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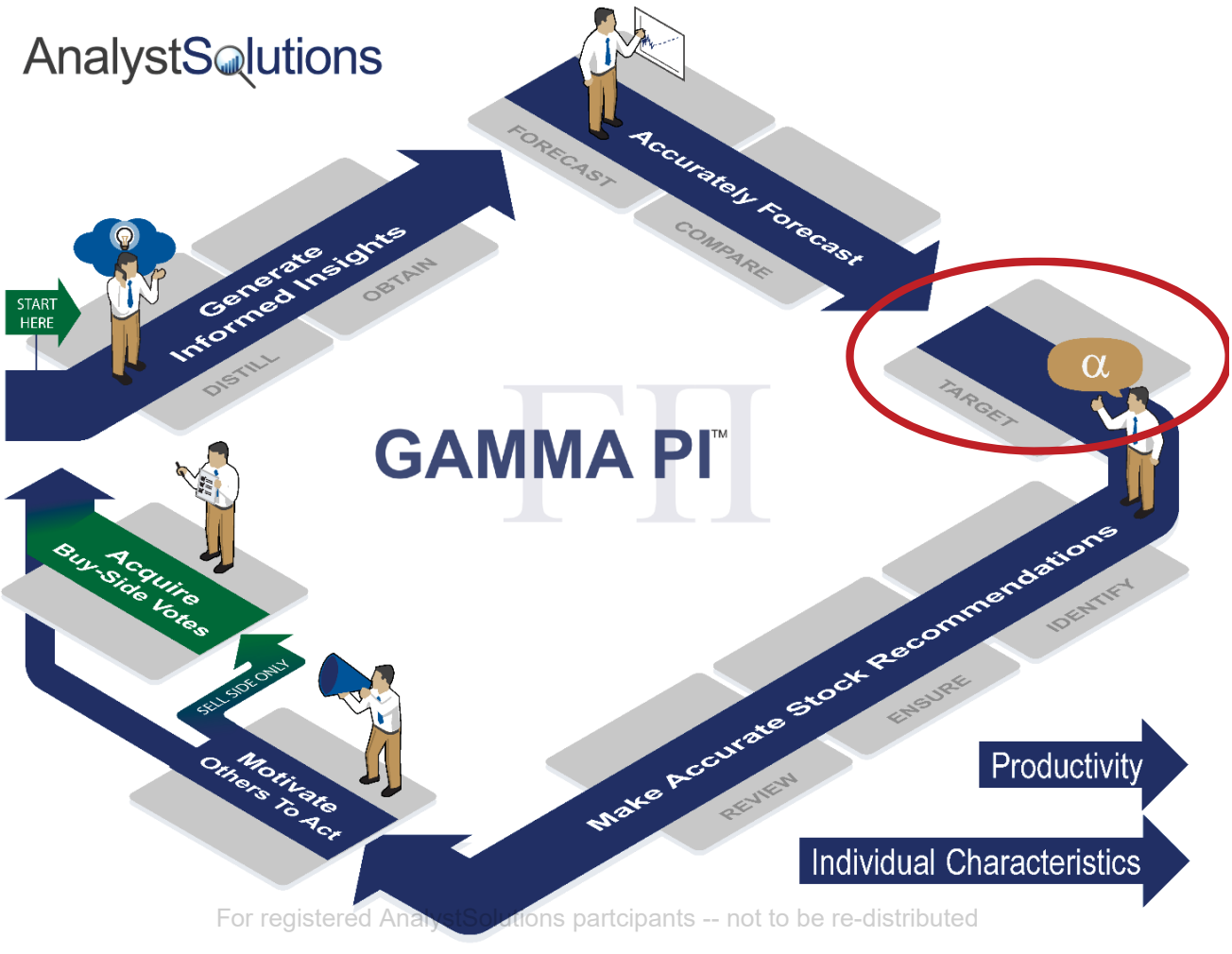
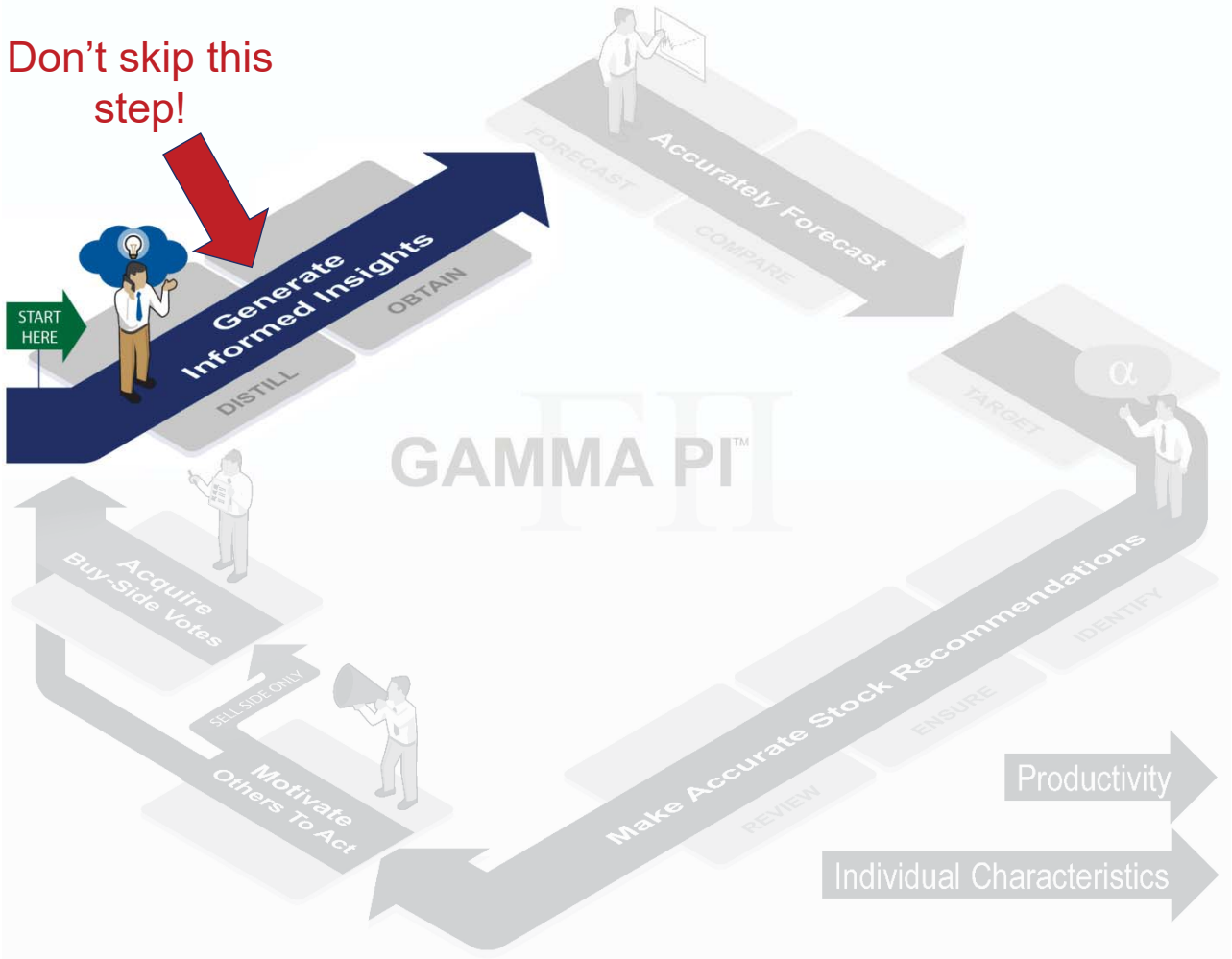
Apply Practical Valuation Techniques for More Accurate Price Targets

CE Qualified Activity CFA Institute

OPENING CASE





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

- **E**xpectational
- **N**ovel
- **T**horough
- **E**xaminable
- **R**evealing

Review QRCs

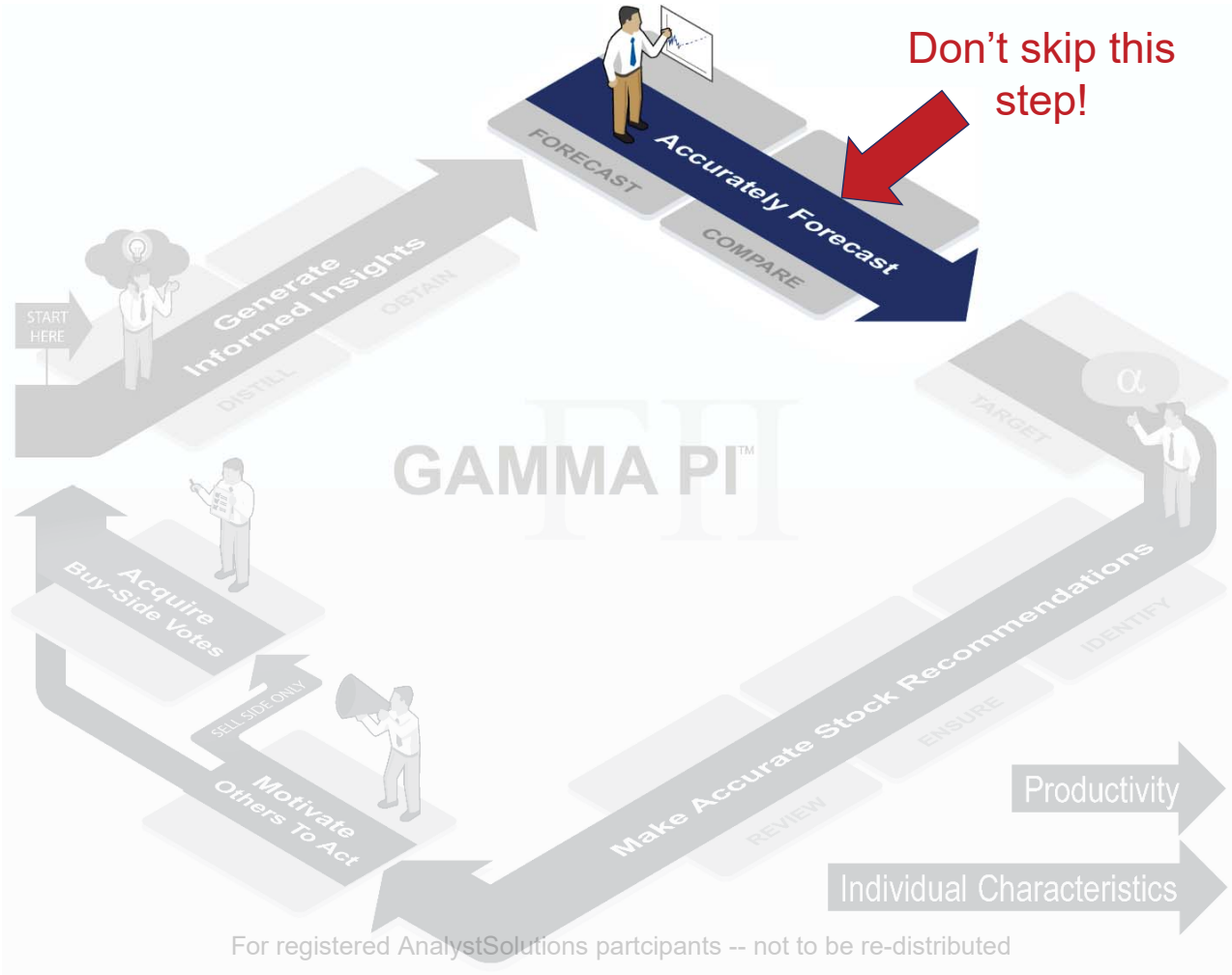
Quick Reference Card (QRC)

Utilize ENTER™ Quality Framework to Ensure Content Has Value

Philosophy	Put into Action
Expectational: 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

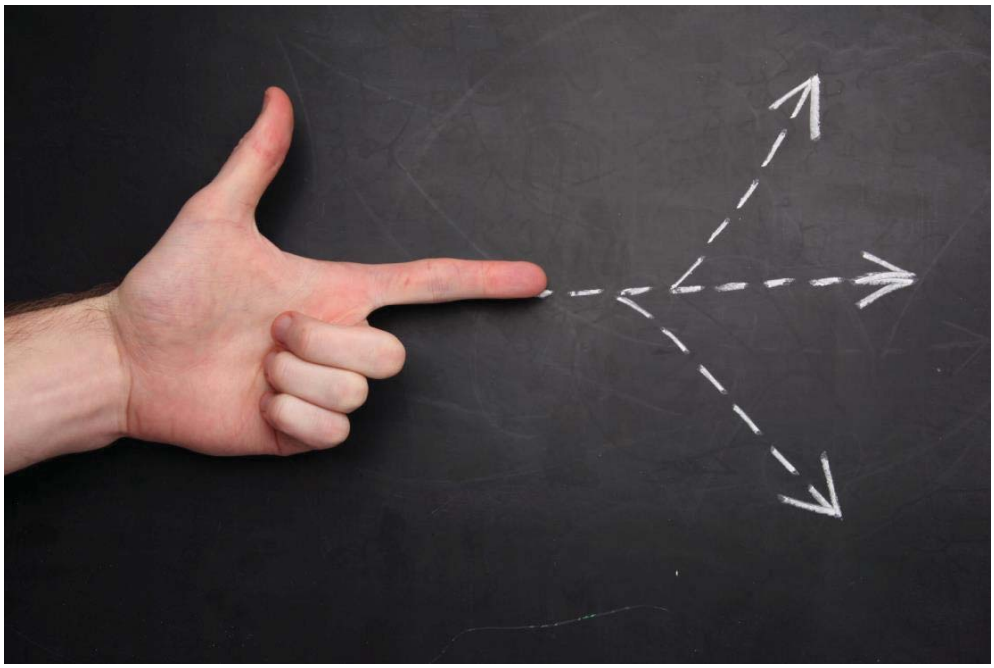
Use the ENTER™ Quality Checklist Before Recommending Stocks

ENTER™ Quality Checklist (to be used before starting the communication of a stock recommendation)	1=Always 5=Never
Expectational	
• I have a forward-looking 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	



ENGINEERED

Create Financial Forecast Scenarios



Exercise: Valuation in Its Most Basic Terms

- What is the present value of $1,000 per year for the next 10 years, assuming no inflation and no default risk? (hint: $10,000)
- Now we remove all constraints and the 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? 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?

Price Target in Its Simplest Terms

Forward-looking financial forecast at a point in time

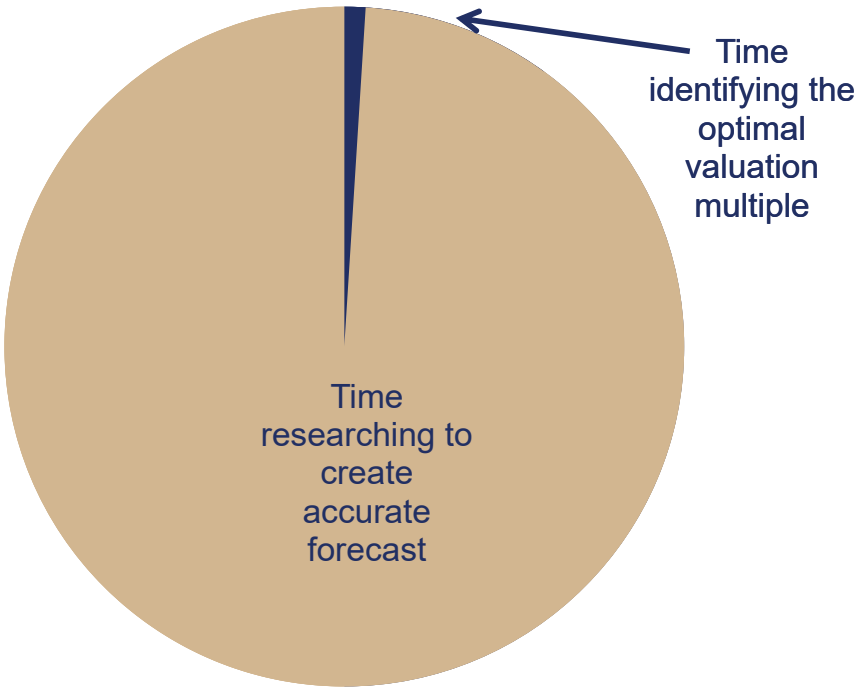
X

Valuation multiple

Valuation Accuracy

Get In the “Mind of the Market”

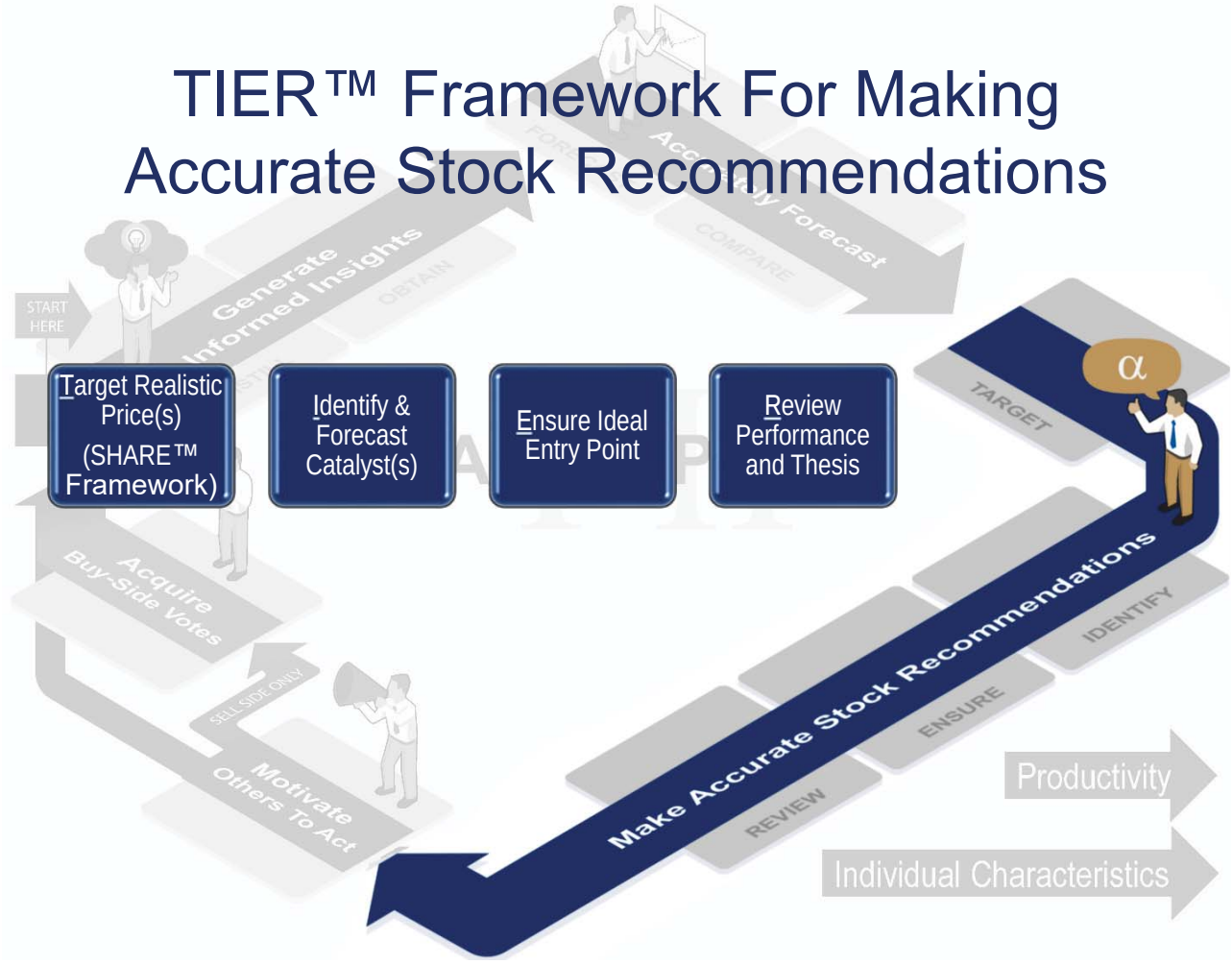
Time Developing Price Target



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
- The overwhelming majority of investors value stocks relative to the market on forward EPS, while others value the absolute value of future free cash flow. Given the various options, 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



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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 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

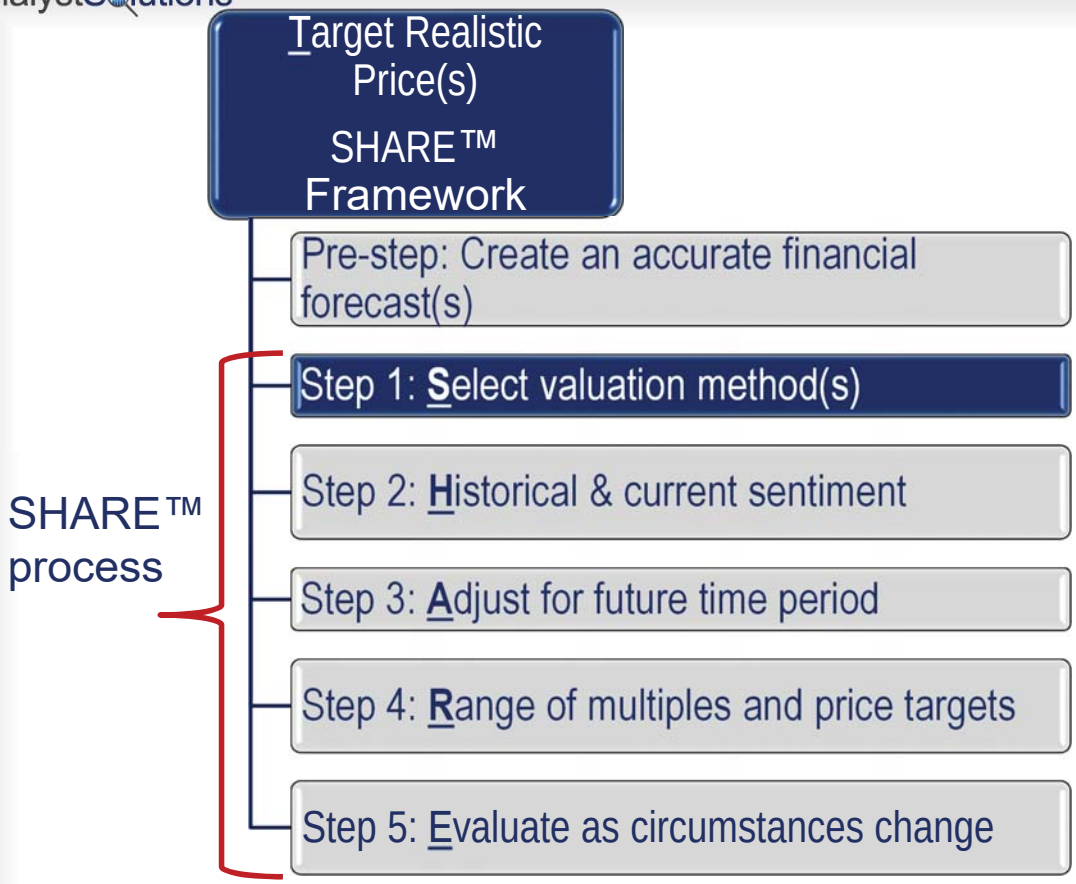
Select valuation method(s)

Detailed Reference Card (DRC)

Best Practices for Making Accurate Stock Recommendations

Perspectives **for 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



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

Price Target in Its Simplest Terms

Forward-looking financial forecast at a point in time

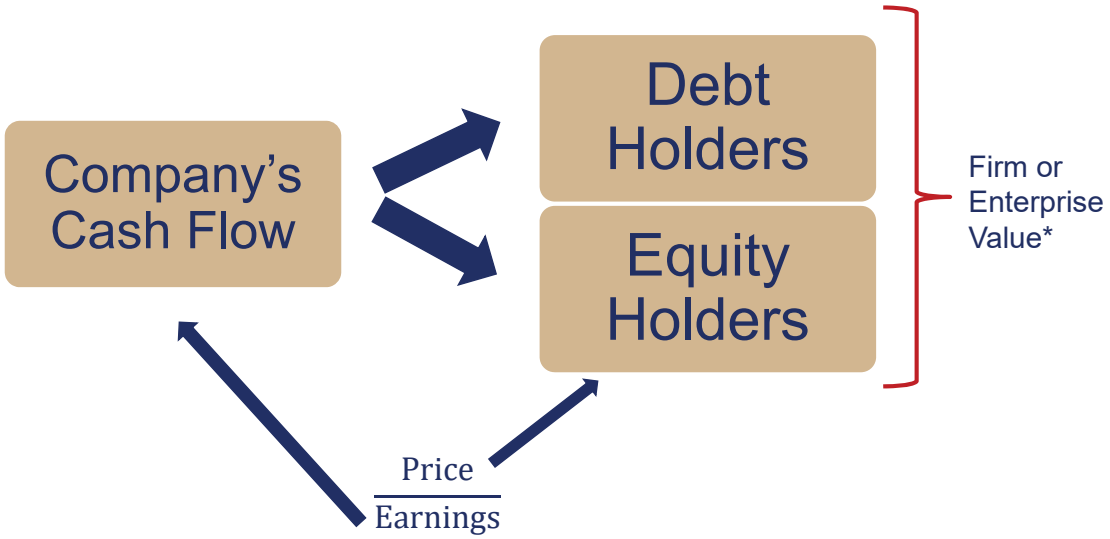
X

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

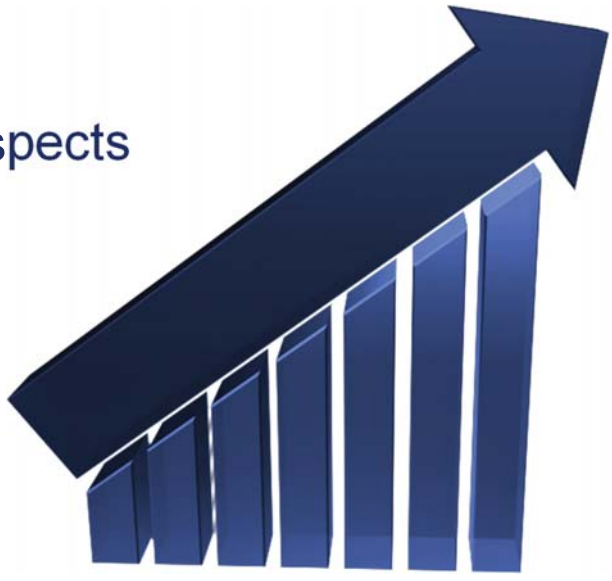
What Are We Valuing?



