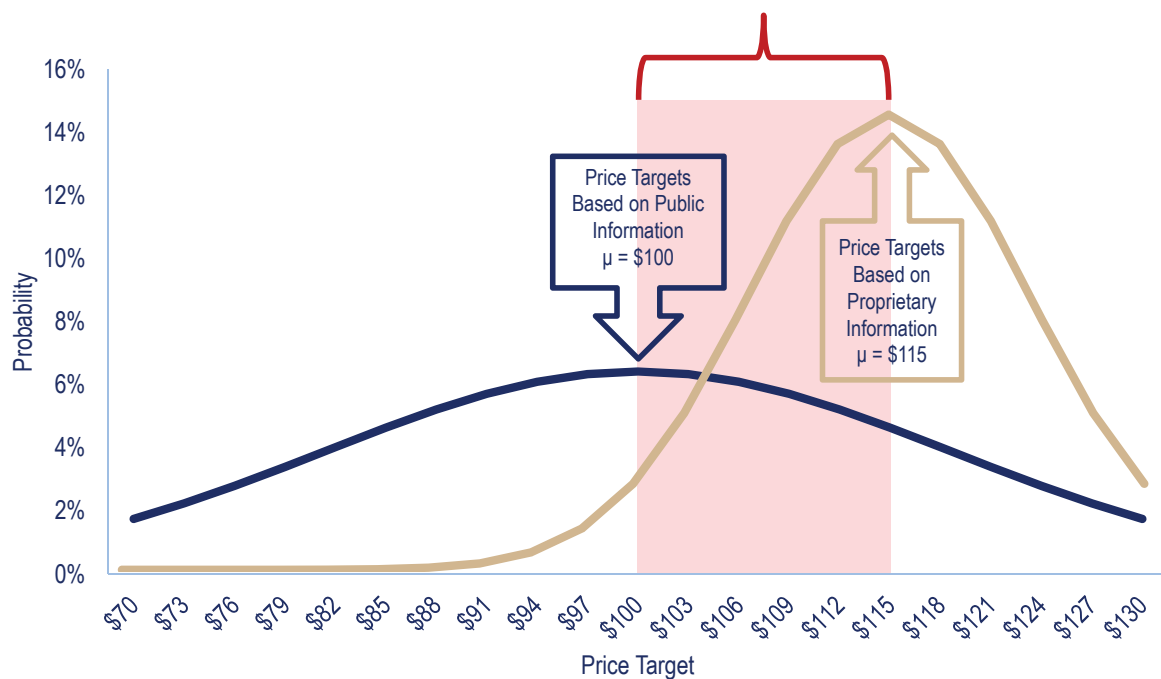CFA Institute

4

OPENING CASE

Don't skip this step!

Generate Informed Insights

START HERE

DISTILL

OBTAIN

FORECAST

Accurately Forecast

COMPARE

GAMMA PI™

Acquire Buy-Side Votes

SELL-SIDE ONLY

Motivate Others To Act

Make Accurate Stock Recommendations

REVIEW

ENSURE

TARGET

IDENTIFY

α

Productivity

Individual Characteristics
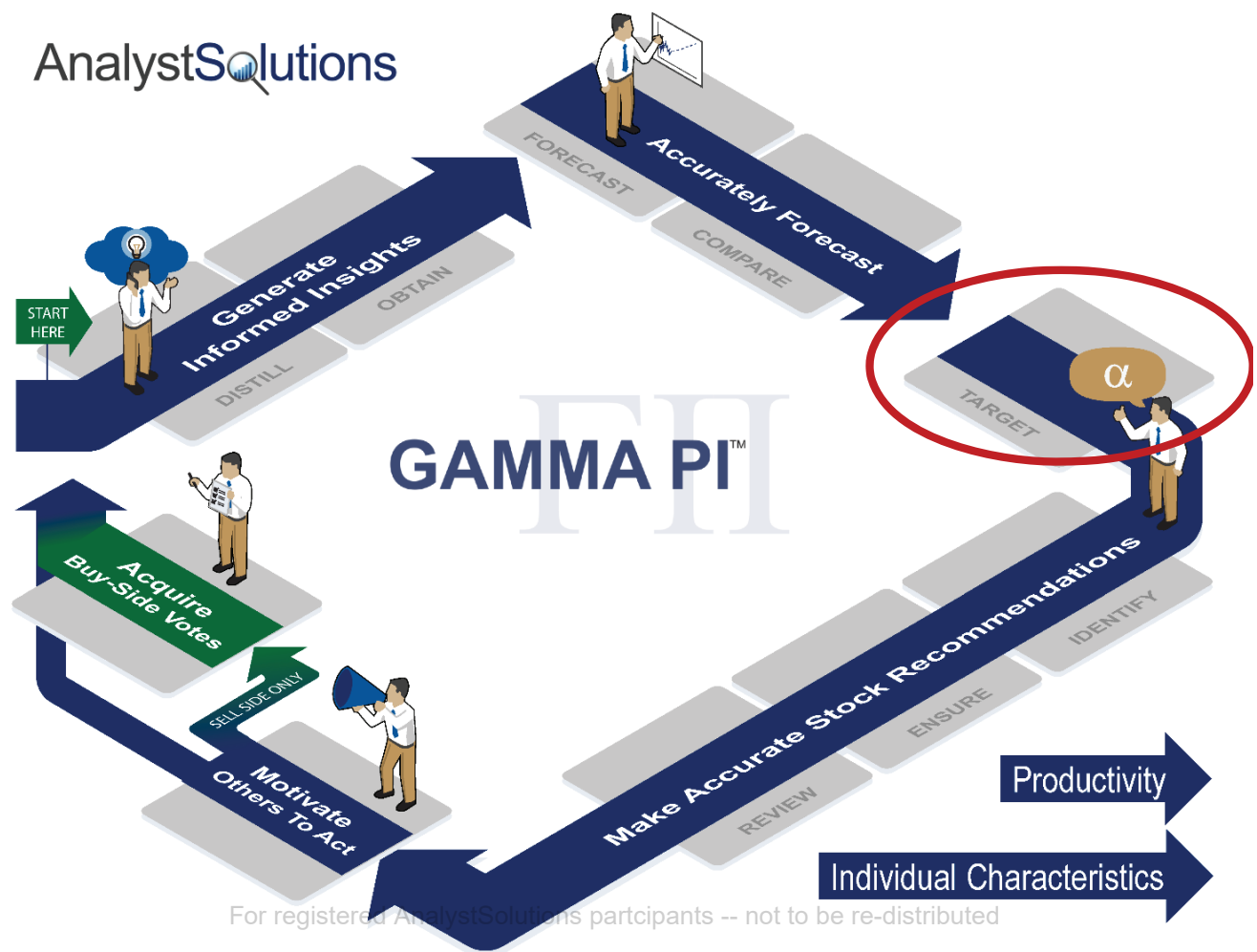
AnalystSolutions

Information Asymmetry

Price Targets Based on Public Information μ = $100

Price Targets Based on Proprietary Information μ = $115

Probability

Price Target

8

Information Asymmetry = Alpha

Fund Collects Fees	Fund Generates Alpha

Identify proprietary information

Speak with company management → Speak with company management

Consume public information → Consume public information
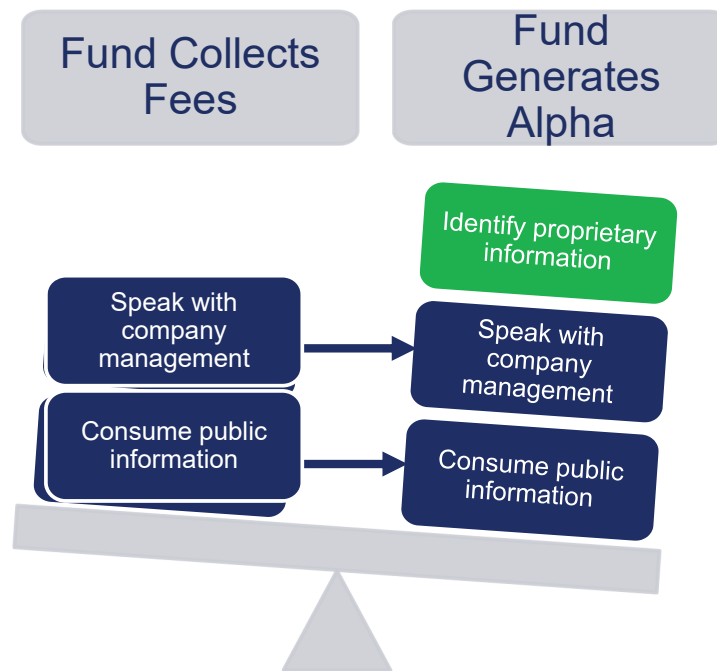
9

Key elements to ensure you are prepared to ENTER™ the investment debate…

Expectational

Novel

Thorough

Examinable

**R**evealing
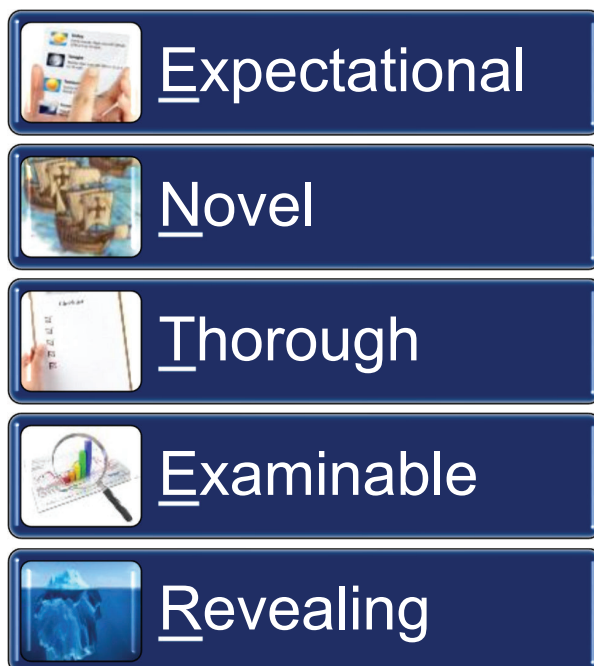
Review QRCs

Quick Reference Card (QRC)

Utilize ENTER™ Quality Framework to Ensure Content Has Value

Philosophy	Put into Action
Expectional: Always be thinking about the future, all in an effort to convey how your expectations differ from consensus	• Ensure that you have a forward-looking view of the most important critical factors for each company

Use the ENTER™ Quality Checklist Before Recommending Stocks

| ENTER™ Quality Checklist (to be used <u>before</u> starting the communication of a stock recommendation)	1=Always 5=Never
Expectational	
• I have a <u>forward-looking</u> view in terms of the stock and the critical factor(s) likely to move the stock	
• I have identified the catalyst(s) likely to move my stock and important dates when the catalyst is most likely to cause the stock to move to my price target	

11

Don't skip this step!

GAMMA PI™
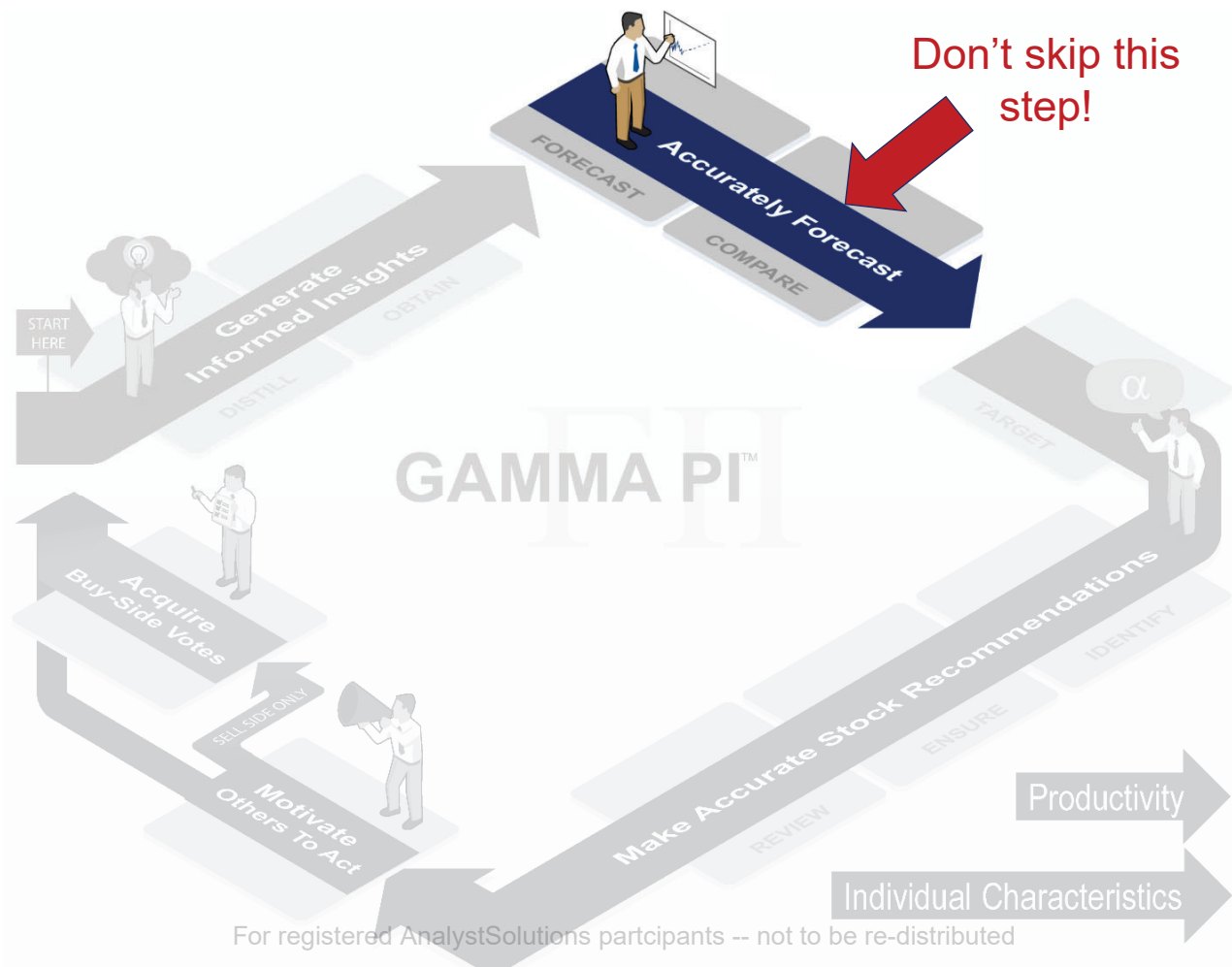
ENGINEERED

Create Financial Forecast Scenarios
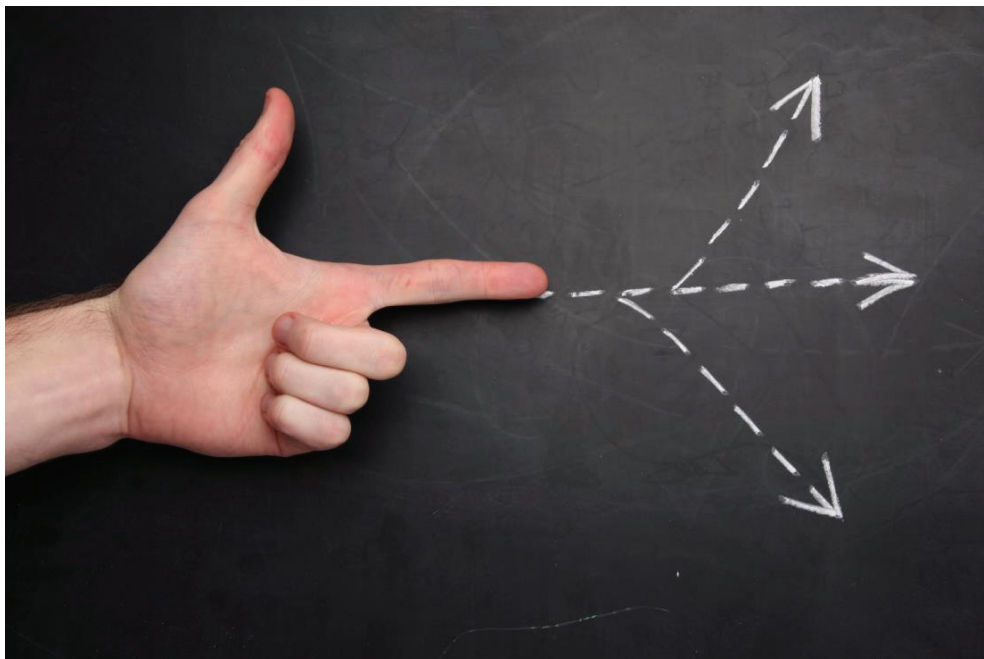
Exercise: Valuation in Its Most Basic Terms

- What would be the present value of a financial contract that offers $1,000 per year for the next 10 years, assuming no inflation and no default risk? (hint: $10,000)
- Now we remove all constraints (including the maturity date) and multiple contracts begin trading (within the same market) at different prices such as:
  - One sells at $8,000, which is 8x the annual payout
  - Another sells at $9,000, which is 9x the annual payout

1. What is the justification for disparity in contract prices if they each offer the same payout?
2. Compared to these fictitious contracts, why would two stocks with similar consensus estimates for next year and the year after be priced differently?

Key point: Valuation attempts to adjust for predictability of future returns

15

Factors that Drive Valuations

- Cash flow growth prospects
  - Company-specific
  - Industry-level
  - Macro
- "Greater fool" theory
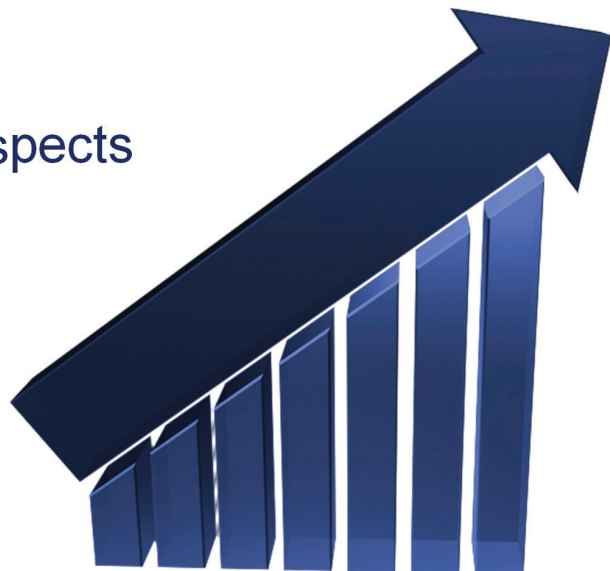
Price Target in Its Simplest Terms

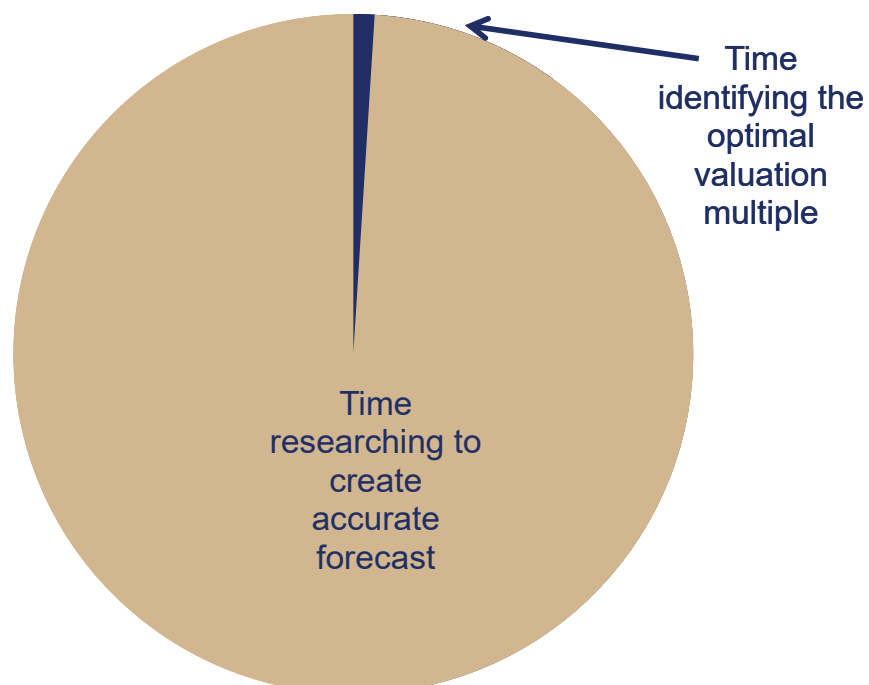| Forward-looking financial forecast at a point in time	X	Valuation multiple

17

Valuation Accuracy

18
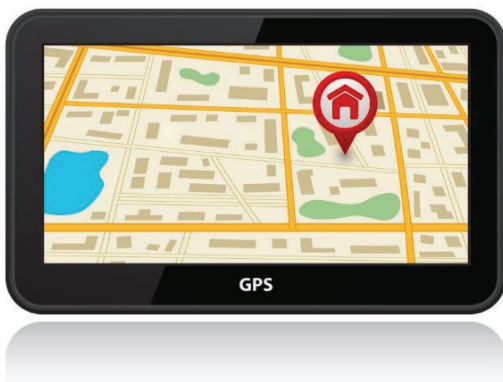
Get In the "Mind of the Market"

Time Developing Price Target

Time identifying the optimal valuation multiple

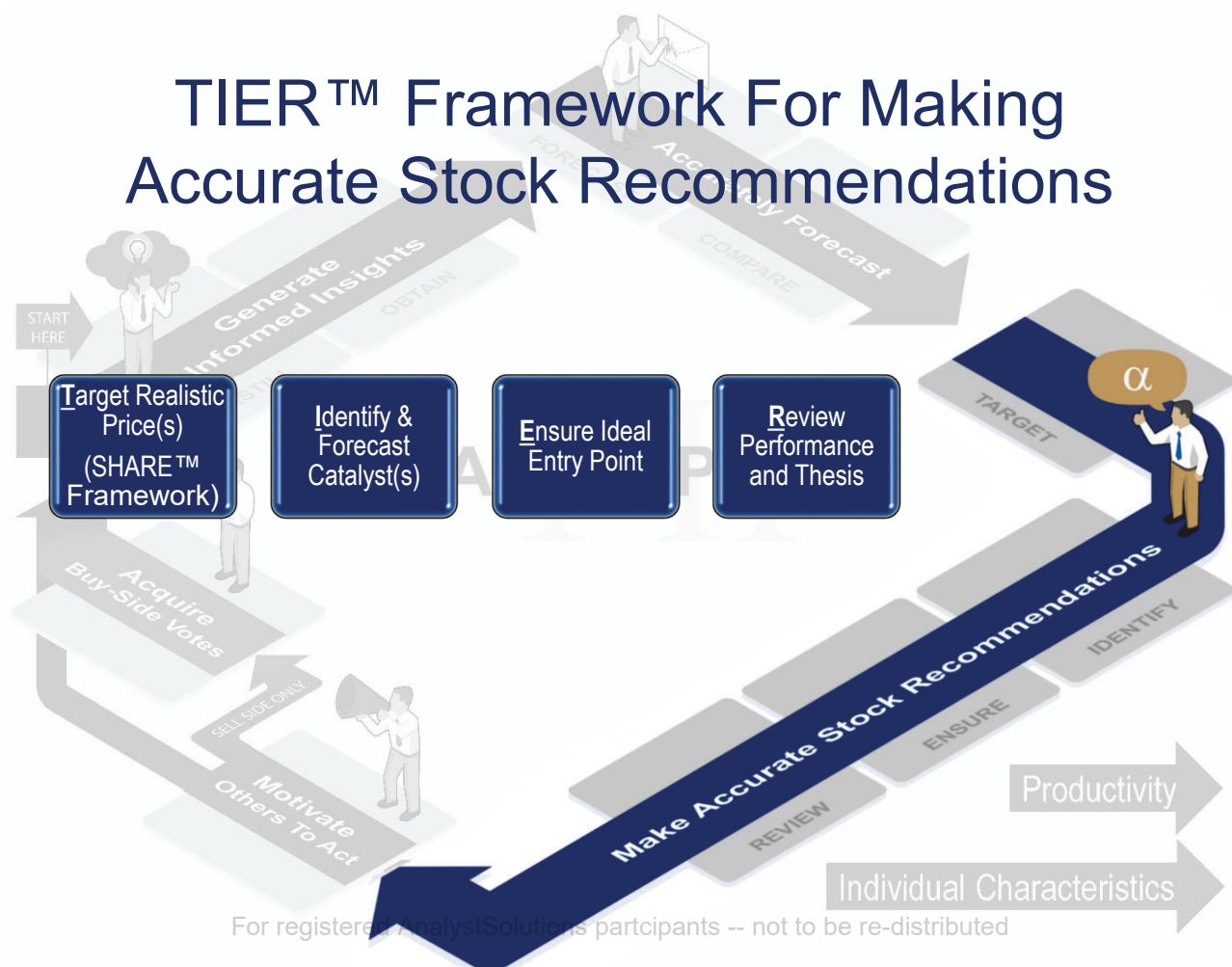Time researching to create accurate forecast

Thoughts Before We Start

- We wouldn't need valuation multiples if forecasts were always accurate and went into perpetuity. In other words, valuation is a way of assessing if the market has the correct forecast and provide a mechanism to adjust for incorrect forecasts.
- I'll reference "financial forecasts" as the denominator used in valuation multiples (e.g. the "E" in a P/E ratio)
- Valuation multiples often will compress or expand in correct anticipation of a future change to the financial forecast
- The "consensus" estimates found on Bloomberg, FactSet, Thomson, etc. are often not the true consensus thinking about a stock

TIER™ Framework For Making Accurate Stock Recommendations

Target Realistic Price(s) (SHARE™ Framework)

Identify & Forecast Catalyst(s)

Ensure Ideal Entry Point

Review Performance and Thesis

Target Realistic Price(s) Reference Cards

Detailed Reference Card (DRC)

Best Practices for Making Accurate Stock Recommendations

Procedures for **T**arget Realistic Price(s) (Step 1 of TIER™ which includes the SHARE™ framework):

Create an accurate financial forecast(s)