*Firm Value = Enterprise Value = (Value of equity + Value of debt + Minority interest - Cash and investments)

Factors that Drive Valuations

- Cash flow growth prospects
  - Company-specific
  - Industry-level
  - Macro
- "Greater fool" theory



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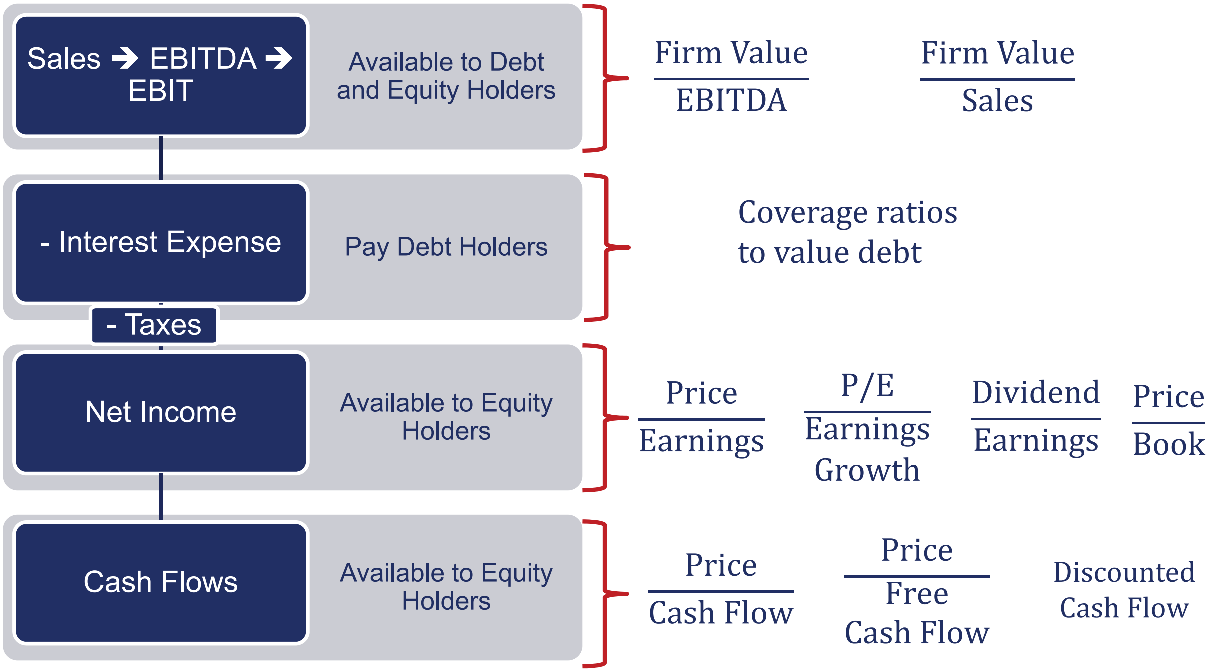
What Are We Valuing?



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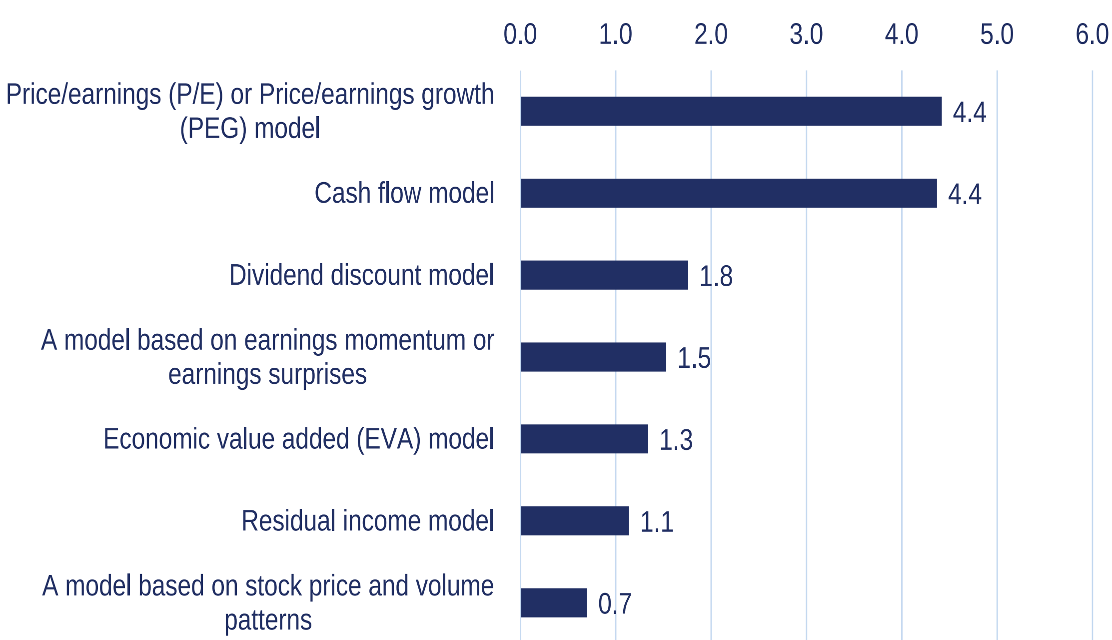
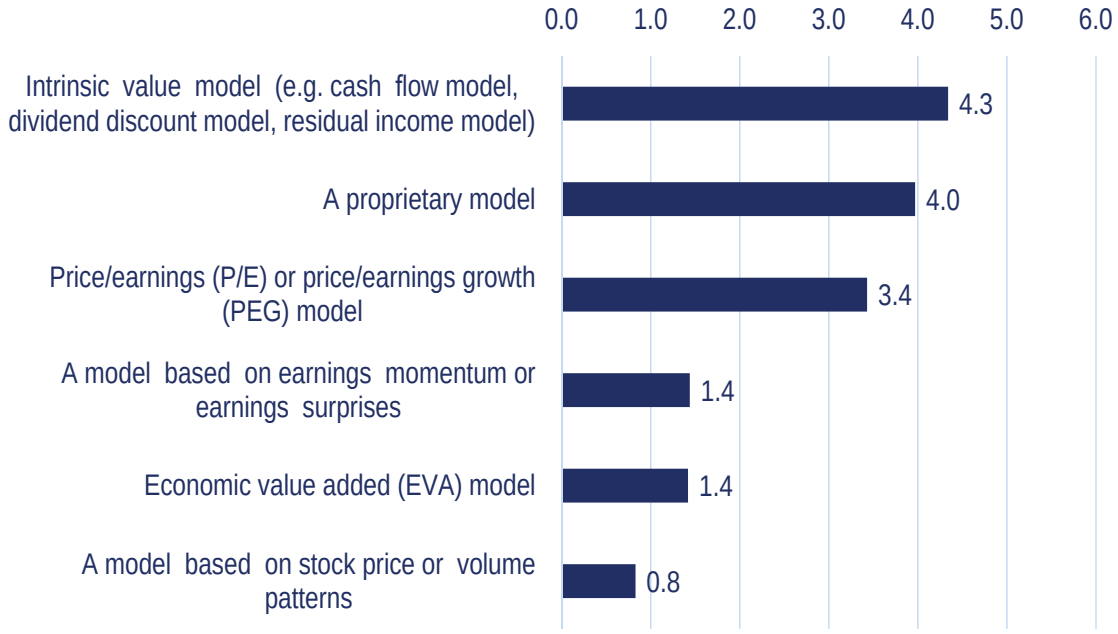
U.S. Sell-side Valuation Models to Support Their Stock Recommendations



6=greatest frequency

Brown, Lawrence D., Andrew C. Call, Michael B. Clement, and Nathan Y. Sharp. 2015. “Inside the ‘Black Box’ of Sell-Side Financial Analysts.” Journal of Accounting Research 53 (1):1–47. https://doi.org/10.1111/1475-679X.12067. (Table 2)

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



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

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

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%	

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

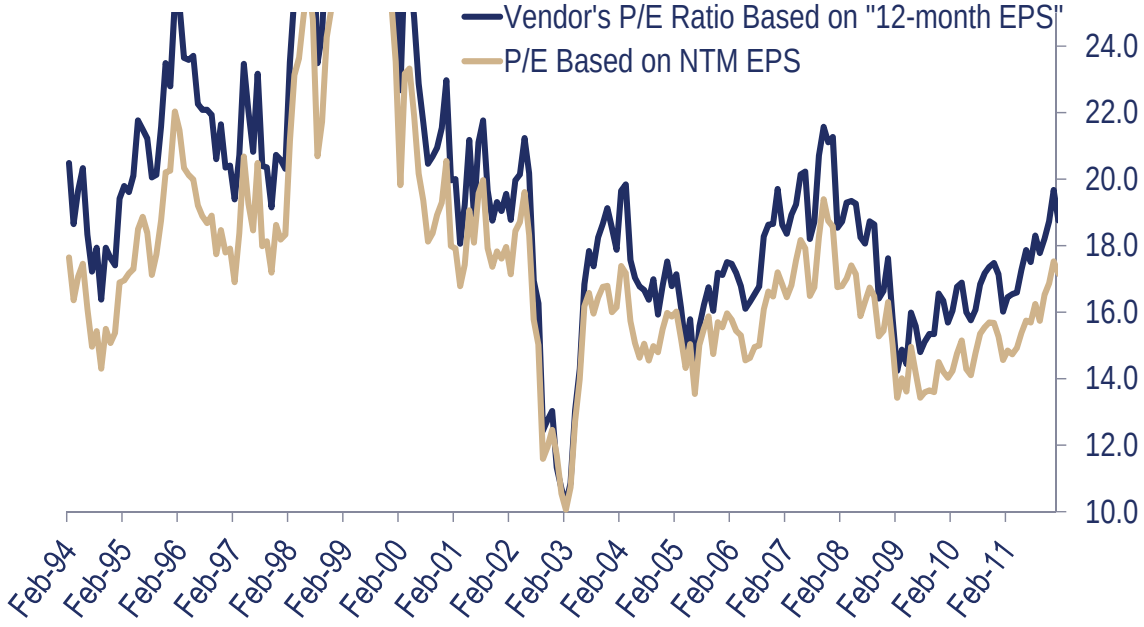
Which P/E Ratio is Correct

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

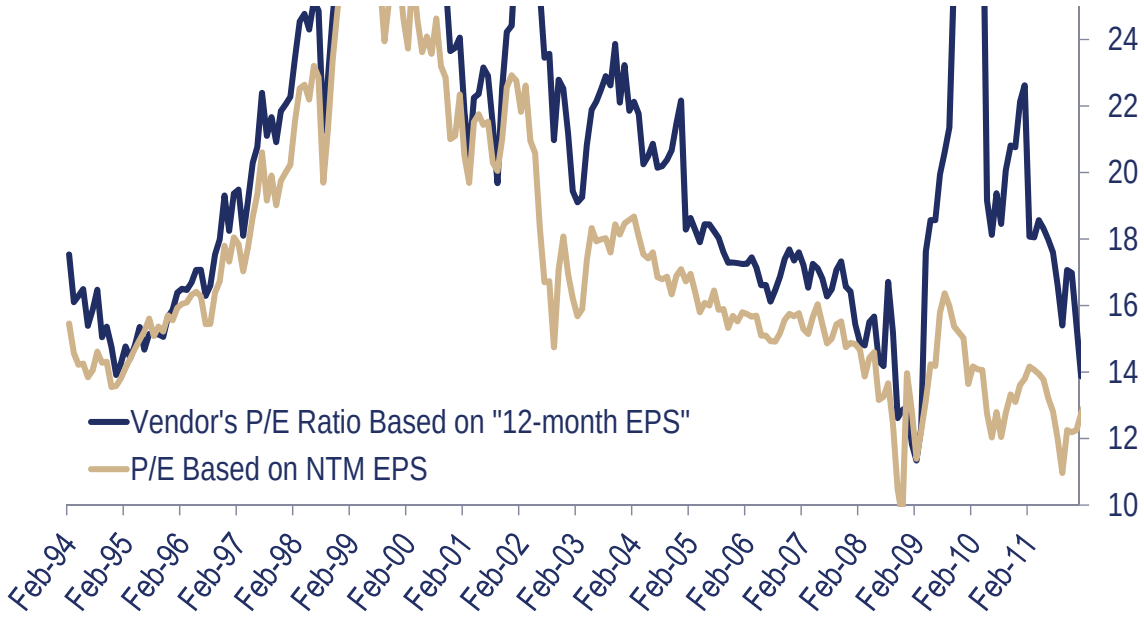
Now

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%

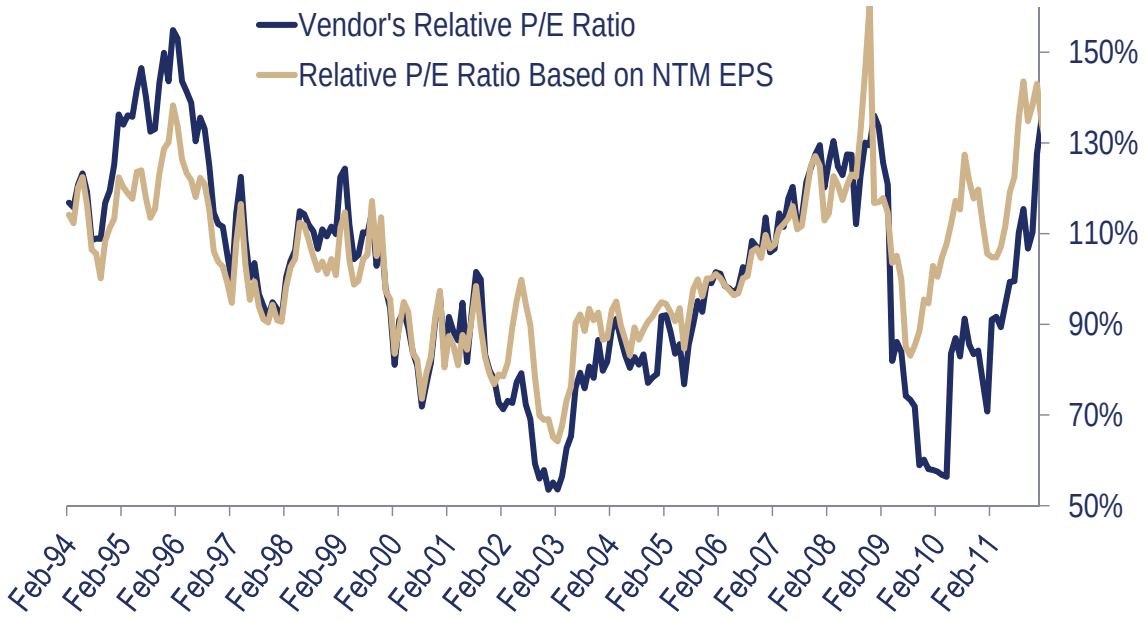
MCD's P/E Ratios



S&P 500 P/E Ratios



MCD's Relative P/E Ratios



Bloomberg P/E Ratios for MCD

MCD US Equity | Sourc API | 98) Save | 99) Options | Page 1 Field Sear
P/E ratio | Viev Ranke | Filte Equity | Field Ty All

	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

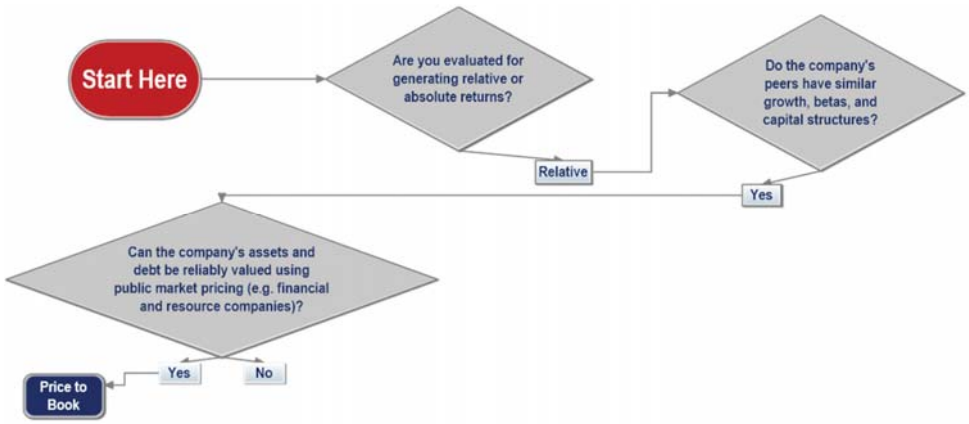
91) Search for Fields | 92) Selected Fields (0) | 93) In-house Fields

Bloomberg P/E Ratios for UAA

UAA US Equity Sourc API 98) Save 99) Options Page 1 Field Sear
P/E ratio Viev Ranke Filte Equity Field Ty All

	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

91) Search for Fields 92) Selected Fields (0) 93) In-house Fields



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

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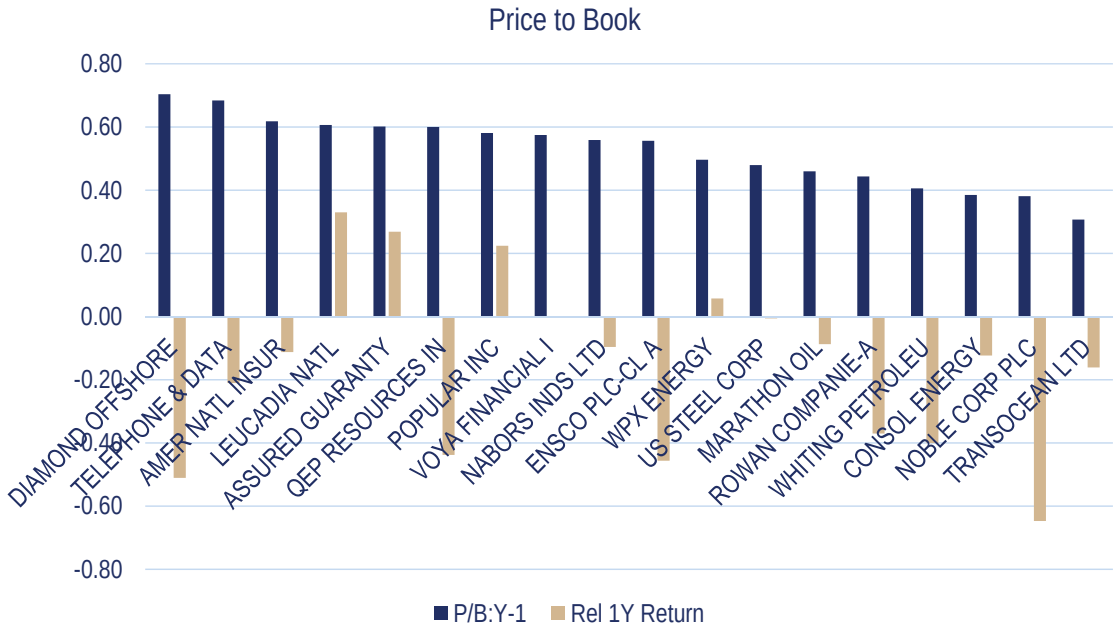
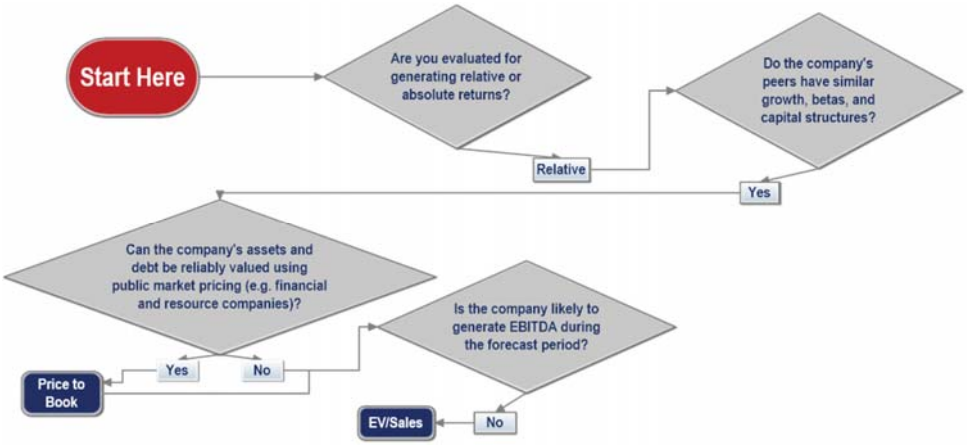
Russell 1K
Lowest Price-to-Book



May 2017



Enterprise Value to Sales (EV/S)

Pros

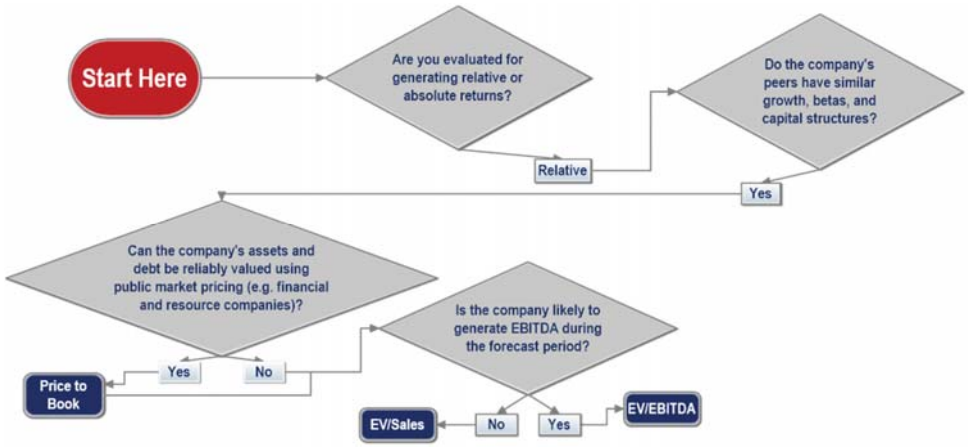
- Can be helpful if there are no earnings or cash flow

Cons

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

Russell 1K
Lowest Price-to-Sales

May 2017



Enterprise Value to EBITDA (EV/EBITDA)

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

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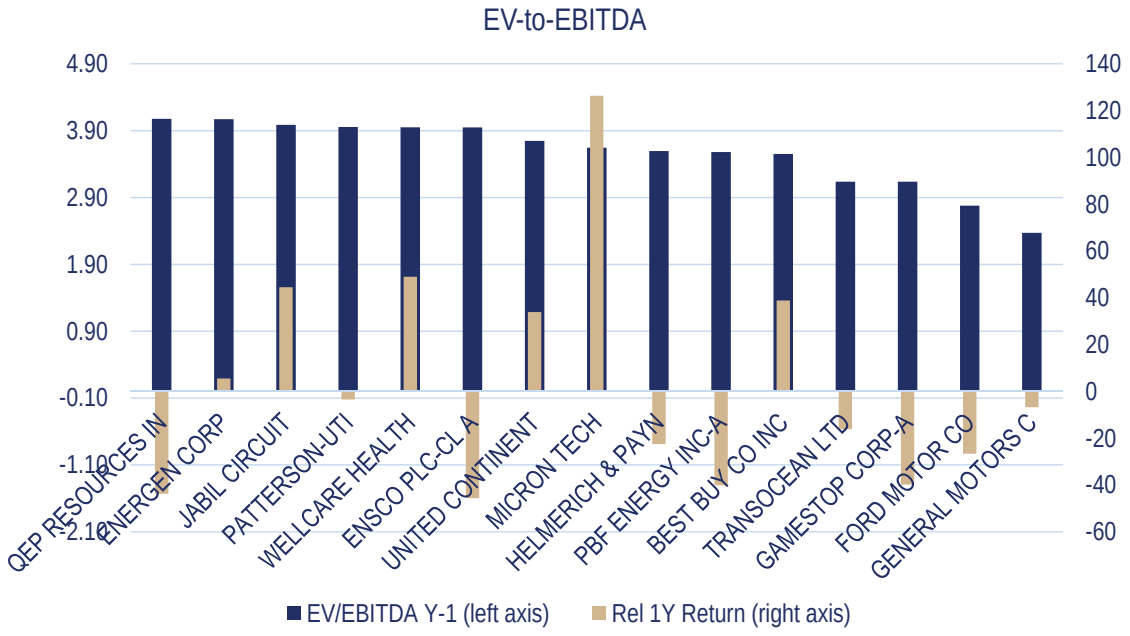
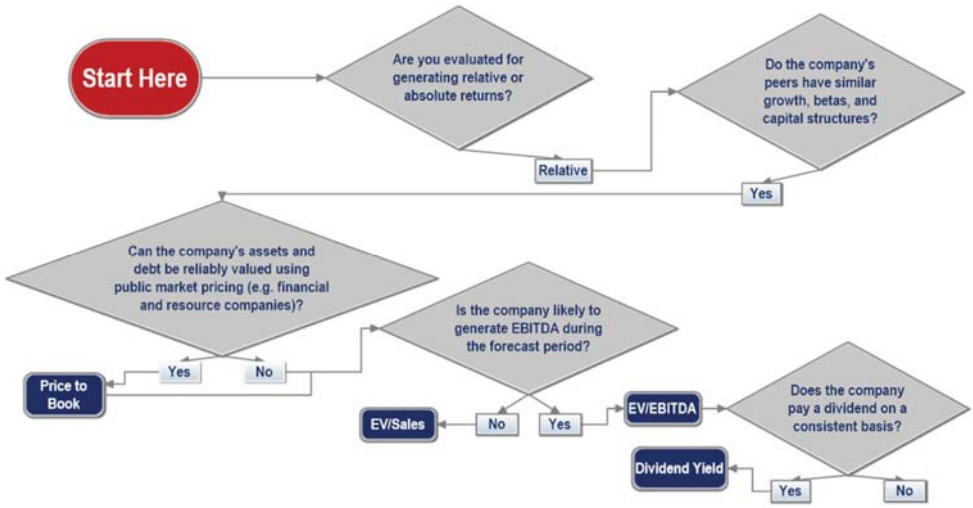
Russell 1K Lowest EV-to-EBITDA



May 2017



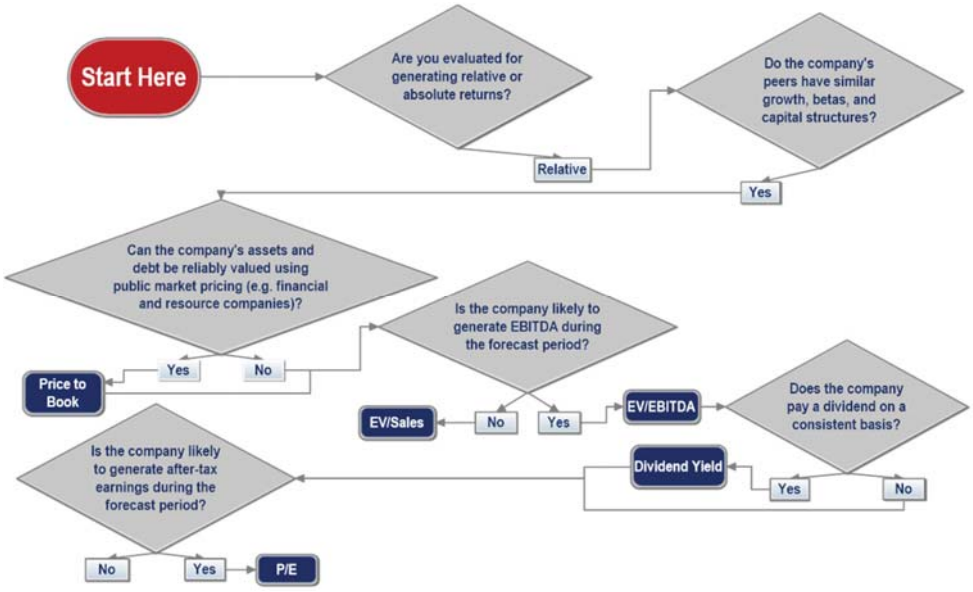
Dividend Yield (DY)

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



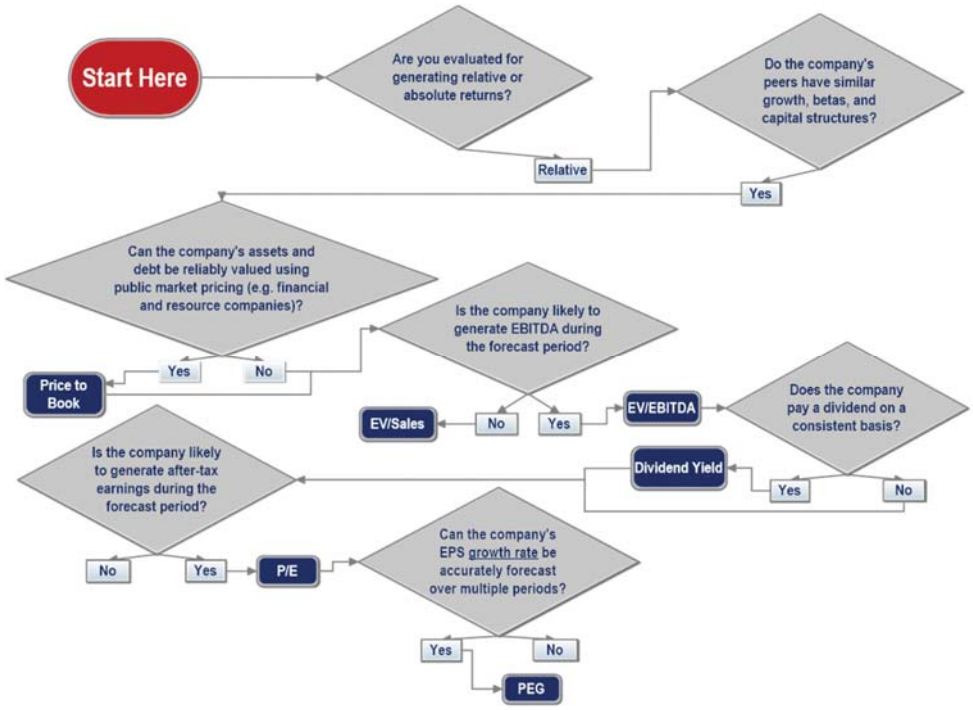
Price to Earnings (P/E)

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 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)

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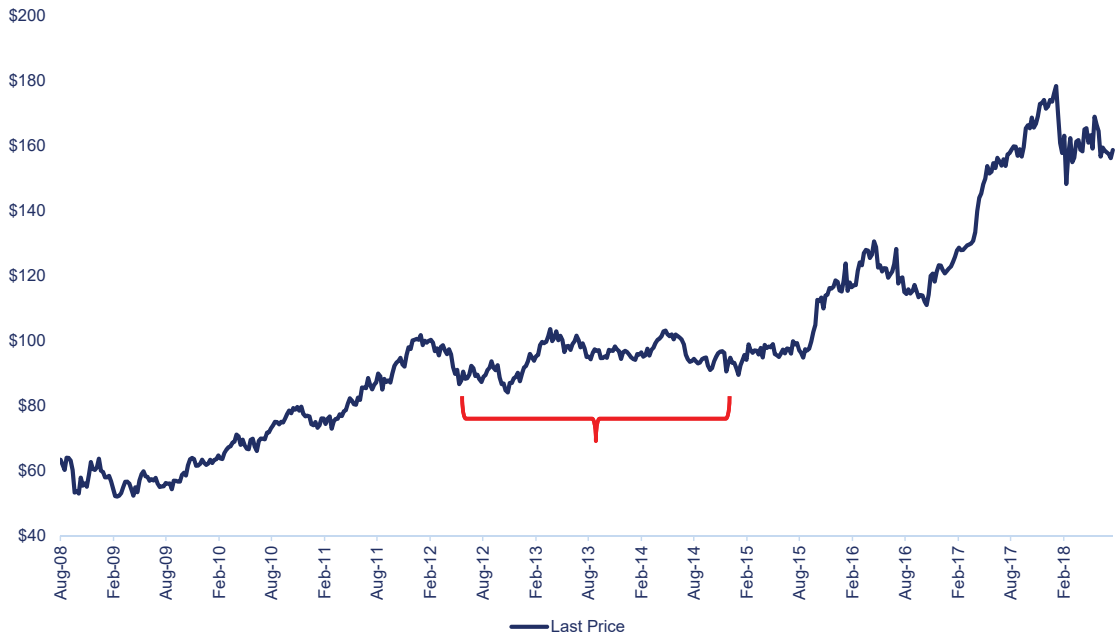
MCD Stock Price



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MCD Performance Relative to S&P Restaurants

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

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MCD Performance Relative to S&P 500

MCD's 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?

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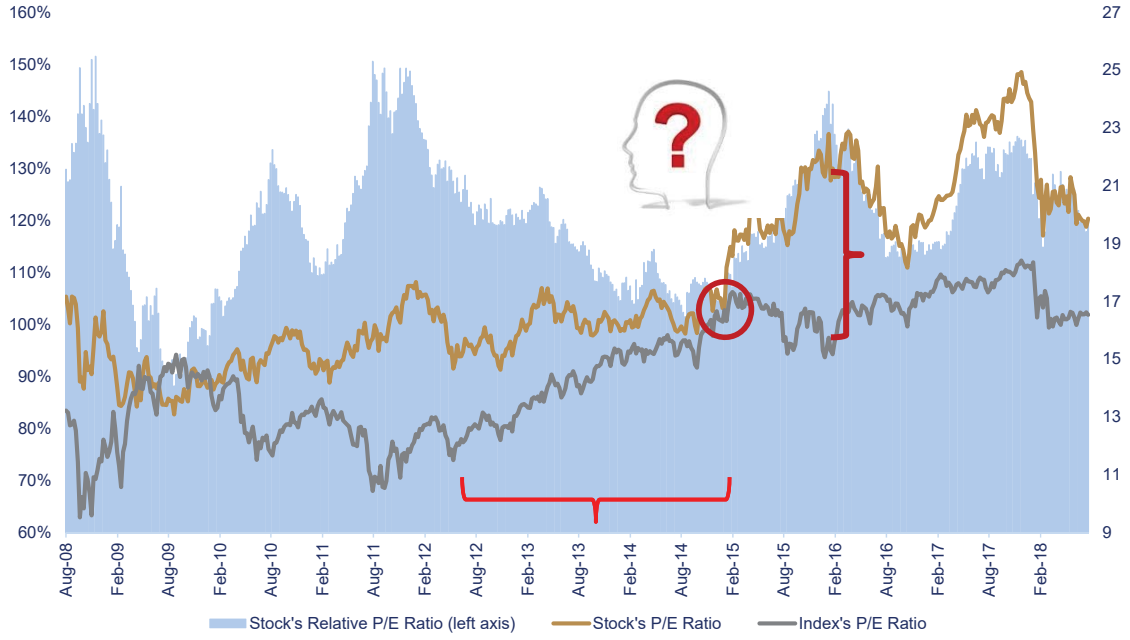
MCD's Absolute and Relative P/E Ratios



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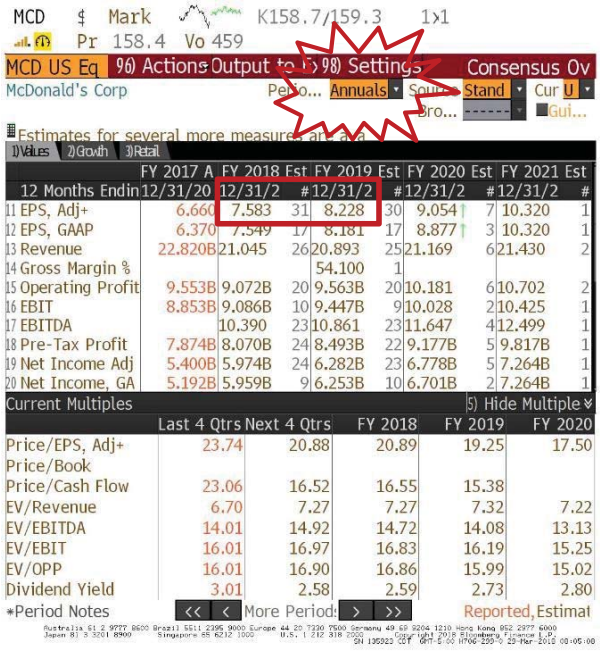
Relative Valuation Has More Information than Absolute

- 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


MCD $ Mark K158.7/159.3 1x1
Pr 158.4 Vo 459
MCD US Eq 96) Actions Output to ... 98) Settings Consensus Ov
McDonald's Corp Perio... Annuals Sour... Stand Cur U Bro... Gui...
Estimates for several more measures are ava...
1)Values 2)Growth 3)Retail

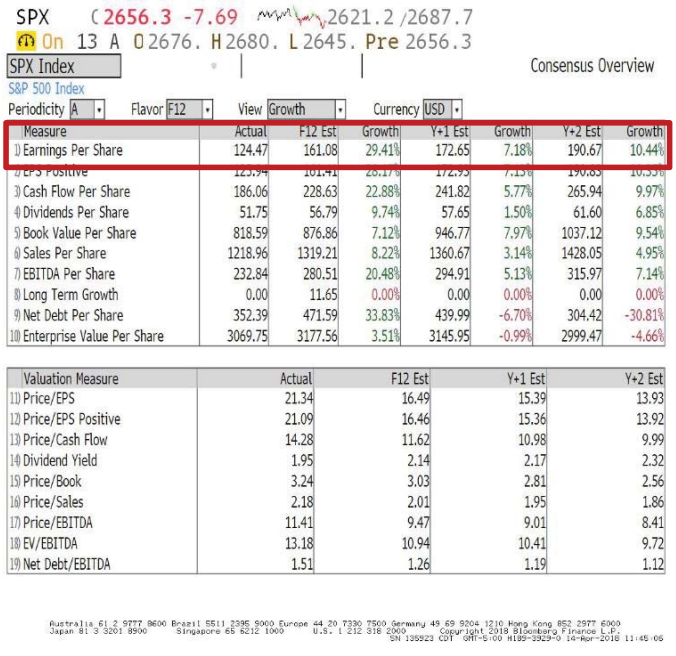
12 Months Endin	FY 2017 A 12/31/20	FY 2018 Est 12/31/2	#	FY 2019 Est 12/31/2	#	FY 2020 Est 12/31/2	#	FY 2021 Est 12/31/2	#
11 EPS, Adj+	6.660	7.583	31	8.228	30	9.054	7	10.320	1
12 EPS, GAAP	6.370	7.549	17	8.181	17	8.877	3	10.320	1
13 Revenue	22.820B	21.045	26	20.893	25	21.169	6	21.430	2
14 Gross Margin %				54.100	1				
15 Operating Profit	9.553B	9.072B	20	9.563B	20	10.181	6	10.702	2
16 EBIT	8.853B	9.086B	10	9.447B	9	10.028	2	10.425	1
17 EBITDA		10.390	23	10.861	23	11.647	4	12.499	1
18 Pre-Tax Profit	7.874B	8.070B	24	8.493B	22	9.177B	5	9.817B	1
19 Net Income Adj	5.400B	5.974B	24	6.282B	23	6.778B	5	7.264B	1
20 Net Income, GA	5.192B	5.959B	9	6.253B	10	6.701B	2	7.264B	1

Current Multiples 5) Hide Multiple

	Last 4 Qtrs	Next 4 Qtrs	FY 2018	FY 2019	FY 2020
Price/EPS, Adj+	23.74	20.88	20.89	19.25	17.50
Price/Book					
Price/Cash Flow	23.06	16.52	16.55	15.38	
EV/Revenue	6.70	7.27	7.27	7.32	7.22
EV/EBITDA	14.01	14.92	14.72	14.08	13.13
EV/EBIT	16.01	16.97	16.83	16.19	15.25
EV/OPP	16.01	16.90	16.86	15.99	15.02
Dividend Yield	3.01	2.58	2.59	2.73	2.80

*Period Notes << < More Period: > >> Reported, Estimat

SPX EQUITY EEO ("Bottom Up")


SPX (2656.3 -7.69 2621.2 /2687.7
On 13 A O2676. H2680. L2645. Pre 2656.3
SPX Index Consensus Overview
S&P 500 Index
Periodicity A Flavor F12 View Growth Currency USD

Measure	Actual	F12 Est	Growth	Y+1 Est	Growth	Y+2 Est	Growth
1) Earnings Per Share	124.47	161.08	29.41%	172.65	7.18%	190.67	10.44%
2) EPS Positive	123.94	161.41	28.17%	172.95	7.15%	190.85	10.35%
3) Cash Flow Per Share	186.06	228.63	22.88%	241.82	5.77%	265.94	9.97%
4) Dividends Per Share	51.75	56.79	9.74%	57.65	1.50%	61.60	6.85%
5) Book Value Per Share	818.59	876.86	7.12%	946.77	7.97%	1037.12	9.54%
6) Sales Per Share	1218.96	1319.21	8.22%	1360.67	3.14%	1428.05	4.95%
7) EBITDA Per Share	232.84	280.51	20.48%	294.91	5.13%	315.97	7.14%
8) Long Term Growth	0.00	11.65	0.00%	0.00	0.00%	0.00	0.00%
9) Net Debt Per Share	352.39	471.59	33.83%	439.99	-6.70%	304.42	-30.81%
10) Enterprise Value Per Share	3069.75	3177.56	3.51%	3145.95	-0.99%	2999.47	-4.66%

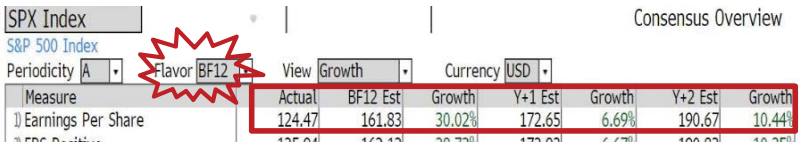
Valuation Measure	Actual	F12 Est	Y+1 Est	Y+2 Est
11) Price/EPS	21.34	16.49	15.39	13.93
12) Price/EPS Positive	21.09	16.46	15.36	13.92
13) Price/Cash Flow	14.28	11.62	10.98	9.99
14) Dividend Yield	1.95	2.14	2.17	2.32
15) Price/Book	3.24	3.03	2.81	2.56
16) Price/Sales	2.18	2.01	1.95	1.86
17) Price/EBITDA	11.41	9.47	9.01	8.41
18) EV/EBITDA	13.18	10.94	10.41	9.72
19) Net Debt/EBITDA	1.51	1.26	1.19	1.12

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



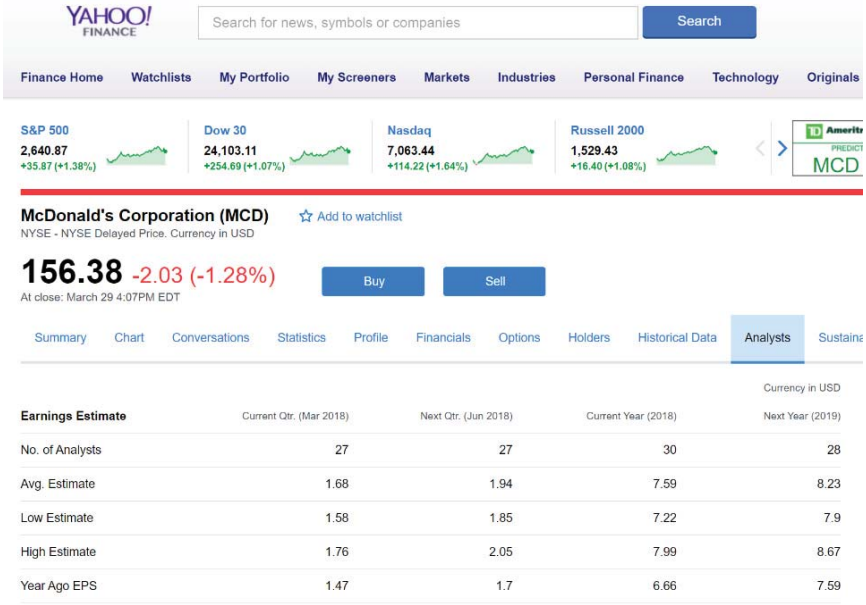
S&P 500 EPS "Top-Down"

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>

Get Analyst Estimates

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



Earnings Estimate	Current Qtr. (Mar 2018)	Next Qtr. (Jun 2018)	Current Year (2018)	Next Year (2019)
No. of Analysts	27	27	30	28
Avg. Estimate	1.68	1.94	7.59	8.23
Low Estimate	1.58	1.85	7.22	7.9
High Estimate	1.76	2.05	7.99	8.67
Year Ago EPS	1.47	1.7	6.66	7.59

EXERCISE: COMPUTE RELATIVE P/E RATIOS

EQRV <GO>

EQUITY RELATIVE VALUATION WITH HISTORICAL CONTEXT

Bloomberg

RICH OR CHEAP VS. HISTORY?

Determine how actionable a relative value trading opportunity is by understanding where a stock's current trading premium or discount to its comps lies on a multiples basis relative to its historical range, and see how it is recently trending.

CUSTOMIZE YOUR ANALYSIS (IF DESIRED)

Customize the comps and/or multiples or use those default populated by Bloomberg for effortless insights. Also choose from a 3-month, 6-month, 1-year, 2-year or 5-year window as the historical comparison period.

VIEW HISTORY FOR ADDED CONTEXT

View the evolution of a stock's multiple and easily evaluate the impact of earnings announcements and headlines on a stock's relative valuation proposition versus its comps. Cli- on an annotated headline to view the story.

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

				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%

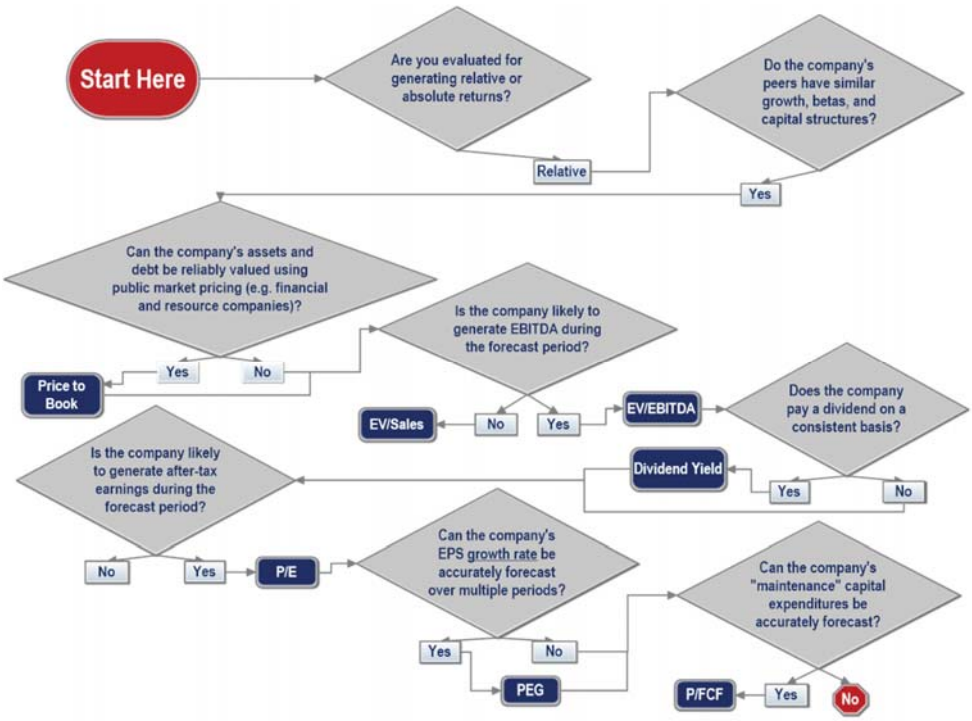
Price to Earnings/Growth (PEG)

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



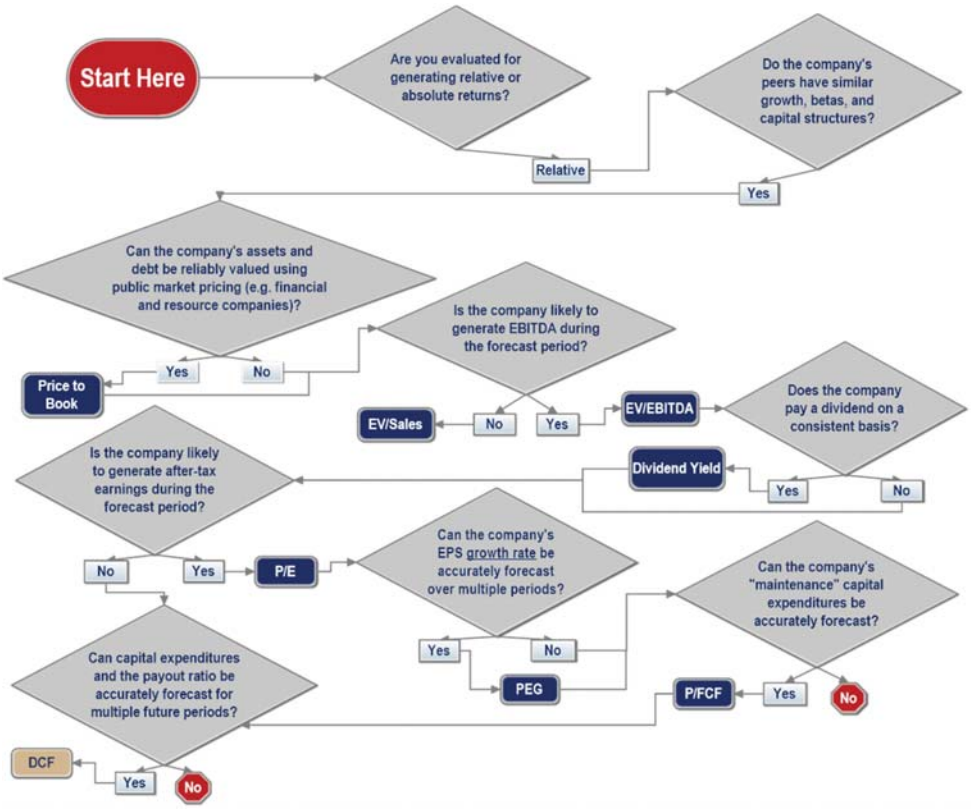
Price to Free Cash Flow (P/FCF)

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)