Conduct research to develop informed insights about the few critical factors most likely to move a stock, following the ENTER™ quality framework (discussed in Chapters 8 and 23 of *Best Practices for Equity Research Analysts*), to derive a base-case financial forecast more accurate than consensus. Create plausible upside and downside forecasts to stress test the base-case scenario.
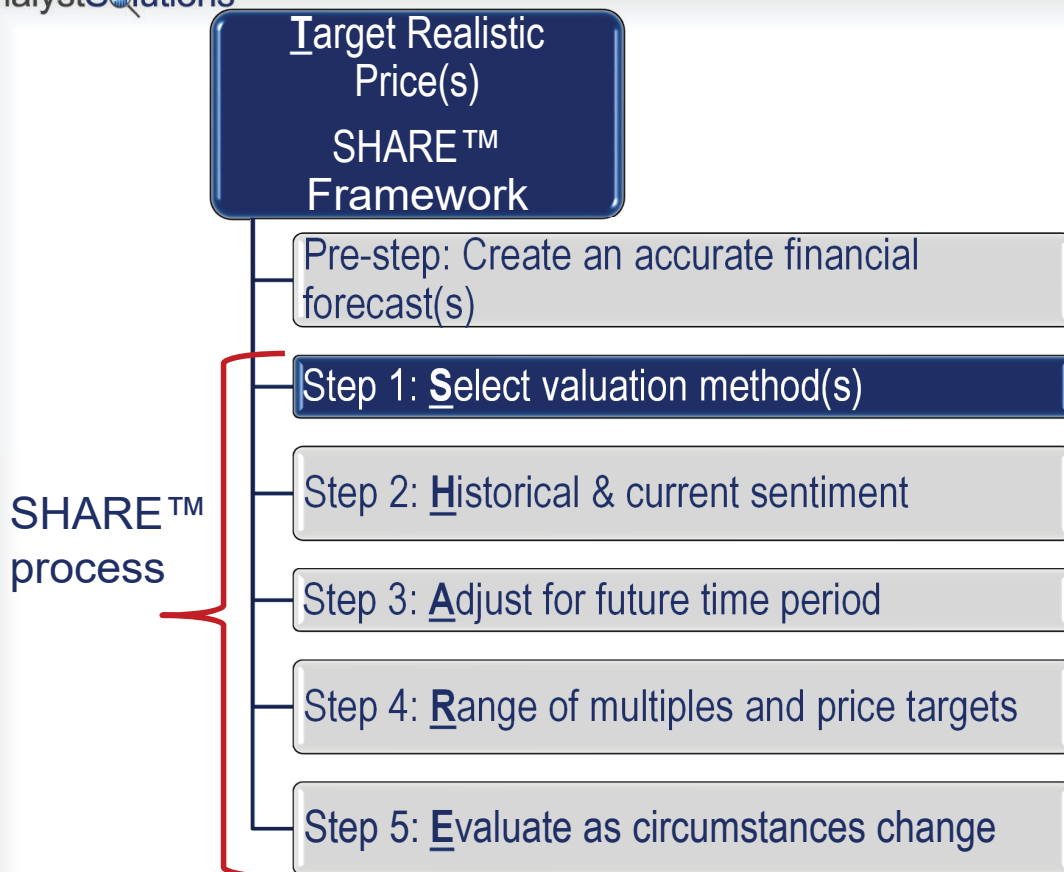
Select valuation method(s)

Detailed Reference Card (DRC)

Best Practices for Making Accurate Stock Recommendations

Perspectives for **T**arget Realistic Price(s) (Step 1 of TIER™)

Momentum stocks can defy rational valuations: Rapidly growing stocks (e.g. technology) are often owned by momentum players, and can defy rational valuation levels until approaching more

24

Target Realistic Price(s)

SHARE™ Framework

Pre-step: Create an accurate financial forecast(s)

Step 1: **S**elect valuation method(s)

Step 2: **H**istorical & current sentiment

SHARE™ process

Step 3: **A**djust for future time period

Step 4: **R**ange of multiples and price targets

Step 5: **E**valuate as circumstances change

25

SHARE™ DRC

Detailed Reference Card (DRC)

Best Practices for Targeting Realistic Prices (SHARE™ Framework)

Summary of the SHARE™ Process

Exhibit 1: SHARE™ Framework for Targeting Realistic Stock Prices

Prize for knowing the most

26

Price Target in Its Simplest Terms

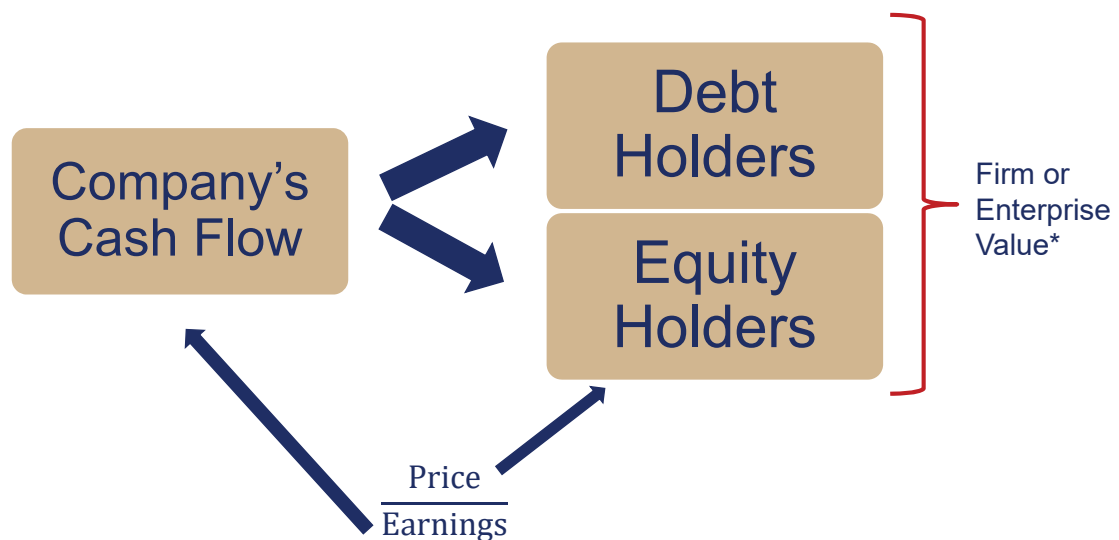| Forward-looking financial forecast at a point in time	X	Valuation multiple

Two Valuation Approaches

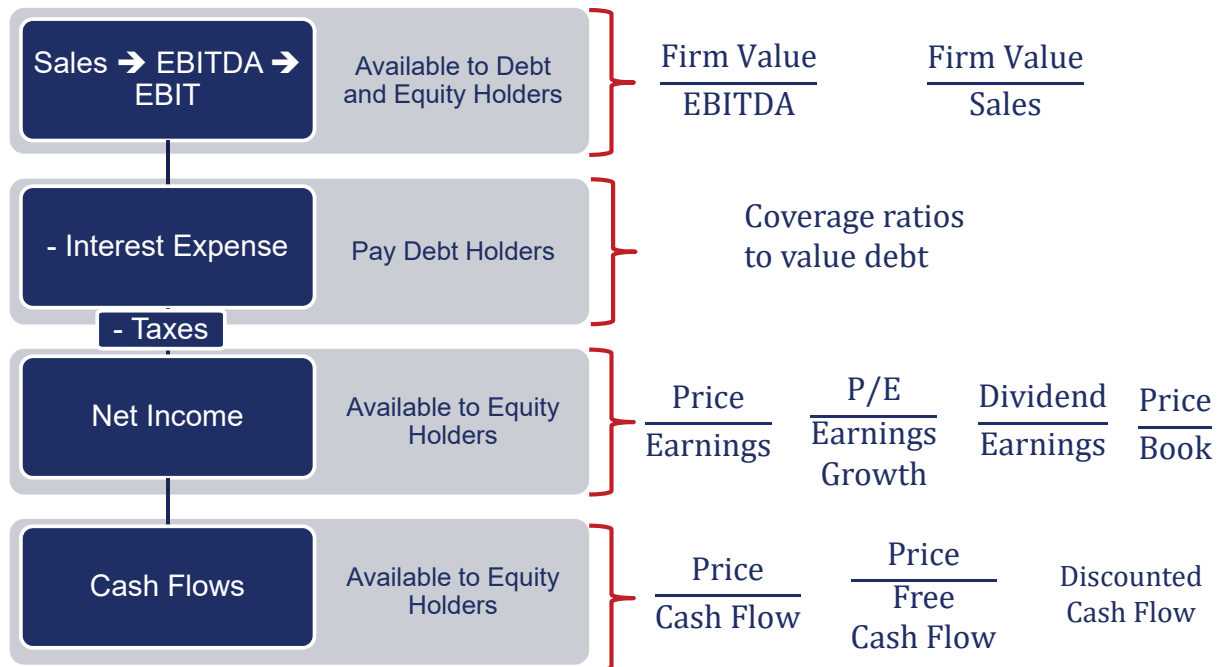|				
"Ratio-based"	=	"Single-period multiple"	=	Examples: P/E, P/CF, EV/S
"Intrinsic value"	=	"Multi-period cash flow"	=	Examples: DCF, Residual Income

What Are We Valuing?

*Firm Value = Enterprise Value = (Value of equity + Value of debt + Minority interest - Cash and investments)
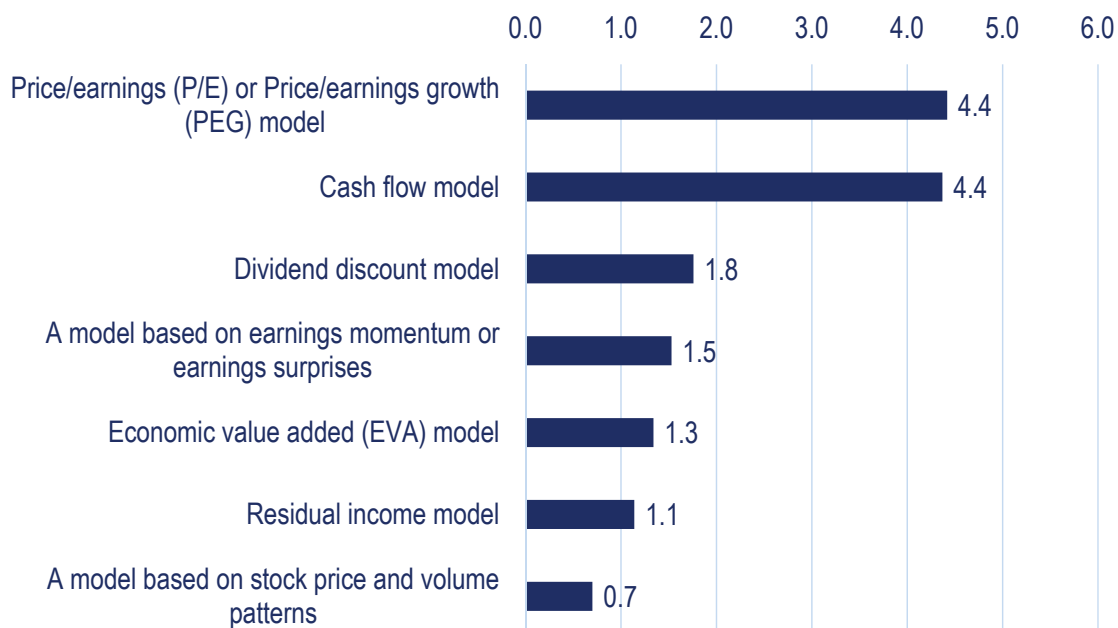
What Are We Valuing?

Sales ➔ EBITDA ➔ EBIT	Available to Debt and Equity Holders

$$\frac{\text{Firm Value}}{\text{EBITDA}} \qquad \frac{\text{Firm Value}}{\text{Sales}}$$

- Interest Expense	Pay Debt Holders

Coverage ratios to value debt

- Taxes

Net Income	Available to Equity Holders

$$\frac{\text{Price}}{\text{Earnings}} \qquad \frac{\text{P/E}}{\text{Earnings Growth}} \qquad \frac{\text{Dividend}}{\text{Earnings}} \qquad \frac{\text{Price}}{\text{Book}}$$

Cash Flows	Available to Equity Holders

$$\frac{\text{Price}}{\text{Cash Flow}} \qquad \frac{\text{Price}}{\text{Free Cash Flow}} \qquad \text{Discounted Cash Flow}$$

U.S. Sell-side Valuation Models to Support Their Stock Recommendations

Model	Score
Price/earnings (P/E) or Price/earnings growth (PEG) model	4.4
Cash flow model	4.4
Dividend discount model	1.8
A model based on earnings momentum or earnings surprises	1.5
Economic value added (EVA) model	1.3
Residual income model	1.1
A model based on stock price and volume patterns	0.7

(Scale: 0.0 to 6.0)

U.S. Buy-side Valuation Models to Support Their Stock Recommendations

| | 0.0 | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 |

Intrinsic value model (e.g. cash flow model, dividend discount model, residual income model) — 4.3

A proprietary model — 4.0

Price/earnings (P/E) or price/earnings growth (PEG) model — 3.4

A model based on earnings momentum or earnings surprises — 1.4

Economic value added (EVA) model — 1.4

A model based on stock price or volume patterns — 0.8

6=greatest frequency

Brown, Lawrence D., Andrew C. Call, Michael B. Clement, and Nathan Y. Sharp. 2016. "The Activities of Buy-Side Analysts and the Determinants of Their Stock Recommendations." Journal of Accounting and Economics 62 (1):139–56. https://doi.org/10.1016/j.jacceco.2016.06.002. (Table 5)

Examples of Sectors With Other Valuation Methods

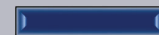| Sector	Method
MLPs	Dividend yield
Retail	EV/Total addressable market
Energy/resource sectors	P/CF NAV EV/Daily production EV/Proven + Probable Reserves EV/Debt-adjusted CF
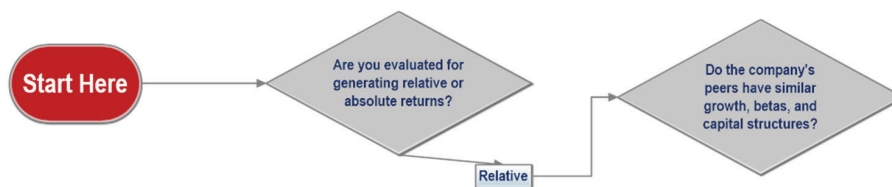
34

All <u>Multiples</u> Based Methods

Pros
- Relatively simple and quick to perform

Cons
- Rarely include financial forecasts beyond the next 18 months
- Unlike DCF, a company's expected growth rate and risk are not explicit inputs to the valuation (except for the "G" in the PEG ratio), making it difficult to compare companies on these dimensions

Was GOOGL Over-valued in It's Early Years?

	Nov 2005	Jan 2018	Change	CAGR
Price	$203	$1,188	486%	15.6%
NTM EPS	$3.83	$51.32	1,240%	
P/E	52.9	23.1	-56%	
Long-term Earnings Growth	35%	18%		
PEG	1.51	1.27		
S&P500				
Price	1,058	2,873	171%	8.6%
NTM EPS	$63.55	$156.19	146%	
P/E	16.7	18.4	10%	

36

All Multiples Based Methods

Pros

- Relatively simple and quick to perform

Cons

- Rarely include financial forecasts beyond the next 18 months
- Unlike DCF, a company's expected growth rate and risk are not explicit inputs to the valuation (except for the "G" in the PEG ratio), making it difficult to compare companies on these dimensions
- Multiple may not be computed in the same manner by all market participants, namely, the underlying financial data can be trailing, forward, or current year
- Absolute multiples for individual securities do not account for fluctuations in their overall asset class (e.g. equities)

Is the Stock Expensive or Cheap?

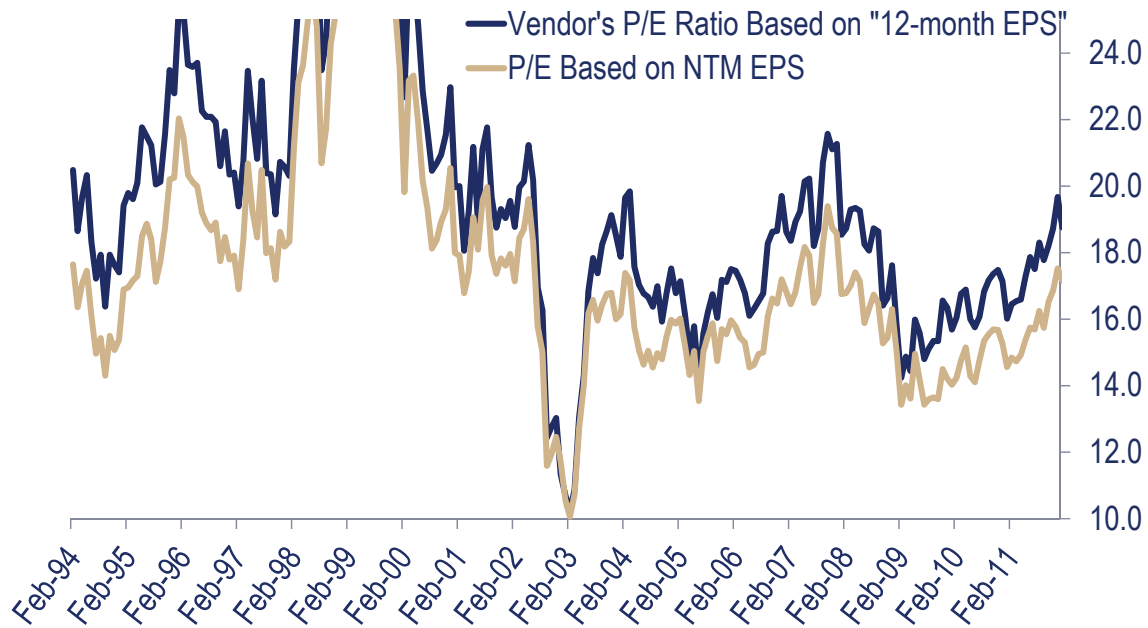| Sell-side Analyst (all have same EPS forecast)	P/E Ratio
A	19.0x
B	12.6x
C	12.0x
D	11.0x

Which P/E Ratio is Correct

EPS Data	
Last Year	
1QA	$0.40
2QA	$0.40
3QA	$0.30
4QA	$0.20
Full Year	$1.30
Current Year	
1QA	$0.20
2QA	$0.35
3QE*	$0.40
4QE	$0.40
Full Year	$1.35
Next Year	
1QE	$0.42
2QE	$0.45
3QE	$0.47
4QE	$0.48
Full Year	$1.82

Methods for Computing the "E"	"E"	P/E	Difference from Average
Average of four methods below	$1.53	13.7x	0%
A: Trailing Actual EPS (past 4 quarters)	$1.05	19.0x	39%
B: Forward EPS (50% this year, 50% next)	$1.59	12.6x	-8%
C: Forward EPS (next 4 quarters)	$1.67	12.0x	-12%
D: Forward EPS (next year)	$1.82	11.0x	-20%

Now ←

MCD's P/E Ratios

— Vendor's P/E Ratio Based on "12-month EPS"
— P/E Based on NTM EPS

S&P 500 P/E Ratios

— Vendor's P/E Ratio Based on "12-month EPS"
— P/E Based on NTM EPS

MCD's Relative P/E Ratios
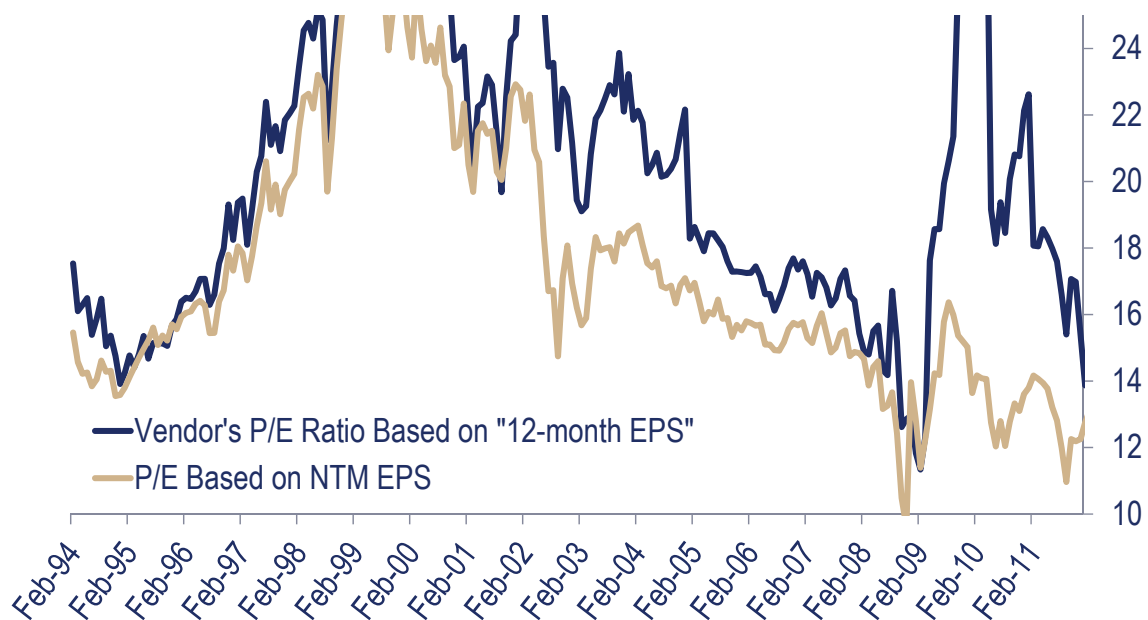
— Vendor's Relative P/E Ratio
— Relative P/E Ratio Based on NTM EPS

42

Bloomberg P/E Ratios for MCD

	ID	Mnemonic	Description	Ovr	Value
1)	BE051	BEST_PE_RATIO	BEst P/E Ratio		20.309
2)	RR901	REL_PE_RATIO	Relative P/E Ratio		1.07
3)	BE754	BEST_PE_RATIO_MARK	BEst P/E Ratio Market Conventio		20.309
4)	BE753	BEST_PE_RATIO_GAAP	BEst P/E Ratio GAAP		20.317
5)	RX666	T12M_CASH_ADJUSTED	T12M Cash-Adjusted P/E Ratio		28.04
6)	RR900	PE_RATIO	Price Earnings Ratio (P/E)		22.09
7)	EE010	EST_PE_NXT_YR	Est P/E Next Year		19.360
8)	EE009	EST_PE_CUR_YR	Est P/E Curr Year		20.822
9)	EZ028	BEST_PE_NXT_YR	BEst P/E Next Year		19.360
10)	EZ027	BEST_PE_CUR_YR	BEst P/E Curr Year		20.822
11)	EZ010	BEST_EST_PE_NXT_YR	Est P/E Next Year		19.360
12)	EZ009	BEST_EST_PE_CUR_YR	Est P/E Curr Year		20.822
13)	FD104	FUND_PE_RATIO	Fund Price Earnings Ratio		
14)	EZ313	BEST_EST_PE_4QTRS	BEst Est P/E Next 4 Quarters		20.309
15)	RX402	10_YEAR_MOVING_AVE	10 Year Moving Average P/E		31.40
16)	RR911	T12M_DIL_PE_CONT_O	Trailing 12M Diluted P/E From C		22.09
17)	EE018	CONS_EST_PE_CUR_YR	Cons Est P/E Curr Year		20.822

August 2018   43

Bloomberg P/E Ratios for UAA

	ID	Mnemonic	Description	Ovr	Value
1)	BE051	BEST_PE_RATIO	BEst P/E Ratio		88.562
2)	RR901	REL_PE_RATIO	Relative P/E Ratio		7.02
3)	BE754	BEST_PE_RATIO_MARK	BEst P/E Ratio Market Conventio		88.562
4)	BE753	BEST_PE_RATIO_GAAP	BEst P/E Ratio GAAP		181.009
5)	RX666	T12M_CASH_ADJUSTED	T12M Cash-Adjusted P/E Ratio		N.A.
6)	RR900	PE_RATIO	Price Earnings Ratio (P/E)		144.80
7)	EE010	EST_PE_NXT_YR	Est P/E Next Year		66.780
8)	EE009	EST_PE_CUR_YR	Est P/E Curr Year		122.101
9)	EZ028	BEST_PE_NXT_YR	BEst P/E Next Year		66.780
10)	EZ027	BEST_PE_CUR_YR	BEst P/E Curr Year		122.101
11)	EZ010	BEST_EST_PE_NXT_YR	Est P/E Next Year		66.780
12)	EZ009	BEST_EST_PE_CUR_YR	Est P/E Curr Year		122.101
13)	FD104	FUND_PE_RATIO	Fund Price Earnings Ratio		
14)	EZ313	BEST_EST_PE_4QTRS	BEst Est P/E Next 4 Quarters		88.562
15)	RX402	10_YEAR_MOVING_AVE	10 Year Moving Average P/E		76.42
16)	RR911	T12M_DIL_PE_CONT_O	Trailing 12M Diluted P/E From C		144.80
17)	EE018	CONS_EST_PE_CUR_YR	Cons Est P/E Curr Year		122.101
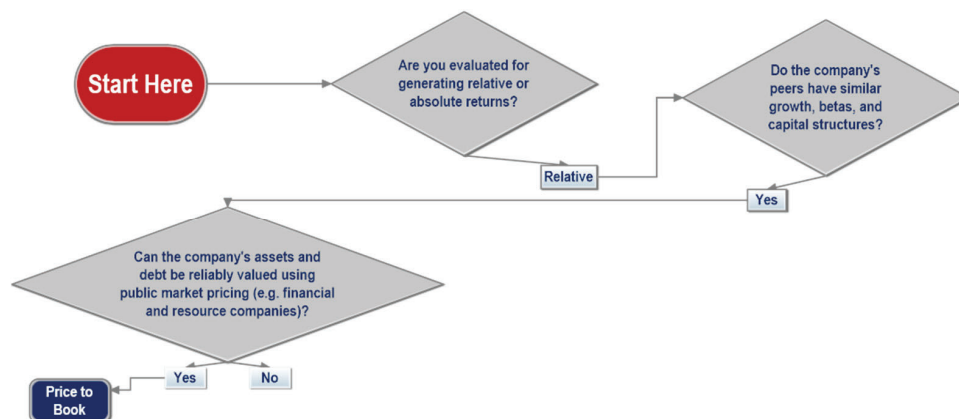
Price to Book (P/B)

Pros

- For a select industries where assets and liabilities (debt) can be valued using a public-market price, may be a good proxy for measuring a firm's equity value
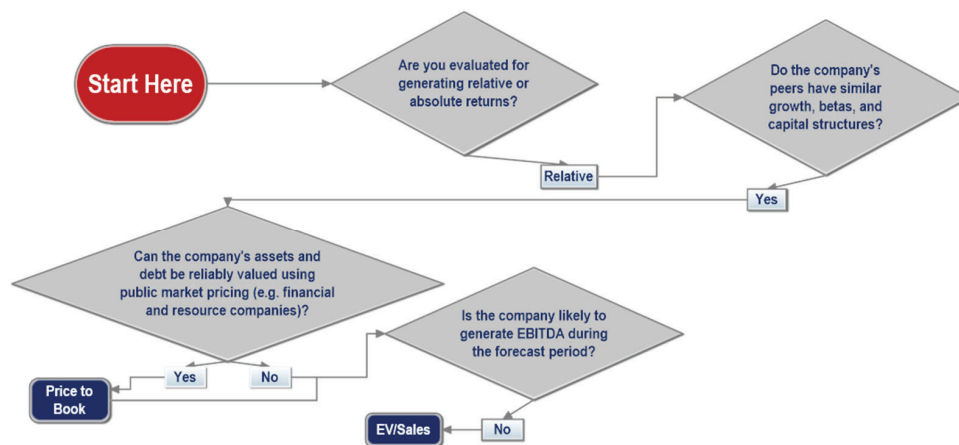
Cons

- For most sectors, book value rarely equates to the company's market value of equity
- Book value can be subjectively influenced by interpretation of accounting rules, which can make comparisons between companies meaningless

---

Russell 1K
Lowest Price-to-Book

Price to Book

Legend: ■ P/B:Y-1   ■ Rel 1Y Return

May 2017

Enterprise Value to Sales (EV/S)