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

Pros

- 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

Cons

- 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

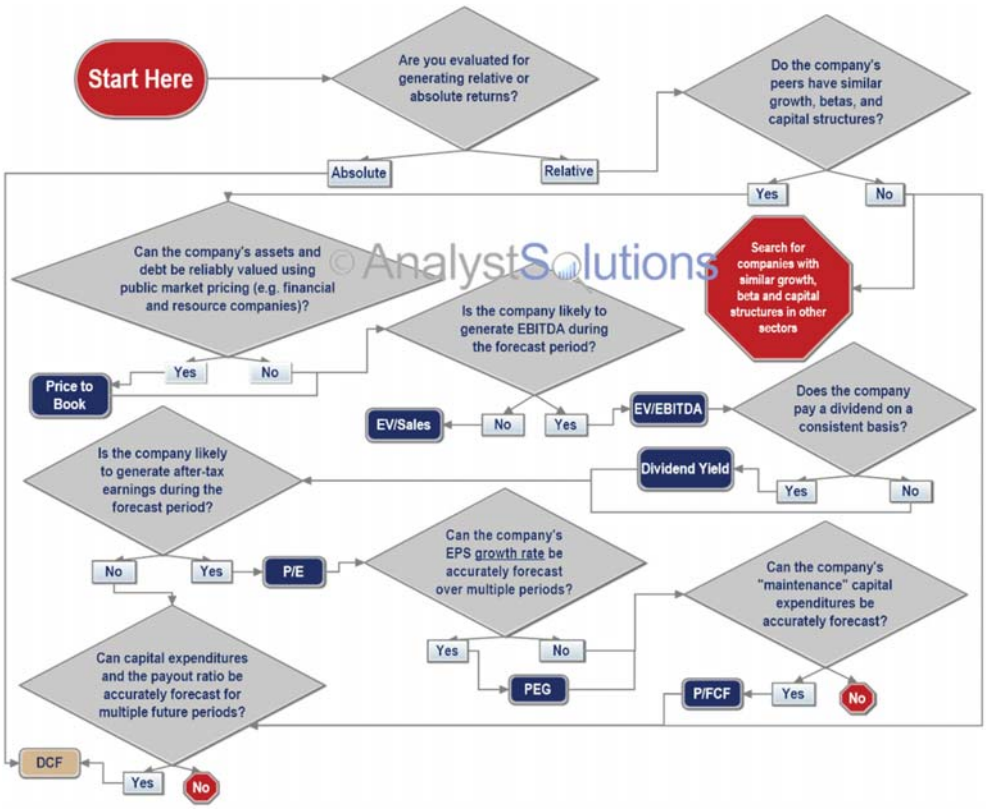
- Variables involve subjectivity:
  - Risk free rate
  - Market's required rate of return
  - Company's unique risk level (beta)
  - Terminal growth rate
- Often no clear distinction between "maintenance" capital required to sustain the business and "growth" capital required for growth
- Relies on forecasts 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)

86



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

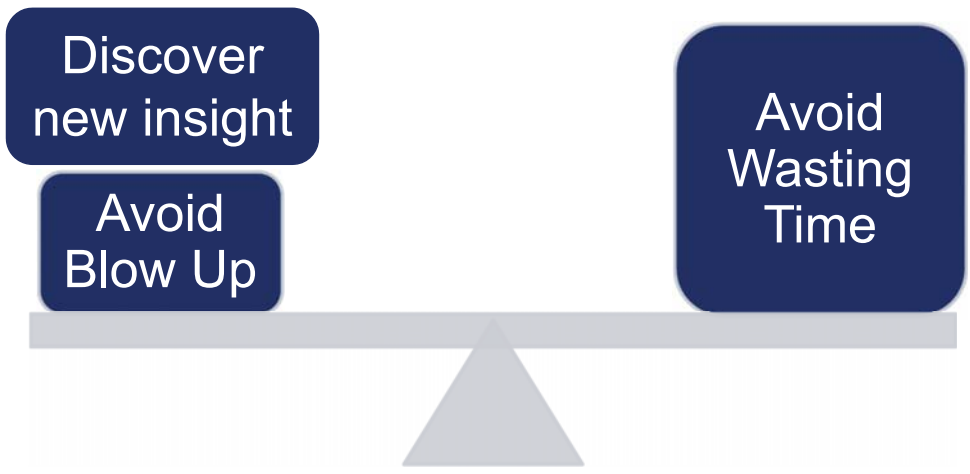
Variables Linked to Valuation

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



Kahoot! on "Valuation Methods"

- Use a smartphone, computer or tablet
- https://**kahoot**.it/
- Please use your first name, space and last name initial, like this:
  - Jim V

EXERCISE: HOW IS THE VALUATION METHOD LIKELY TO CHANGE?

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

STEP 1: Select 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

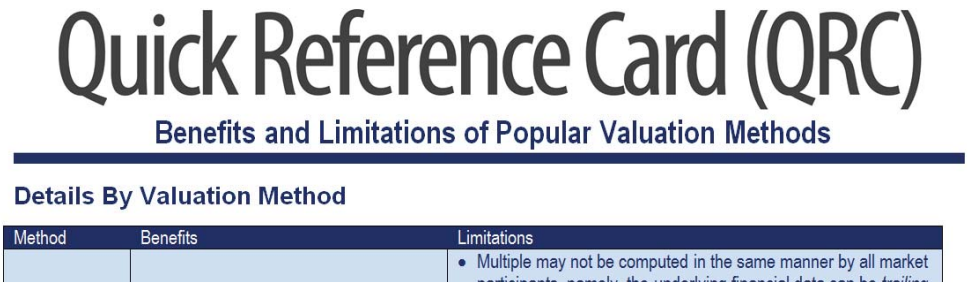
Select Valuation Method(s) Reference Cards


Quick Reference Card (QRC)

Considerations for Identifying the Optimal Valuation Method (flowchart)

Start Here

Are you evaluated for generating


Quick Reference Card (QRC)

Benefits and Limitations of Popular Valuation Methods

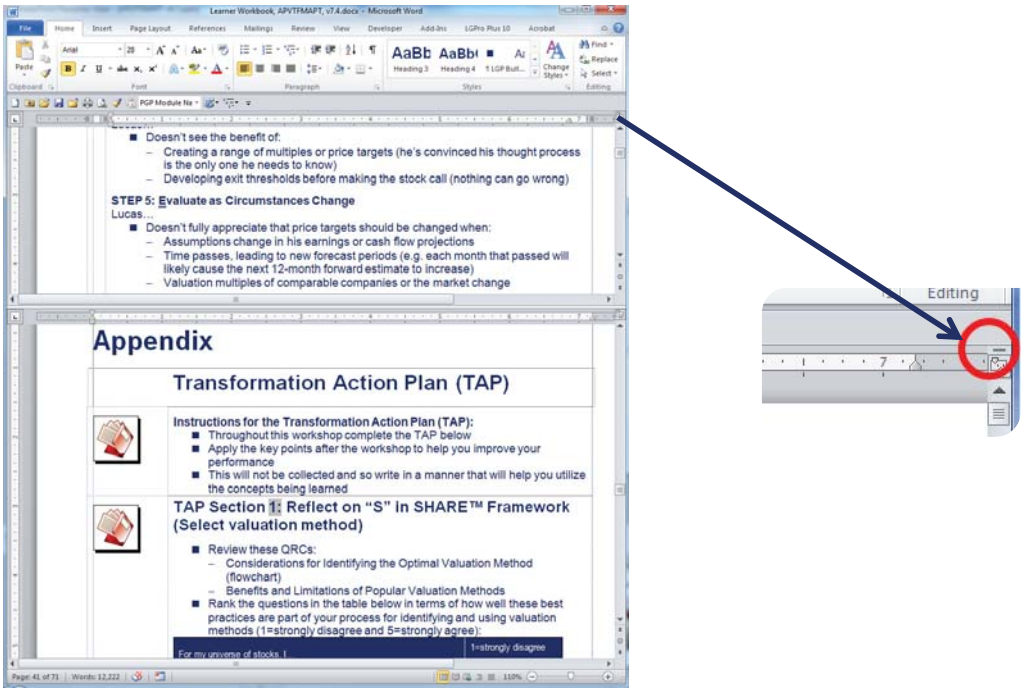
Details By Valuation Method

Method	Benefits	Limitations
		• Multiple may not be computed in the same manner by all market

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 only 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



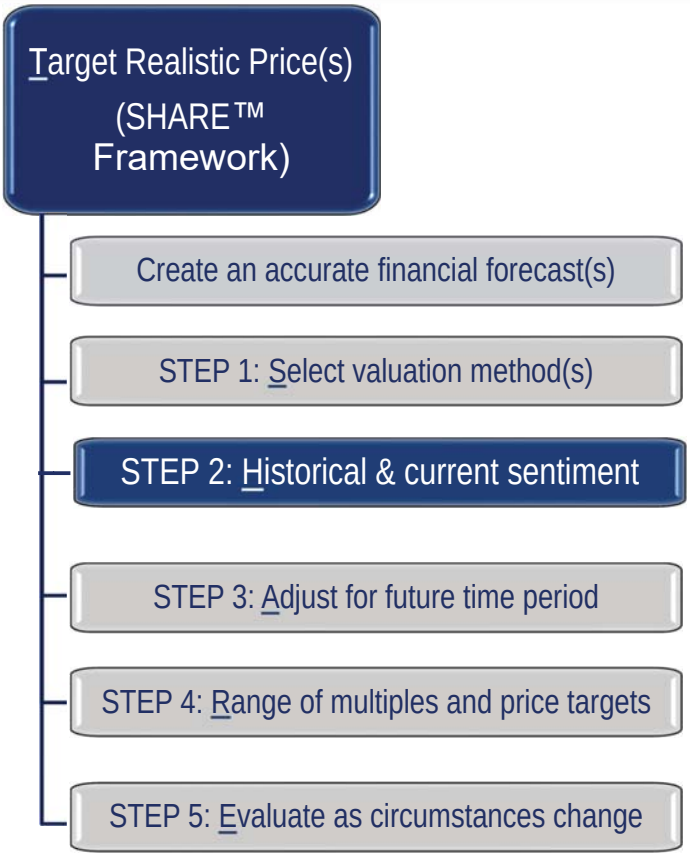
Complete Your TAP

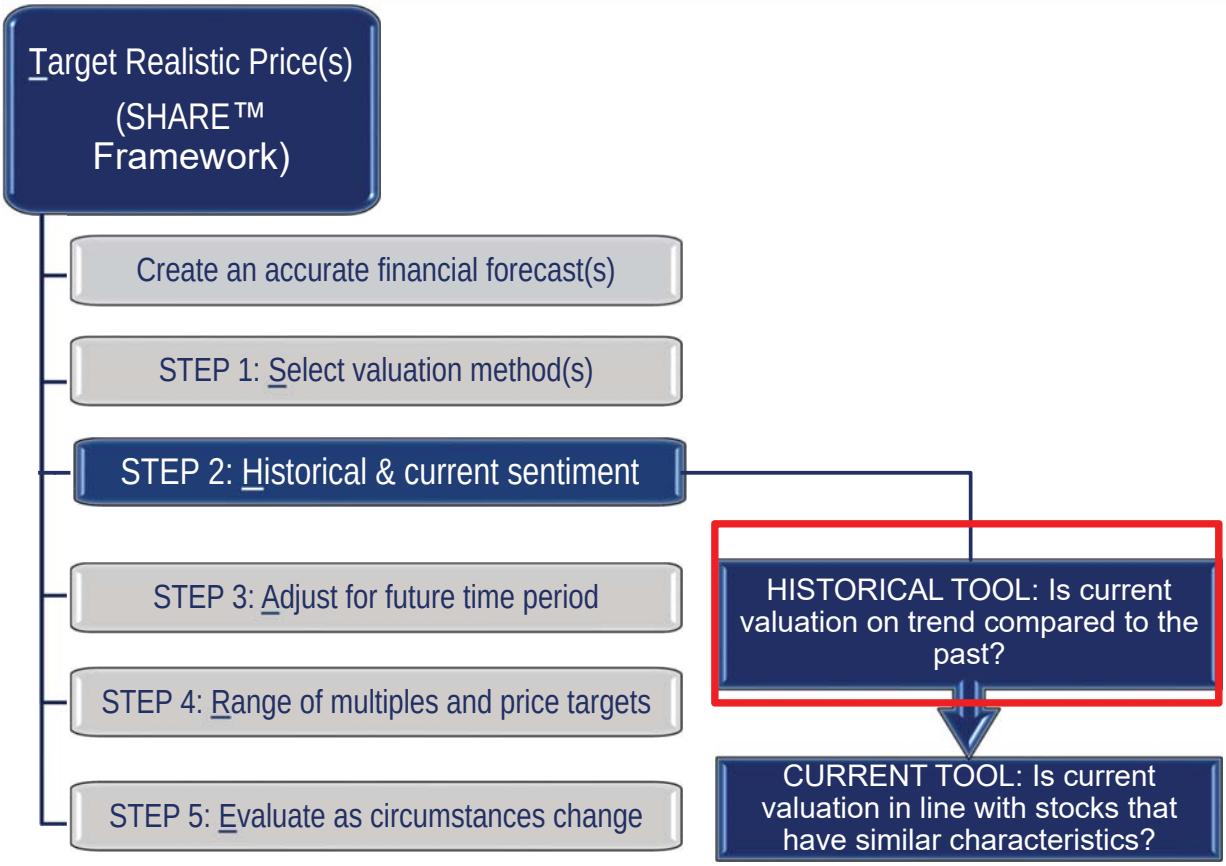
Section 1

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





Price Target in Its Simplest Terms

Forward-looking financial forecast at a point in time

X

Valuation multiple

Building to a Price Target

(1 of 3)

Outside View

Historical forward-looking financial forecast at a point in time	X	Historical valuation multiple at a point in time	=	Historical stock price at any point in time
μ = $1.00		μ = 14x		μ = $14.00

+ Inside View

Forward-looking financial forecast at a point in the future	X	Valuation multiple at a point in the future	=	Stock price at a point in the future
$1.50		12x		$18.00

Building to a Price Target

(2 of 3)

Outside View

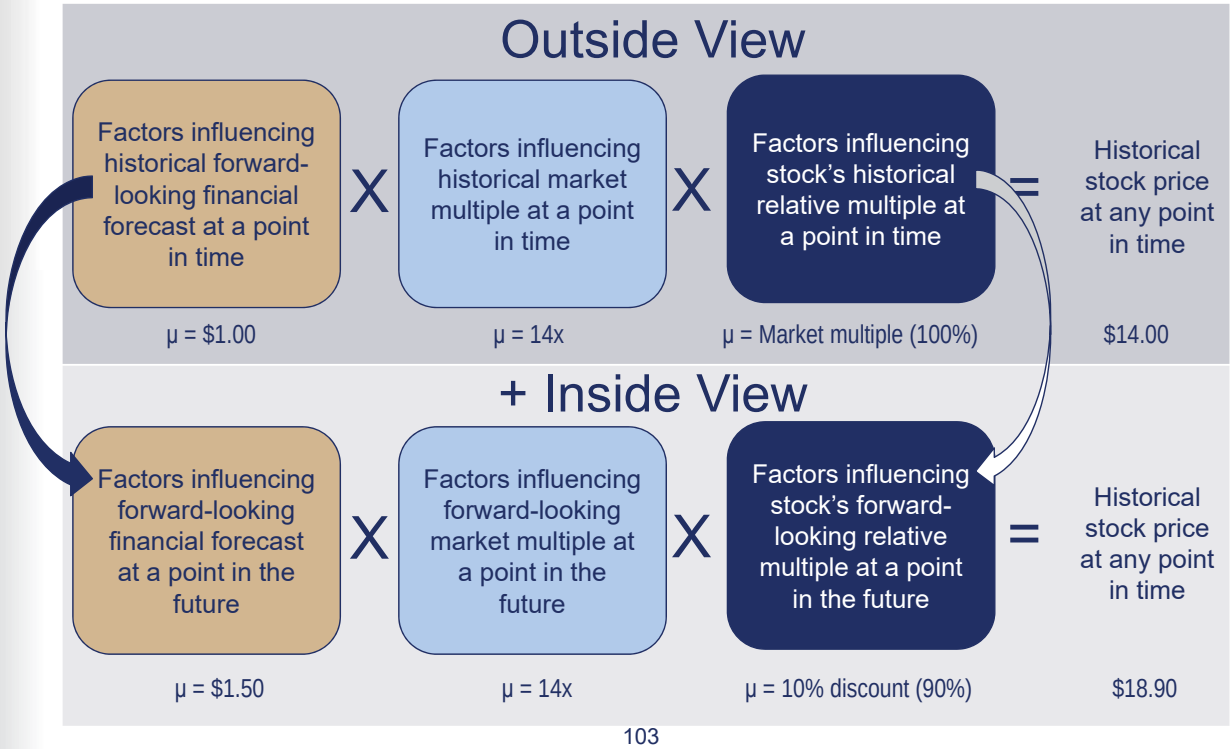
Factors **influencing** historical forward-looking financial forecast at a point in time	X	Factors **influencing** historical valuation multiple at a point in time	=	Historical stock price at any point in time

+ Inside View

Factors **influencing** financial forecast at a point in the future	X	Factors **influencing** valuation multiple at a point in the future	=	Stock price at a point in the future

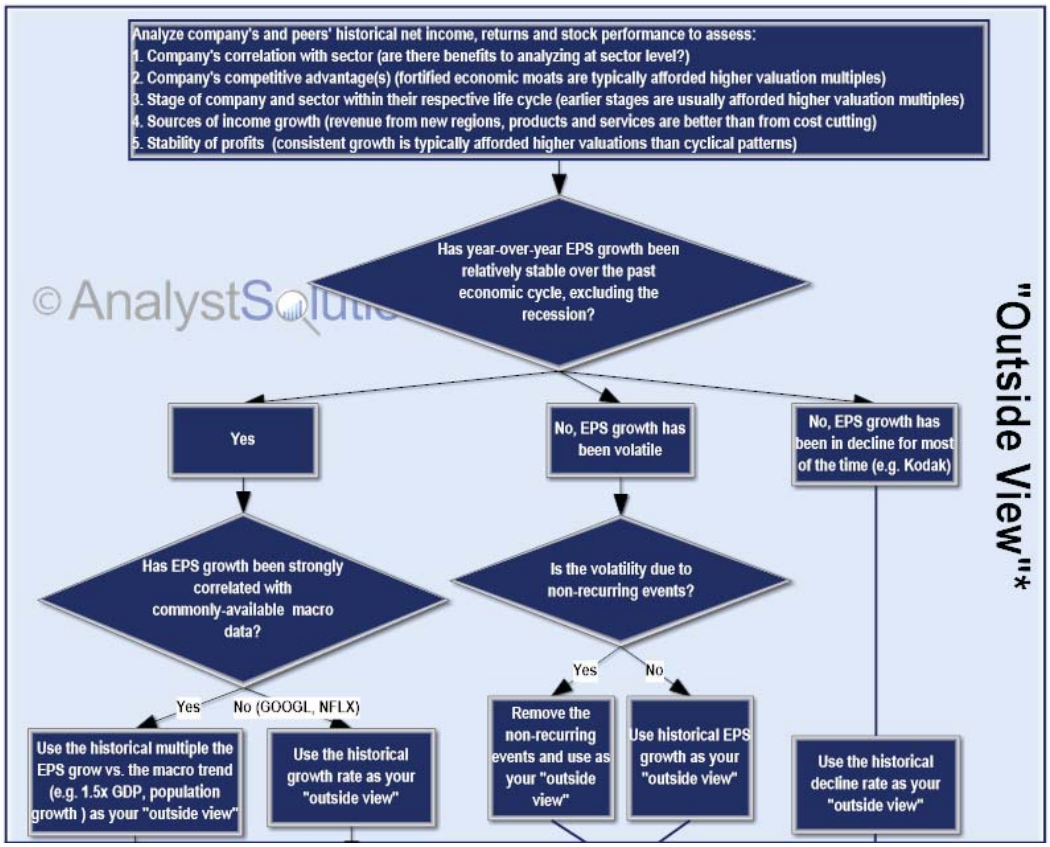
Building to a Price Target

(3 of 3)



Dissecting Components of Relative Return

Select the image below to watch video



* 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

Base Rates for Revenue

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

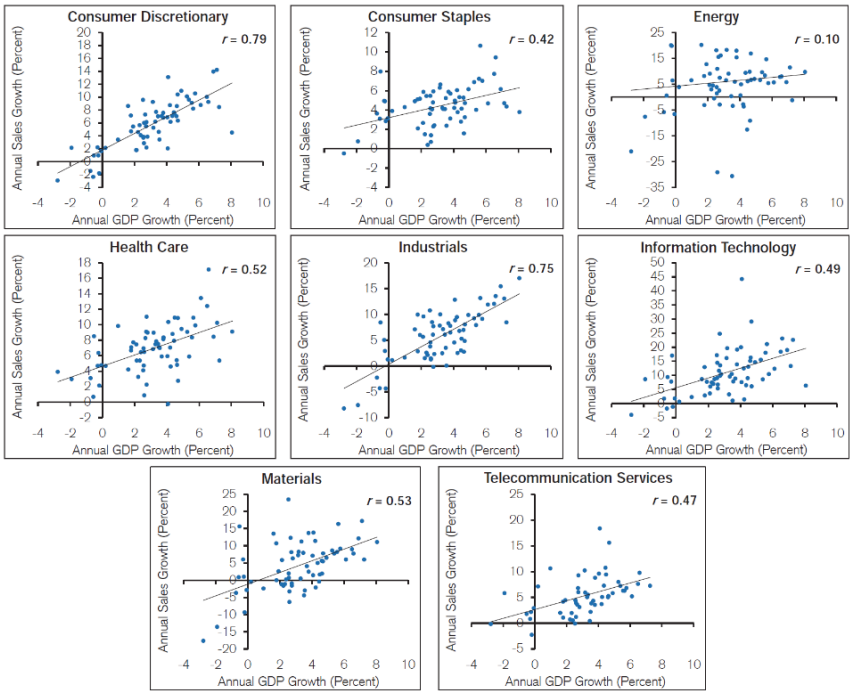
Full Universe	Base Rates			
Sales CAGR (%)	1-Yr	3-Yr	5-Yr	10-Yr
<(25)	1.9%	0.6%	0.3%	0.0%
(25)-(20)	1.0%	0.4%	0.3%	0.1%
(20)-(15)	1.7%	1.0%	0.7%	0.3%
(15)-(10)	3.2%	2.2%	1.6%	0.9%
(10)-(5)	6.2%	5.2%	4.2%	3.2%
(5)-0	12.2%	13.2%	12.9%	12.4%
0-5	20.6%	25.2%	28.8%	34.2%
5-10	17.8%	21.3%	24.2%	28.3%
10-15	11.4%	12.3%	12.6%	11.6%
15-20	6.8%	6.7%	6.0%	4.5%
20-25	4.5%	3.9%	3.1%	2.0%
25-30	2.9%	2.3%	1.9%	1.1%
30-35	2.0%	1.5%	1.0%	0.6%
35-40	1.3%	1.0%	0.7%	0.3%
40-45	1.1%	0.7%	0.5%	0.2%
>45	5.5%	2.5%	1.3%	0.3%
Mean	14.8%	8.1%	6.9%	5.8%
Median	5.8%	5.4%	5.2%	4.9%
StDev	275.2%	18.7%	12.3%	8.0%

Full Universe	Observations			
Sales CAGR (%)	1-Yr	3-Yr	5-Yr	10-Yr
<(25)	1,073	305	156	15
(25)-(20)	577	239	130	31
(20)-(15)	954	558	337	121
(15)-(10)	1,820	1,156	792	369
(10)-(5)	3,540	2,744	2,076	1,329
(5)-0	6,912	7,037	6,453	5,176
0-5	11,693	13,434	14,386	14,236
5-10	10,137	11,359	12,068	11,799
10-15	6,464	6,530	6,284	4,839
15-20	3,862	3,589	2,971	1,878
20-25	2,570	2,052	1,552	814
25-30	1,666	1,236	934	460
30-35	1,145	809	502	235
35-40	758	543	364	131
40-45	599	357	230	79
>45	3,113	1,318	639	133
Total	56,883	53,266	49,874	41,645

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

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

Base Rates for Net Income

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

Full Universe	Base Rates			
Net Income CAGR (%)	1-Yr	3-Yr	5-Yr	10-Yr
<(50)	4.5%	1.2%	0.3%	0.0%
(50)-(40)	2.1%	1.1%	0.6%	0.1%
(40)-(30)	3.0%	2.0%	1.3%	0.3%
(30)-(20)	4.5%	3.7%	2.7%	1.0%
(20)-(10)	7.0%	7.3%	6.5%	4.2%
(10)-0	11.9%	16.3%	17.9%	18.7%
0-10	18.5%	26.8%	34.1%	47.8%
10-20	15.0%	18.4%	20.3%	20.5%
20-30	9.0%	9.5%	8.8%	5.1%
30-40	5.9%	5.1%	3.4%	1.5%
40-50	3.8%	2.7%	1.7%	0.6%
50-60	2.6%	1.6%	0.9%	0.2%
60-70	1.9%	1.1%	0.5%	0.1%
70-80	1.5%	0.7%	0.3%	0.0%
80-90	1.1%	0.6%	0.2%	0.0%
>90	7.6%	1.8%	0.5%	0.0%
Mean	88.8%	10.3%	7.3%	5.8%
Median	9.2%	6.8%	5.9%	5.2%
StDev	7842.2%	34.6%	20.2%	11.0%

Full Universe	Observations			
Net Income CAGR (%)	1-Yr	3-Yr	5-Yr	10-Yr
<(50)	2,374	595	151	5
(50)-(40)	1,117	529	275	20
(40)-(30)	1,603	969	565	99
(30)-(20)	2,362	1,806	1,209	368
(20)-(10)	3,679	3,520	2,918	1,577
(10)-0	6,310	7,898	8,049	6,976
0-10	9,779	13,007	15,322	17,819
10-20	7,946	8,924	9,087	7,633
20-30	4,762	4,591	3,932	1,899
30-40	3,135	2,493	1,528	558
40-50	1,999	1,331	743	209
50-60	1,393	774	382	69
60-70	1,004	548	228	42
70-80	803	344	147	13
80-90	604	271	98	9
>90	4,031	872	240	9
Total	52,901	48,472	44,874	37,305

Source: Credit Suisse HOLT®.

1,000 global companies by market capitalization

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

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

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

MCD US Equity 1) Edit 2) Save to CORR 3) Launch
08/19/2013 - 08/19/2018 Weekly
Peer Source Sector (ICB) North America
<Filter> Correlation Ma

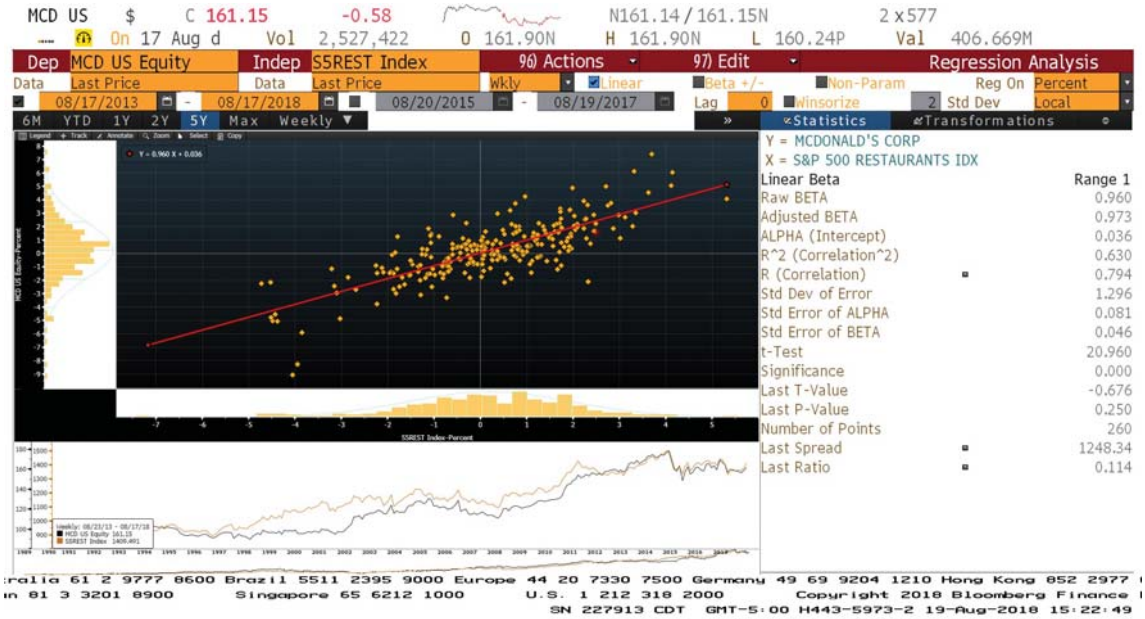
Security	MCD↓	SPX	S5REST	S4REST
11) MCD	1.000	0.460	0.794	0.296
12) YUM	0.389	0.514	0.640	0.408
13) HLT	0.339	0.593	0.466	0.310
14) WEN	0.328	0.466	0.417	0.624

FDX US Equity 1) Edit 2) Save to CORR
08/19/2013 - 08/19/2018 Week
Peer Source Sector (ICB) North
<Filter>

Security	FDX↓	SPX	TRAN
11) FDX	1.000	0.671	0.781
12) UPS	0.692	0.637	0.717

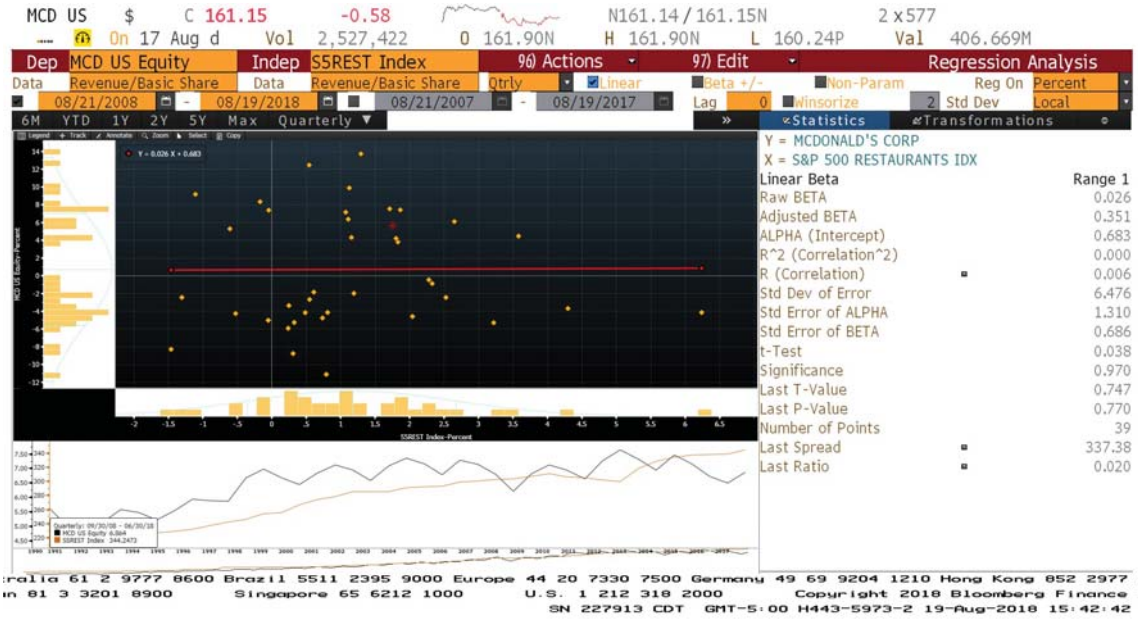
Regression Analysis

(HRA for share price)



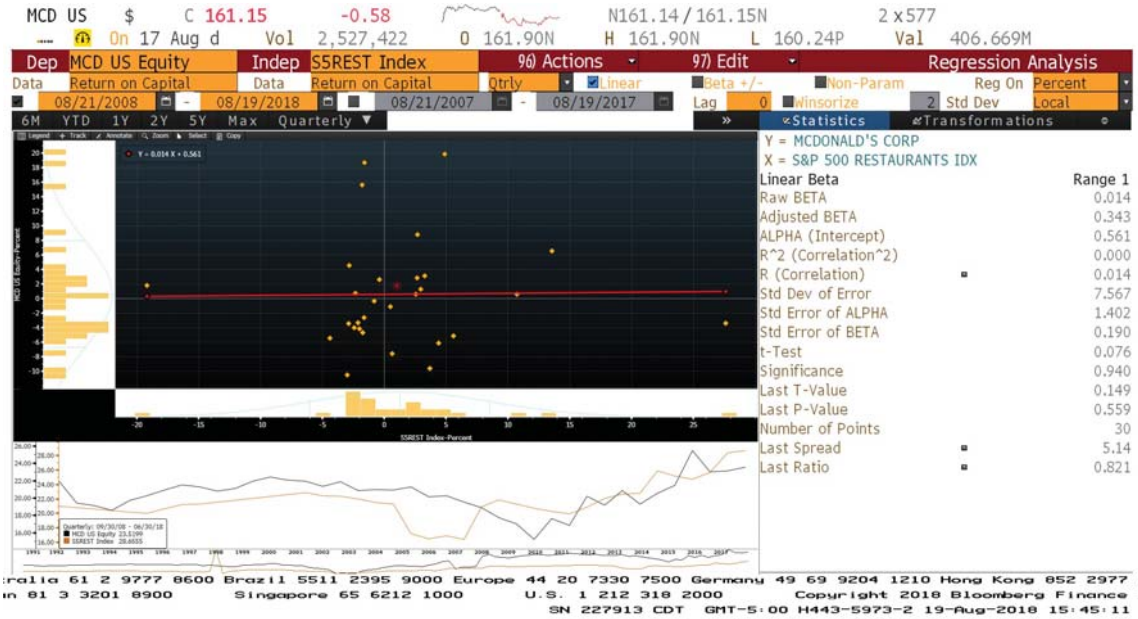
Regression Analysis

(HRA for Revenue Per Share)



Regression Analysis

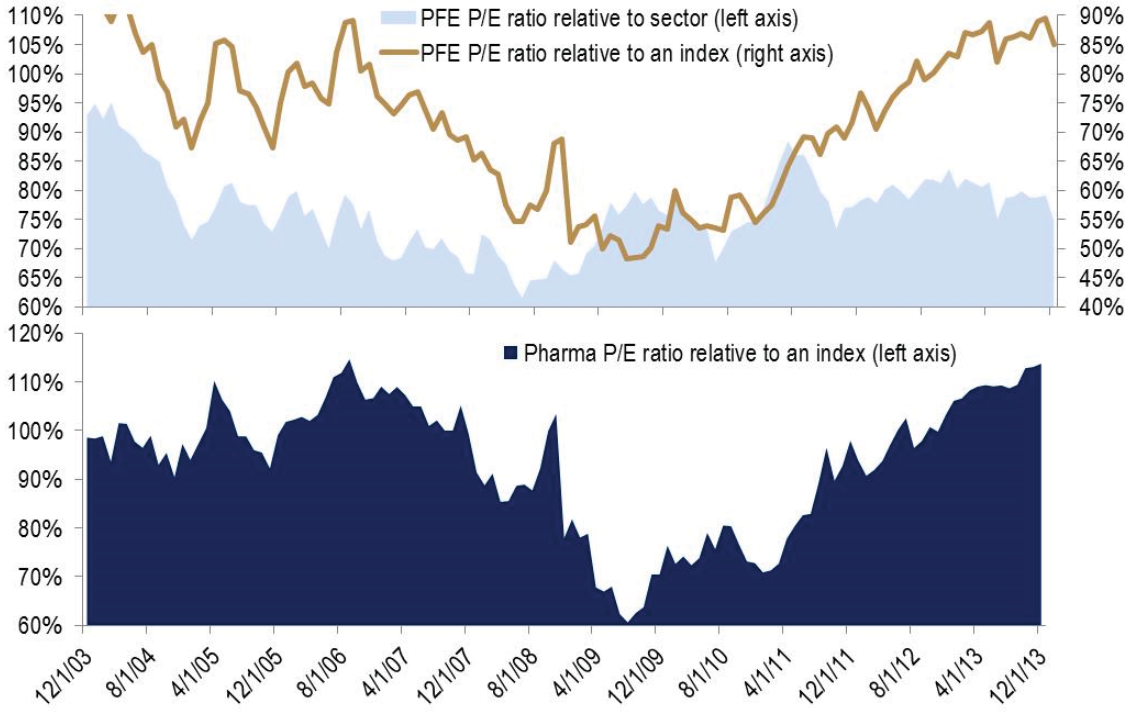
(HRA for Return on Capital)



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

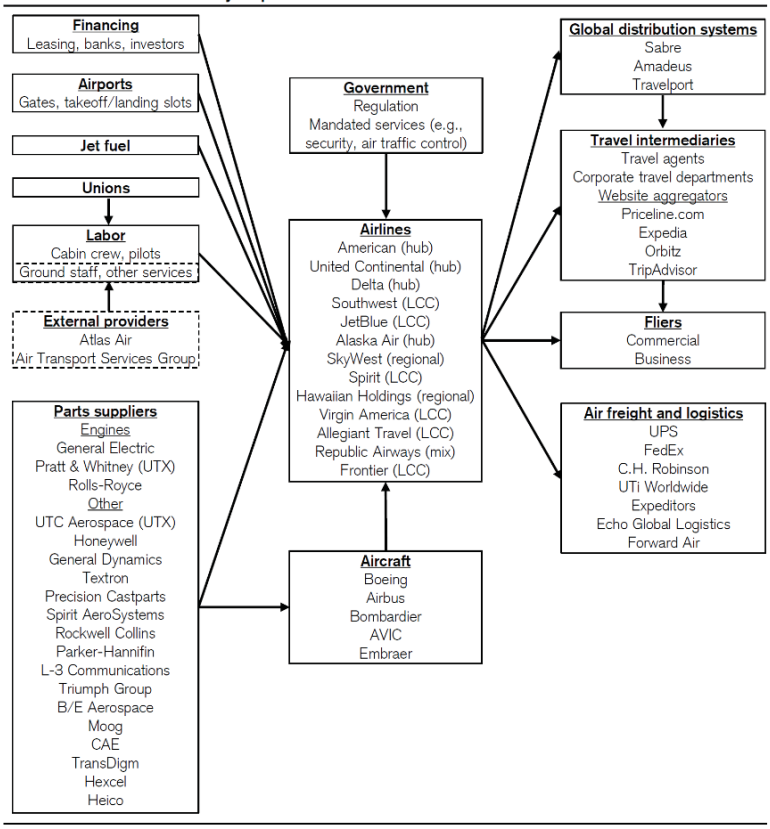
EXERCISE: STOCK OR SECTOR INFLUENCES?

Breakdown of Relative P/E (PFE)



Industry Map

Exhibit 6: U.S. Airline Industry Map



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

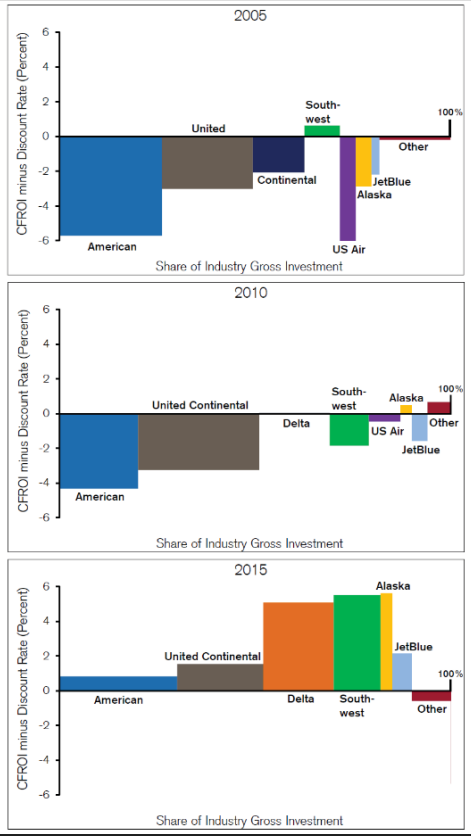
Source: Measuring the Moat, Credit Suisse 2016: https://bit.ly/2KPylNz

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."

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

Exhibit 8: Airline Industry Profit Pools by Company, 2005-2015



Source: Credit Suisse HOLT.

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.

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

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

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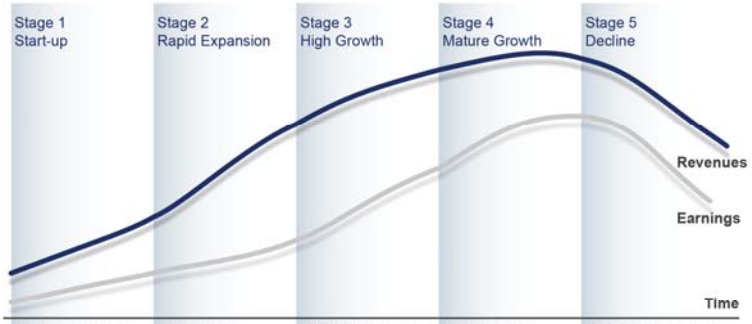
Assessing Moats Checklist (2 of 2)

- 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

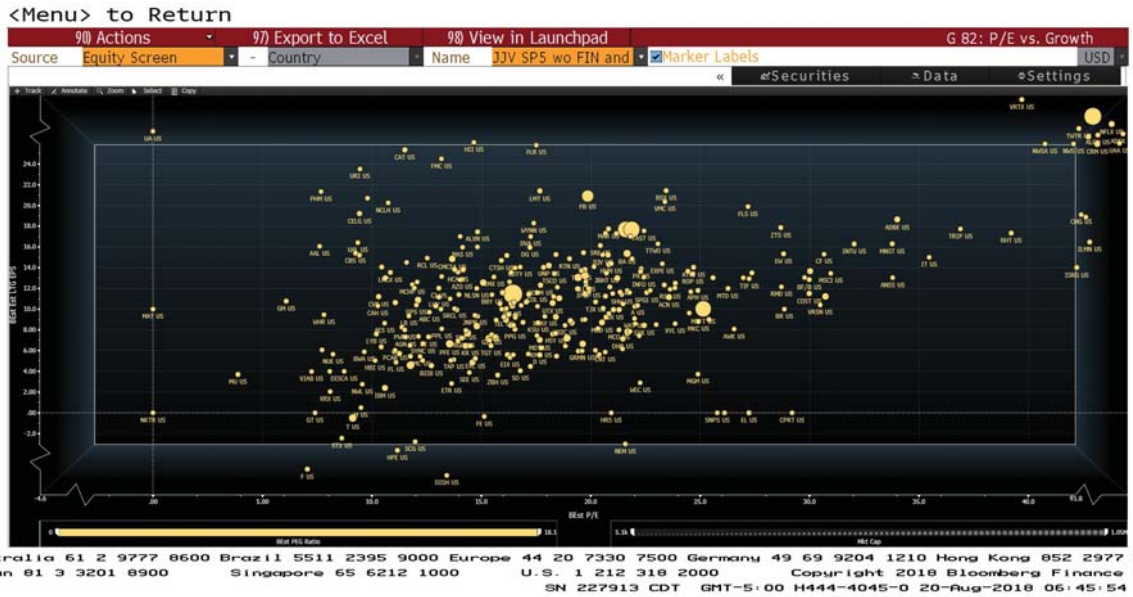
Corporate Finance Choices and Valuation Challenges: Across the Lifecycle



	Stage 1 Start-up	Stage 2 Rapid Expansion	Stage 3 High Growth	Stage 4 Mature Growth	Stage 5 Decline
Investment Decision	Investment needs vastly exceed funds	Investment choices still abound	Internal funds start to catch up with investment choices	Internal funds available exceed investment choices	Few or no investment good investment choices
Financing Decision	Equity funding optimal, debt only if desperate	Primarily or entirely equity funded	Some debt capacity opens up	Debt capacity expands	Debt capacity exists but shrinks as firm becomes smaller
Dividend Decision	No cash for dividends. Need equity infusions	No cash for dividends. New equity issues	Need for new equity subsides, & cash starts building up	Pressure for buybacks/dividends	Liquidating dividends as company shrinks
Value Drivers	Potential market Promise in product Trust in founder	Revenue Growth Target Market Access to Capital	Quality of growth Opertaing Margin	Asset Earning Power Debt capacity Cash return policy	Liquidation proceeds Debt payouts
Investor Dangers	Business failure	Competition Weak barriers to entry Markets close down	Low quality growth Lagging profit margins	Status Quo management	Distress Management in denial

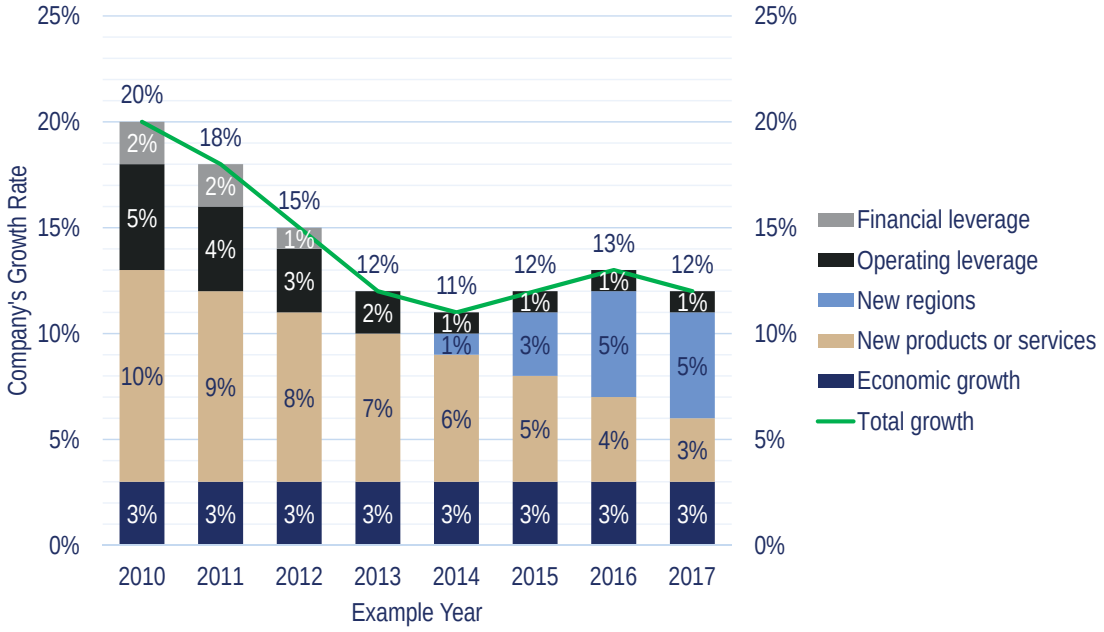
Source: http://aswathdamodaran.blogspot.com/2013/09/decline-and-denial-requiem-for.htmlb

Growth and P/E Ratios



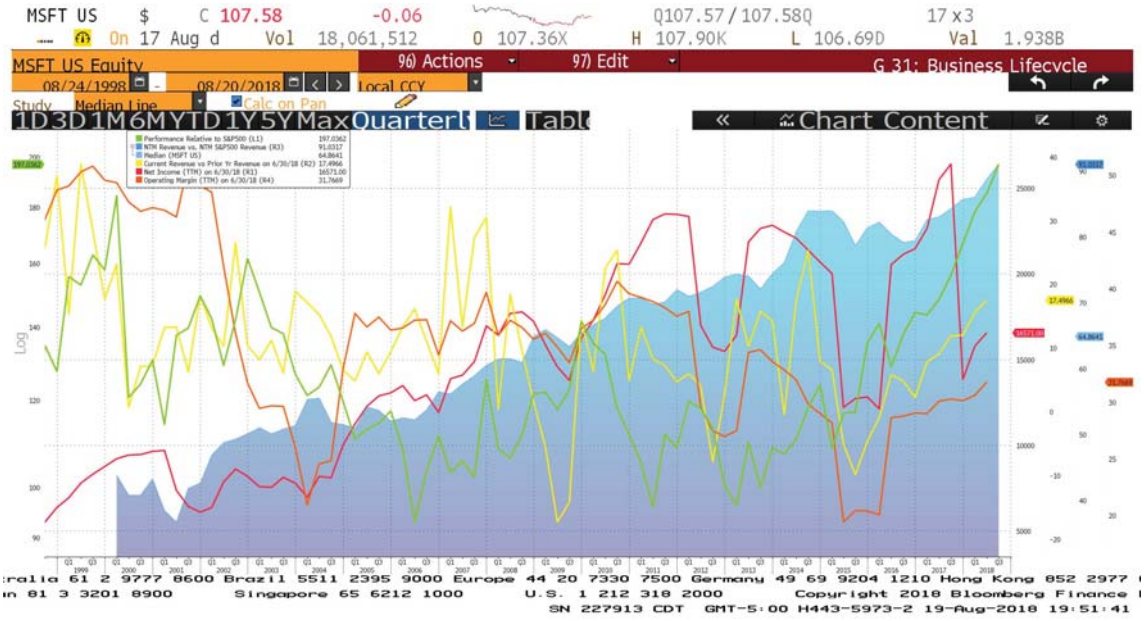
S&P 500 stocks excluding financials and energy sectors