Pros

- Can be helpful if there are no earnings or cash flow

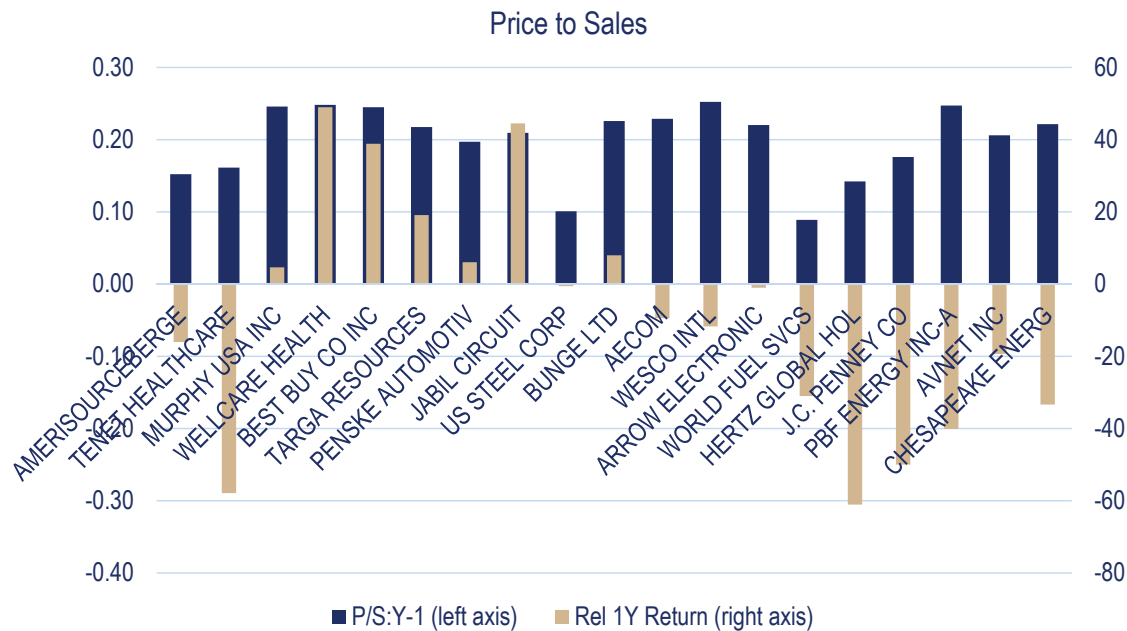## Cons

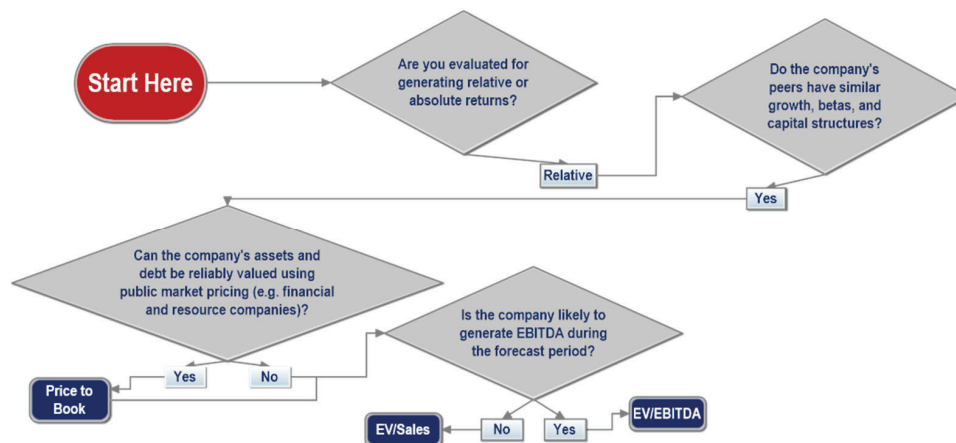- Sales do not equate to free cash flow, which is the true measure of value

Russell 1K
Lowest Price-to-Sales

Price to Sales

P/S:Y-1 (left axis) ■   Rel 1Y Return (right axis) ■

May 2017

Start Here → Are you evaluated for generating relative or absolute returns? → Relative → Do the company's peers have similar growth, betas, and capital structures? → Yes

Can the company's assets and debt be reliably valued using public market pricing (e.g. financial and resource companies)? — Yes → Price to Book — No

Is the company likely to generate EBITDA during the forecast period? — No → EV/Sales — Yes → EV/EBITDA

Enterprise Value to EBITDA (EV/EBITDA)

	Pros		Cons
+		**—**	

Pros

- Allows for comparisons of companies with very different capital structures
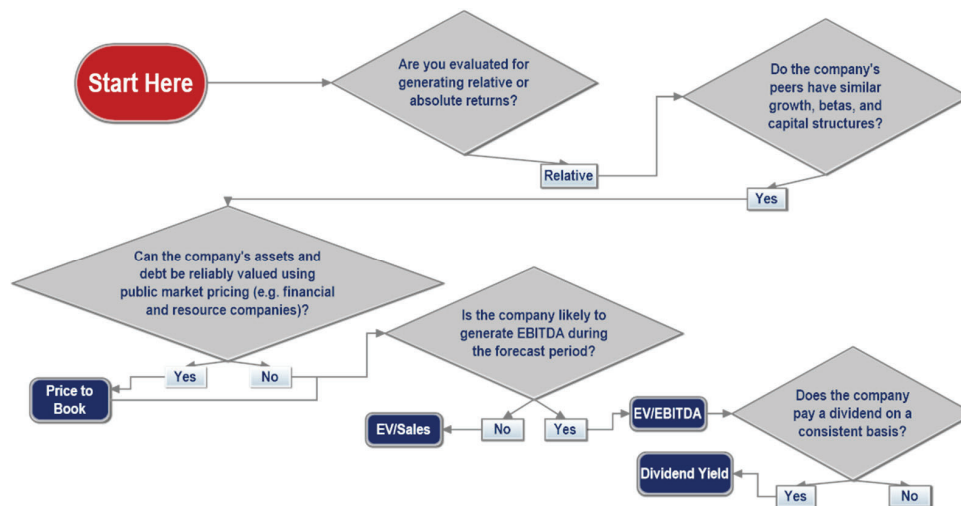- Can be helpful when company does not generate after-tax income

Cons

- EBITDA is not a measure of the all-important free cash flow or earnings

---

Russell 1K
Lowest EV-to-EBITDA
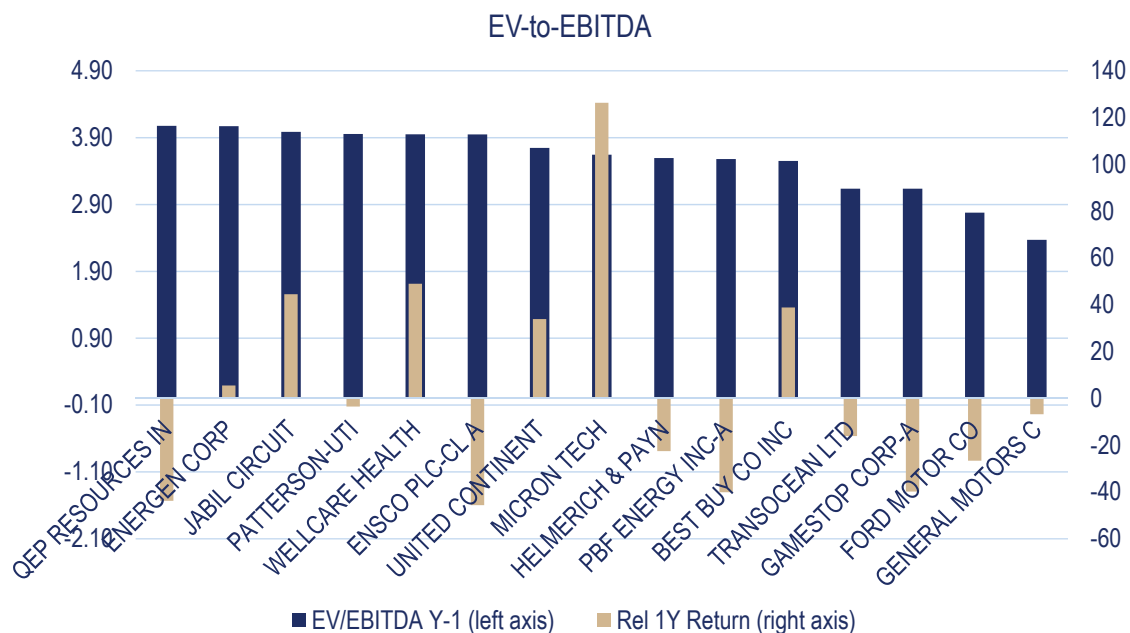
EV-to-EBITDA

Legend: EV/EBITDA Y-1 (left axis) ■ Rel 1Y Return (right axis) ■

Categories (x-axis): QEP RESOURCES IN, ENERGEN CORP, JABIL CIRCUIT, PATTERSON-UTI, WELLCARE HEALTH, ENSCO PLC-CL A, UNITED CONTINENT, MICRON TECH, HELMERICH & PAYN, PBF ENERGY INC-A, BEST BUY CO INC, TRANSOCEAN LTD, GAMESTOP CORP-A, FORD MOTOR CO, GENERAL MOTORS C

Left axis: 4.90, 3.90, 2.90, 1.90, 0.90, -0.10, -1.10, -2.10
Right axis: 140, 120, 100, 80, 60, 40, 20, 0, -20, -40, -60

May 2017

53

54

Dividend Yield (DY)

Pros

- Can be helpful to measure a floor when stocks collapse

Cons

- Dividends are not the same as free cash flow, although they can move in tandem over the long run
- Difficult to forecast when management will cut a dividend
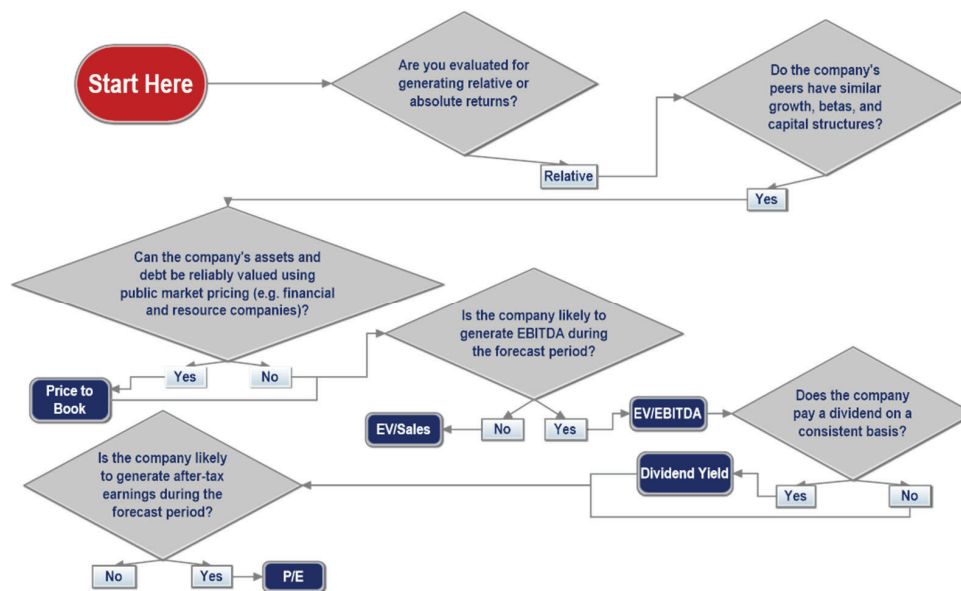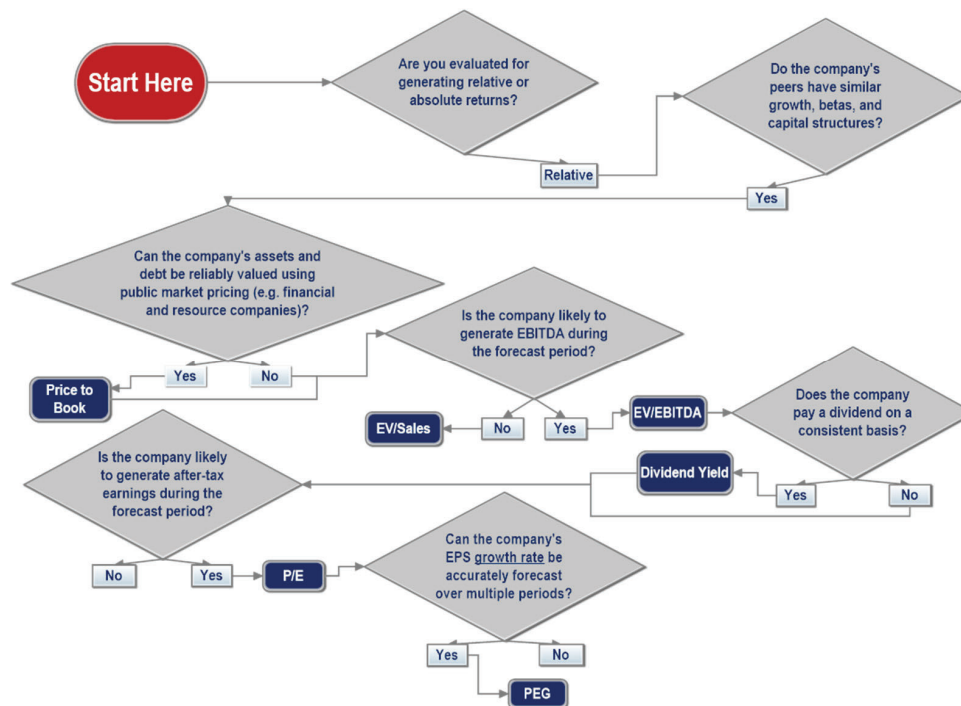

Price to Earnings (P/E)

Pros

- Understood by all because it's the most commonly used valuation method

Cons

- Company management has more flexibility to manipulate earnings than cash flow
- Does not capture cash available to shareholders

P/E Is Usually Influenced by Growth

All <u>Multiples</u> Based Methods

Pros

- Relatively simple and quick to perform

Cons

- Rarely include financial forecasts beyond the next 18 months
- Unlike DCF, a company's expected growth rate and risk are not explicit inputs to the valuation (except for the "G" in the PEG ratio), making it difficult to compare companies on these dimensions
- Multiple may not be computed in the same manner by all market participants, namely, the underlying financial data can be trailing, forward, or current year
- **Absolute multiples for individual securities do not account for fluctuations in their overall asset class (e.g. equities)**

MCD Stock Price

MCD Performance Relative to S&P Restaurants

Index includes McDonald's Corp, Yum! Brands Inc, Chipotle Mexican Grill Inc, Starbucks Corp, Darden Restaurants Inc.

MCD Performance Relative to S&P 500

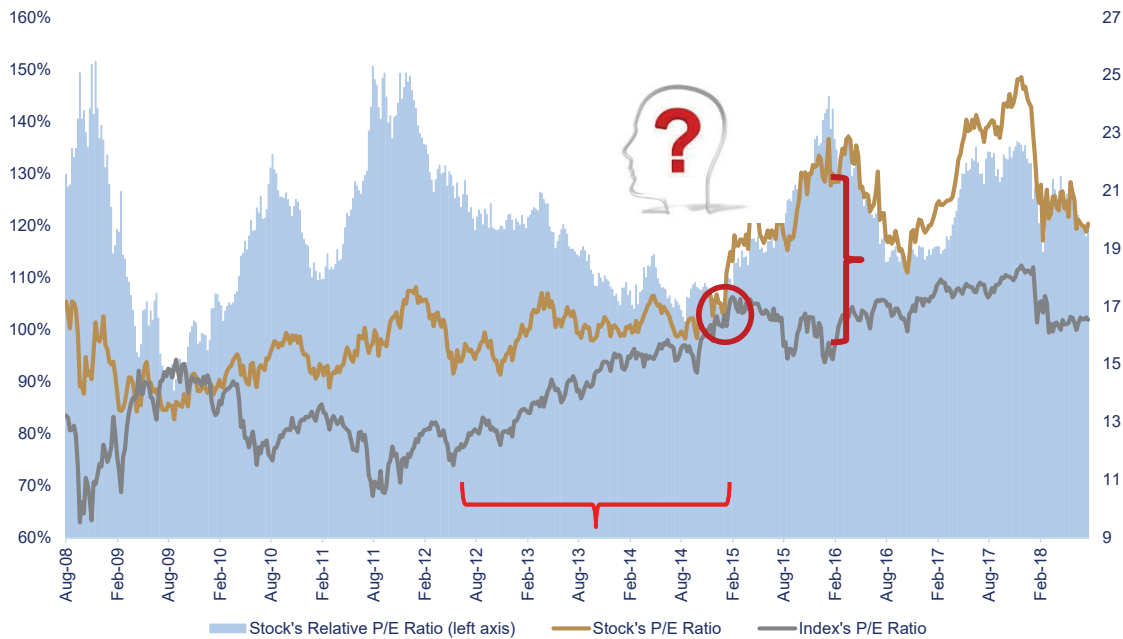# MCD's P/E Ratio

Relative Performance — BEst P/E Ratio

What's In the Stock?

- Is 6th place good?
- Is a restaurant rating of "4" good?
- Should you be pleased that the stock you're about to recommend is trading at a market multiple?

MCD's Absolute and Relative P/E Ratios

Legend: Stock's Relative P/E Ratio (left axis) — Stock's P/E Ratio — Index's P/E Ratio

Relative Valuation Has More Information than Absolute

- A stock's P/E ratio helps to understand how the market values a stock, but it includes noise/misinformation brought about by systematic risk, at the sector and/or market level

- Relative P/E ratio looks at stock's P/E ratio relative to market's (or sector's) P/E ratio

- A stock's P/E ratio relative to the sector mitigates sector noise and a stock's P/E ratio relative to the market mitigates market noise

MCD EQUITY EEO

68

SPX EQUITY EEO ("Bottom Up")

69

For SPX Decide Your Flavor…

Flavor	Time Period
Forward 12 Months	Next 4 quarters
Blended Forward 12 months	(Percent of the year remaining x the year's EPS) + (Percent of the year completed x next year's EPS)
Fiscal Annual	Takes the closest fiscal year for each company in S&P 500

SPX EQUITY EEO ("Bottom Up") Various Flavors

Consistent with our "NTM" for the individual stocks

S&P 500 EPS "Top-Down"

Firm	Strategist	2018 EPS
Bank of America	Savita Subramanian	$153.00
Bank of Montreal	Brian Belski	$158.00
Bernstein	Noah Weisberger	$160.00
BTIG	Julian Emanuel	$150.00
Canaccord	Tony Dwyer	$155.00
Cantor Fitzgerald	Peter Cecchini	$146.80
Citigroup	Tobias Levkovich	$151.50
Credit Suisse	Jonathan Golub	$155.00
Deutsche Bank	Binky Chadha	$162.00
Evercore ISI	Dennis DeBusschere	$146.00
Fundstrat	Thomas Lee	$147.00
Goldman Sachs	David Kostin	$150.00
HSBC	Ben Laidler	$151.00
Jefferies	Sean Darby	$158.04
JPMorgan	Dubravko Lakos-Bujas	$153.00
Morgan Stanley	Mike Wilson	$155.00
Oppenheimer	John Stoltzfus	$146.00
RBC	Lori Calvasina	$155.00
RW Baird	Brian Rauscher	$147.00
Scotiabank	Vincent Delisle	$144.00
Stifel Nicolaus	Barry Bannister	$148.00
UBS	Keith Parker	$157.00
Weeden	Michael Purves	$147.00
Wells Fargo	Chris Harvey	$150.76
Mean		$151.92
Median		$151.25
High		$162.00
Low		$144.00

Bloomberg: TNI STRATEGY TABLE<GO>

72

Get Analyst Estimates

- https://finance.yahoo.com/quote/MCD/analysts?p=MCD

73

EXERCISE: COMPUTE RELATIVE P/E RATIOS

Price Target Components for Relative P/E Ratio Valuation

Forward-looking financial forecast at a point in time (EPS)	X	Valuation multiple (P/E)	=	Price Target
$1.00		14x		$14.00

Price Target Components for Relative P/E Ratio Valuation

Forward-looking financial forecast at a point in time	X	Market's P/E multiple	X	Stock's relative P/E multiple	=	Price Target
$1.00		14		Market multiple		$14.00
$1.00		14		10%		$15.40
$1.00		14		-10%		$12.60

Be Aware of the Market Multiple You Select

| Forward-looking financial forecast at a point in time | X | Market's P/E multiple | X | Stock's relative P/E multiple | = | Price Target |

					Difference from base-case
$1.00	18	Market multiple	$18.00	
$1.00	14.5	Market multiple	$14.50	-19%
$1.00	11	Market multiple	$11.00	-39%

78

Price to Earnings/Growth (PEG)

Pros

- Incorporates earnings growth rate (preferably over multiple future periods), which makes comparisons among companies and, potentially across sectors, more plausible (but not perfect)

Cons

- Earnings growth is not the same as the more important free cash flow growth
- No widely-accepted method to compute the growth rate (next 12-months, 2-years, 3-years?)
- If using consensus estimates, may be difficult to find reliable long-term growth forecasts

Start Here → Are you evaluated for generating relative or absolute returns? — Relative → Do the company's peers have similar growth, betas, and capital structures? — Yes

Can the company's assets and debt be reliably valued using public market pricing (e.g. financial and resource companies)? — Yes → Price to Book / No

Is the company likely to generate EBITDA during the forecast period? — No → EV/Sales / Yes → EV/EBITDA → Does the company pay a dividend on a consistent basis? — Yes → Dividend Yield / No

Is the company likely to generate after-tax earnings during the forecast period? — No / Yes → P/E → Can the company's EPS growth rate be accurately forecast over multiple periods? — Yes / No → PEG

Can the company's "maintenance" capital expenditures be accurately forecast? — Yes → P/FCF / No

84

Price to Free Cash Flow (P/FCF)

Pros

- Incorporates free cash flow, which is the best measure of value

Cons

- Unlike DCF, it considers only one time period of free cash flow
- Methodology can vary for reasons mentioned earlier as well as in estimating level of capital expenditures (maintenance vs. forecast)

86
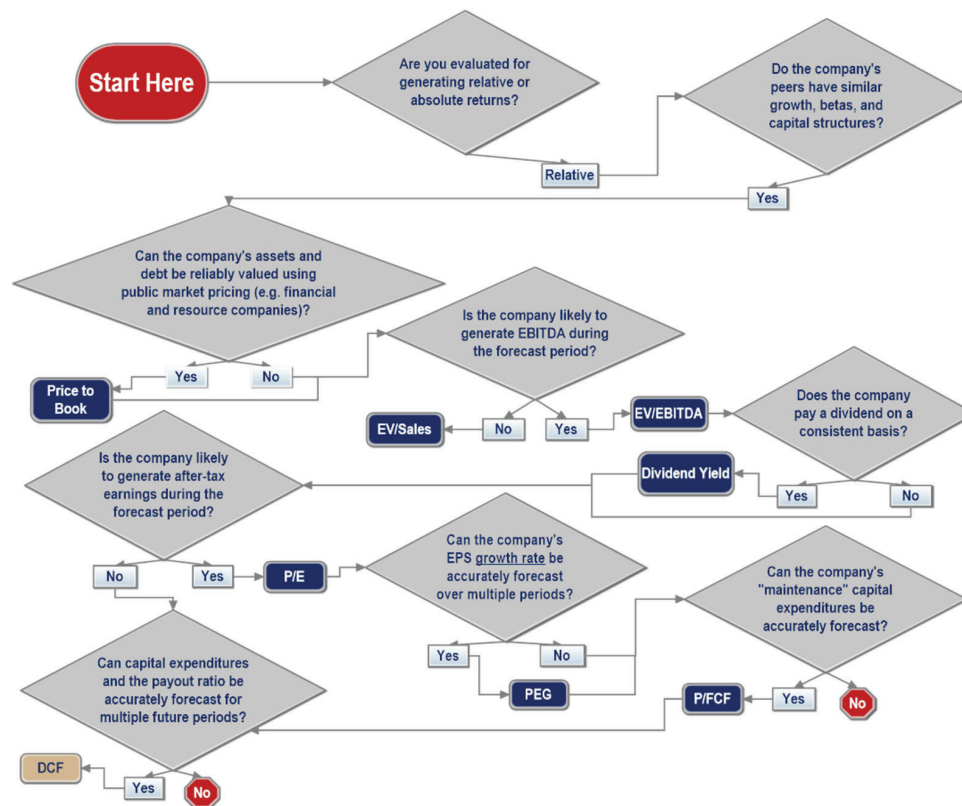
Discounted Cash Flow (DCF) & Residual Income (RI)

Pros	Cons
• Capture a company's ability to generate free cash flow over the life of the enterprise, which is the best measure of value • Helps to place the focus on the level and returns from incremental capital spending (ROIC) • More likely to identify overheated and oversold stocks and markets than multiples-based methods	• Can be highly sensitive to minor input changes for factors difficult to quantify • Time consuming because multiple periods are required for forecast • Complex models are prone to mistakes and reverse engineering • During highly-priced equity markets, may be challenging to find attractive equity investments using these methods

Additional DCF Limitations

- Variables involve subjectivity:
    - Risk free rate
    - Market's required rate of return
    - Company's unique risk level (beta)
    - Terminal growth rate
- Often no clear distinction between "maintenance" capital required to sustain the business and "growth" capital required for growth
- Relies on forecasts of cash flows over extended periods of time, often 5-10 years, which:
    - May be well-researched but not reliable
    - Prone to large errors due to compounding

"Make It Work" (?)

"Our analysis indicates that analysts see DCF in part as a useful tool for more accurate fundamental valuation but more generally as a flexible device for 'reverse engineering' valuation estimates based on multiples models and/or subjective judgment."

- The Use of Valuation Models by UK Investment Analysts
(Shahed Imam Richard Barker, Colin Clubb)

Start Here

Are you evaluated for generating relative or absolute returns?

Do the company's peers have similar growth, betas, and capital structures?

Absolute — Relative

Yes — No

Can the company's assets and debt be reliably valued using public market pricing (e.g. financial and resource companies)?

Is the company likely to generate EBITDA during the forecast period?

© AnalystSolutions

Search for companies with similar growth, beta and capital structures in other sectors

Yes — No

Price to Book

EV/Sales — No — Yes — EV/EBITDA

Does the company pay a dividend on a consistent basis?

Is the company likely to generate after-tax earnings during the forecast period?

Dividend Yield — Yes — No

Can the company's EPS growth rate be accurately forecast over multiple periods?

No — Yes — P/E

Can the company's "maintenance" capital expenditures be accurately forecast?

Yes — No

PEG

P/FCF — Yes — No

Can capital expenditures and the payout ratio be accurately forecast for multiple future periods?

DCF — Yes — No

Benefit	Relevance*	P/E	PEG	P/FCF	EV/ EBITDA	DCF	P/B	P/S	Dividend Yield
Good proxy for free cash flow to shareholders	3	⇨	⇨	⬆	⬇	⬆	⬇	⬇	⇨
Captures multi-period growth	2	⬇	⬆	⬇	⬇	⬆	⬇	⬇	⬇
Relatively simple and quick to perform (low risk of mistake)	2	⬆	⬆	⇨	⇨	⬇	⬆	⬆	⬆
Can be utilized when comparing companies not in the same sector	1	⇨	⇨	⇨	⇨	⬆	⬇	⬇	⬇
Captures risk/volatility	1	⬇	⬇	⬇	⬇	⬆	⬇	⬇	⬇
Eliminates effects of management using aggressive accounting tactics (not fraud)	1	⬇	⬇	⬆	⇨	⬆	⇨	⇨	⬆
Not overly-sensitive to minor changes to inputs (e.g equity risk premium, growth rate)	1	⬆	⇨	⬆	⬆	⬇	⬆	⬆	⬆
Allows for accurate valuation of company's assets at current market prices	0	⬇	⬇	⬇	⬇	⬇	⬆	⬇	⬇
Helpful in identifying attractively valued stocks in an overheated market	0	⇨	⇨	⇨	⇨	⬆	⬆	⇨	⬆
In general, computation is consistent by all market participants	0	⇨	⇨	⬇	⬇	⬇	⇨	⬆	⬆
Useful if there are no earnings or cash flow during the forecast period	0	⬇	⬇	⬇	⬆	⬇	⬆	⬆	⬆
Total, weighted		⇨	⬆	⬆	⬇	⬆	⬇	⬇	⇨

* Relevance in accurately measuring long-term free cash flow on a regular basis for multiple stocks

Request an Excel version: Info@AnalystSolutions.com

Variables Linked to Valuation

Valuation Method	Variable with logical link to valuation method
Price Earnings Ratio	Expected Growth, Payout, Risk*
Price to Book Ratio	Expected Growth, Payout, Risk*, ROE
Price to Sales Ratio	Expected Growth, Payout, Risk*, Net Margin
EV to EBITDA	Expected Growth, Reinvestment Rate, Risk*, ROC, Tax rate
EV to Capital Ratio	Expected Growth, Reinvestment Rate, Risk,* ROC
EV to Sales	Expected Growth, Reinvestment Rate, Risk,* Operating Margin

* Proxies for risk include beta and firm size

Damodaran, Aswath. "Valuation Approaches and Metrics: A Survey of the Theory and Evidence."
Foundations and Trends® in Finance 1.8 (2006): 70. Web.