Sources of EPS Growth

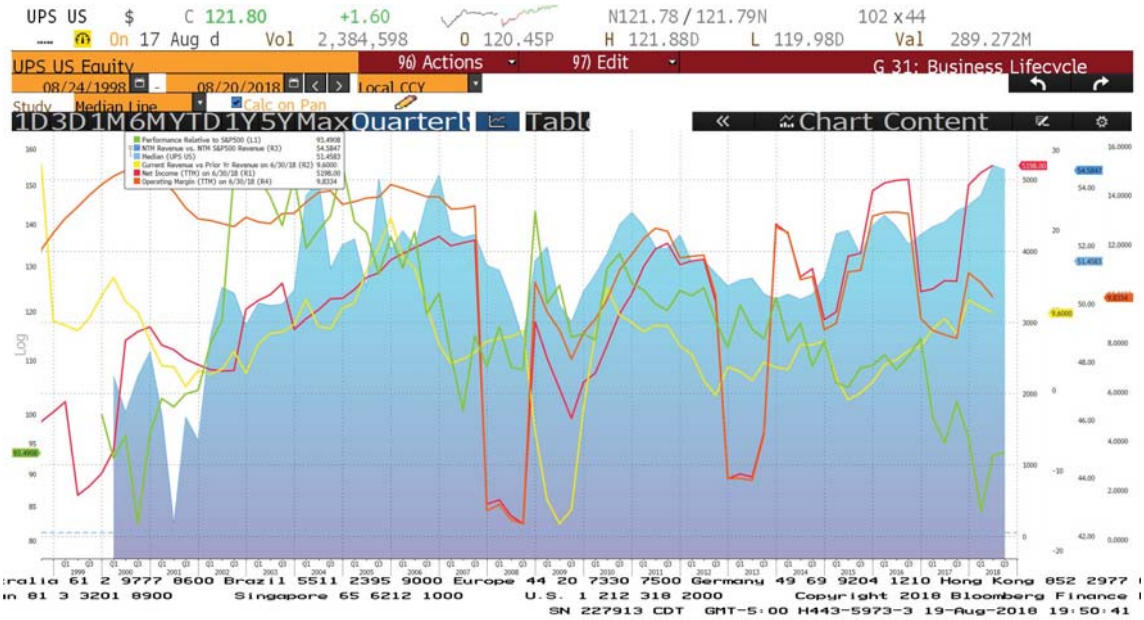


Business Life Cycle AMZN

Business Life Cycle
MSFT



Business Life Cycle
UPS



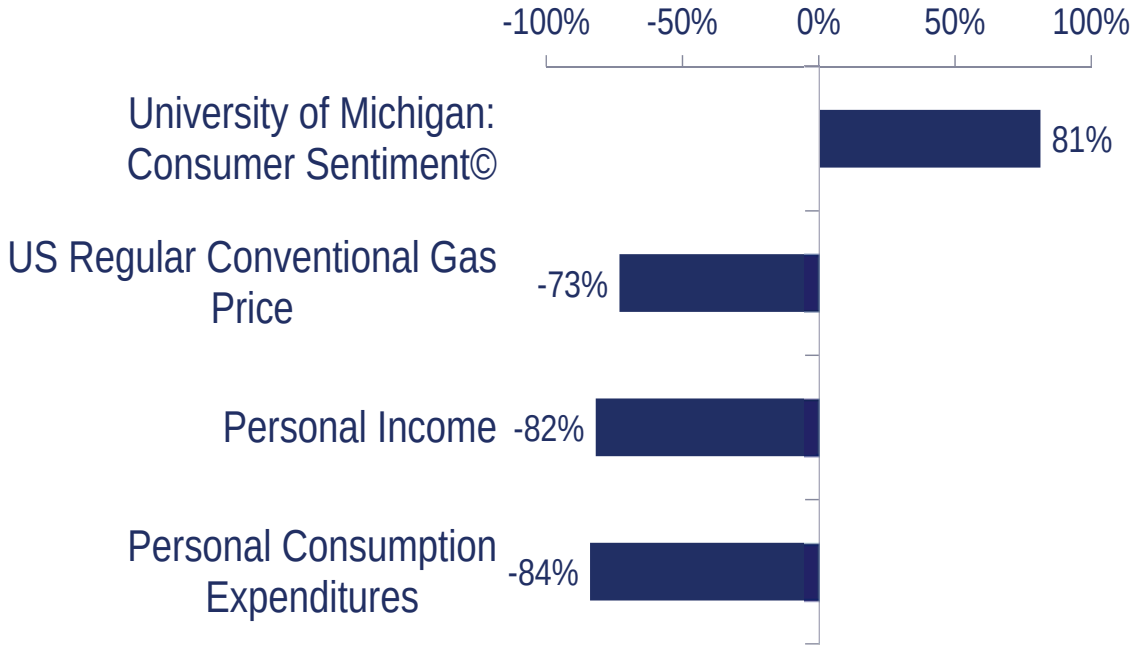
Business Life Cycle
IBM

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

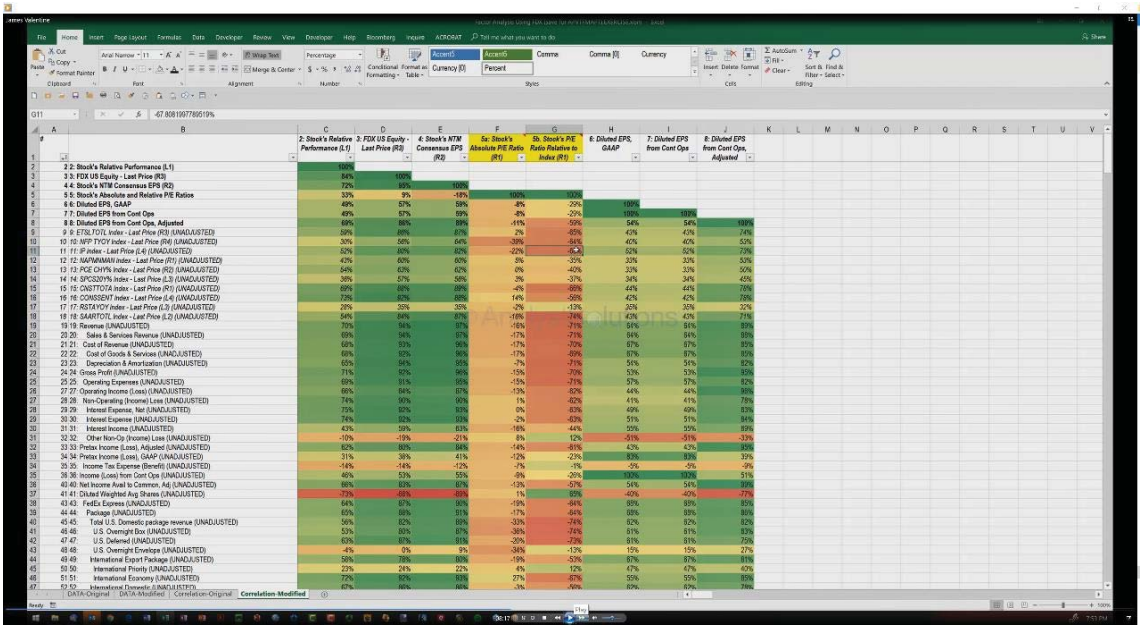
Correlation Between S&P 500 P/E Ratio and Macro Data



Jan 2000 to July 2013

Relative P/E Ratio Factor Analysis

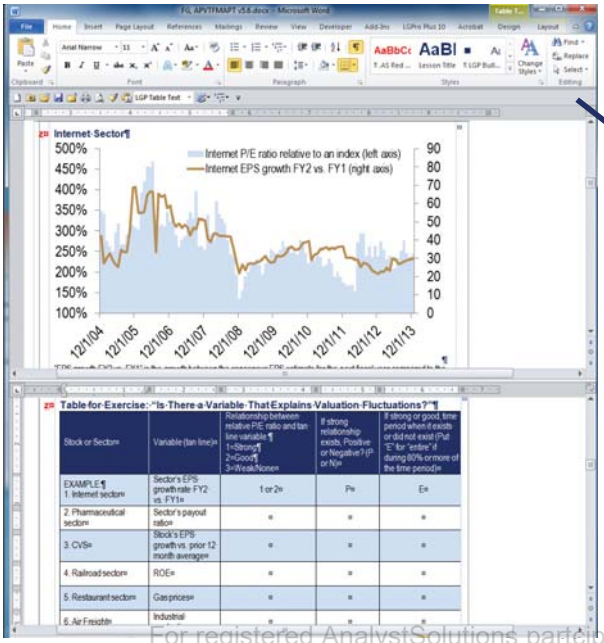
Select the image below to watch video (18 min)



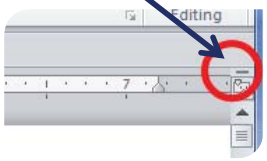
Great Source of Macro Data

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

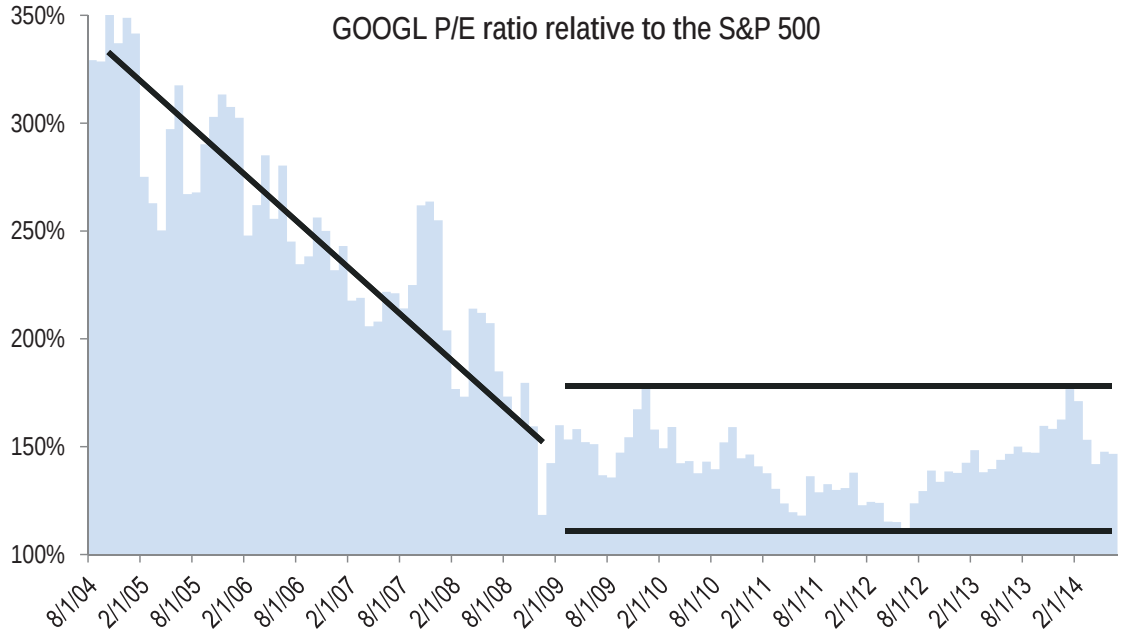
EXERCISE: IS THERE A VARIABLE THAT EXPLAINS VALUATION FLUCTUATIONS?



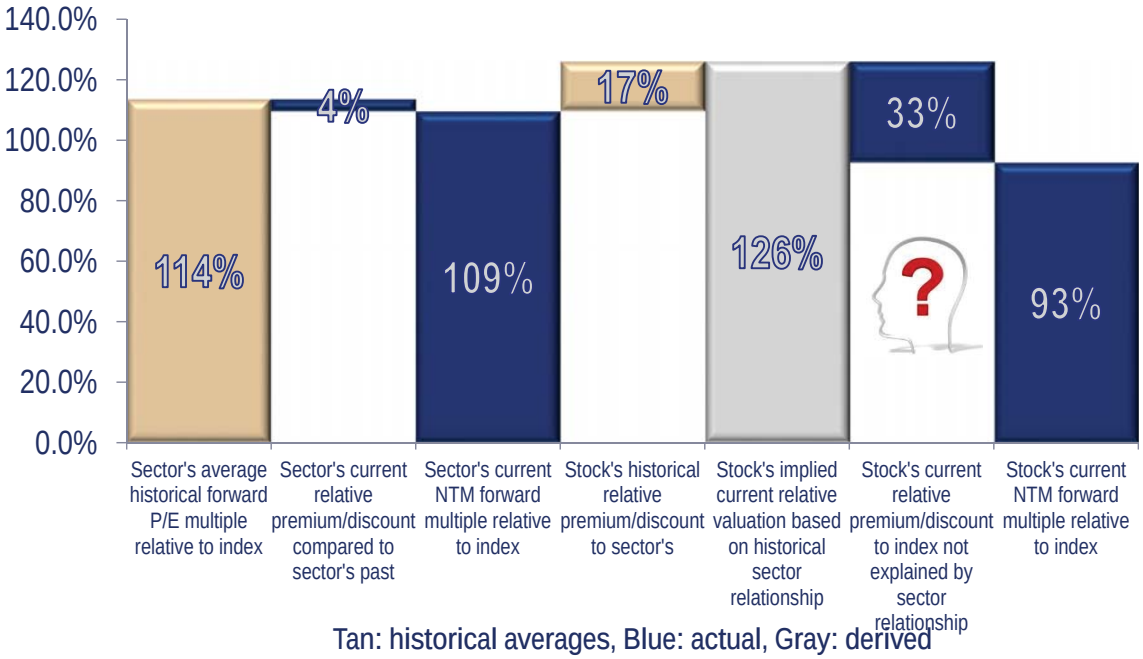
Split the screen in reverse, so you're working in the table on the bottom of the screen



Why Distinguish Between Cyclically- and Secularly-moving Relative Valuations?



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



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

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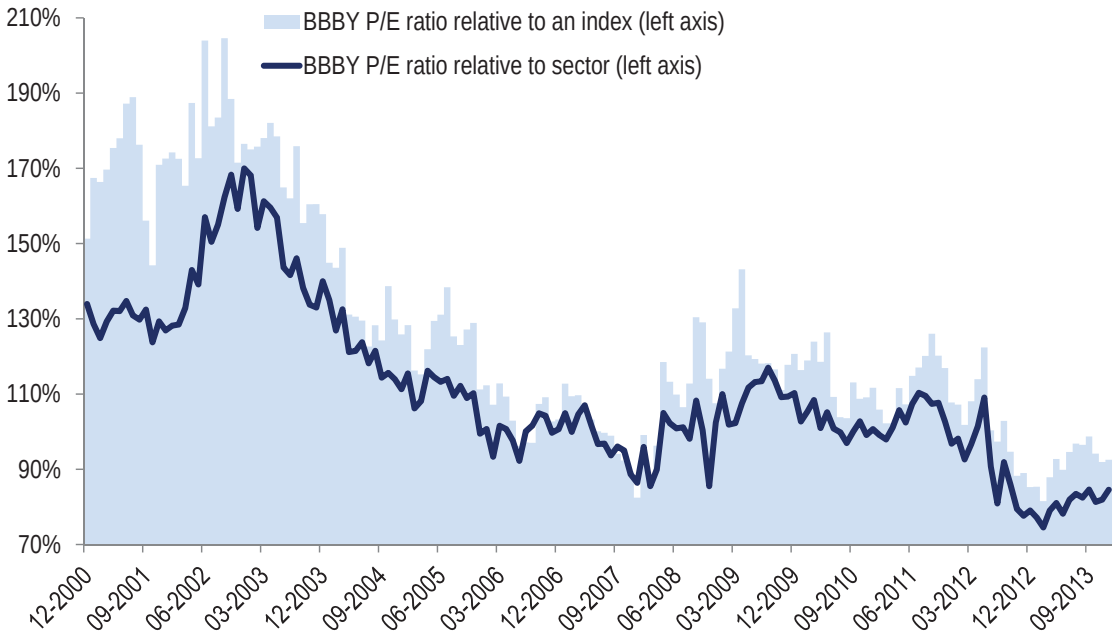
Bed Bath & Beyond (BBBY) 2000 to 2013



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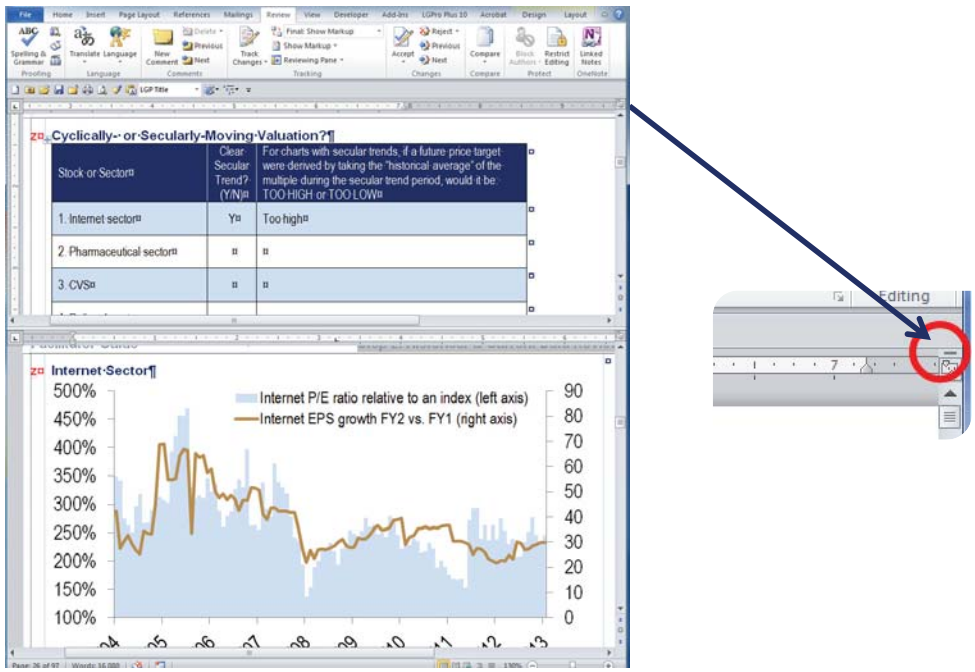
Another Opportunity to Split Your Screen if Using Word Version



EXERCISE: CYCLICALLY- OR SECULARLY-MOVING VALUATION?

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

STEP 2: Historical and Current Sentiment

Lucas…

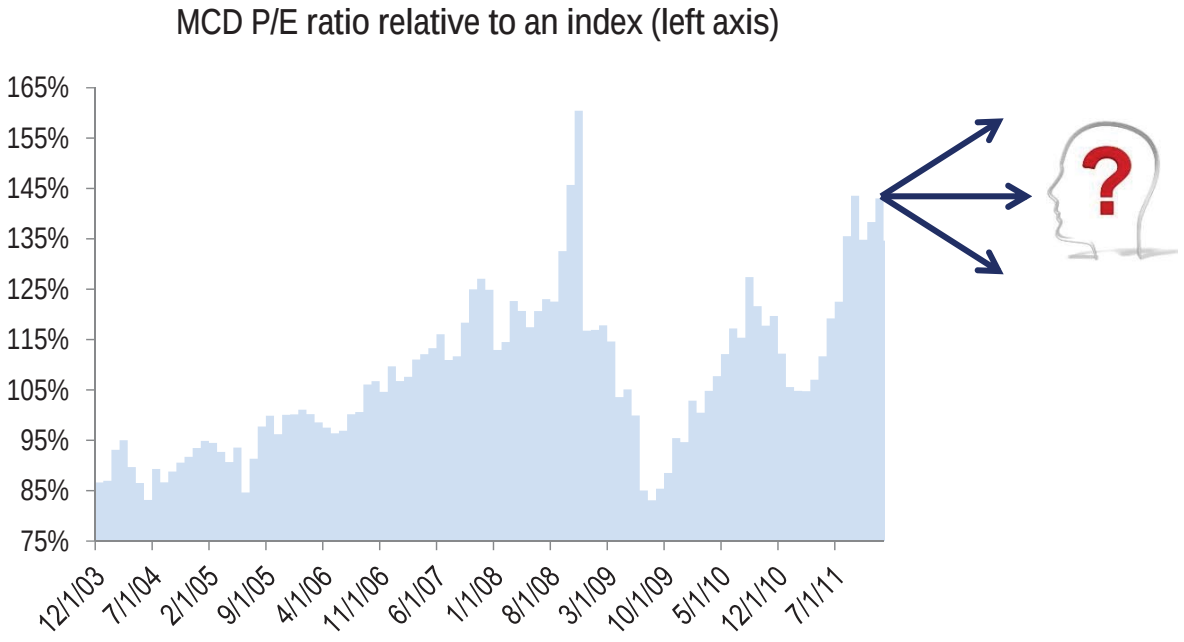
- Doesn't know these *historical*: elements for MCD
  - Range of MCD's valuation levels in absolute terms
  - Range of MCD's valuation levels relative to peers and broad index
  - Whether MCD's valuation has been moving cyclically or secularly
- Is using *absolute* valuation levels rather than *relative*
- 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)

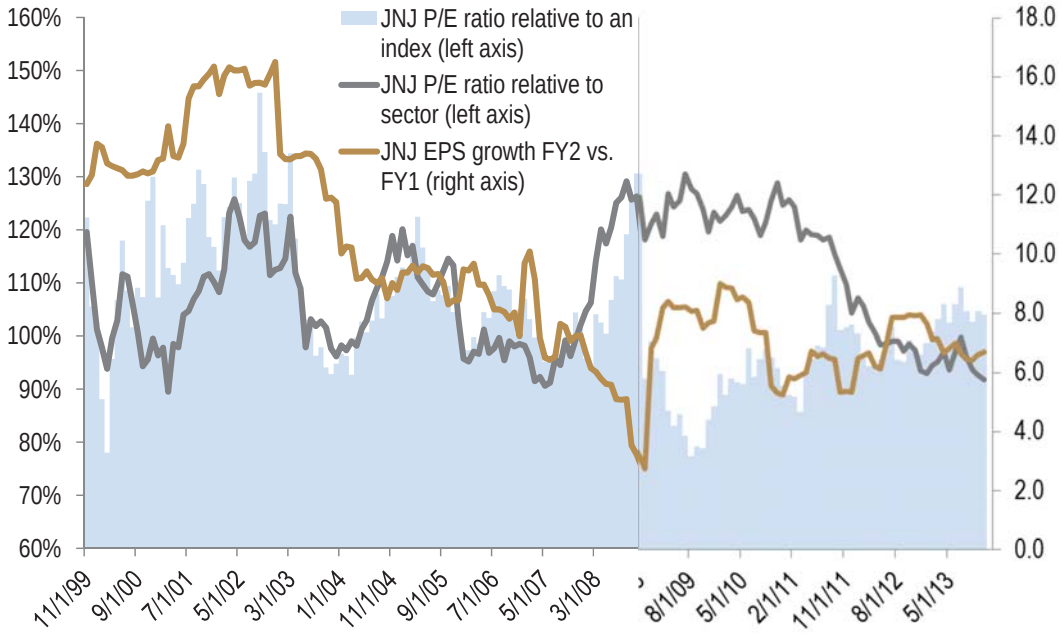
SHARE™ Framework

- 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?