Consider a Second Valuation Method If It Adds Value

Discover new insight

Avoid Blow Up

Avoid Wasting Time
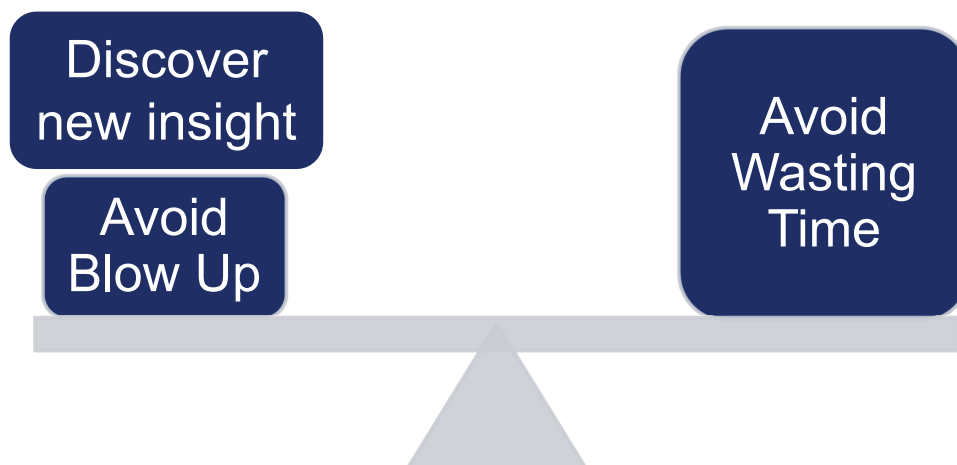
Kahoot! on "Valuation Methods"

- Use a smartphone, computer or tablet

- https://**kahoot**.it/

- To reduce any anxiety, please use a pseudonym (fake name

EXERCISE: HOW IS THE VALUATION METHOD LIKELY TO CHANGE?

What Could Lucas Have Learned from Step 1 of SHARE™?

STEP 1: <u>S</u>elect Valuation Method

Lucas…

- Doesn't understand the shortcomings of each valuation method
  - He doesn't grasp the absolute P/E ratio doesn't account for fluctuations in the broader market, which is important when selecting stocks relative to the market
- Doesn't understand that some valuation methods are better proxies for cash flow than others
  - He doesn't appreciate that the P/E ratio, price-to-sales and EV/EBITDA do not measure a company's ability to generate free cash flow, specifically they do not account for the reinvestment of cash in the business

---

Select Valuation Method(s) Reference Cards

Quick Reference Card (QRC)

Considerations for Identifying the Optimal Valuation Method (flowchart)

Start Here   Are you evaluated for generating

Be the comparable

Quick Reference Card (QRC)

Benefits and Limitations of Popular Valuation Methods

Details By Valuation Method

Method	Benefits	Limitations
		• Multiple may not be computed in the same manner by all market participants, namely, the underlying financial data can be trailing

Key Best Practice for Step 1 of SHARE™

- Identify:
  - The most common valuation method used for valuing the stock; and
  - Potential new methods likely to be used at time of price target (driven by company or sector changes)
- Consider using an alternative valuation method <u>only</u> if it will help in identifying a mis-priced stock (e.g. better measurement of company's free cash flow)

Split Your Screen if Using Electronic Version
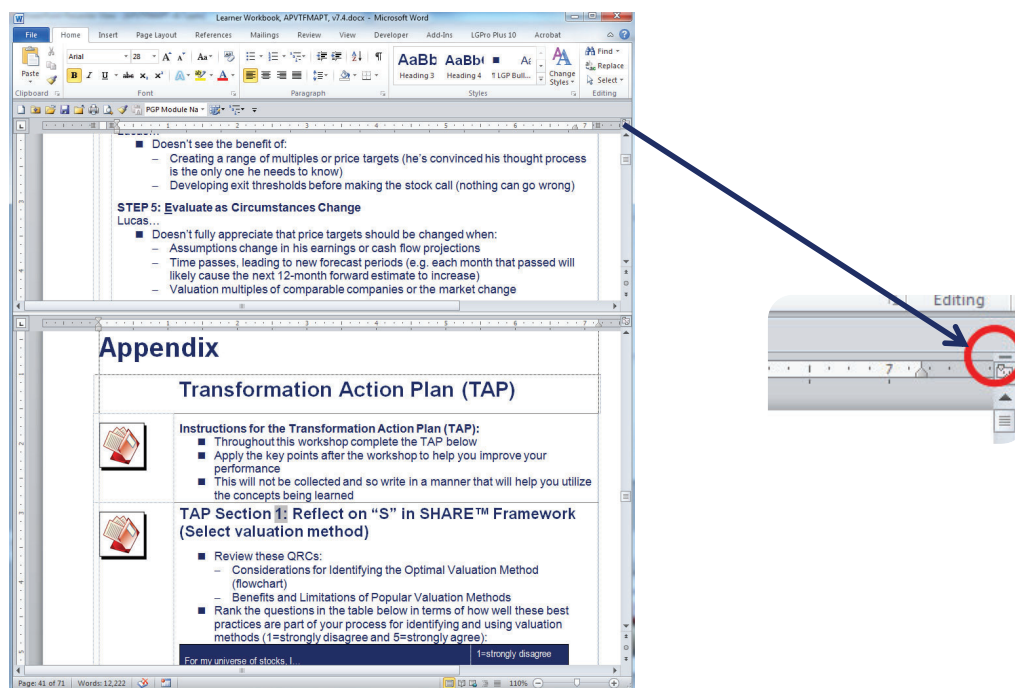
Complete Your TAP

Section 1

Transformation Action Plan (TAP)

Instructions for the Transformation Action Plan (TAP):
- Throughout this workshop complete the TAP below
- Apply the key points after the workshop to help you improve your performance
- This will not be collected and so write in a manner that will help you utilize the concepts being learned

Target Realistic Price(s) (SHARE™ Framework)

- Create an accurate financial forecast(s)
- STEP 1: Select valuation method(s)
- STEP 2: Historical & current sentiment
- STEP 3: Adjust for future time period
- STEP 4: Range of multiples and price targets
- STEP 5: Evaluate as circumstances change

Target Realistic Price(s)
(SHARE™ Framework)

Create an accurate financial forecast(s)

STEP 1: Select valuation method(s)

STEP 2: Historical & current sentiment

STEP 3: Adjust for future time period

STEP 4: Range of multiples and price targets

STEP 5: Evaluate as circumstances change

HISTORICAL TOOL: Is current valuation on trend compared to the past?

CURRENT TOOL: Is current valuation in line with stocks that have similar characteristics?

Price Target in Its Simplest Terms

Forward-looking financial forecast at a point in time

X

Valuation multiple

?

Outside vs. Inside Views

- "Outside view"
  - A method of predicting the future by looking at similar past situations and their outcomes
- "Inside view"
  - Focuses on the unique aspects of the event

* For more information on "outside view" and "inside view" see: https://en.wikipedia.org/wiki/Reference_class_forecasting

---

Base Rates for Revenue

Exhibit 2: Base Rates of Sales Growth, 1950-2015

Full Universe	Base Rates				Full Universe	Observations			
Sales CAGR (%)	1-Yr	3-Yr	5-Yr	10-Yr	Sales CAGR (%)	1-Yr	3-Yr	5-Yr	10-Yr
<(25)	1.9%	0.6%	0.3%	0.0%	<(25)	1,073	305	156	15
(25)-(20)	1.0%	0.4%	0.3%	0.1%	(25)-(20)	577	239	130	31
(20)-(15)	1.7%	1.0%	0.7%	0.3%	(20)-(15)	954	558	337	121
(15)-(10)	3.2%	2.2%	1.6%	0.9%	(15)-(10)	1,820	1,156	792	369
(10)-(5)	6.2%	5.2%	4.2%	3.2%	(10)-(5)	3,540	2,744	2,076	1,329
(5)-0	12.2%	13.2%	12.9%	12.4%	(5)-0	6,912	7,037	6,453	5,176
0-5	20.6%	25.2%	28.8%	34.2%	0-5	11,693	13,434	14,386	14,236
5-10	17.8%	21.3%	24.2%	28.3%	5-10	10,137	11,359	12,068	11,799
10-15	11.4%	12.3%	12.6%	11.6%	10-15	6,464	6,530	6,284	4,839
15-20	6.8%	6.7%	6.0%	4.5%	15-20	3,862	3,589	2,971	1,878
20-25	4.5%	3.9%	3.1%	2.0%	20-25	2,570	2,052	1,552	814
25-30	2.9%	2.3%	1.9%	1.1%	25-30	1,666	1,236	934	460
30-35	2.0%	1.5%	1.0%	0.6%	30-35	1,145	809	502	235
35-40	1.3%	1.0%	0.7%	0.3%	35-40	758	543	364	131
40-45	1.1%	0.7%	0.5%	0.2%	40-45	599	357	230	79
>45	5.5%	2.5%	1.3%	0.3%	>45	3,113	1,318	639	133
Mean	14.8%	8.1%	6.9%	5.8%	Total	56,883	53,266	49,874	41,645
Median	5.8%	5.4%	5.2%	4.9%					
StDev	275.2%	18.7%	12.3%	8.0%					

Source: Credit Suisse HOLT®.
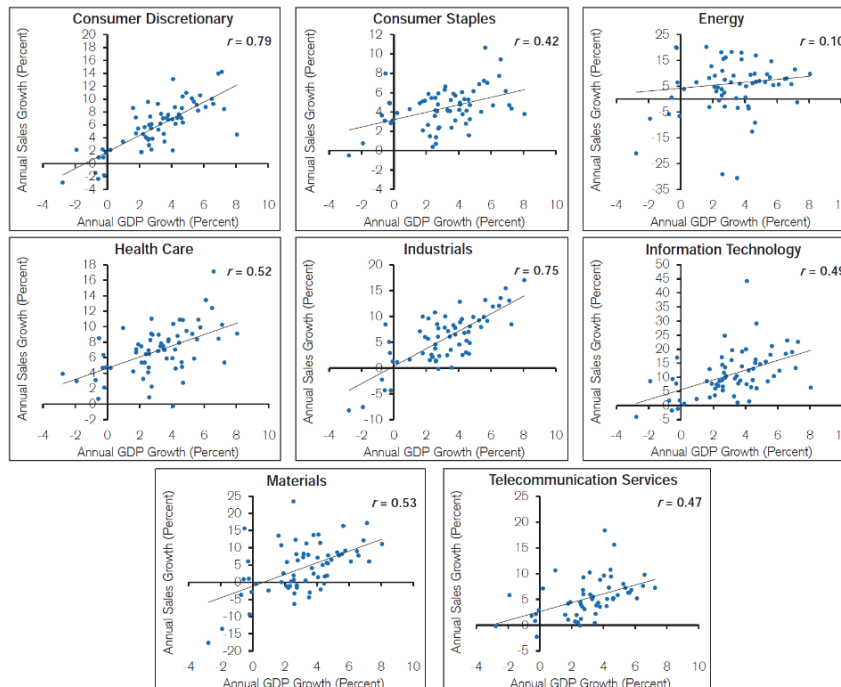
1,000 global companies by market capitalization
Source: The Base Rate Book, Credit Suisse 2016: https://bit.ly/2B8B0Td

Revenue vs. GDP by Sector

1,000 global companies by market capitalization
Source: The Base Rate Book, Credit Suisse 2016: https://bit.ly/2B8B0Td

---

Forecasting Revenue

Based on data of 1,000 global companies from 1950 to 2015:
- The correlation (r) between a company's revenue and:
  - Industrial Production is 0.74
  - GDP is 0.66
- The correlation between revenue and total shareholder returns is:
  - 0.20 for 1 year
  - 0.25 for 3 years
  - 0.28 for 5 years
- While revenue is usually easier to forecast than EPS, it has less influence on a stock's overall performance

Base Rates for Net Income

Exhibit 2: Base Rates of Net Income Growth, 1950-2015

Full Universe	Base Rates				Full Universe	Observations			
Net Income CAGR (%)	1-Yr	3-Yr	5-Yr	10-Yr	Net Income CAGR (%)	1-Yr	3-Yr	5-Yr	10-Yr
<(50)	4.5%	1.2%	0.3%	0.0%	<(50)	2,374	595	151	5
(50)-(40)	2.1%	1.1%	0.6%	0.1%	(50)-(40)	1,117	529	275	20
(40)-(30)	3.0%	2.0%	1.3%	0.3%	(40)-(30)	1,603	969	565	99
(30)-(20)	4.5%	3.7%	2.7%	1.0%	(30)-(20)	2,362	1,806	1,209	368
(20)-(10)	7.0%	7.3%	6.5%	4.2%	(20)-(10)	3,679	3,520	2,918	1,577
(10)-0	11.9%	16.3%	17.9%	18.7%	(10)-0	6,310	7,898	8,049	6,976
0-10	18.5%	26.8%	34.1%	47.8%	0-10	9,779	13,007	15,322	17,819
10-20	15.0%	18.4%	20.3%	20.5%	10-20	7,946	8,924	9,087	7,633
20-30	9.0%	9.5%	8.8%	5.1%	20-30	4,762	4,591	3,932	1,899
30-40	5.9%	5.1%	3.4%	1.5%	30-40	3,135	2,493	1,528	558
40-50	3.8%	2.7%	1.7%	0.6%	40-50	1,999	1,331	743	209
50-60	2.6%	1.6%	0.9%	0.2%	50-60	1,393	774	382	69
60-70	1.9%	1.1%	0.5%	0.1%	60-70	1,004	548	228	42
70-80	1.5%	0.7%	0.3%	0.0%	70-80	803	344	147	13
80-90	1.1%	0.6%	0.2%	0.0%	80-90	604	271	98	9
>90	7.6%	1.8%	0.5%	0.0%	>90	4,031	872	240	9
Mean	88.8%	10.3%	7.3%	5.8%	Total	52,901	48,472	44,874	37,305
Median	9.2%	6.8%	5.9%	5.2%					
StDev	7842.2%	34.6%	20.2%	11.0%					

Source: Credit Suisse HOLT®.

1,000 global companies by market capitalization
Source: The Base Rate Book, Credit Suisse 2016: https://bit.ly/2B8B0Td   108

Forecasting Net Income

Based on data of 1,000 global companies from 1950 to 2015:

- The mean average net income growth rate was 7.3% percent per year and the median growth rate was 5.9% (the median is a better indicator of the central location of the results because the distribution is positively skewed).

- The correlation (r) between a company's net income and GDP is 0.48

- The correlation between earnings and total shareholder returns is:
  - 0.20 for 1 year
  - 0.39 for 3 years
  - 0.40 for 5 years

Source: The Base Rate Book, Credit Suisse 2016: https://bit.ly/2B8B0Td

109

Building to a Price Target
(1 of 2)

Outside View

| Factors influencing forward-looking financial forecast **in the past** | X | Factors influencing stock's forward-looking multiple **in the past** | = | Historical stock price at any point in time |
| μ = $1.00 | | μ = 14x | | μ = $14.00 |

+ Inside View

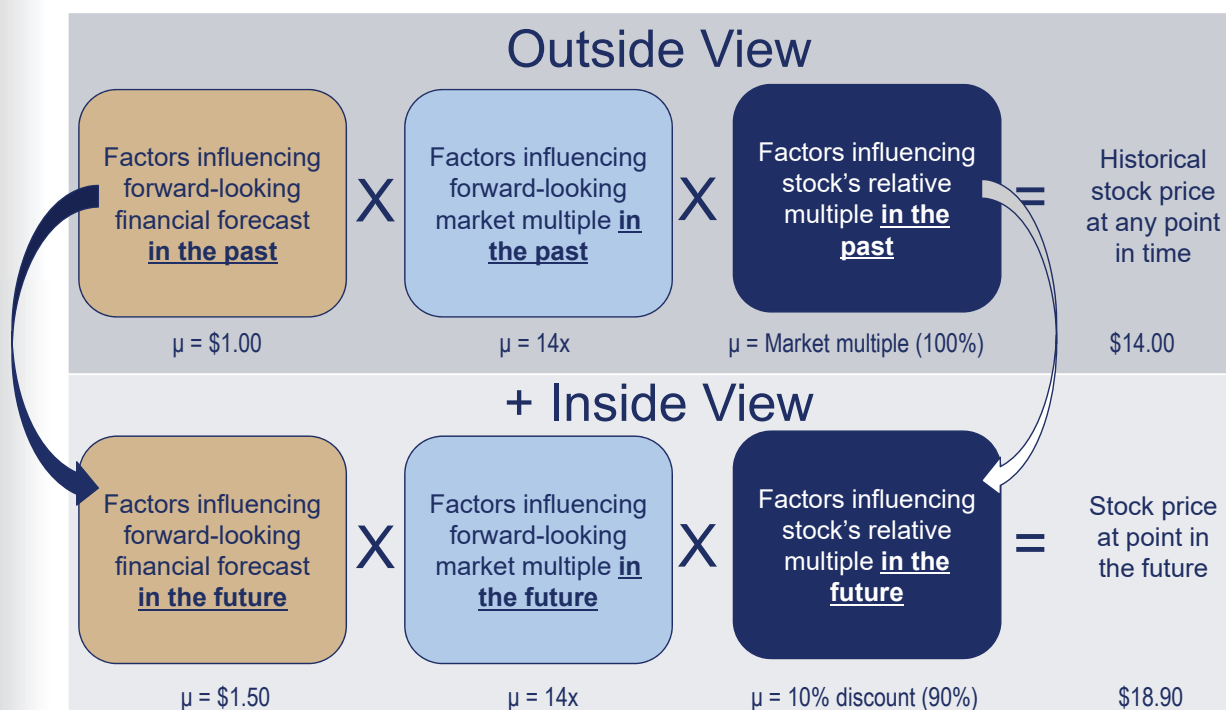| Factors influencing forward-looking financial forecast **in the future** | X | Factors influencing stock's forward-looking multiple in the future | = | Stock price at a point in the future |
| $1.50 | | 12x | | $18.00 |

110

Building to a Price Target
(2 of 2)

Outside View

| Factors influencing forward-looking financial forecast **in the past** | X | Factors influencing forward-looking market multiple **in the past** | X | Factors influencing stock's relative multiple **in the past** | = | Historical stock price at any point in time |
| μ = $1.00 | | μ = 14x | | μ = Market multiple (100%) | | $14.00 |

+ Inside View

| Factors influencing forward-looking financial forecast **in the future** | X | Factors influencing forward-looking market multiple **in the future** | X | Factors influencing stock's relative multiple **in the future** | = | Stock price at point in the future |
| μ = $1.50 | | μ = 14x | | μ = 10% discount (90%) | | $18.90 |

111

Dissecting Components of Relative Return

Select the image below to watch video

Analyze company's and peers' historical net income, returns and stock performance to assess:
1. Company's correlation with sector (are there benefits to analyzing at sector level?)
2. Company's competitive advantage(s) (fortified economic moats are typically afforded higher valuation multiples)
3. Stage of company and sector within their respective life cycle (earlier stages are usually afforded higher valuation multiples)
4. Sources of income growth (revenue from new regions, products and services are better than from cost cutting)
5. Stability of profits (consistent growth is typically afforded higher valuations than cyclical patterns)

Has year-over-year EPS growth been relatively stable over the past economic cycle, excluding the recession?

Yes

No, EPS growth has been volatile

No, EPS growth has been in decline for most of the time (e.g. Kodak)

Has EPS growth been strongly correlated with commonly-available macro data?

Is the volatility due to non-recurring events?

Yes   No (GOOGL, NFLX)

Yes   No

Use the historical multiple the EPS grow vs. the macro trend (e.g. 1.5x GDP, population growth) as your "outside view"

Use the historical growth rate as your "outside view"

Remove the non-recurring events and use as your "outside view"

Use historical EPS growth as your "outside view"

Use the historical decline rate as your "outside view"

"Outside View"*

* For more information on "outside view" and "inside view" see: https://en.wikipedia.org/wiki/Reference_class_forecasting

Regression Analysis Helps Fend Off "Guesswork"

This excerpt is in your Learner Workbook…

A firm may have a P/E ratio of 22 in a sector where the average P/E is only 15, but the analyst may conclude that this difference can be justified because the firm has higher growth potential than the average firm in the industry.

If, in the judgment of the analyst, the difference on the multiple cannot be explained by the fundamentals, the firm will be viewed as overvalued (if its multiple is higher than the average) or undervalued (if its multiple is lower than the average).

The weakness in this approach is not that analysts are called upon to make subjective judgments, but that the **judgments are often based on little more than guesswork**. All too often, these judgments **confirm analysts' biases about companies**."

- Aswath Damodaran

114

Elements of Relative P/E

Stock's P/E relative to index's	=	Stock's P/E relative to sector's	x	Sector's P/E relative to index's

$$\frac{StockPE}{Index\ PE} = \frac{Stock\ PE}{Sector\ PE}\ x\ \frac{Sector\ PE}{Index\ PE}$$

$\frac{11}{10}$	=	$\frac{11}{9}$	x	$\frac{9}{10}$
110%	=	122%	x	90%

Is It Worthwhile to Analyze the Sector's Valuation Levels?

- Yes, if there is a strong correlation between the movement of a stock and its sector ($r > 0.5$)
- Bloomberg:
  - Use "PC" function for simple analysis; or
  - Add sector index to "PC" function; or
  - Create correlation matrix using "CORR" function and pull in universe of stocks and specific sectors

Notice below:
- MCD's strong correlation to larger cap stocks (S5REST), which includes MCD but weak correlation to small cap stock (S4REST)
- MCD's weak correlation to its competitors (YUM is strongest at r=.39)
- FDX's strong correlation to its index and largest competitor
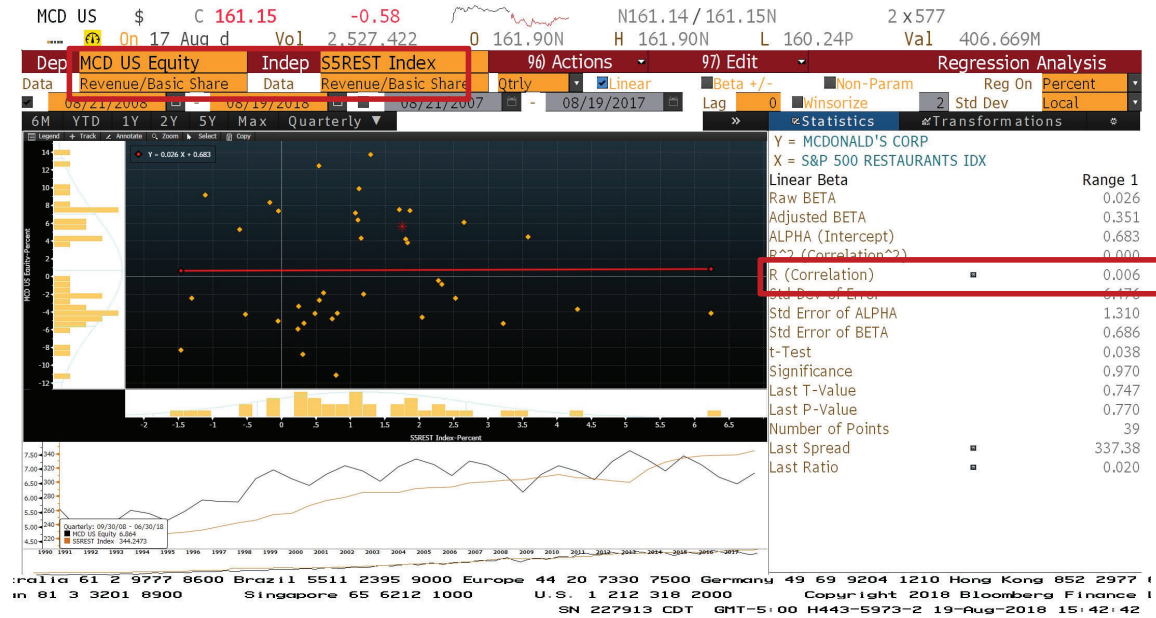

116

Regression Analysis

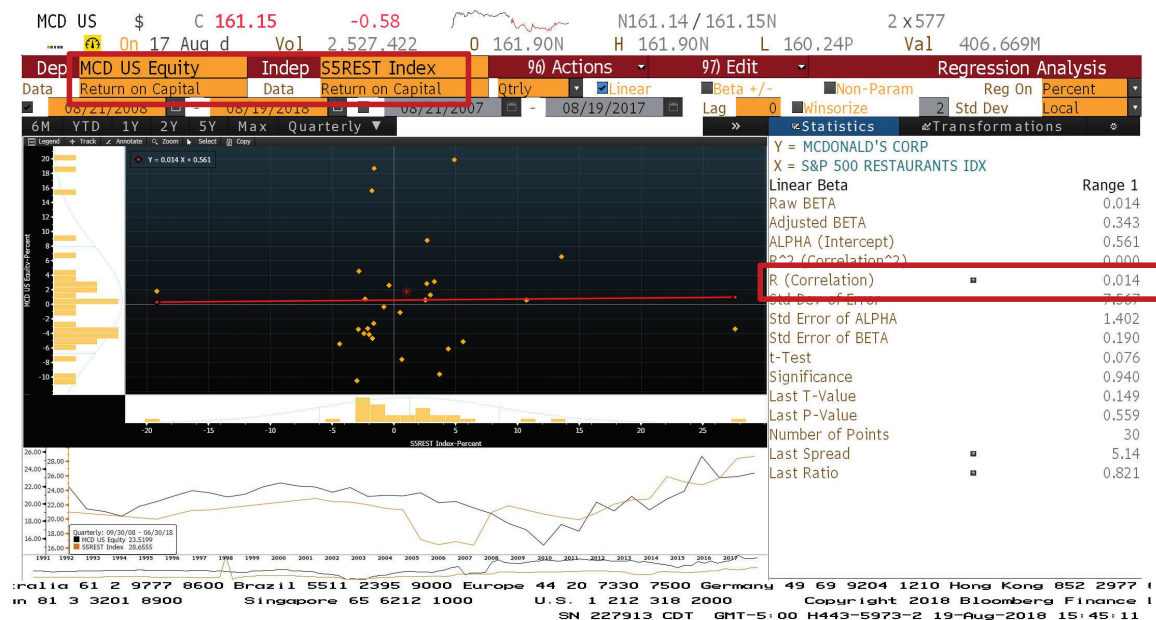## (HRA for share price)

117
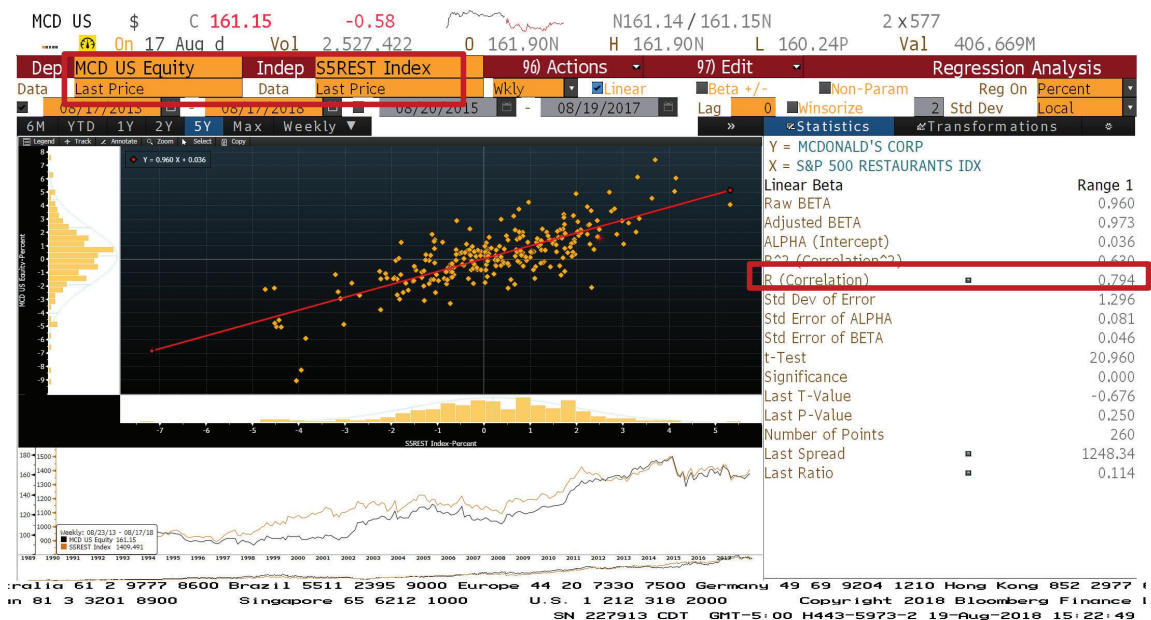
Regression Analysis

(HRA for Revenue Per Share)

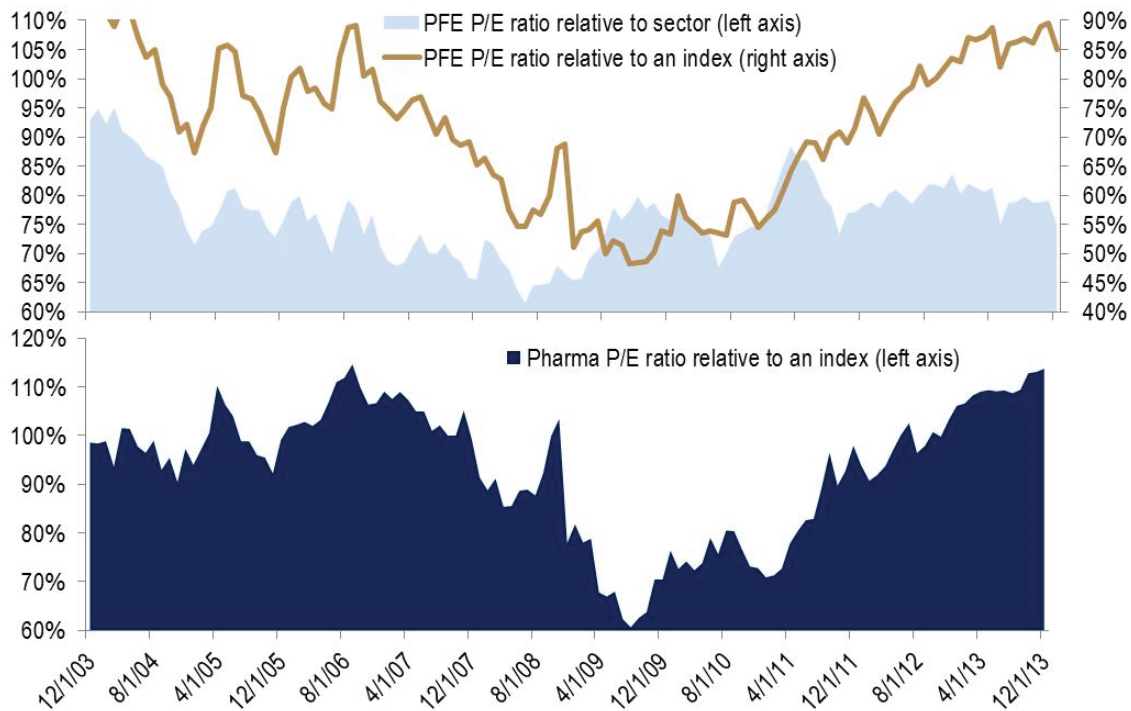# Regression Analysis

(HRA for Return on Capital)

Regress P/E Ratios for Stock vs. Sector or Market

EXERCISE: STOCK OR SECTOR INFLUENCES?

Breakdown of Relative P/E (PFE)

Legend:
- PFE P/E ratio relative to sector (left axis)
- PFE P/E ratio relative to an index (right axis)
- Pharma P/E ratio relative to an index (left axis)

Industry Map

Exhibit 6: U.S. Airline Industry Map

Source: Credit Suisse.
Note: LCC = low-cost carrier.

Profitability Pool

"We can also construct a profit pool of the leading companies within an industry. Exhibit 8 shows profit pools for the U.S. airline companies for 2005, 2010, and 2015. The horizontal axis represents 100 percent of the capital invested in the industry by public companies. These charts provide a bottom-up view of the industry's migration from value destruction to value creation."

Exhibit 8: Airline Industry Profit Pools by Company, 2005-2015
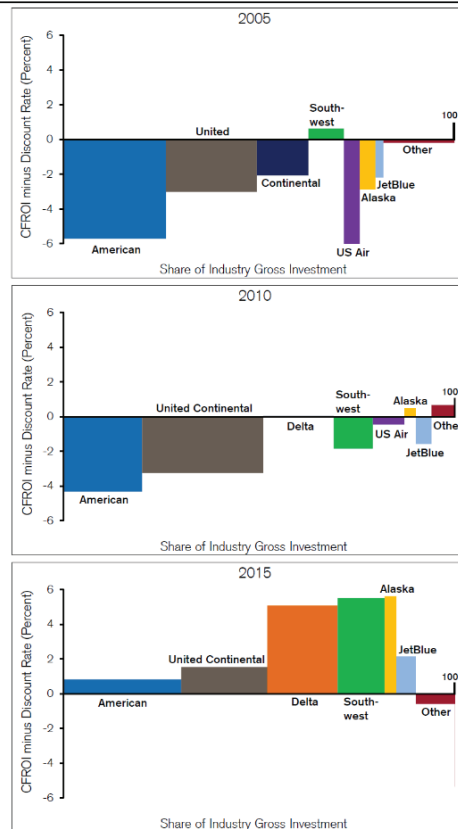
Source: Credit Suisse HOLT.

124

Start with Industry When Assessing Moats

- Industry effects are the most important in the sustainability of high performance and a close second in the emergence of high performance. However, industry effects are much smaller than firm-specific factors for low performers.

- For companies that are below average, strategies and resources explain 90 percent or more of their returns.

- The industry is the correct place to start an analysis of sustainable value creation. We recommend understanding the lay of the land, which includes getting a grasp of the participants and how they interact, an analysis of profit pools, and an assessment of industry stability.

125

Assessing Moats Checklist
(1 of 2)

- Overview
  - In what stage of the competitive life cycle is the company?
  - Is the company currently earning a return above its cost of capital?
  - Are returns on invested capital increasing, decreasing, or stable? Why?
  - What is the trend in the company's investment spending, including mergers and acquisitions?
- Lay of the Land
  - What percentage of the industry does each player represent?
  - What is each player's level of profitability?
  - What have the historical trends in market share been?
  - How stable is the industry?
  - How stable is market share?
  - What do pricing trends look like?
  - What class does the industry fall into—fragmented, emerging, mature, declining, international, network, or hypercompetitive?
- The First Three of the Five Forces
  - How much leverage do suppliers have?
  - Can companies pass price increases from their suppliers on to their customers?
  - Are there substitute products available?
  - Are there switching costs?
  - How much leverage do buyers have?
  - How informed are the buyers?

- Barriers to Entry
  - What are the rates of entry and exit in the industry?
  - How will the incumbents react to the threat of new entrants?
  - What is the reputation of incumbents?
  - How specific are the assets?
  - What is the minimum efficient production scale?
  - Does the industry have excess capacity?
  - Is there a way to differentiate the product?
  - What is the anticipated payoff for a new entrant?
  - Do incumbents have precommitment contracts?
  - Do incumbents have costly licenses or patents?
  - Are there benefits from the learning curve?
- Rivalry
  - Is there pricing coordination?
  - What is the industry concentration?
  - What is the size distribution of firms?
  - How similar are the firms in incentives, corporate philosophy, and ownership structure?
  - Is there demand variability?
  - Are there high fixed costs?
  - Is the industry growing?
- Disruption and Disintegration
  - Is the industry vulnerable to disruptive innovation?
  - Do new innovations foster product improvements?
  - Is the innovation progressing faster than the market's needs?
  - Have established players passed the performance threshold?
  - Is the industry organized vertically, or has there been a shift to horizontal markets?

Source: Measuring the Moat, Credit Suisse 2016: https://bit.ly/2KPylNz

---

Assessing Moats Checklist
(2 of 2)

- Firm Specific
  - Does the firm have production advantages?
  - Is there instability in the business structure?
  - Is there complexity requiring know-how or coordination capabilities?
  - How quickly are the process costs changing?
  - Does the firm have any patents, copyrights, trademarks, etc.?
  - Are there economies of scale?
  - What does the firm's distribution scale look like?
  - Are assets and revenue clustered geographically?
  - Are there purchasing advantages with size?
  - Are there economies of scope?
  - Are there diverse research profiles?
  - Are there consumer advantages?
  - Is there habit or horizontal differentiation?
  - Do people prefer the product to competing products?
  - Are there lots of product attributes that customers weigh?
  - Can customers only assess the product through trial?
  - Is there customer lock-in? Are there high switching costs?
  - Is the network radial or interactive?
  - What is the source and longevity of added value?
  - Are there external sources of added value (subsidies, tariffs, quotas, and competitive or
  - environmental regulations)?

- Firm Interaction—Competition and Coordination
  - Does the industry include complementors?
  - Is the value of the pie growing because of companies that are not competitors? Or, are new companies
  - taking share from a pie with fixed value?
- Brands
  - Do customers want to "hire" the brand for the job to be done?
  - Does the brand increase willingness to pay?
  - Do customers have an emotional connection to the brand?
  - Do customers trust the product because of the name?
  - Does the brand imply social status?
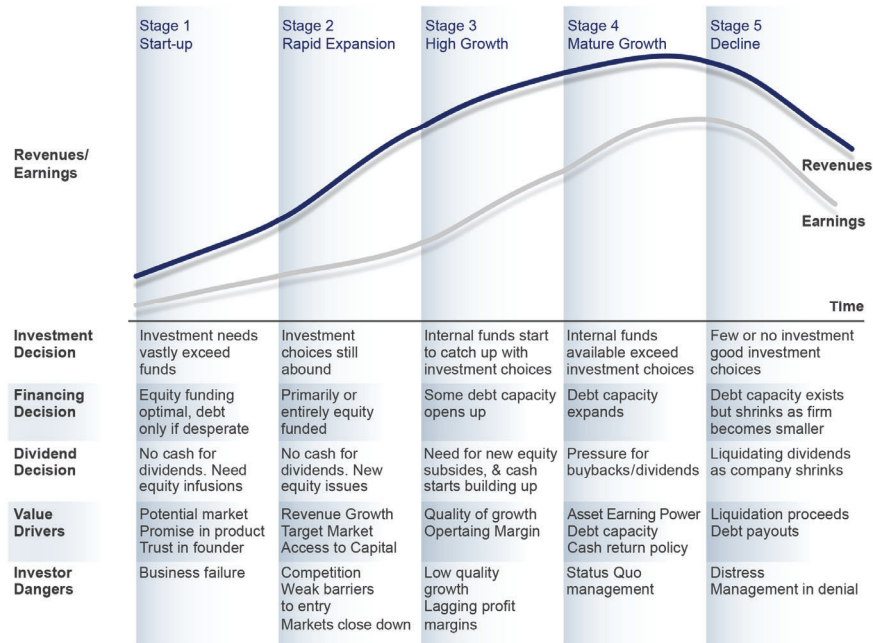 - Can you reduce supplier operating cost with your name?

Source: Measuring the Moat, Credit Suisse 2016: https://bit.ly/2KPylNz

Business Life Cycle

Corporate Finance Choices and Valuation Challenges: Across the Lifecycle

Source: http://aswathdamodaran.blogspot.com/2013/09/decline-and-denial-requiem-for.htmlb

---

Growth and P/E Ratios
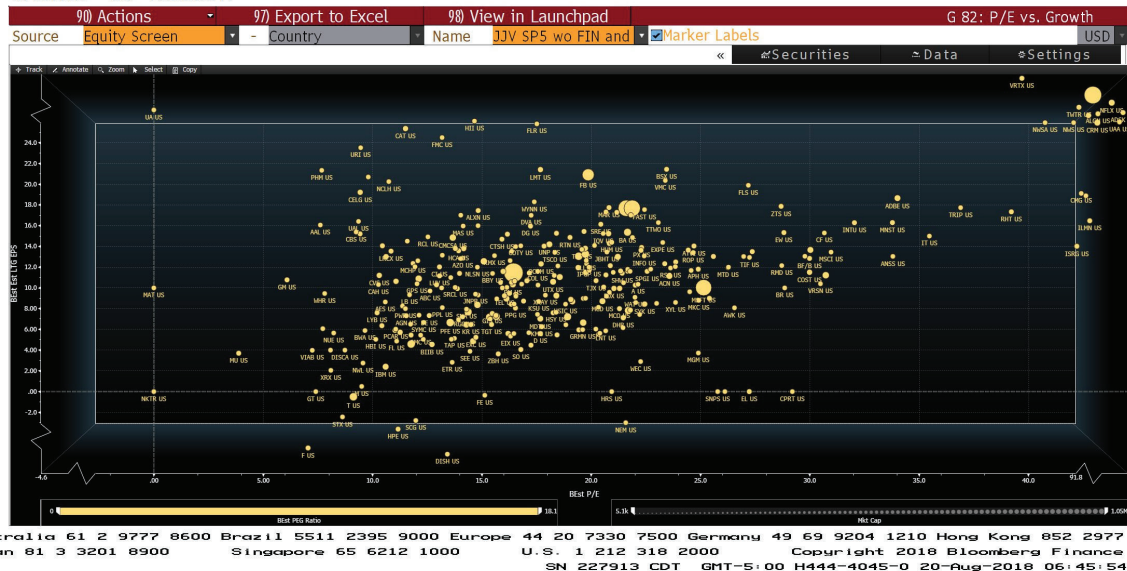
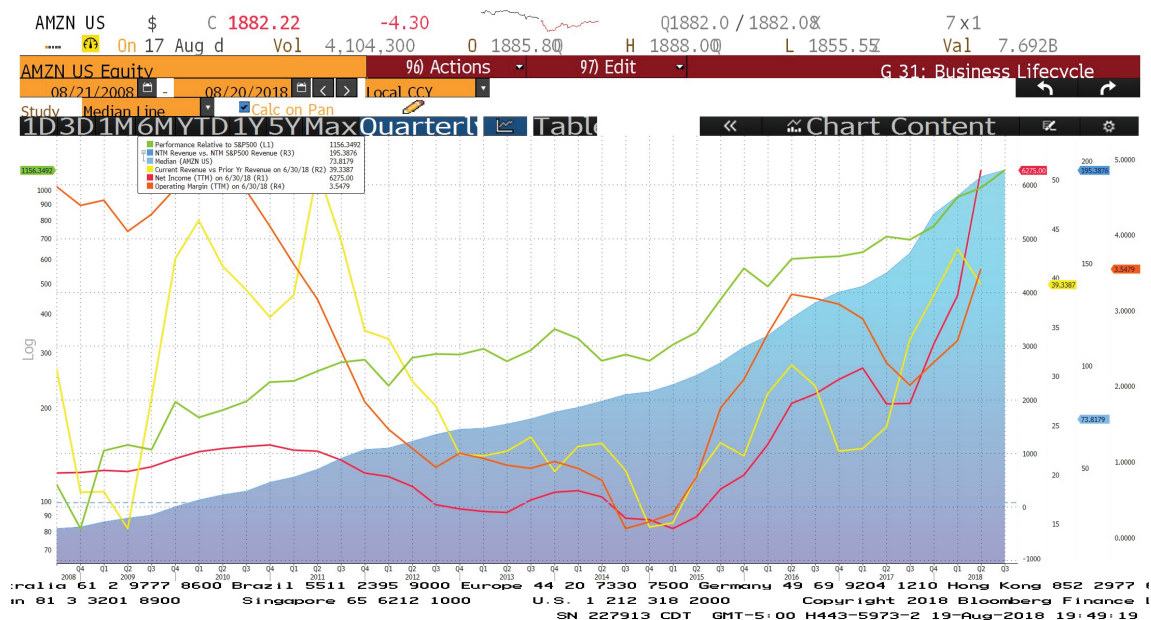S&P 500 stocks excluding financials and energy sectors
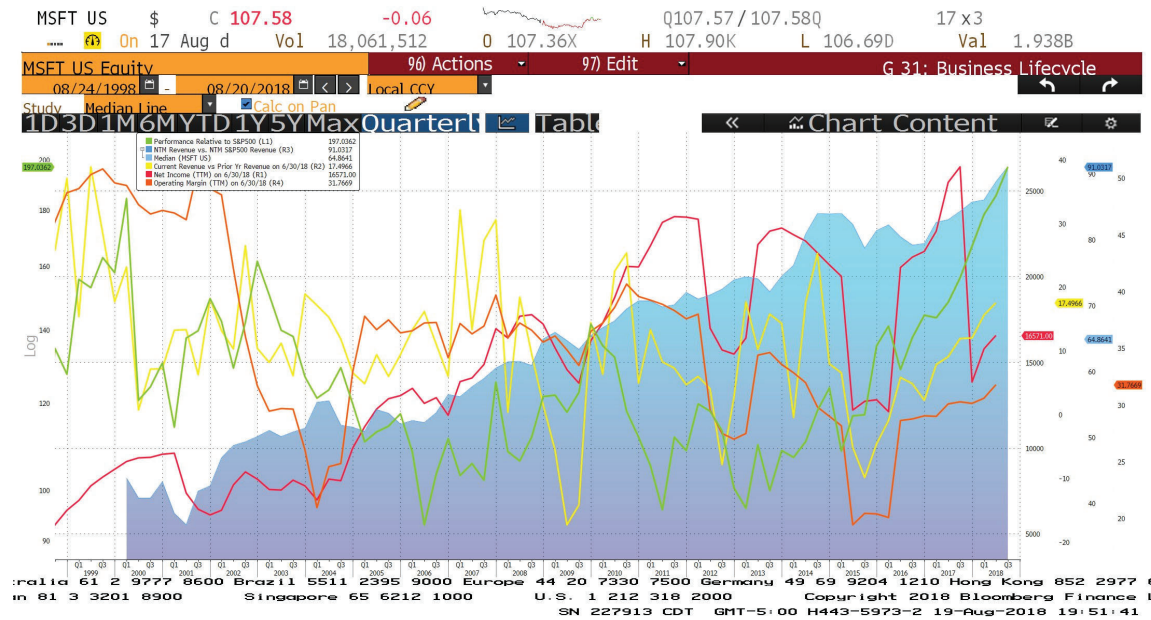
Sources of EPS Growth
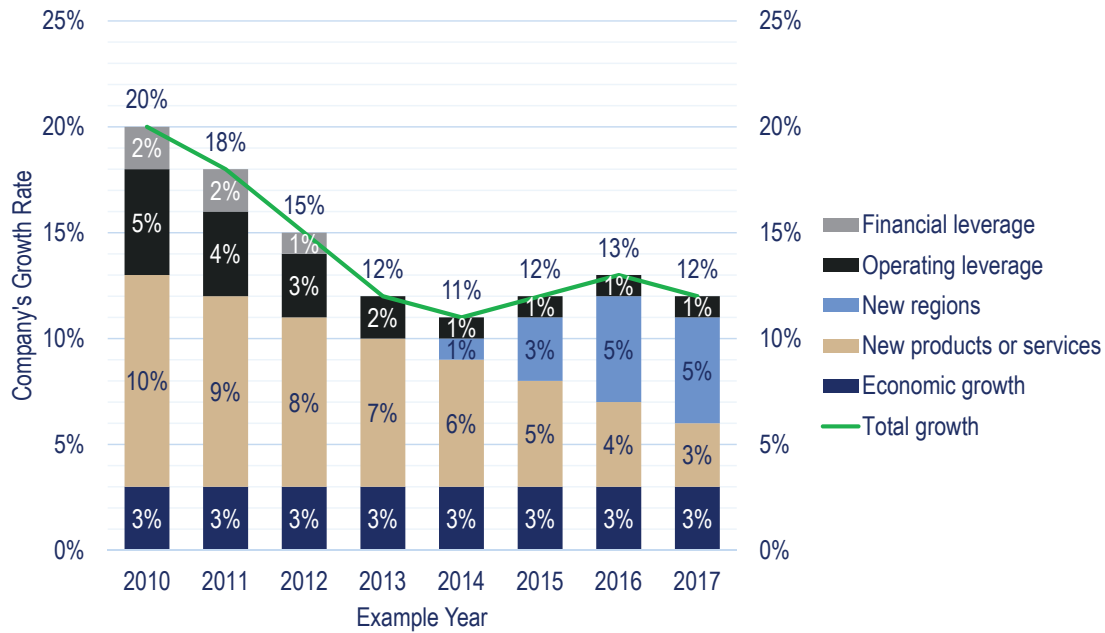
Business Life Cycle
AMZN

Business Life Cycle
MSFT

Business Life Cycle
UPS
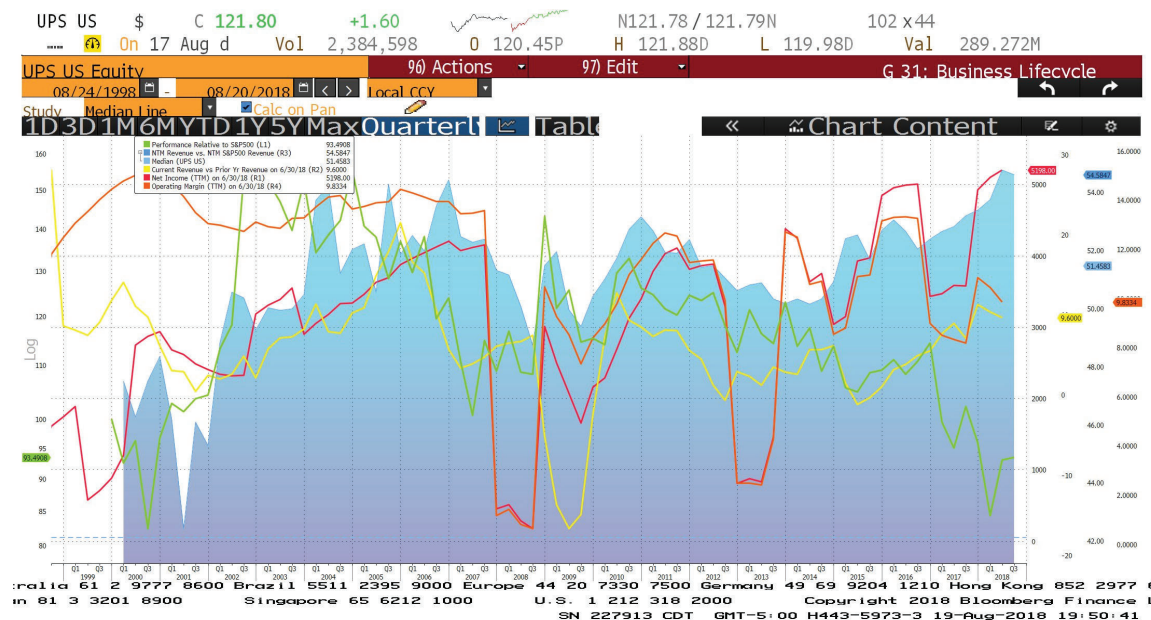
Business Life Cycle
IBM
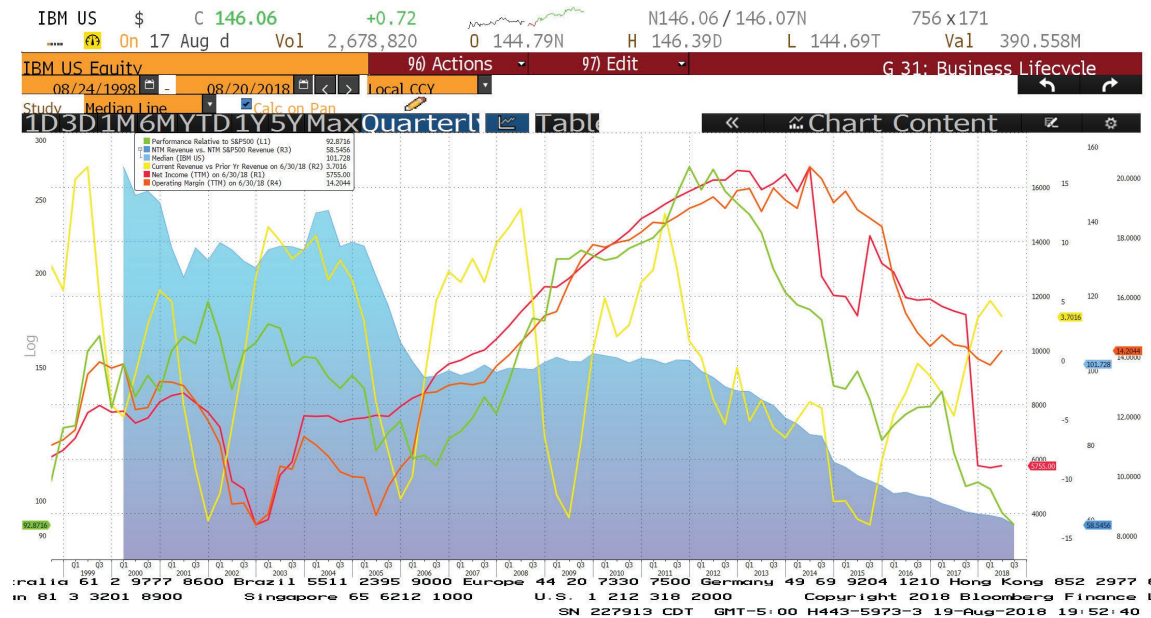
Key Variables Can Explain Psychology Around a Stock

If there is a strong relationship between the stock's relative valuation and the key variable:

- We can assess if the stock is being valued by the market similar to the past
  - If not, the variable can help us identify why not
- If we can forecast the variable, we can also forecast the future multiple for the stock