Adjusting for the Future

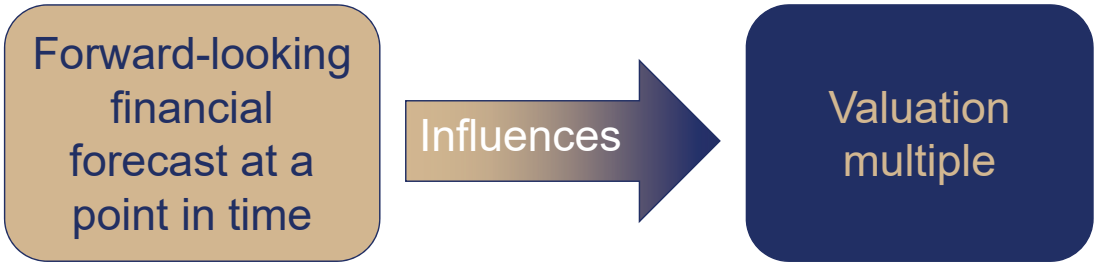


Choose Your Path

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

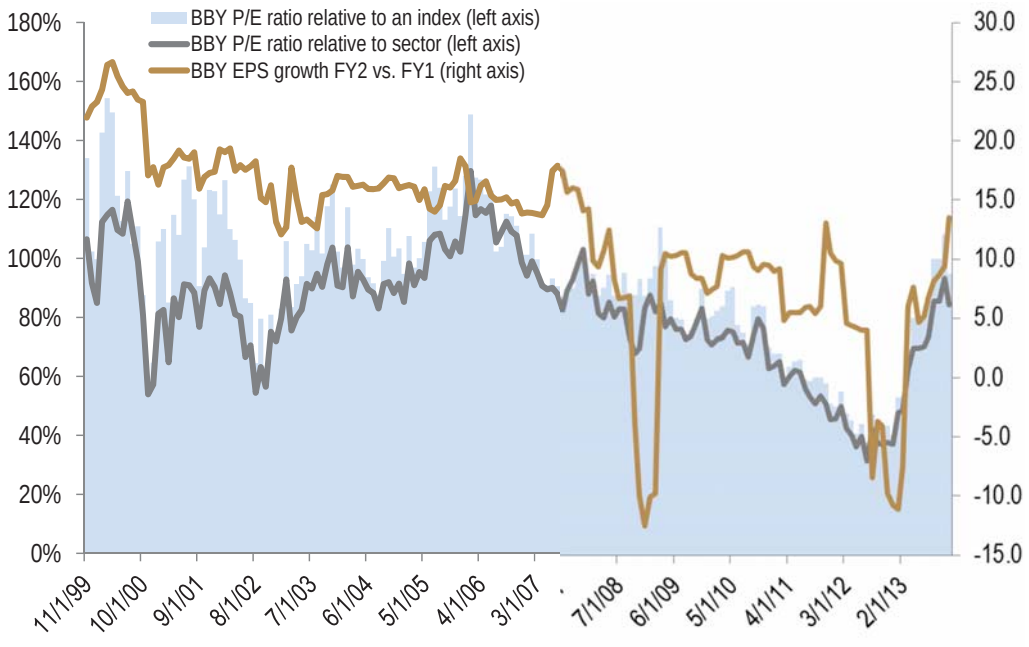


Example

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

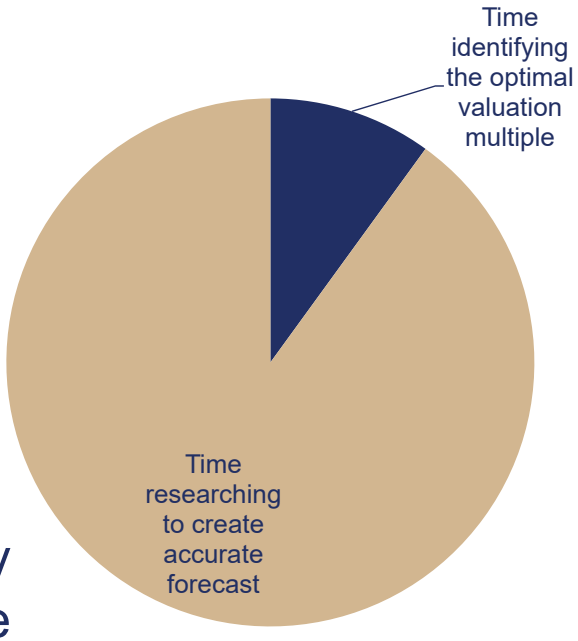
Don't Forget: Forecast Trumps Valuation



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



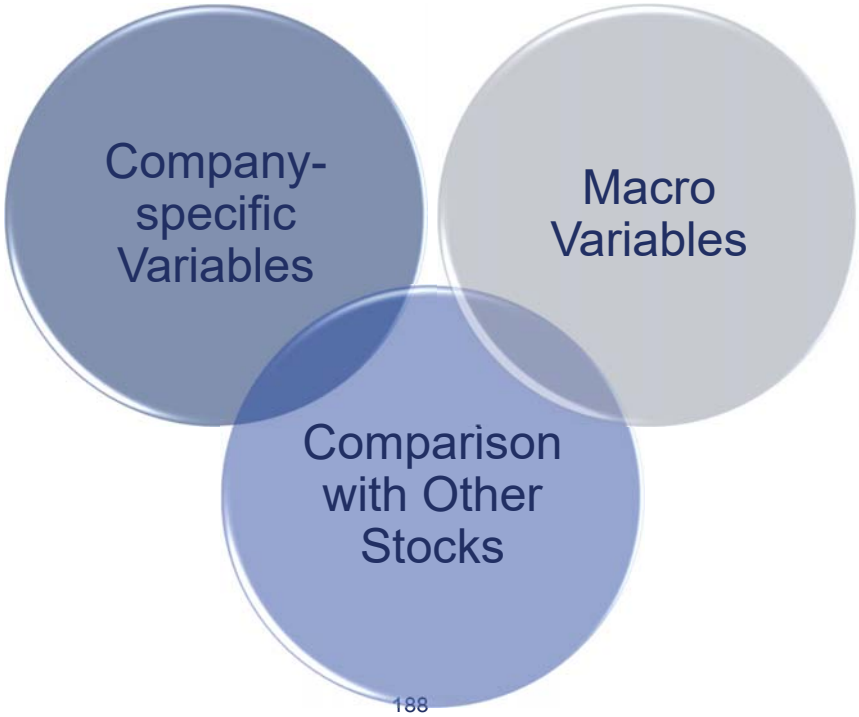
Watch For Sector Anomalies

- 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

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



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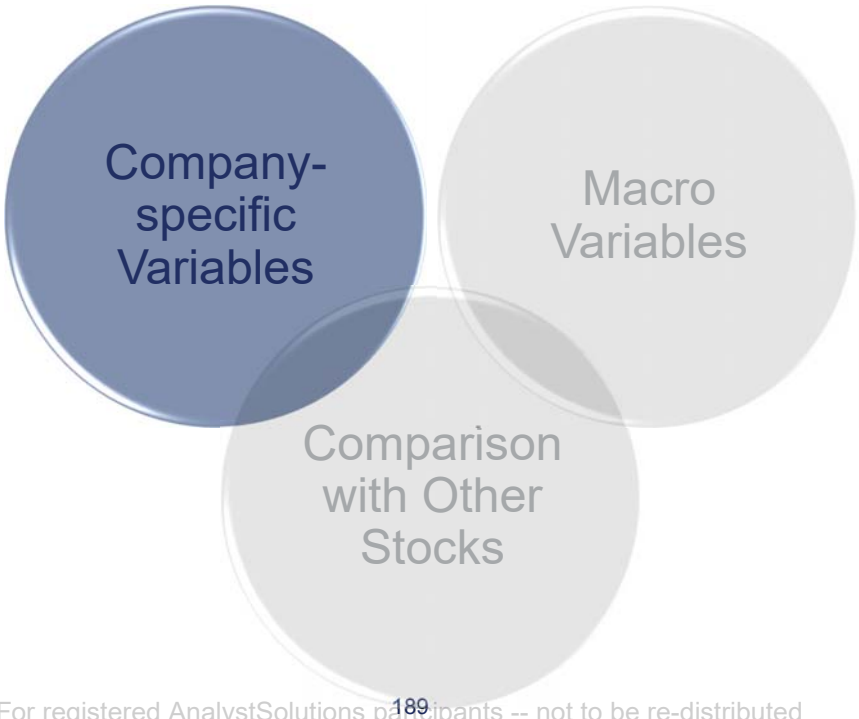
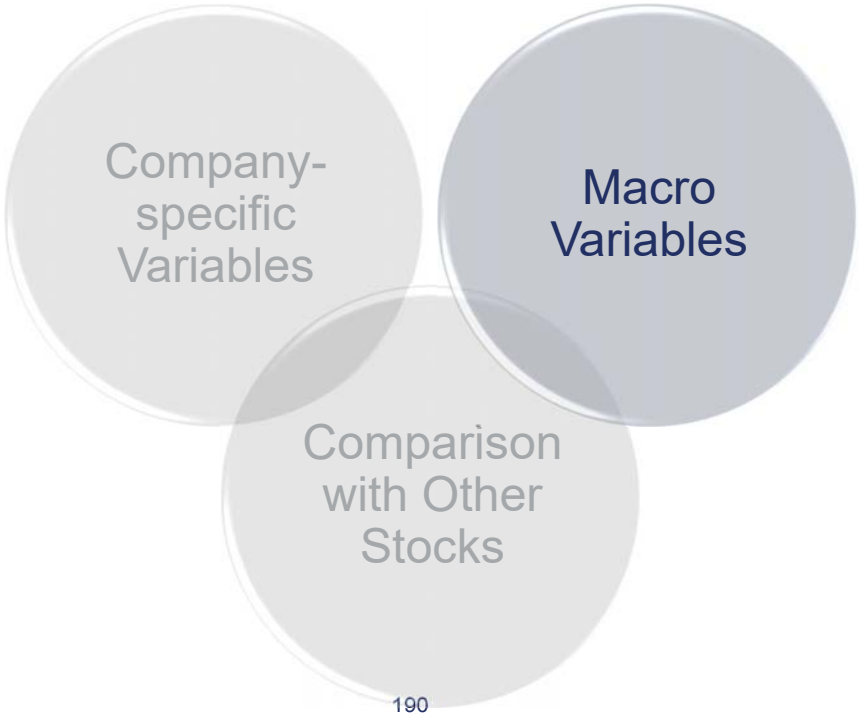
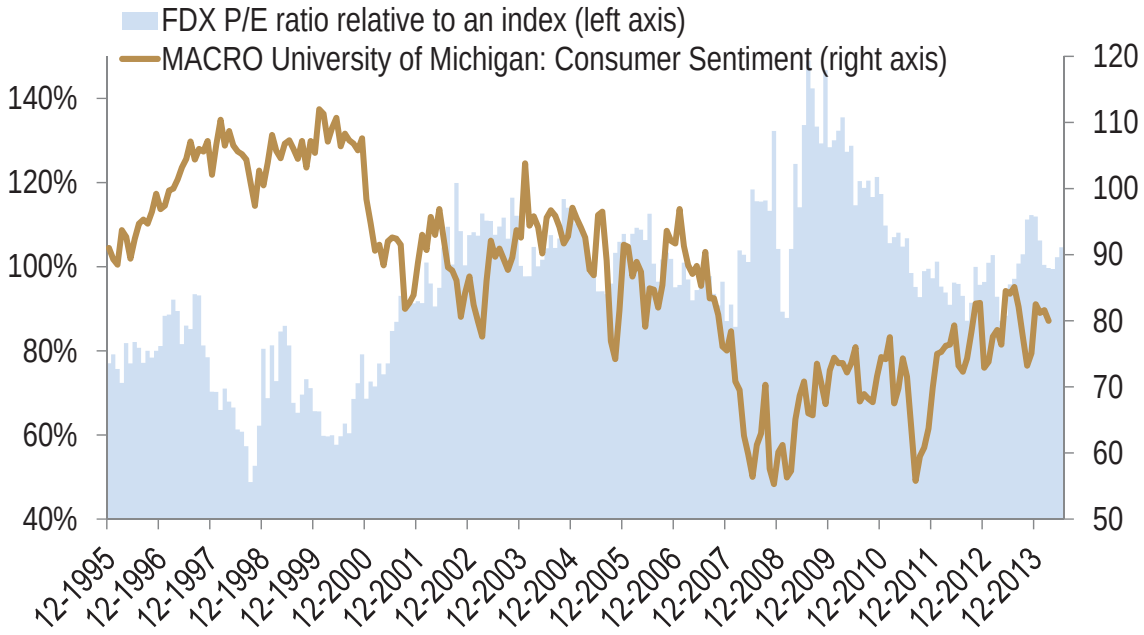
Assume Anomalous Valuations Return to Normal Using These Tools



Assume Anomalous Valuations Return to Normal Using These Tools



Macro Factors Continue to Influence: FDX



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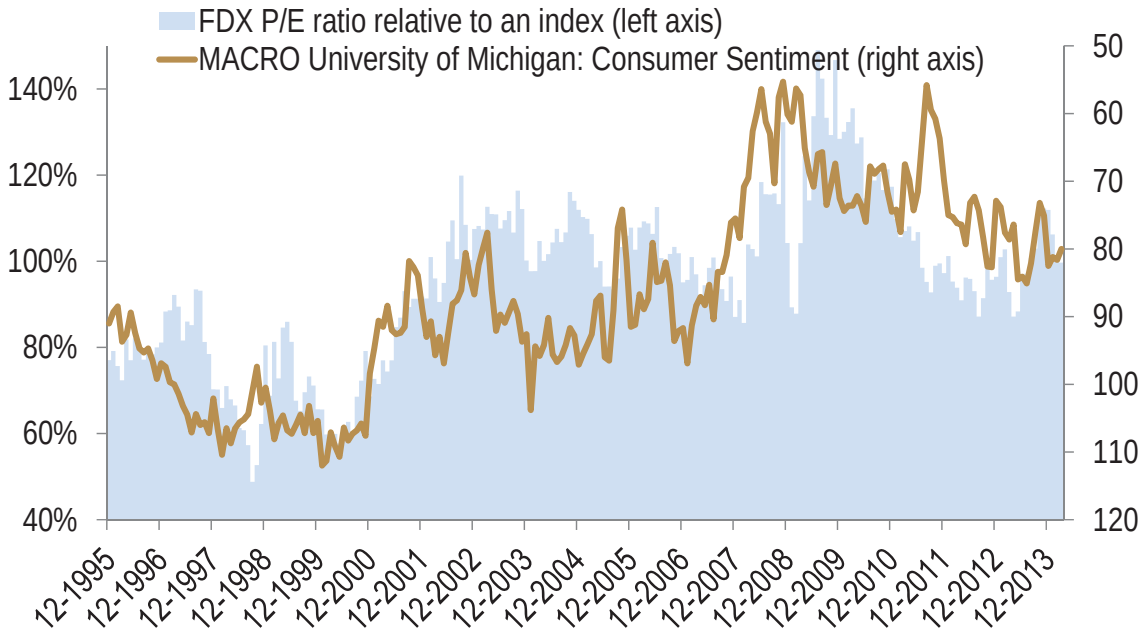
Macro Factors Continue to Influence: FDX



Note values in right axis are in reverse order

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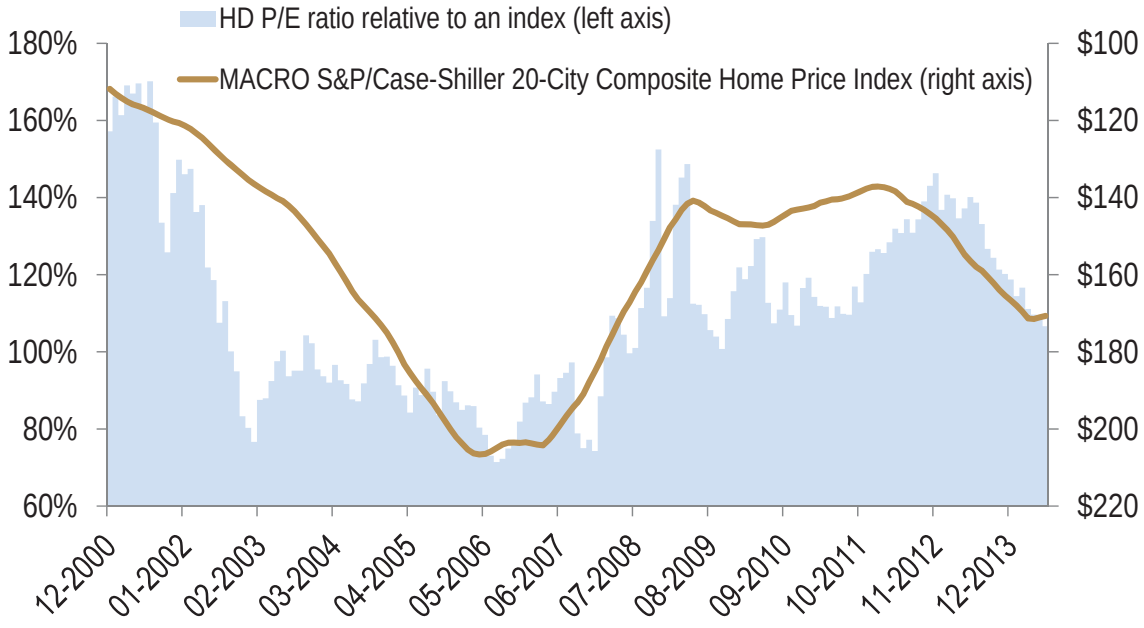
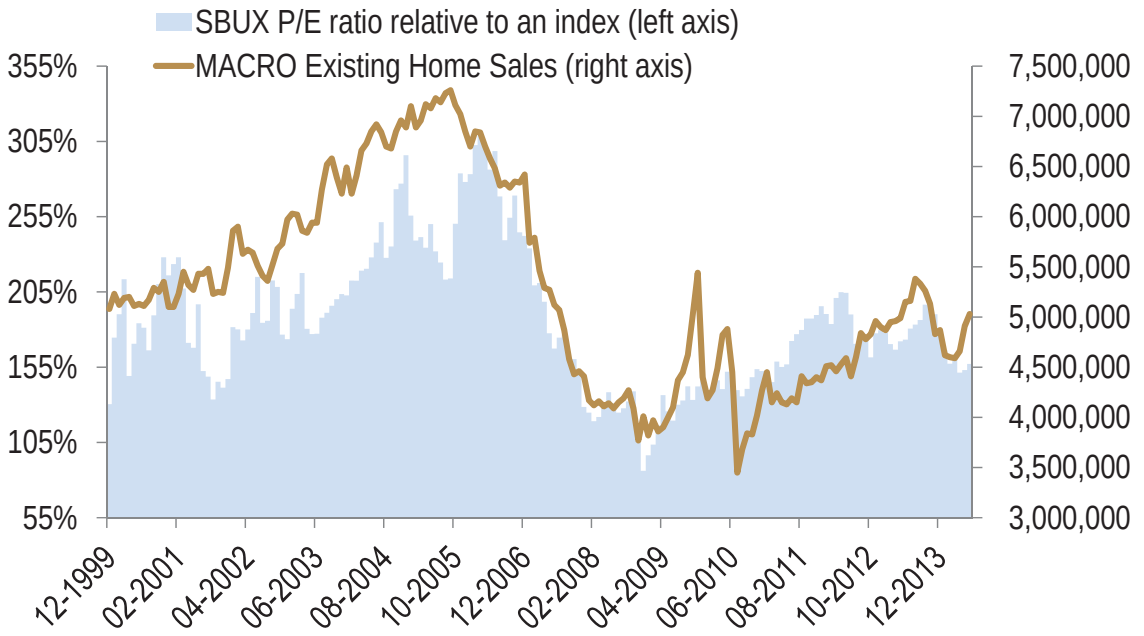
Macro Factors Continue to Influence: HD

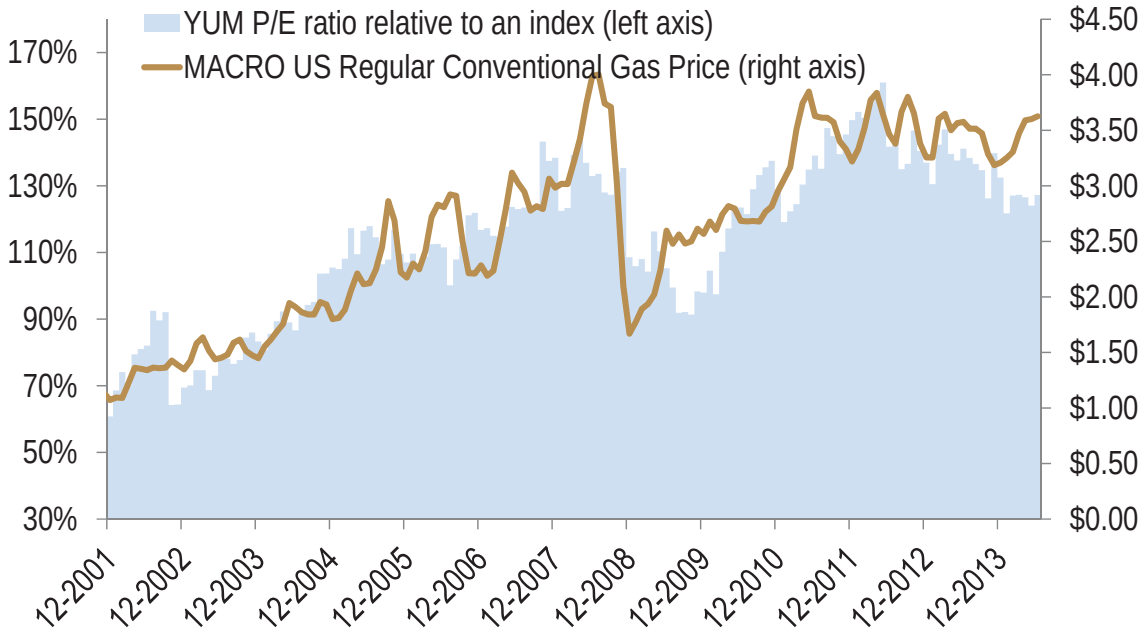


Note values in right axis are in reverse order

Macro Factors Continue to Influence: SBUX

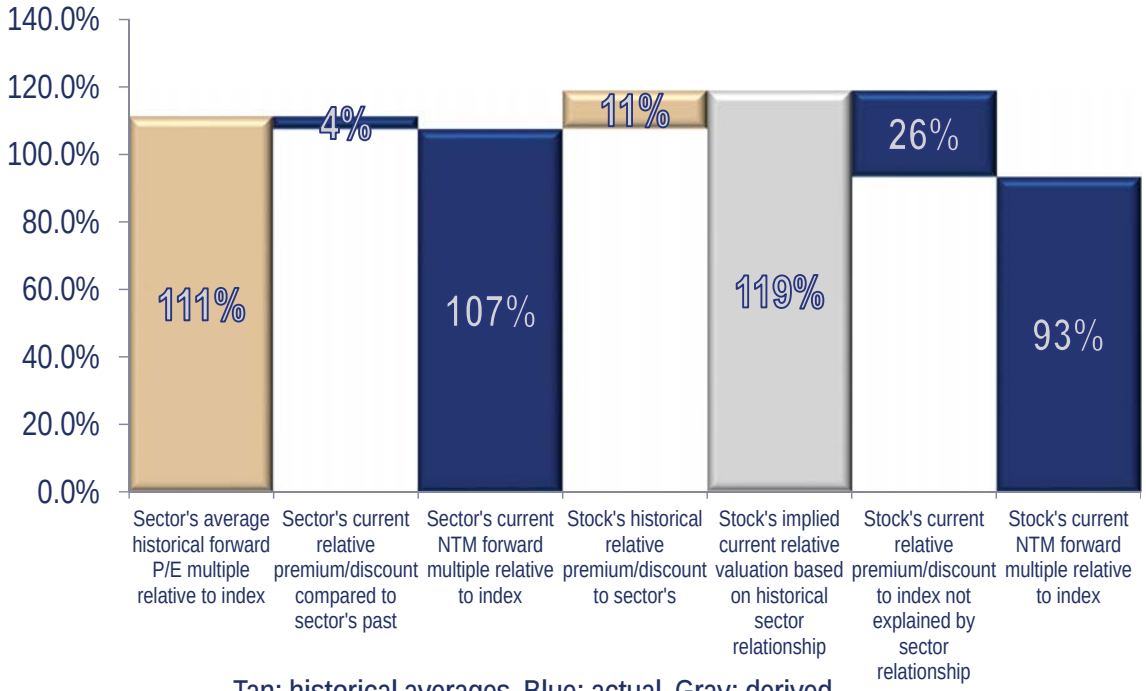


Macro Factors Continue to Influence: YUM



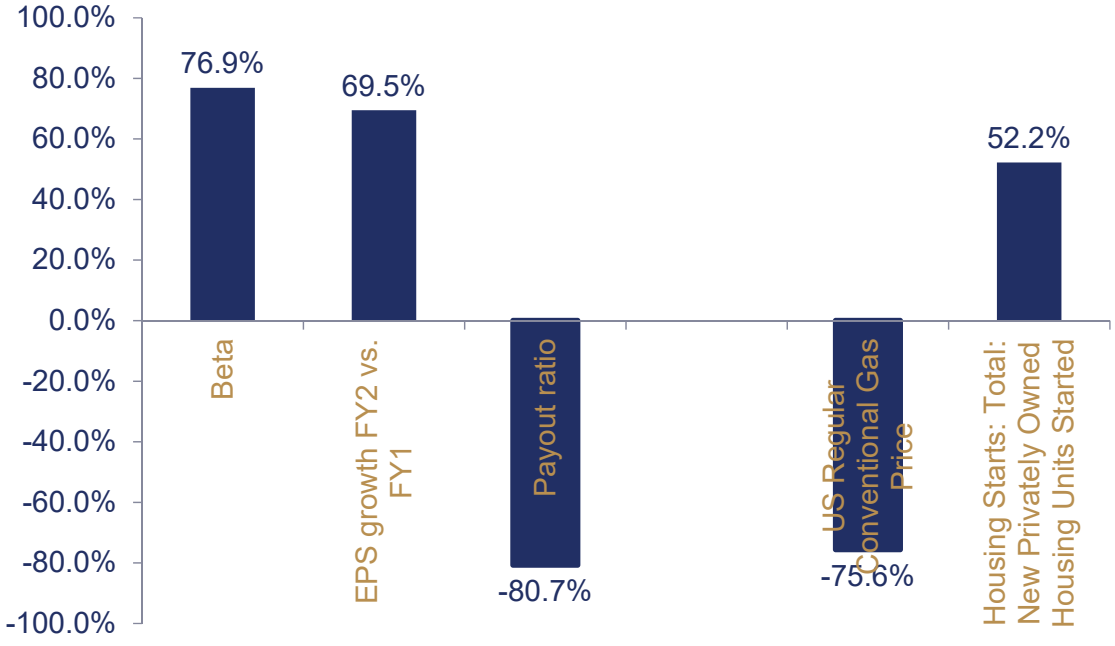
EXAMPLE

Historical Valuation for WMT



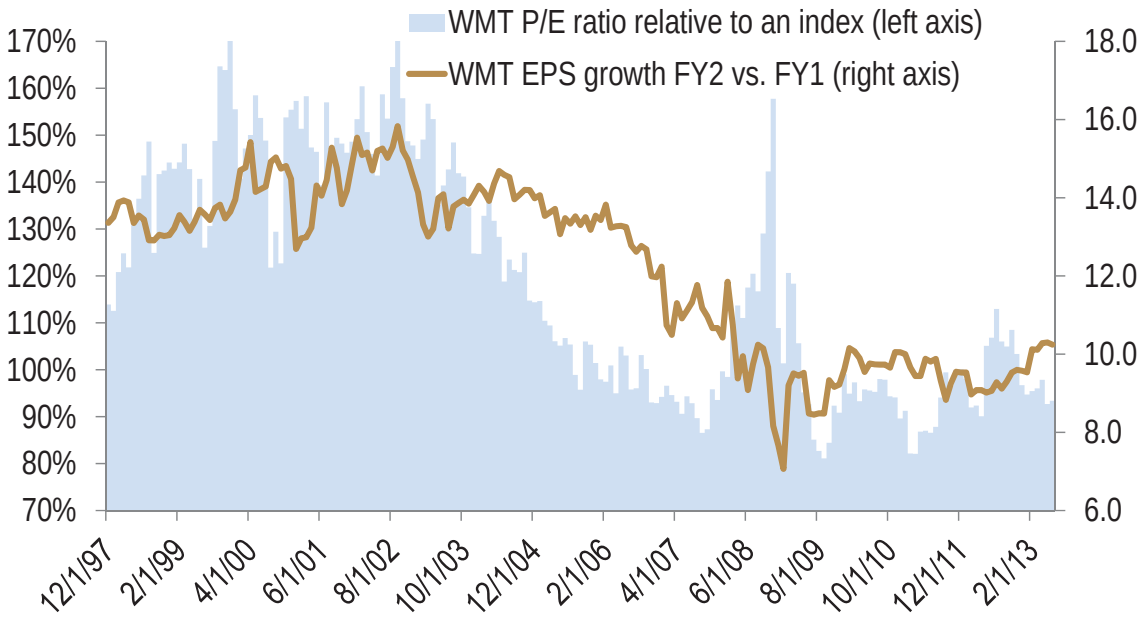
Tan: historical averages, Blue: actual, Gray: derived

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

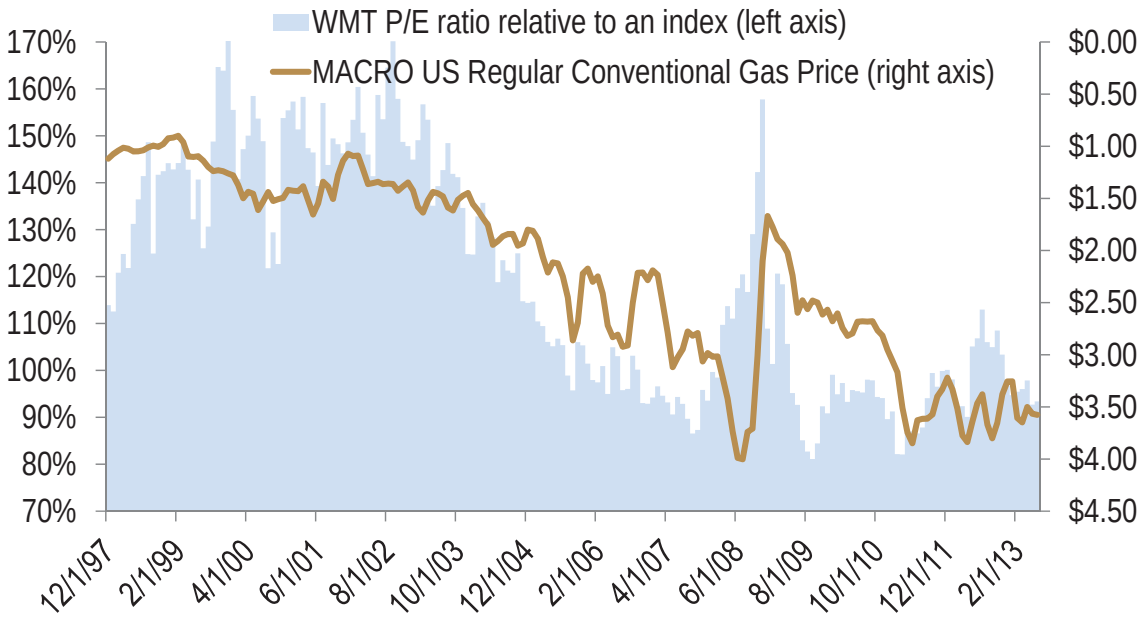


June 1997 to June 2013

Company-Specific Variable for WMT



Historical Variables for WMT



Forecast of Relative P/E Ratio in One Year (WMT)