Correlation Between S&P 500 P/E Ratio and Macro Data

	-100%	-50%	0%	50%	100%

University of Michigan: Consumer Sentiment© — 81%

US Regular Conventional Gas Price — -73%

Personal Income — -82%

Personal Consumption Expenditures — -84%
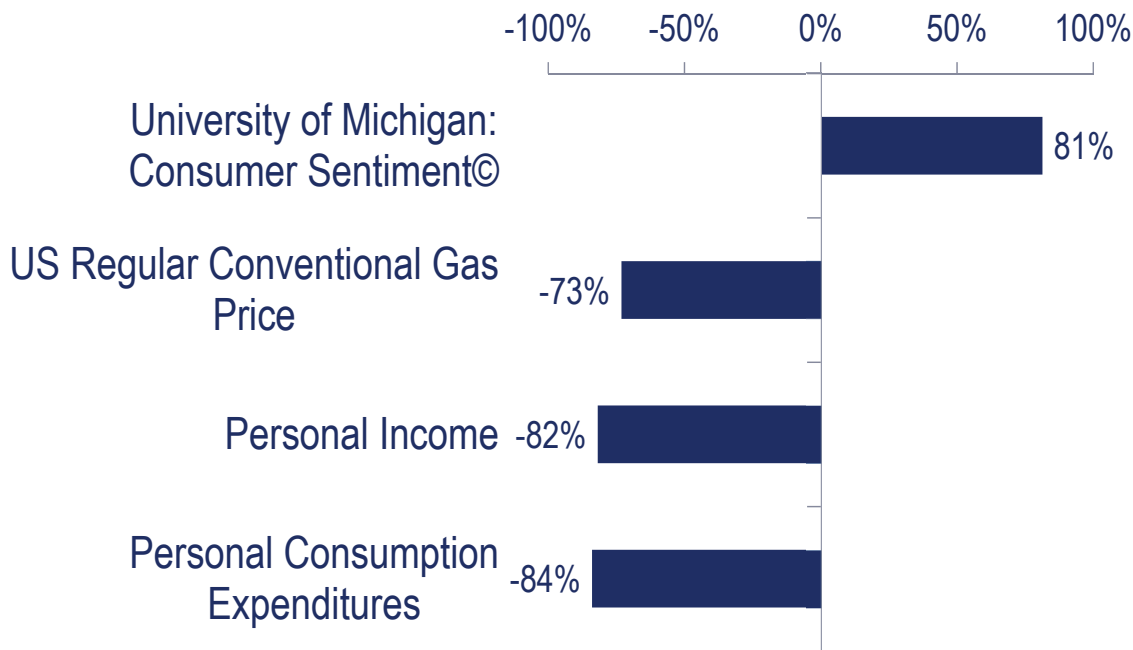
Jan 2000 to July 2013

136

Relative P/E Ratio Factor Analysis

Select the image below to watch video (18 min)

137

Great Source of Macro Data

https://research.stlouisfed.org/fred2/tags/series

EXERCISE: IS THERE A VARIABLE THAT EXPLAINS VALUATION FLUCTUATIONS?
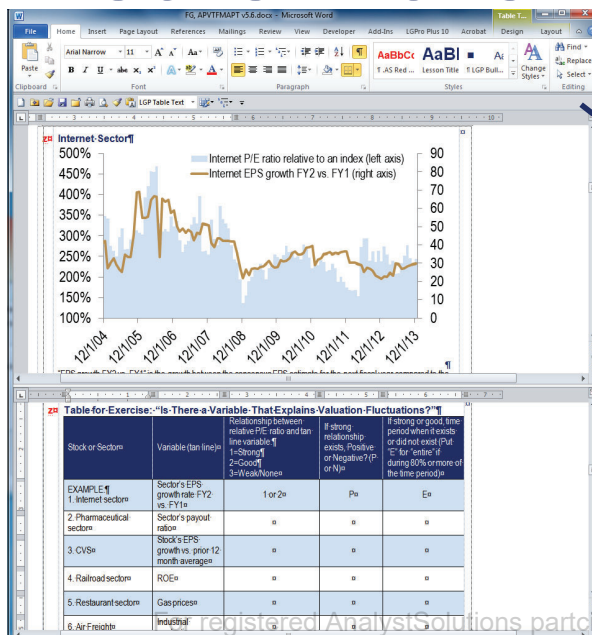
Split the screen in reverse, so you're working in the table on the bottom of the screen
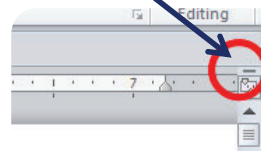
Why Distinguish Between Cyclically- and Secularly-moving Relative Valuations?
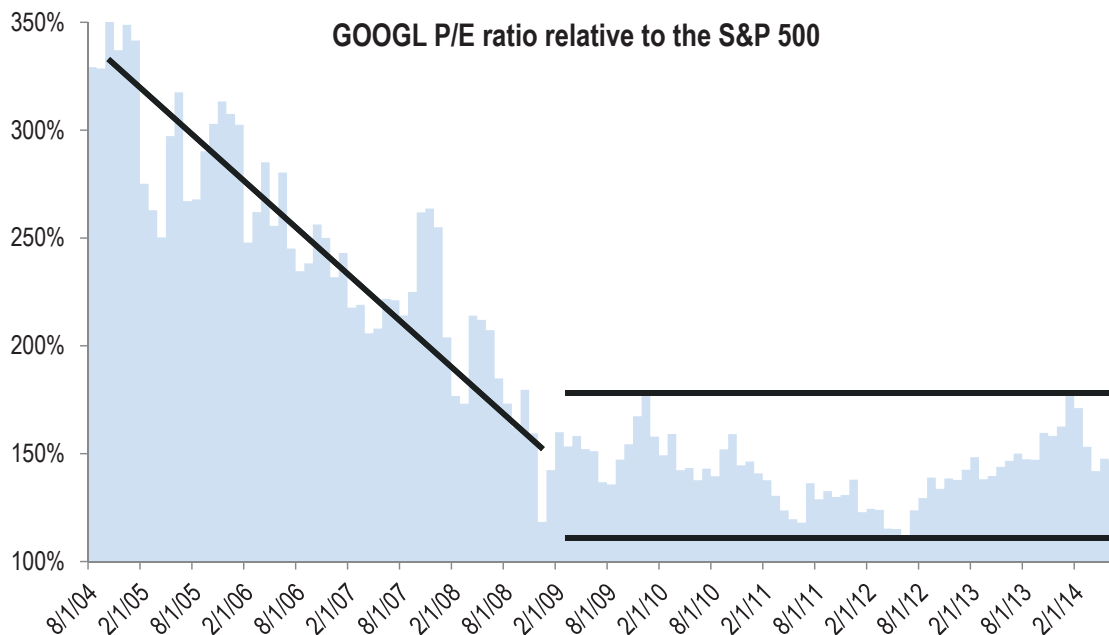
GOOGL P/E ratio relative to the S&P 500

Bed Bath & Beyond (BBBY)
Averages Between 2001 and 2013

Sector's average historical forward P/E multiple relative to index	Sector's current relative premium/discount compared to sector's past	Sector's current NTM forward multiple relative to index	Stock's historical relative premium/discount to sector's	Stock's implied current relative valuation based on historical sector relationship	Stock's current relative premium/discount to index not explained by sector relationship	Stock's current NTM forward multiple relative to index
114%	4%	109%	17%	126%	33%	93%

Tan: historical averages, Blue: actual, Gray: derived

Bed Bath & Beyond (BBBY)
2000 to 2013
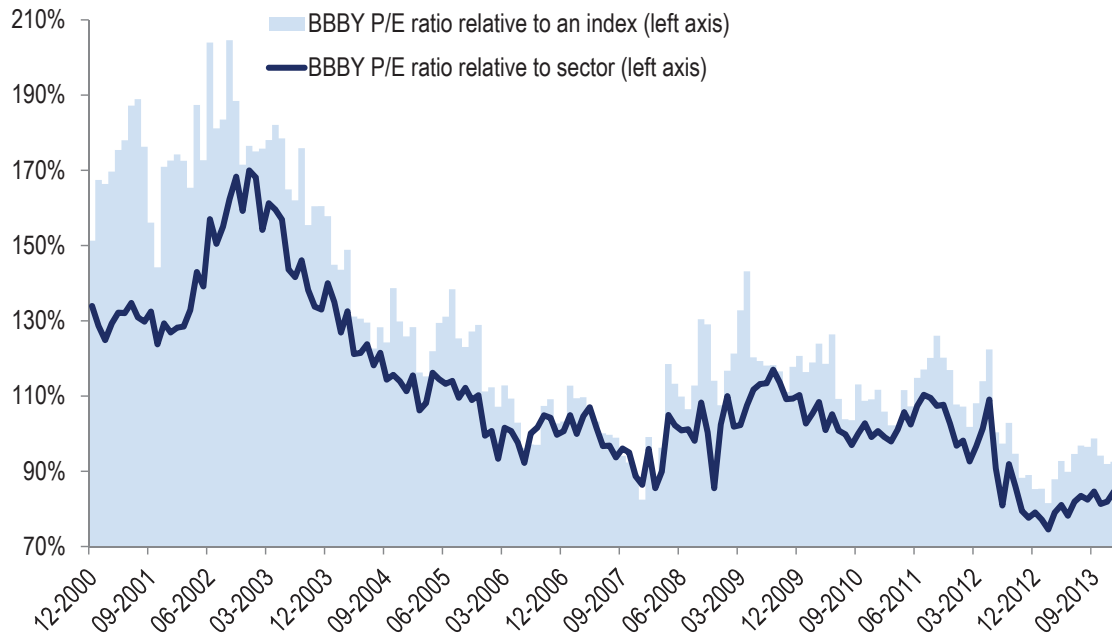
Another Opportunity to Split Your Screen if Using Word Version
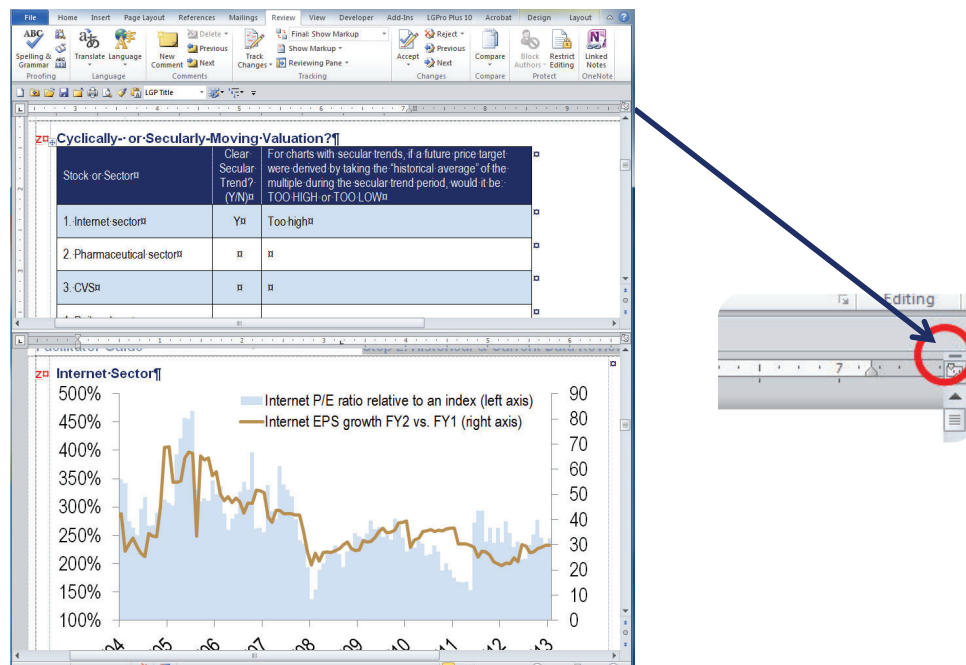
EXERCISE: CYCLICALLY- OR SECULARLY-MOVING VALUATION?

144

What Could Lucas Have Learned from Step 2 of SHARE™?

STEP 2: Historical and Current Sentiment

Lucas…

- Doesn't know these *historical*: elements for MCD
  - Range of MCD's valuation levels in absolute terms
  - Range of MCD's valuation levels relative to peers and broad index
  - Whether MCD's valuation has been moving cyclically or secularly
- Is using *absolute* valuation levels rather than *relative*
- When asked about using relative P/E ratios, he doesn't understand the importance of using forward-looking estimates for the "e" rather than historical actuals
- Doesn't know how the stock's *current* valuation compares to:
  - All of its peers
  - Stocks of companies in other sectors with similar characteristics

Target Realistic Price(s)

SHARE™ Framework

Pre-step: Create an accurate financial forecast(s)

Step 1: **S**elect valuation method(s)

Step 2: **H**istorical & current sentiment

Step 3: **A**djust for future time period

Step 4: **R**ange of multiples and price targets

Step 5: **E**valuate as circumstances change

What Should We Use For a Future Price Target Valuation Multiple?

MCD P/E ratio relative to an index (left axis)
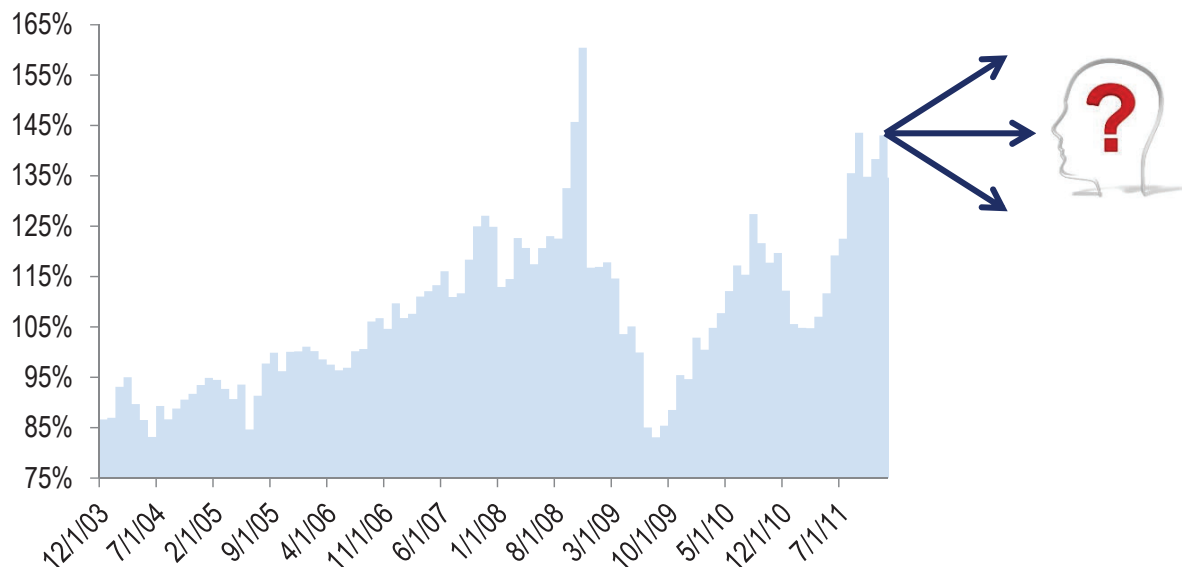
Adjusting for the Future

Legend:
- JNJ P/E ratio relative to an index (left axis)
- JNJ P/E ratio relative to sector (left axis)
- JNJ EPS growth FY2 vs. FY1 (right axis)
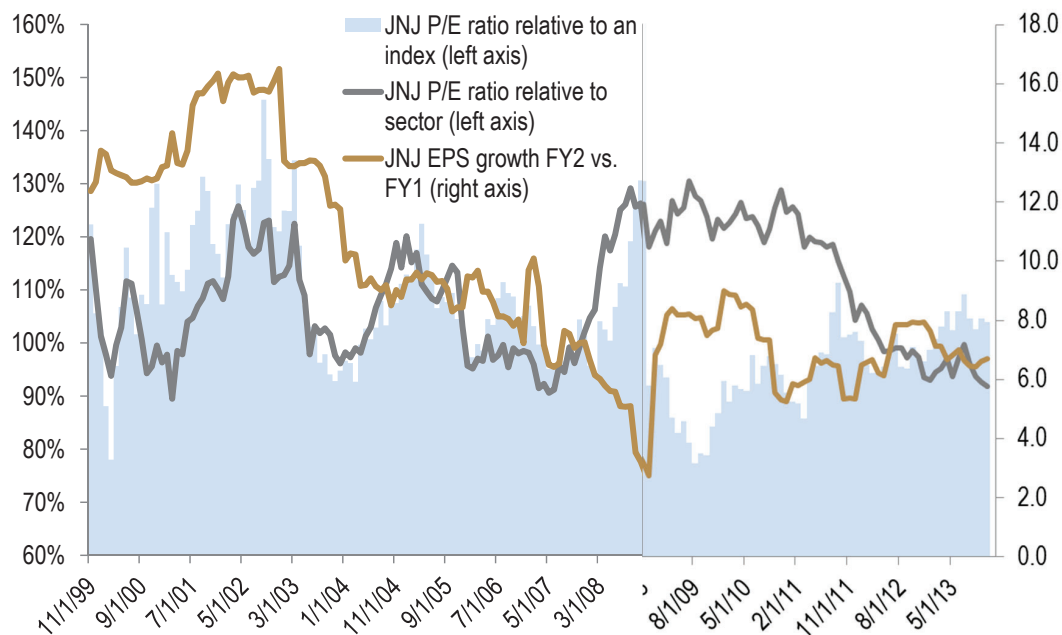
Choose Your Path

If a stock's current valuation multiple is anomalous *from its past* or *versus current stocks that have similar characteristics*, the future multiple:

- Should be adjusted back to normal trends/relationships; or

- Can stay at current levels if research can justify current levels are the "new normal" for the forward investment time horizon

Price Target in Its Simplest Terms

Forward-looking financial forecast at a point in time	Influences →	Valuation multiple

---
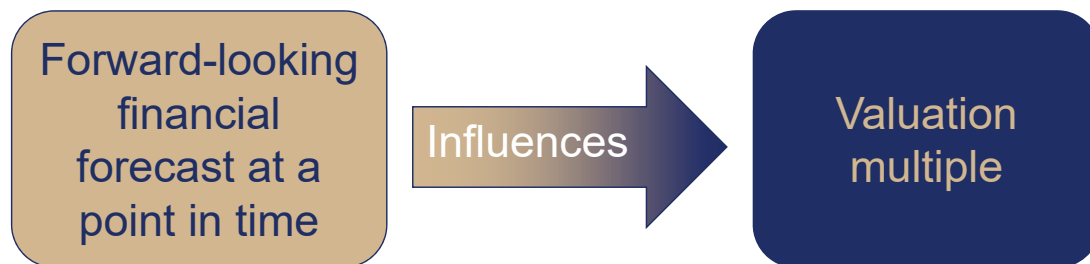
Example

Year	NTM EPS	Multiple at that time	Price	Upside	Multiple at that time	Price	Upside
Y1 (yours and consensus estimate)*	€ 1.00	10	€ 10.00	0%			
Y2 (Consensus)	€ 1.10	10	€ 11.00	10%	9	€ 9.90	-1%
Y2 (Your estimate)	€ 1.20	10	€ 12.00	20%	9	€ 10.80	8%

* Assume we are in January of Y1

Don't Forget:
Forecast Trumps Valuation

Legend:
- BBY P/E ratio relative to an index (left axis)
- BBY P/E ratio relative to sector (left axis)
- BBY EPS growth FY2 vs. FY1 (right axis)
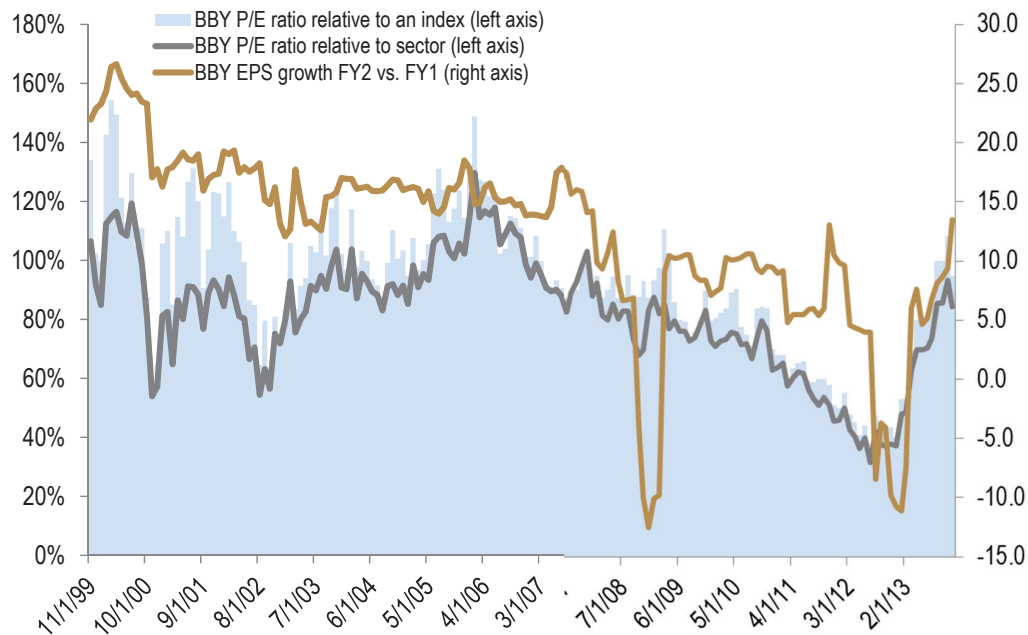
Exploit Anomalies

If your financial forecast is more accurate than consensus, you will have the ability to:

- Anticipate the multiple expansion; or

- Avoid double-counting if the multiple is already anticipating this change

Time identifying the optimal valuation multiple

Time researching to create accurate forecast
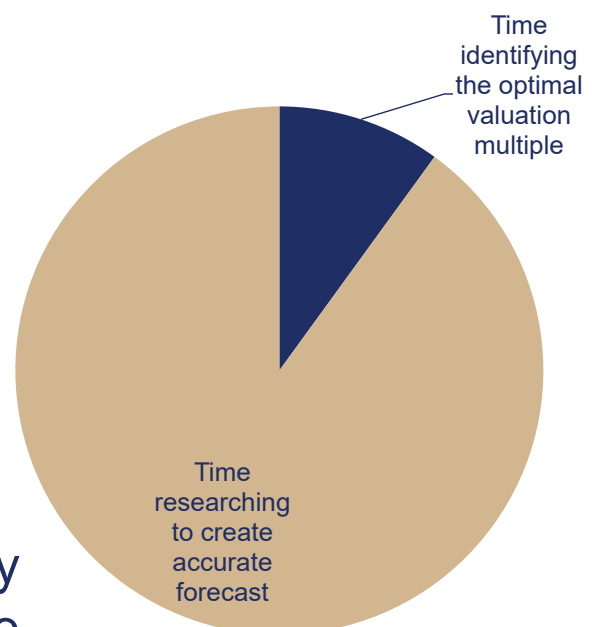
Watch For Sector Anomalies

- Greater forces beyond a stock can impact multiples
  - Desire to own tech stocks in 1999
  - Desire to own clean energy stocks in 2008
  - Desire to own defensive names during the sub-prime melt-down
- Don't assume current irrational exuberance will continue to provide support to a one-year price target

189

Avoid This "Too Early" Mistake

- Ensure you understand how your financial forecast for Y1, Y2 and Y3 differ from the consensus
- If you have a much higher EPS estimate than consensus in Y3 but lower in Y1, it would be unwise to assume the stock's relative multiple will expand during Y1, at a time when expectations will likely be lowered

Assume Anomalous Valuations Return to Normal Using These Tools
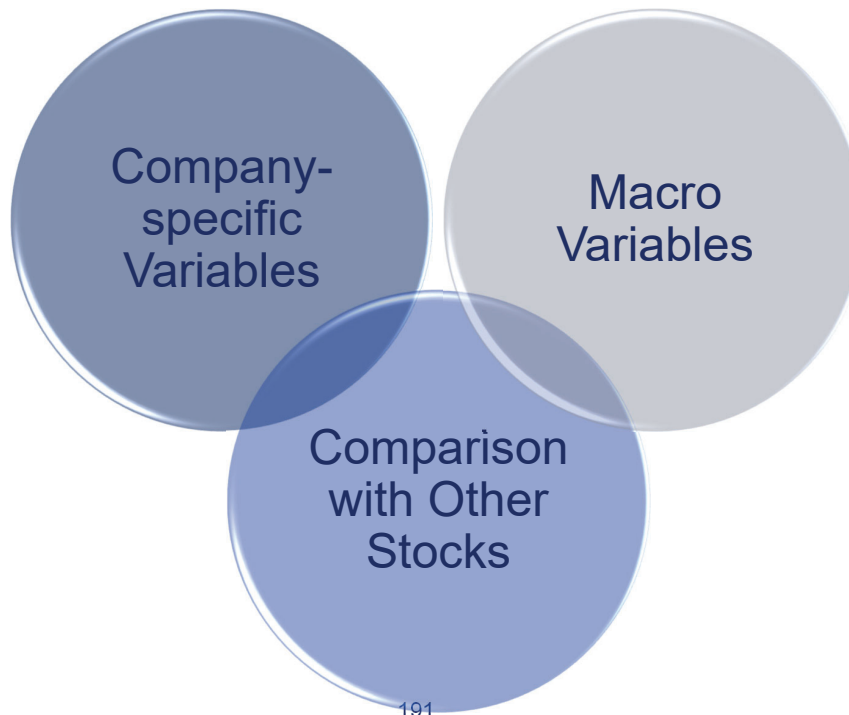
Company-specific Variables

Macro Variables

Comparison with Other Stocks

191

Company-specific Variables

Macro Variables

Comparison with Other Stocks

192

Assume Anomalous Valuations Return to Normal Using These Tools

Company-specific Variables

Macro Variables

Comparison with Other Stocks

193

Macro Factors Continue to Influence: FDX

FDX P/E ratio relative to an index (left axis)
MACRO University of Michigan: Consumer Sentiment (right axis)

Macro Factors Continue to Influence: FDX

■ FDX P/E ratio relative to an index (left axis)
— MACRO University of Michigan: Consumer Sentiment (right axis)

Note values in right axis are in reverse order

Macro Factors Continue to Influence: HD

■ HD P/E ratio relative to an index (left axis)
— MACRO S&P/Case-Shiller 20-City Composite Home Price Index (right axis)

Note values in right axis are in reverse order

Macro Factors Continue to Influence: SBUX

■ SBUX P/E ratio relative to an index (left axis)
— MACRO Existing Home Sales (right axis)

Macro Factors Continue to Influence: YUM

■ YUM P/E ratio relative to an index (left axis)
— MACRO US Regular Conventional Gas Price (right axis)
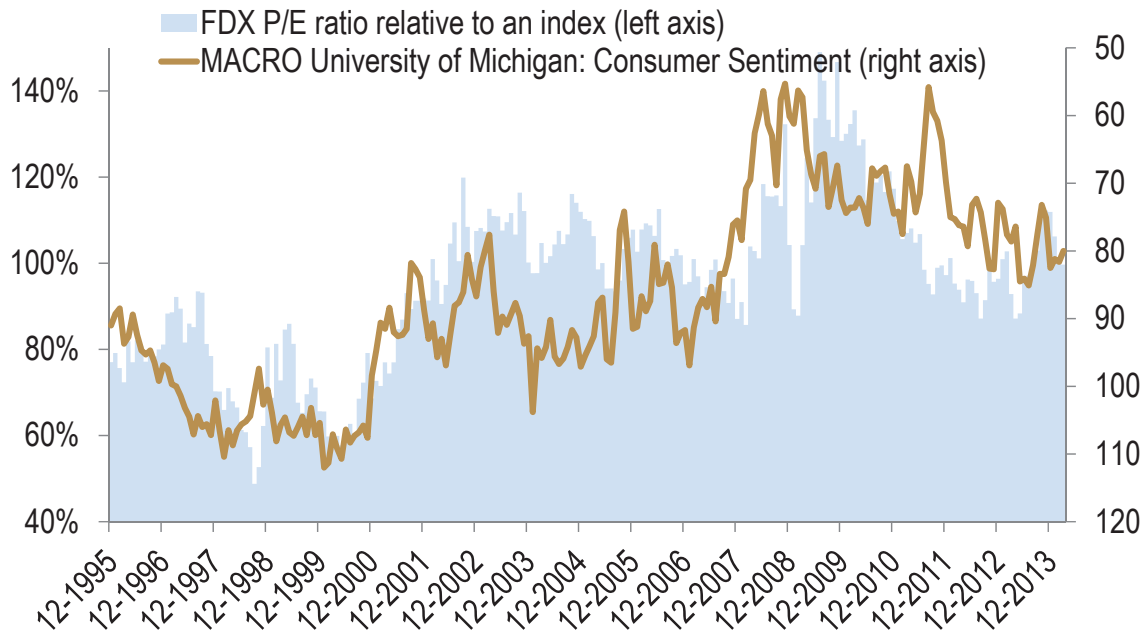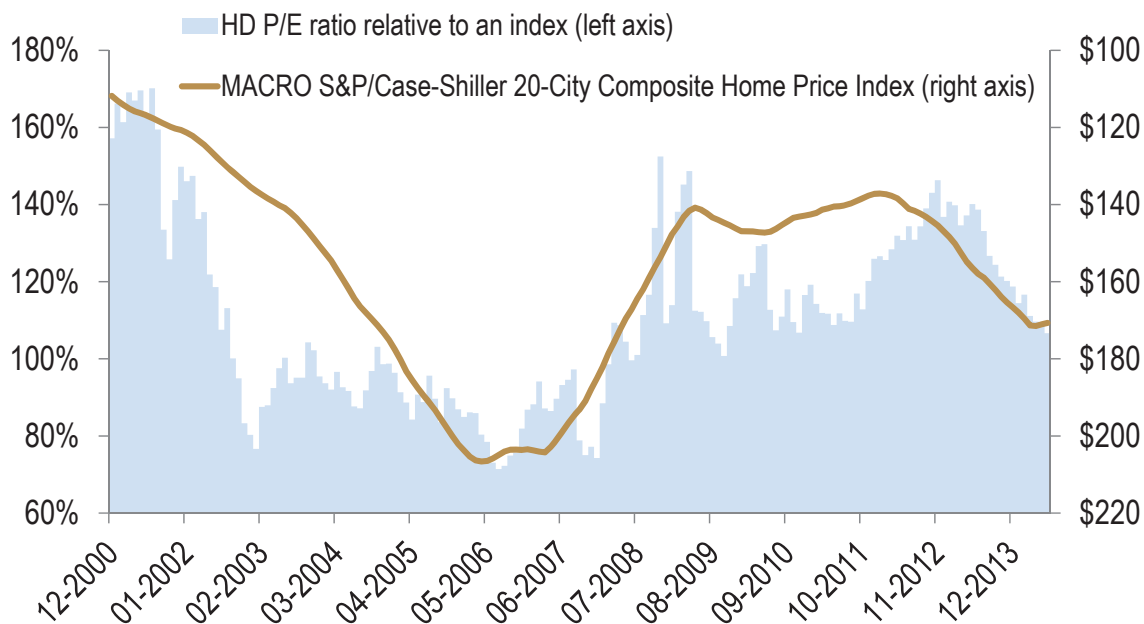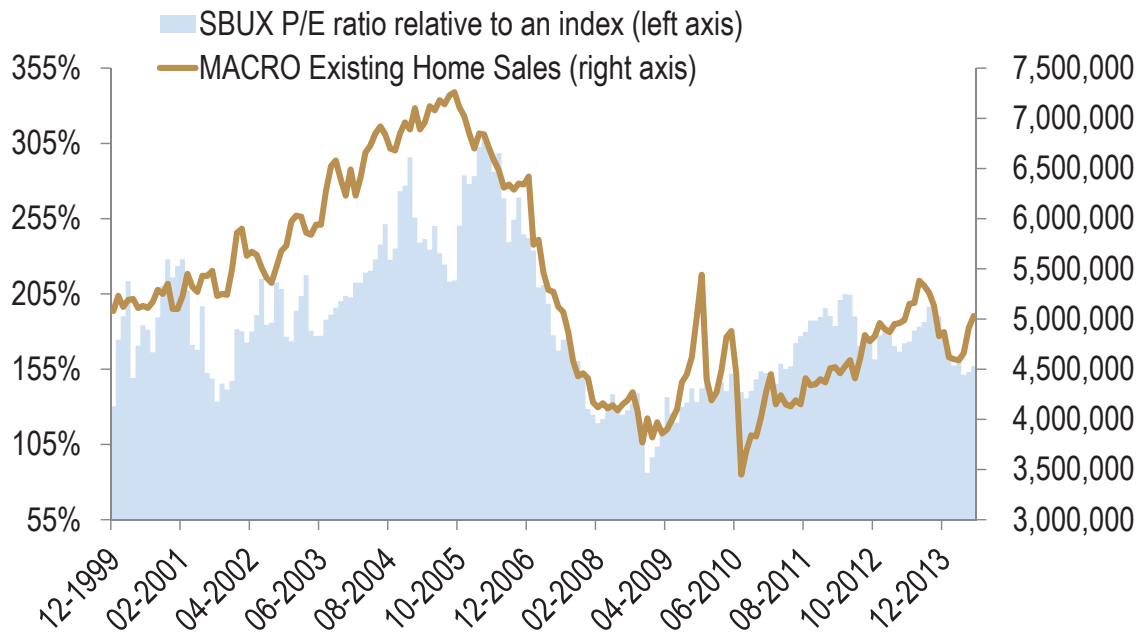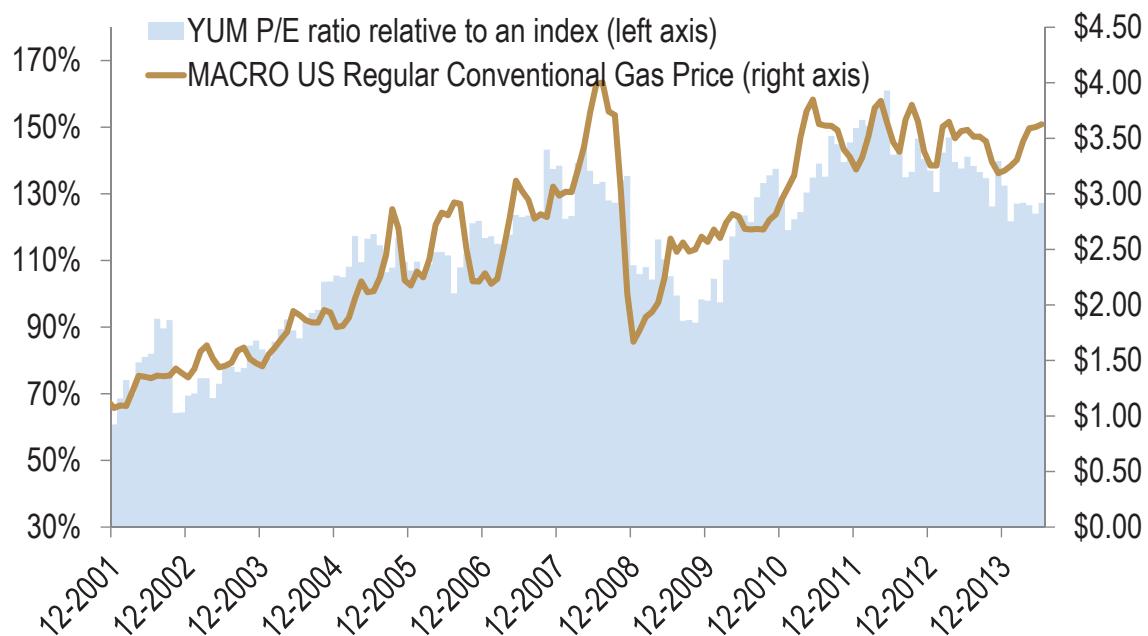
EXAMPLE

Historical Valuation for WMT
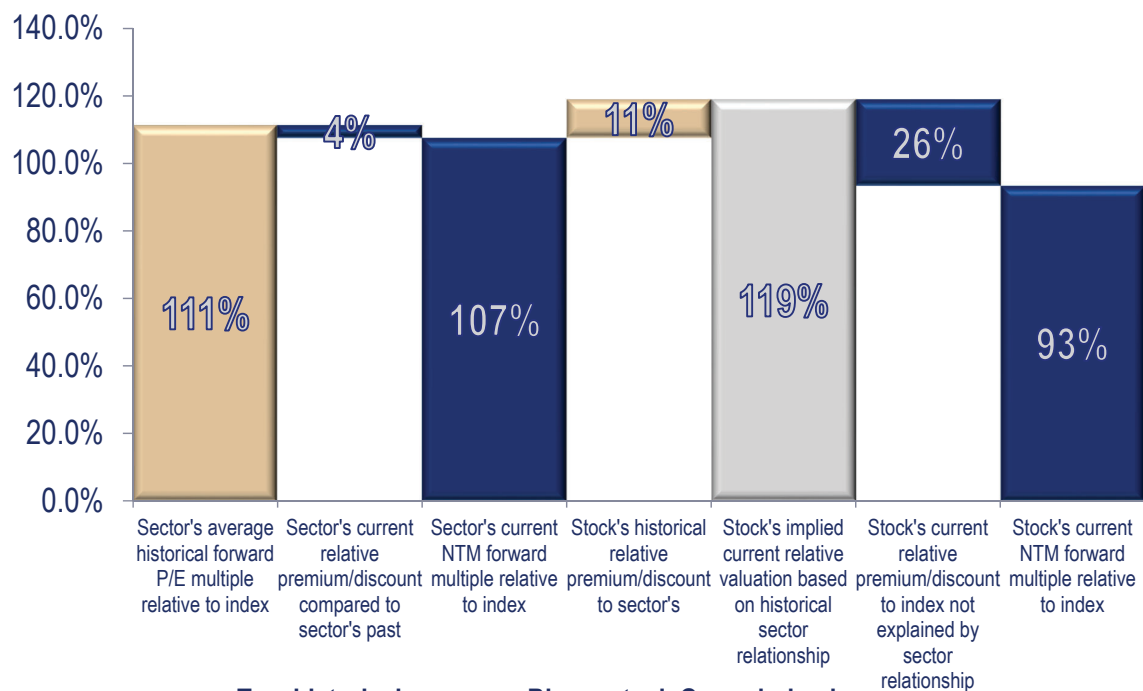
Tan: historical averages, Blue: actual, Gray: derived

Correlation Coefficients for WMT's Relative P/E Ratio vs. Variable

Beta — 76.9%

EPS growth FY2 vs. FY1 — 69.5%

Payout ratio — -80.7%

US Regular Conventional Gas Price — -75.6%

Housing Starts: Total: New Privately Owned Housing Units Started — 52.2%
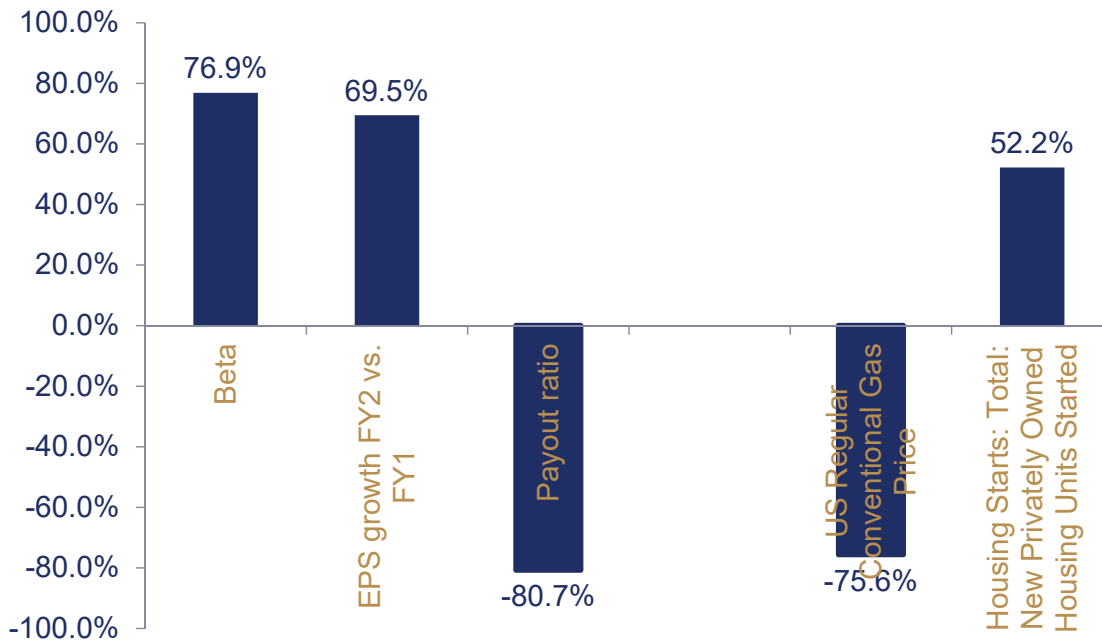
June 1997 to June 2013

206

Company-Specific Variable for WMT

WMT P/E ratio relative to an index (left axis)

WMT EPS growth FY2 vs. FY1 (right axis)

207
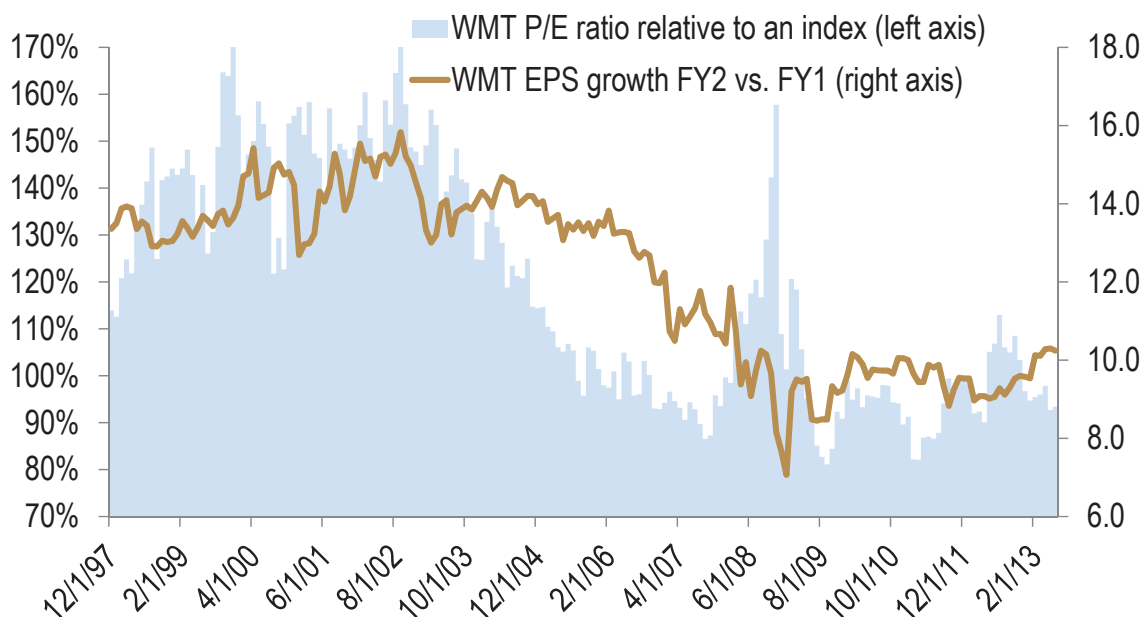
Historical Variables for WMT

Legend:
- WMT P/E ratio relative to an index (left axis)
- MACRO US Regular Conventional Gas Price (right axis)
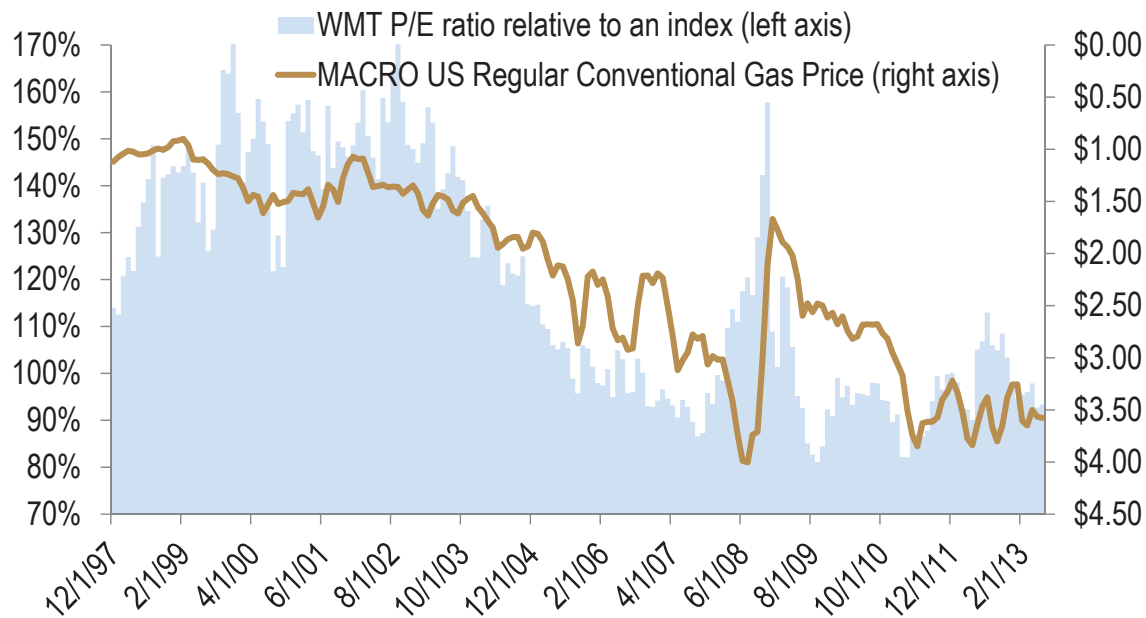
Forecast of Relative P/E Ratio in One Year (WMT)

	EPS growth FY2 vs. FY1	EPS growth FY2 vs. FY1 (48 outliers removed from 193 periods)	Gas Prices (dollars/ gallon)
R Square*	0.69	0.86	0.73
Intercept	0.25	0.12	1.61
Variable (multiplier)*	7.7	8.6	-20
Forecast for 1 year from now**	9%	9%	$3.63
Expected relative P/E ratio in 1 year	94%	89%	89%
Actual in June 2014	86%	86%	86%

* Regression based on data between June 1997 and June 2013
** "Now" is assumed to be June 2013

Shortcomings of Using Statistics

- Will not always find a strong relationship (correlation coefficient)
- Time consuming
- Relationships change over time and so today's work may become stale in six months
- Not likely to be as accurate during macro shifts such as economic slowdowns
- Correlation doesn't mean causation
- Be aware of multicollinearity

Correlation ≠ Causation

Legend:
- YUM P/E ratio relative to an index (left axis)
- MACRO Personal Consumption Expenditures (right axis)

Jan 2000 to July 2013; Correlation coefficient = 77%
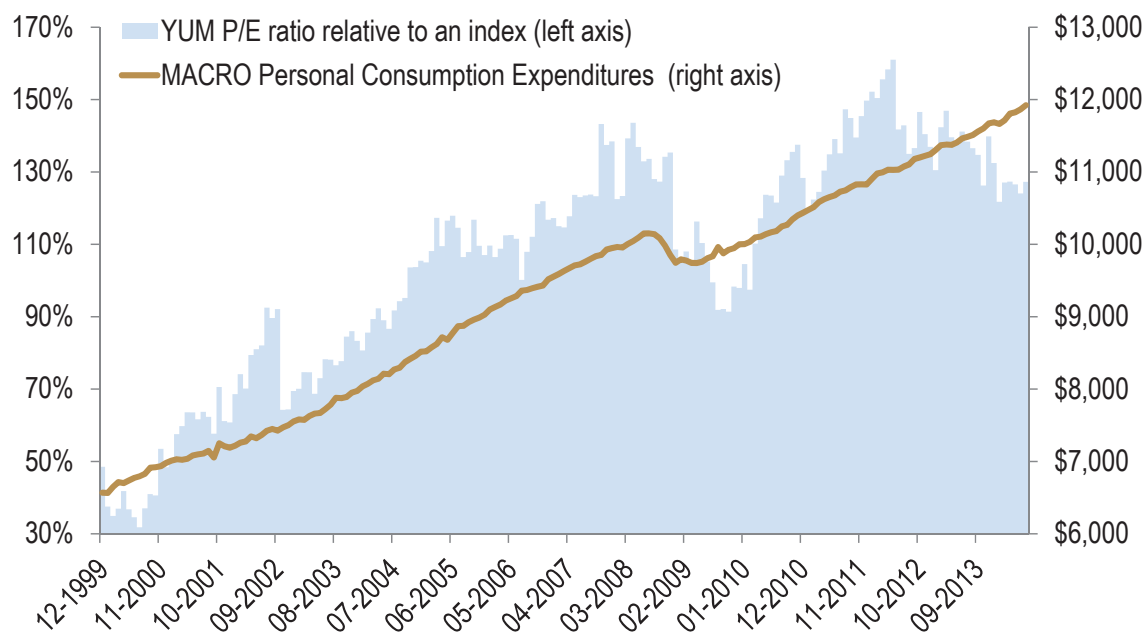
Considerations When Comparing Historical Macro Data to Relative Multiples

Remove any effect from inflation because relative multiples do not continually grow like GDP, personal income or the consumer price index

- Month-over-month change can eliminate this problem, but may be too volatile
- Consider using change in trailing 3 months

Example of Multicollinearity (WMT)

Variable	Coefficient
Intercept	1.83
Year-over-year change in NTM consensus EPS	-2.2
Beta	0.29
Payout ratio	-2.5
Adjusted R squared	0.63

$$WMT's\ relative\ PE\ Ratio\ forecasted$$
$$= 1.83 + (EPS\ growth\ rate\ x\ -2.2) + (beta * 0.29)$$
$$+ (payout\ ratio * -2.5)$$

Counter-intuitive Implications (if multicollinearity did not exist):
- As EPS growth rate increases, the relative P/E ratio decreases
- As the beta declines, so does the company's relative P/E ratio

Correlation Between "Independent" Variables

	WMT EPS growth FY2 vs. FY1	WMT Payout ratio	WMT Beta
WMT EPS growth FY2 vs. FY1	1.00		
WMT Payout ratio	-0.86	1.00	
WMT Beta	0.81	-0.73	1.00

Implications for Multicollinearity

Multicollinearity does not bias results, but when it occurs…

- **Cannot use variables on their own (such as a "decay coefficient")**
- If the multicollinearity relationship between the independent variables change over time, the regression will become less reliable

Sources: Chatterjee, S.; Hadi, A. S.; Price, B. (2000). Regression Analysis by Example (Third ed.). John Wiley and Sons
Gujarati, Damodar. "Multicollinearity: what happens if the regressors are correlated?" Basic Econometrics (4th ed.). McGraw−Hill pp. 363–363.

Actual and Predicted Relative P/E (WMT)
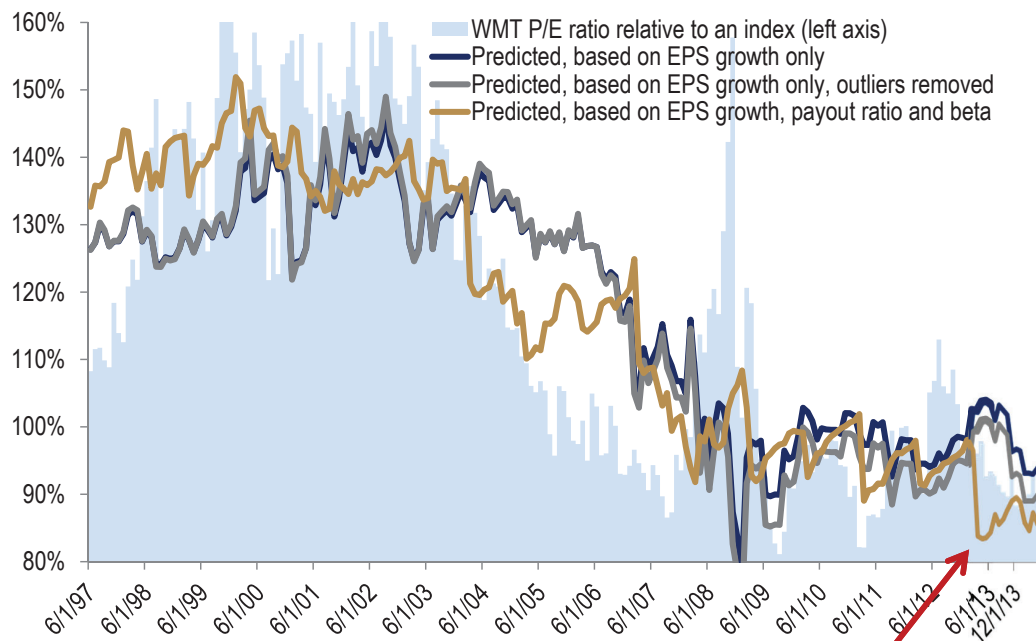
The regression equation included data that ended June 2013

K.I.S.S. Principle

- Occam's razor:
  - Among competing hypotheses, the one with the fewest assumptions should be selected
- Solomonoff's theory of inductive inference:
  - Shorter computable theories have more weight when calculating the probability of the next observation

Source: Wikipedia

Complete Your TAP

Section 6

Transformation Action Plan (TAP)

Instructions for the Transformation Action Plan (TAP):
- Throughout this workshop complete the TAP below
- Apply the key points after the workshop to help you improve your performance
- This will not be collected and so write in a manner that will help you utilize the concepts being learned

Assume Anomalous Valuations Return to Normal Using These Tools

Company-specific Variables

Macro Variables

Comparison with Other Stocks
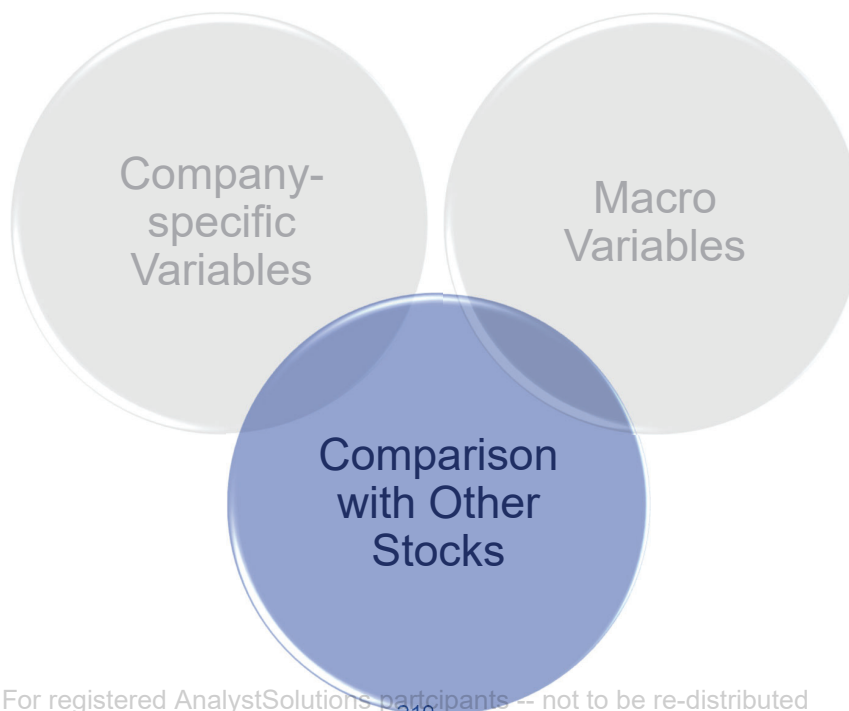
What Could Lucas Have Learned from Step 3 of SHARE™?

STEP 3: Adjust for Future Time Period

Lucas…

- In computing a future valuation multiple, he doesn't account for the current anomalies that will likely disappear:
  - Lucas cannot explain why MCD's current 17.5x P/E multiple (on trailing earnings) is likely to be sustainable when compared to a 15.8x P/E multiple (on forward earnings) the stock has averaged over the past 5 years
  - Lucas doesn't understand there is a *negative* (not positive) relationship between consumer sentiment and the stock's relative valuation multiple

222

Target Realistic Price(s)

SHARE™ Framework

- Pre-step: Create an accurate financial forecast(s)
- Step 1: **S**elect valuation method(s)
- Step 2: **H**istorical & current sentiment
- Step 3: **A**djust for future time period
- Step 4: **R**ange of multiples and price targets
- Step 5: **E**valuate as circumstances change
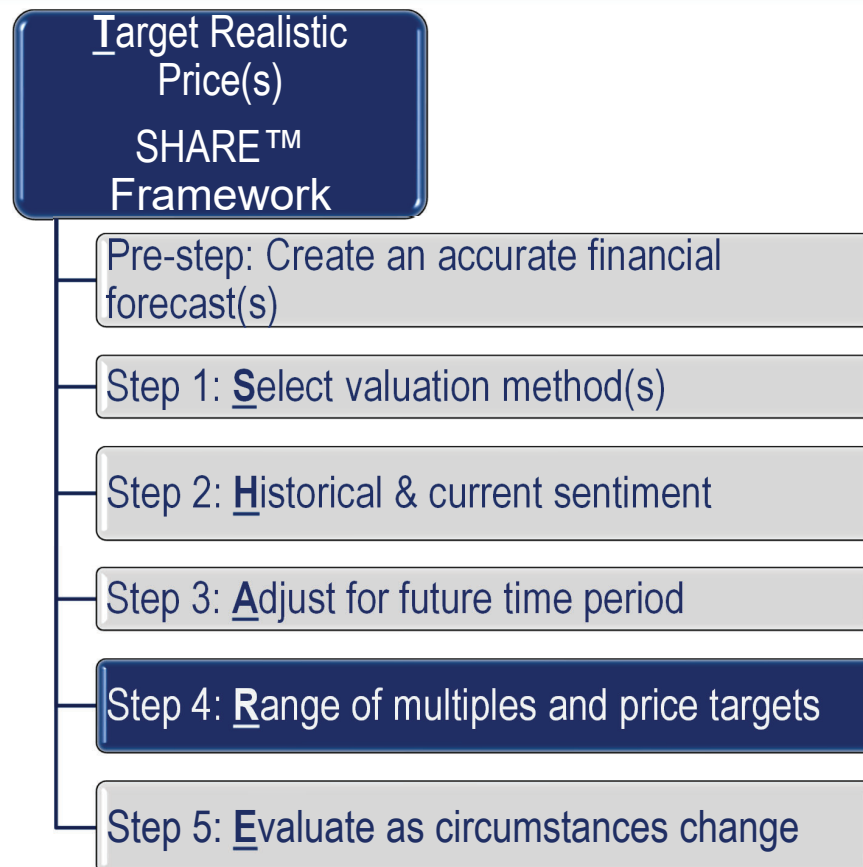
What
you don't know
you don't know
will kill you

224

Price Target in Its Simplest Terms

Forward-looking financial forecast at a point in time

Valuation multiple

Forward-looking financial forecast at a point in time

X

Valuation multiple

Forward-looking financial forecast at a point in time

Valuation multiple

226
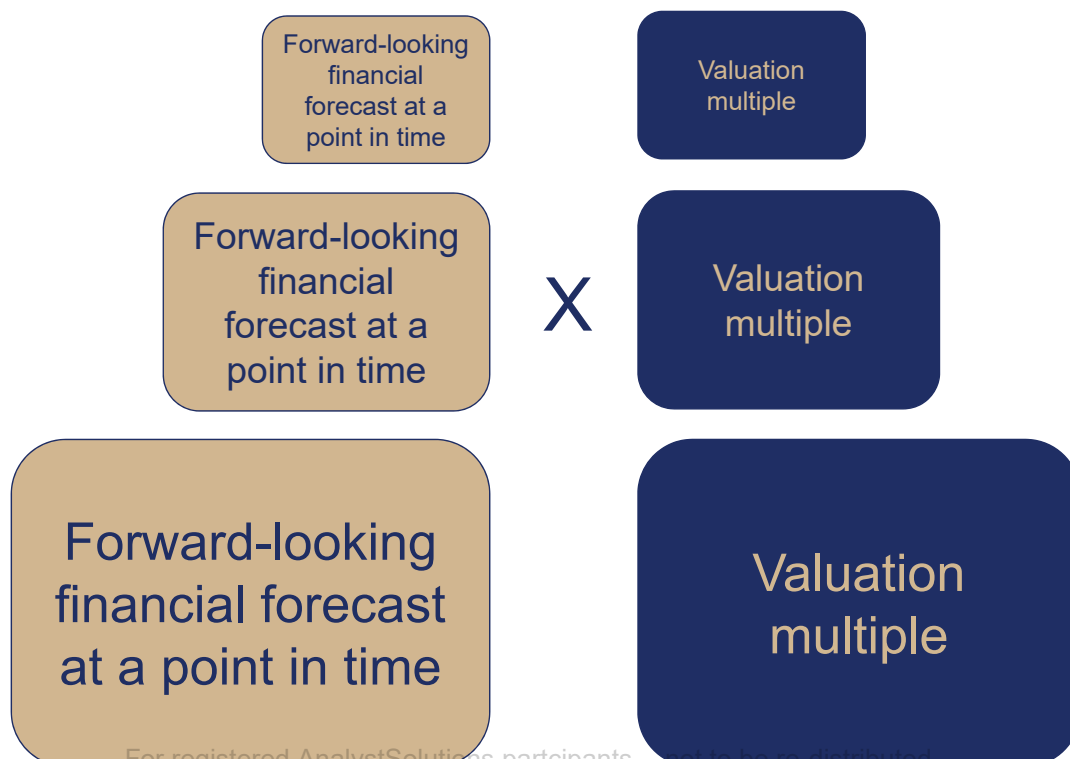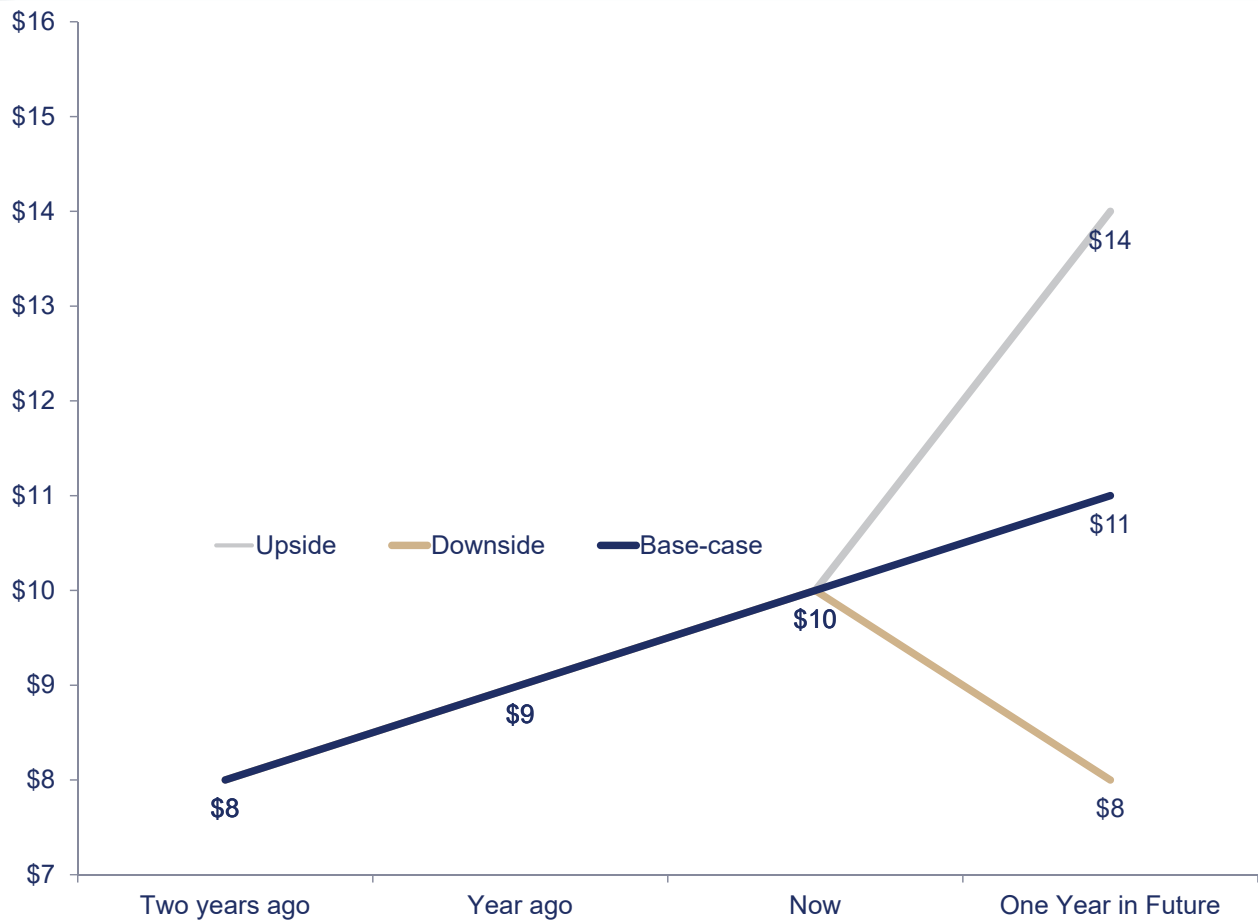
# Complete Your TAP

Section 7

Transformation Action Plan (TAP)

Instructions for the Transformation Action Plan (TAP):
- Throughout this workshop complete the TAP below
- Apply the key points after the workshop to help you improve your performance
- This will not be collected and so write in a manner that will help you utilize the concepts being learned

Shortcomings with Price Targets

- Static: only change when analyst updates
- Usually look only 6-18 months out
- Single-point
  - No measure of conviction or risk

229

Develop a Range of Multiples

- Valuation isn't about one precise multiple
  - Understand market psychology
  - Understand range of future realistic outcomes
- A best practice is to have:
  - Base case multiple
  - Upside case multiple
  - Downside case multiple

Valuation multiple

Valuation multiple

Valuation multiple

230

Peak on Peak or Peak on Trough?

Forward-looking financial forecast at a point in time

Forward-looking financial forecast at a point in time

Forward-looking financial forecast at a point in time

X

Valuation multiple

Valuation multiple

Valuation multiple
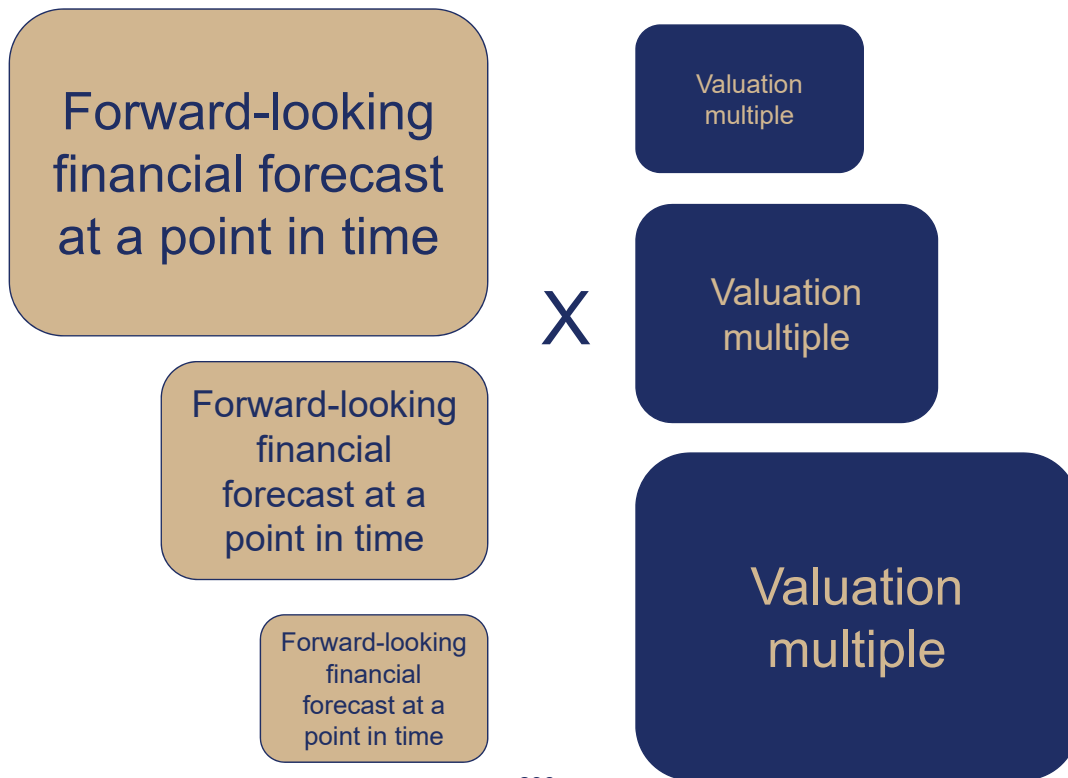
236

Dow Chemical Company

- DOW P/E ratio relative to an index (left axis)
- DOW Next 12-month consensus EPS (right axis)

237

Eli Lilly

- LLY P/E ratio relative to an index (left axis)
- LLY Next 12-month consensus EPS (right axis)

Costco

- COST P/E ratio relative to an index (left axis)
- COST Next 12-month consensus EPS (right axis)

Hormel Foods

Legend:
- HRL P/E ratio relative to an index (left axis)
- HRL Next 12-month consensus EPS (right axis)

McDonald's

Legend:
- MCD P/E ratio relative to an index (left axis)
- MCD Next 12-month consensus EPS (right axis)

Price Target in Its Simplest Terms

Forward-looking financial forecast at a point in time	X	Valuation multiple

---

The Final Product

Table A: Three Scenarios Answer Key

Answer Key for Financial Forecast, Valuation Multiple and Price Target Scenarios

	Downside	Base	Upside
Adjustments for Critical Factors			
Critical Factor #1. Impact from slowing international growth	Non-U.S. growth of -1%	Non-U.S. growth of 2%	Non-U.S. growth of 5%
EPS Impact vs. Base-case	-$0.25	$0.00	$0.25
Probability (must equal 100%)	20%	60%	20%
EPS Impact, Weighted for Probability	-$0.05	$0.00	$0.05
Critical Factor #2. Operating margins stop improving	O.M. decline 200 bps	O.M. decline 100 bps	O.M. rise 50 bps

See your learner workbook for a full version of the table found on this slide

AnalystSolutions

Know Why Your Price Target Differs

If the upside to your price target is materially different than the expected upside in the broader market, determine which of your areas disagrees with consensus (FaVeS):

- Financial forecast?
- Valuation multiple?

Complete Your TAP

Section 8

Transformation Action Plan (TAP)

Instructions for the Transformation Action Plan (TAP):
- Throughout this workshop complete the TAP below
- Apply the key points after the workshop to help you improve your performance
- This will not be collected and so write in a manner that will help you utilize the concepts being learned

246

Setting Parameters for Exiting a Stock

- Document a range of exit thresholds in advance of making the recommendation (they may be within the "upside" and "downside" scenarios), which will reduce biases from creeping into decisions at a later date
  - **Upside exit threshold to begin selling <u>some</u>** of the position when it's playing out as expected. This would be the point to stop reiterating the call to your colleagues/clients
  - **Upside exit threshold to sell the <u>entire</u>** position unless new information materializes. This is the point to downgrade the stock
  - **Downside exit threshold** to seriously reexamine the investment thesis (for example, the stock moves 15 percent in the opposite direction of the call)
  - **Stop-loss exit threshold**: to sell position because the thesis is not playing out

What Could Lucas Have Learned from Step 4 of SHARE™?

STEP 4: Range of Multiples and Price Targets

Lucas…

- Doesn't see the benefit of:
  - Creating a range of multiples or price targets (he's convinced his thought process is the only one he needs to know)
  - Developing exit thresholds before making the stock call (nothing can go wrong)

248

Target Realistic Price(s)

SHARE™ Framework

- Pre-step: Create an accurate financial forecast(s)
- Step 1: Select valuation method(s)
- Step 2: Historical & current sentiment
- Step 3: Adjust for future time period
- Step 4: Range of multiples and price targets
- Step 5: Evaluate as circumstances change

249

Catalysts for
Changing Price Targets

Revised Multiple

Revised Forecast

New Method

Update Price Target
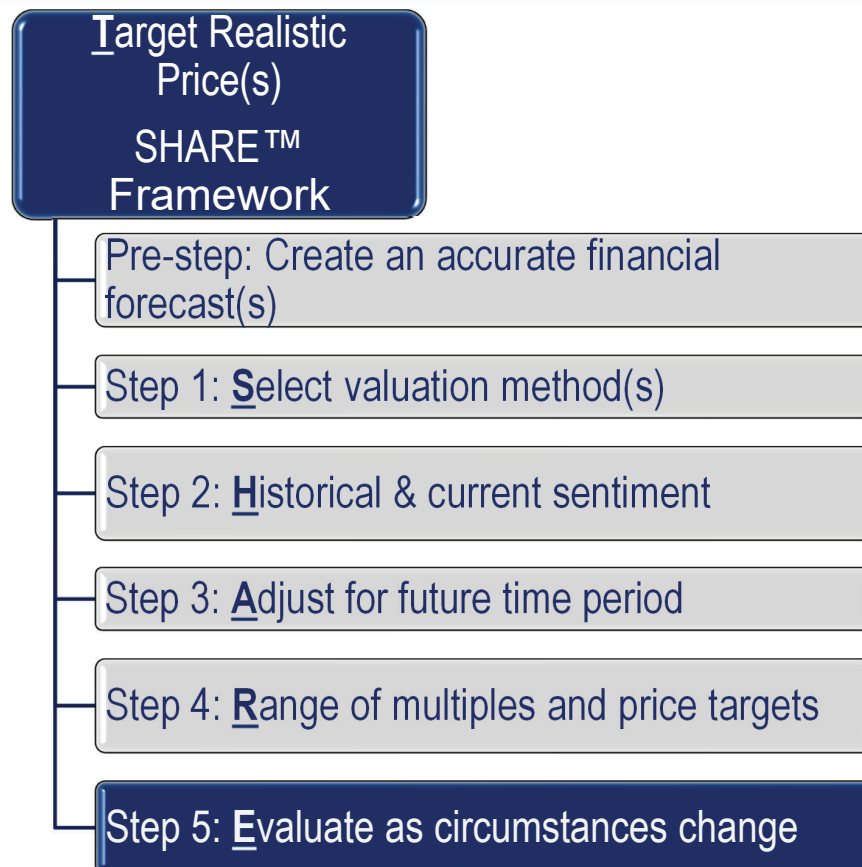
Catalysts for Changing Price Targets: Revised Forecast

Revised Forecast

- <u>Objective</u>, <u>defendable</u> changes in your assumptions
- For forward estimates strive to keep the valuations current by using next 12 months (NTM) or next four quarters earnings or cash flow

Catalysts for Changing Price Targets: Revised Multiple

Revised Multiple

- For relative multiples:
  - When peer multiples fluctuate
  - When highly-correlated variables change
    - Company-specific such as EPS growth rate
    - Macro such as consumer sentiment
- For DCF or residual income, when the underlying assumptions change such as risk-free rate, equity premium, or stock's beta

253

Catalysts for Changing Price Targets: New Valuation Method

New Method

- At the peak or trough inflection points of the business cycle
- Moving from one phase to another of a company's or industry's life cycle (e.g. growth to maturity)
- Going through a major secular transformation or major restructuring
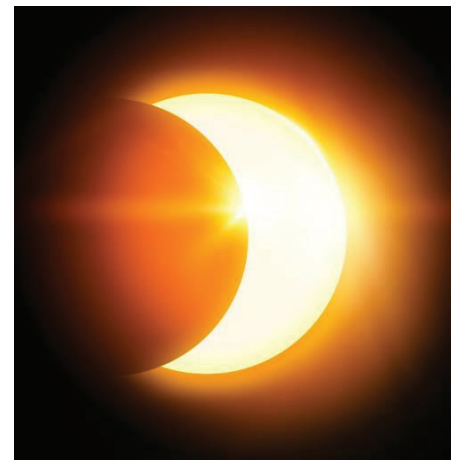
See list of examples in Learner Workbook

Use "Change in Valuation" Sparingly

Stock recommendations tend to fail when they are based solely on the analyst's expectations that:

- The stock's valuation multiple will be re-rated (void of an impending financial forecast change); or
- The market will change its preferred valuation methodology

EXERCISE: "HOW IS THE VALUATION METHOD LIKELY TO CHANGE?"

Avoid "Incrementalism" when Changing Price Targets

Avoid raising your price targets in small, incremental steps while waiting for "further clarification" because it prevents others from seeing the true upside in your call

What Could Lucas Have Learned from Step 5 of SHARE™?

STEP 5: <u>E</u>valuate as Circumstances Change

Lucas…

- Doesn't fully appreciate that price targets should be changed when:
  - Assumptions change in his earnings or cash flow projections
  - Time passes, leading to new forecast periods (e.g. each month that passed will likely cause the next 12-month forward estimate to increase)
  - Valuation multiples of comparable companies or the market change

So What Happened to MCD?

160%
140%
120%
100%
80%
60%
40%
20%
0%

122% | 21% | 143% | 12% | 131% | 15% | 116%

Sector's average historical forward P/E multiple relative to index | Sector's current relative premium/discount compared to sector's past | Sector's current NTM forward multiple relative to index | Stock's historical relative premium/discount to sector's | Stock's implied current relative valuation based on historical sector relationship | Stock's current relative premium/discount to index not explained by sector relationship | Stock's current NTM forward multiple relative to index

Tan: historical averages, Blue: actual, Gray: derived

So What Happened to MCD?

■ MCD P/E ratio relative to an index (left axis)
━ MCD EPS growth FY2 vs. FY1 (right axis)

143%   116%

Target Realistic Price(s) (SHARE™ Framework)

- Create an accurate financial forecast(s)
- Select valuation method(s)
- Historical & current sentiment
- Adjust for future time period
- Range of multiples and price targets
- Evaluate as circumstances change

Identify & Forecast Catalyst(s)

- Identify & forecast potential catalyst(s)
- Focus on catalysts meeting optimal criteria
- Proactively prepare for next catalyst

Ensure Ideal Entry Point

- Avoid costly psychological shortcuts
- Ensure call is differentiated (FaVeS™)
- Avoid Pollyannaish or hopeful thinking
- Weigh risk as well a return
- Ensure no imminent danger
- Document thesis
- Sleep on it

- Monitor trading data
- Know consensus
- Survey market sentiment
- Avoid following the herd
- Monitor technical indicators
- Influence the market

Review Performance and Thesis

- Dynamically rank and review
- Avoid "fear or failure"
- Review original documentation
- Review unbiased comparisons
- Re-think recommendation if thesis wanes
- Re-think recommendation if catalyst is ineffective
- Avoid placing blame or denying responsibility

261

Target Realistic Price(s) Reference Cards

Detailed Reference Card (DRC)

Best Practices for Making Accurate Stock Recommendations

Procedures for Target Realistic Price(s) (Step 1 of TIER™ which includes the SHARE™ framework):

Create an accu... fin... fo...

Conduct research to develop informed insights about the few critical factors most likely to move a stock, following the ENTER™ quality framework (discussed in Chapters 8 and 22 of...

Detailed Reference Card (DRC)

Best Practices for Making Accurate Stock Recommendations

Perspectives for Target Realistic Price(s) (Step 1 of TIER™)

Momentum stocks can defy rational valuations: Rapidly growing stocks (e.g. technology) are often owned by momentum players, and can defy rational valuation levels until approaching more

262

Important Tools for SHARE™

- Correlate and chart:
  - Stock data
  - Sector data
  - Index data
  - Macro data
- Conduct regressions
- Remove anomalies that skew data

Key Data Series to Include

Variable to Correlate, Chart and Regress	Company	Sector	Index
Beta	X	X	
Closing price	X		X
Dividend Yield	X		X
EPS growth FY2 vs. FY1 (or FY3 vs. FY2)	X	X	X
NTM consensus EPS	X		X
NTM EPS vs Avg. NTM EPS of Prior 12 Months	X		X
P/E ratio on NTM EPS	X	X	X
P/E ratio relative to an index	X	X	
P/E ratio relative to sector	X		
Payout ratio	X	X	X
ROE	X	X	X

Follow through by continually practicing these three steps…

Train to Retain	Employ an Action Plan	Reinforce Knowledge

Our Tools

Workshops

One-on-one coaching

GAMMA PI™
Assessments
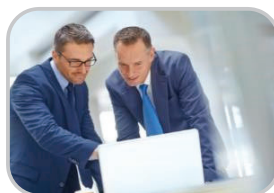
Consulting

Keynote/offsite presentations

Workshops that Address Universal Analyst Needs

|	
CRITICAL FACTORS	Identify & Monitor a Stock's Critical Factors
	Generate Differentiated Insights Through Better Discovery, Questioning and Influencing
	Apply Practical Valuation Techniques For More Accurate Price Targets
	Master the Stock Call Techniques of Highly Experienced Analysts
	Communicate Unique Stock Calls Successfully So Others Take Action
	Maximize Your Time for Alpha Generation
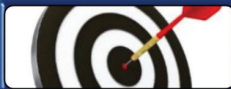
Best Practices Bulletins

10 Steps for Equity Research Analysts to Perform Better
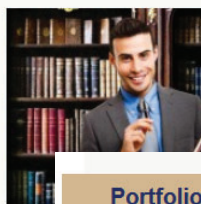
According to Reuters, one of its sister companies, Lipper, finds that roughly 85% of active large-cap stock funds are lagging their benchmarks year-to-date through late November. Investors are voting with their feet as shown by the $206 billion of inflows into ETFs through the first 10 months of 2014 vs. only $36 billion for the...

Portfolio Managers' #1 Frustration With Equity Research Analysts

While I was studying the Japanese language during college, I initially didn't take notice that the word "chigau" (ちがう) is used to convey both "different" and "wrong." But after moving to Tokyo and learning the importance of conforming to the group, I developed a newfound appreciation for why these two English words require only one...

Read the Entire Bulletin ›

Thank You for Participating!

To sign up for bonus content to help gain practical skills, visit:
AnalystSolutions.com/bonus

Your email address will only be used for educational material

Info@AnalystSolutions.com

CE Qualified Activity   CFA Institute

APPENDIX

Thoughts from Academia

Aswath Damodaran

- "In terms of valuation multiples, the median value is much more representative of the typical firm in the group, and any comparisons should be made to medians"[1]
- "The standard sales pitch of a stock being cheap because it trades at a multiple less than the average for the sector should be retired in favor of one that compares the stock's pricing to the median for the sector"[1]
- "Stocks with low PE ratios earn significantly higher returns than stocks with high PE ratios over long time horizons"[2]

[1] Damodaran, Aswath. *Damodaran on Valuation: Security Analysis for Investment and Corporate Finance*. Hoboken, NJ: John Wiley & Sons, 2006. Print.
[2] Damodaran, Aswath. *Investment Fables: Exposing the Myths of "can't Miss" Investment Strategies*. London: Financial Times Prentice Hall, 2004. Print.

Liu, Nissim & Thomas

"Multiples of forecasted earnings per share do best in explaining pricing differences, than multiples of sales and operating cash flows do and that multiples of book value and EBITDA fall in the middle"

Liu, Jing, Doron Nissim, and Jacob Thomas. "Equity Valuation Using Multiples." *Journal of Accounting Research* 40.1 (2002): 135-72. Web

Boatman and Baskin

"The precision of P/E ratio estimates that emerge from using a random sample [of stocks] from within the same sector [is superior to] a narrower set of firms [not in the same sector] with the most similar 10-year average growth rate in earnings."

Boatman, J.R. and E.F. Baskin, 1981, Asset Valuation in Incomplete Markets, The Accounting Review, 38-53