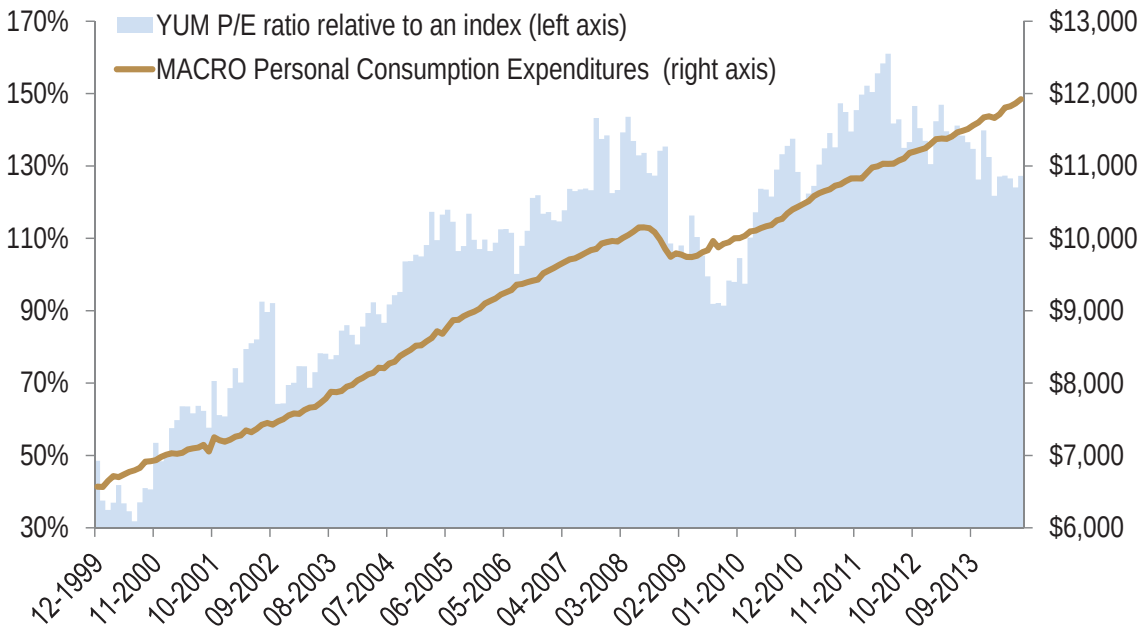
	EPS growth FY2 vs. FY1	EPS growth FY2 vs. FY1 (48 outliers removed from 193 periods)	Gas Prices (dollars/ gallon)
R Square*	0.69	0.86	0.73
Intercept	0.25	0.12	1.61
Variable (multiplier)*	7.7	8.6	-20
Forecast for 1 year from now**	9%	9%	$3.63
Expected relative P/E ratio in 1 year	94%	89%	89%
Actual in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



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

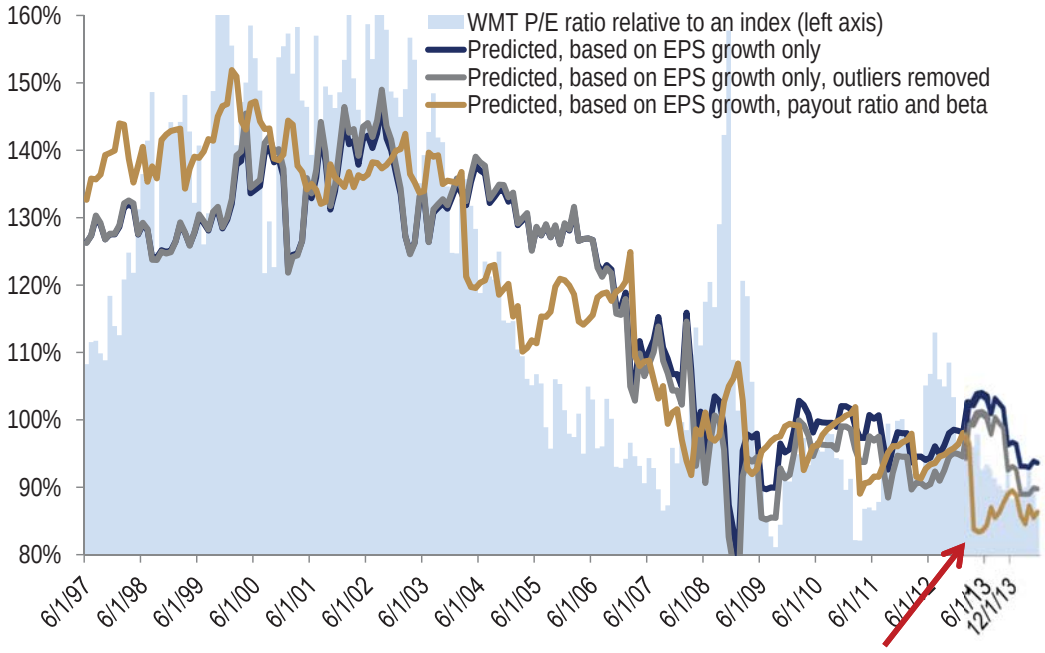
Implications for Multicollinearity

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

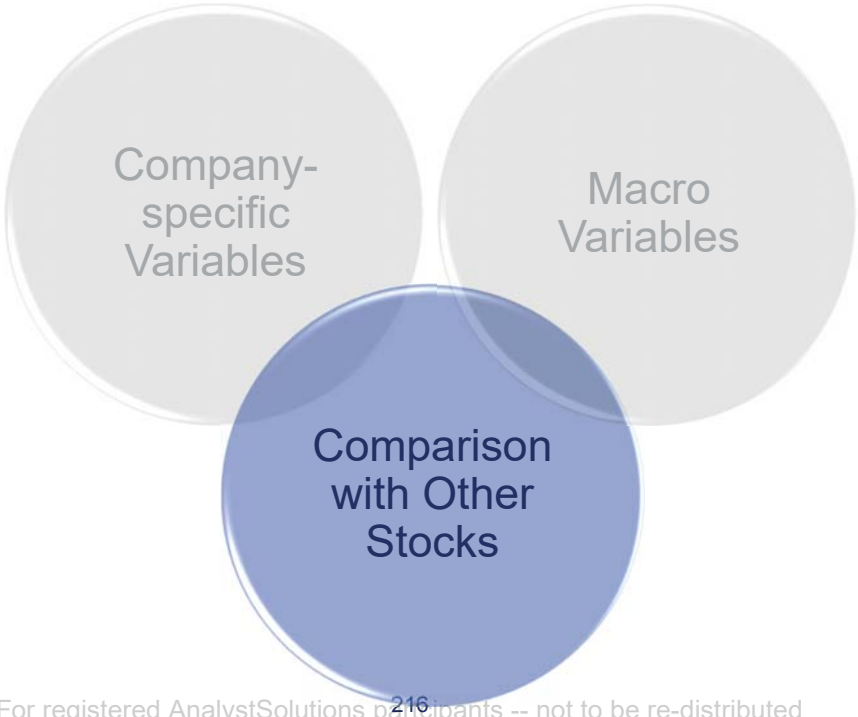
Section 6

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

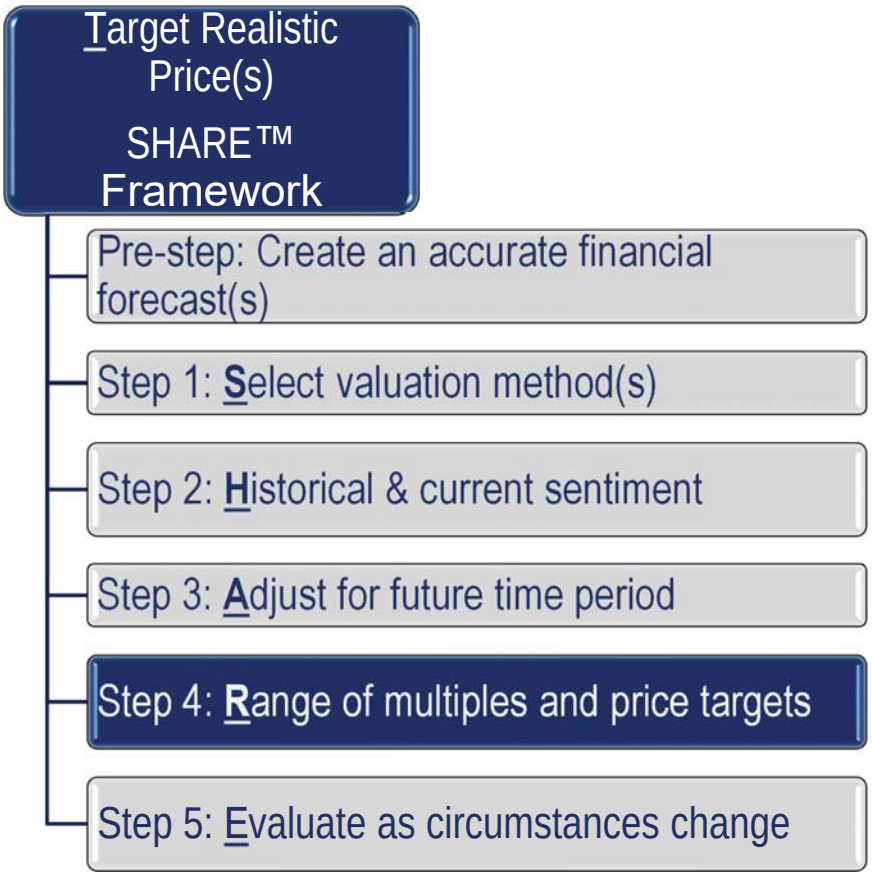


What Could Lucas Have Learned from Step 3 of SHARE™?

STEP 3: Adjust for Future Time Period

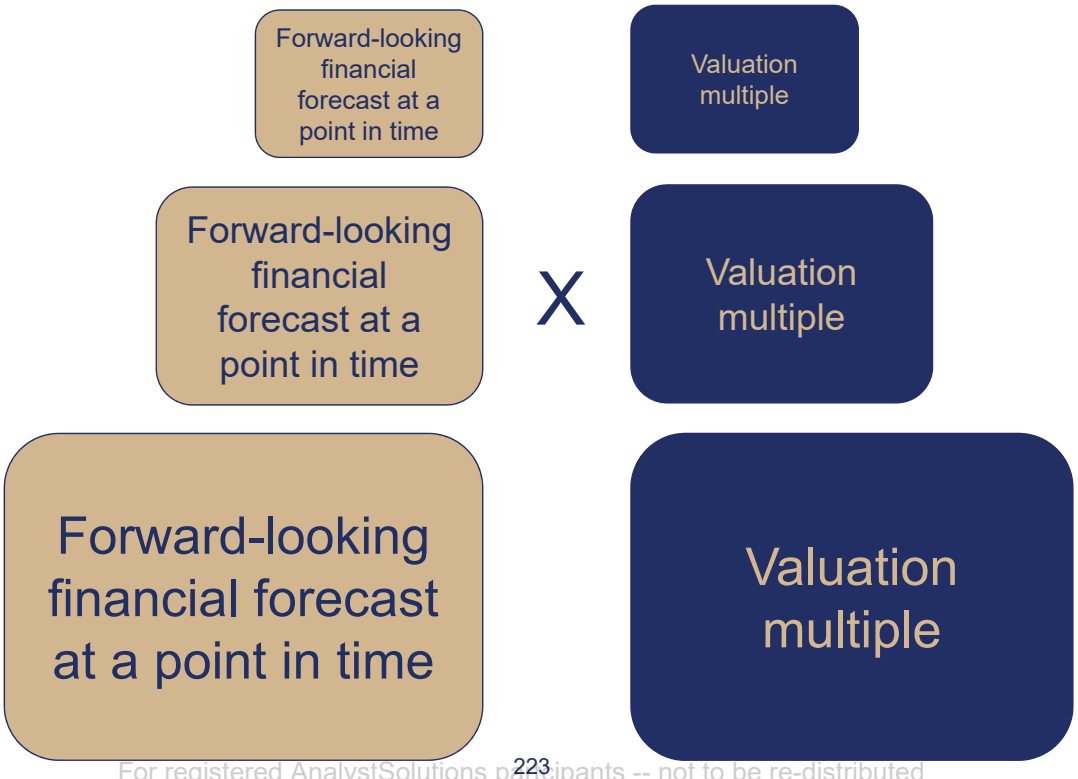
Lucas…

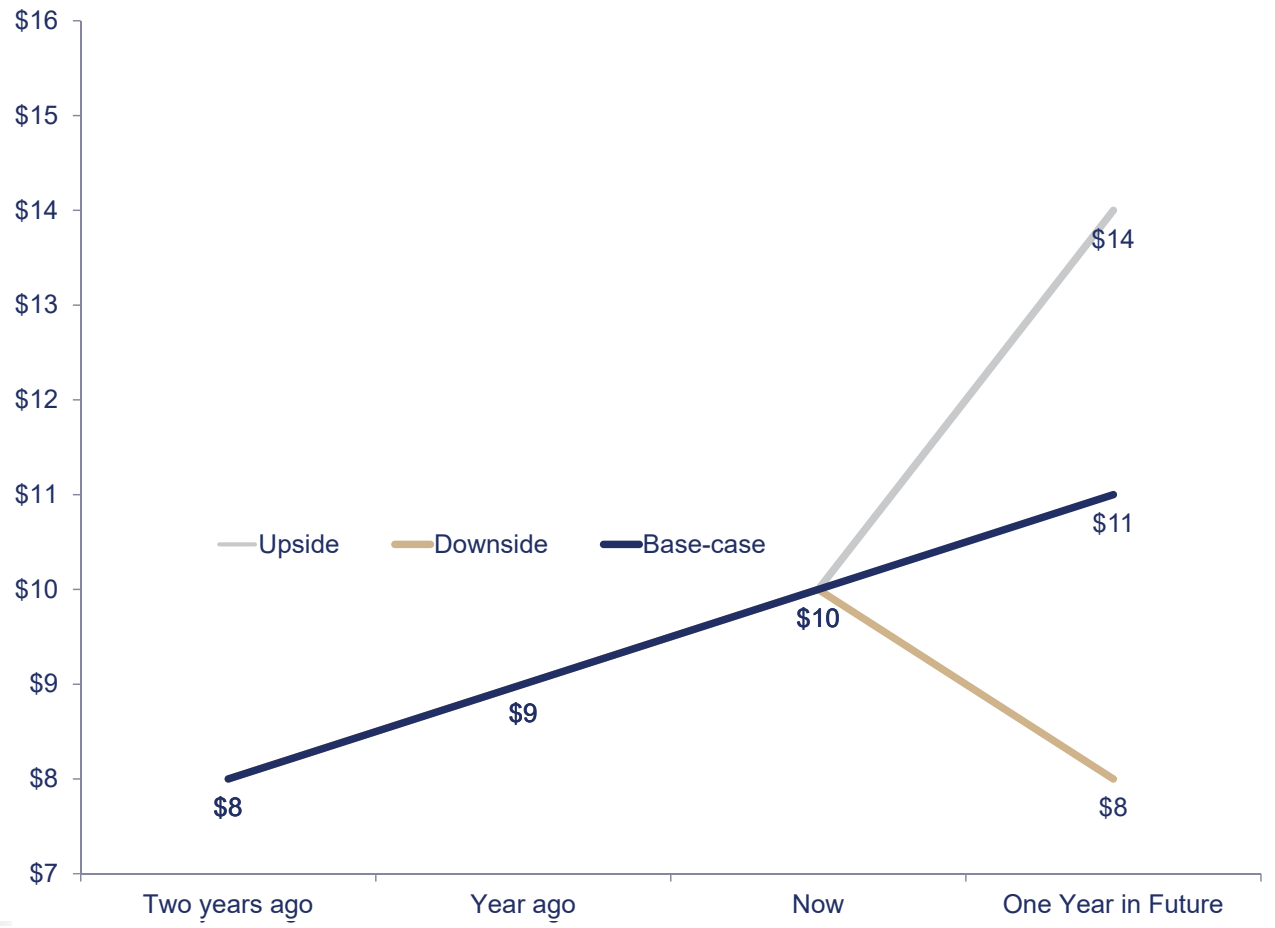
- In computing a future valuation multiple, he doesn't account for the current anomalies that will likely disappear:
  - Lucas cannot explain why MCD's current 17.5x P/E multiple (on trailing earnings) is likely to be sustainable when compared to a 15.8x P/E multiple (on forward earnings) the stock has 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



What you don't know you don't know will kill you

Price Target in Its Simplest Terms





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Complete Your TAP

Section 7

Transformation Action Plan (TAP)

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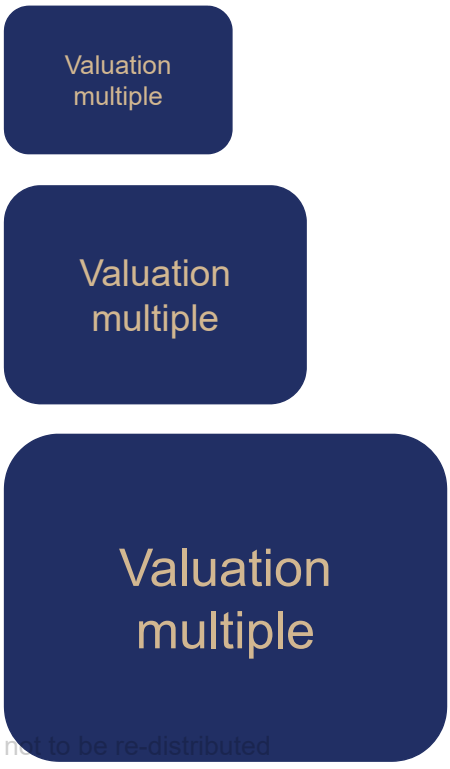
Shortcomings with Price Targets

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

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



Peak on Peak or Peak on Trough?

Forward-looking financial forecast at a point in time

X

Valuation multiple

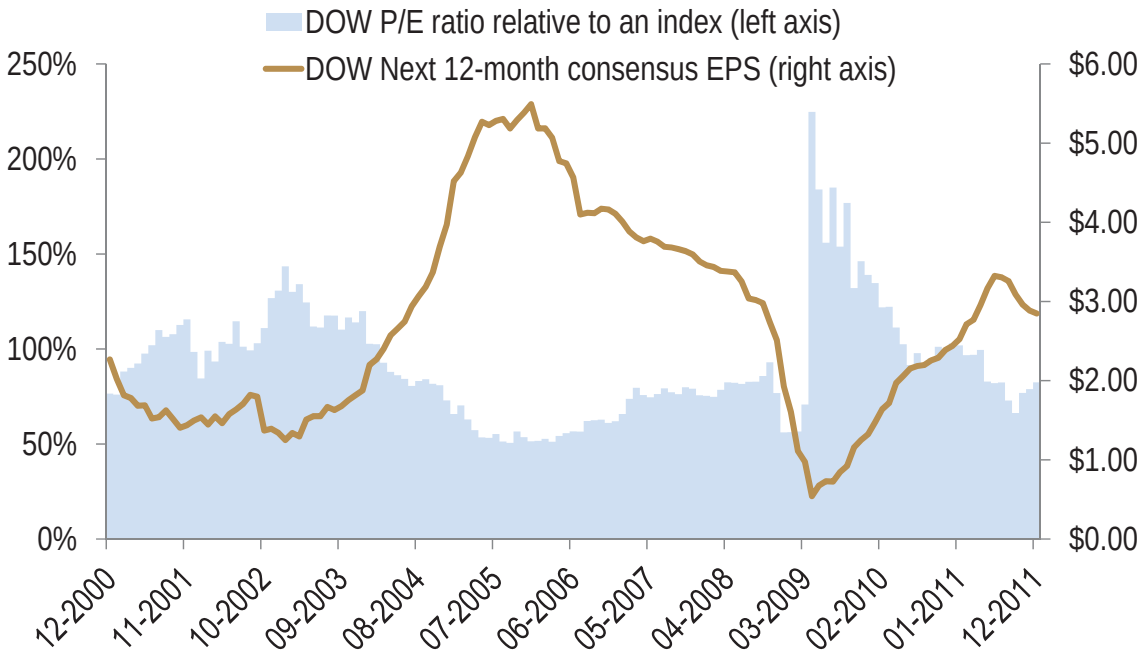
Forward-looking financial forecast at a point in time

Valuation multiple

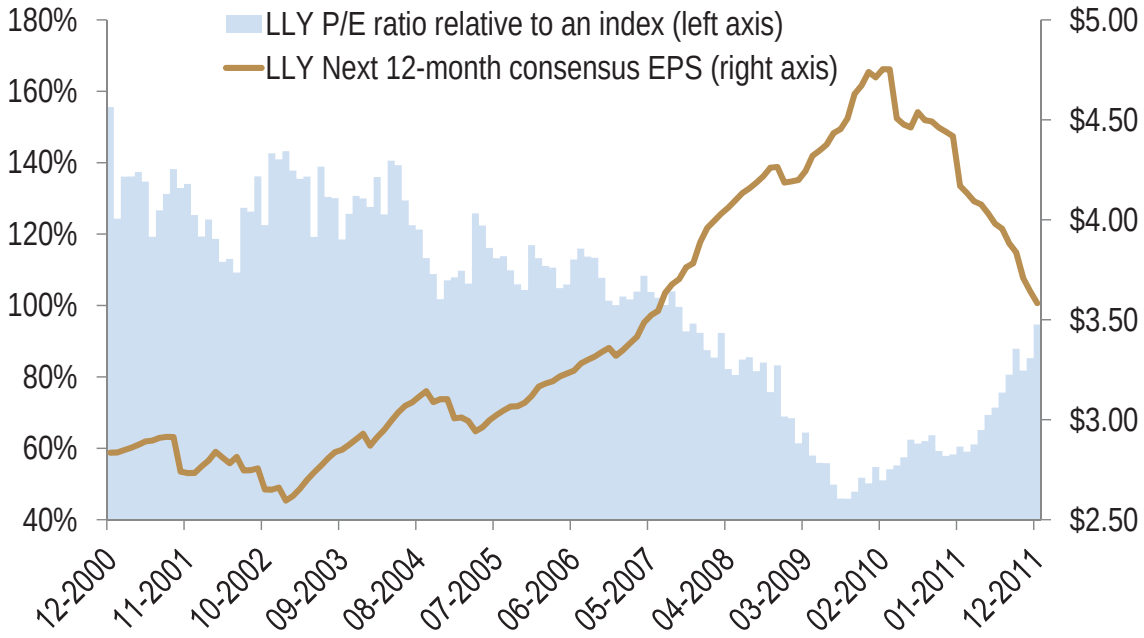
Forward-looking financial forecast at a point in time

Valuation multiple

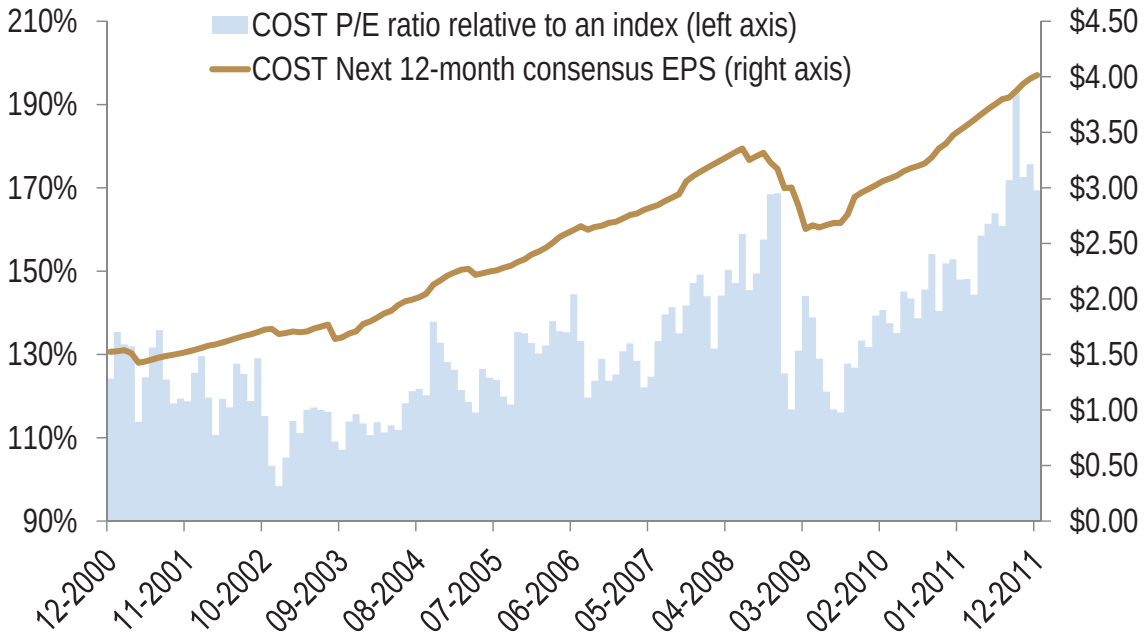
Dow Chemical Company



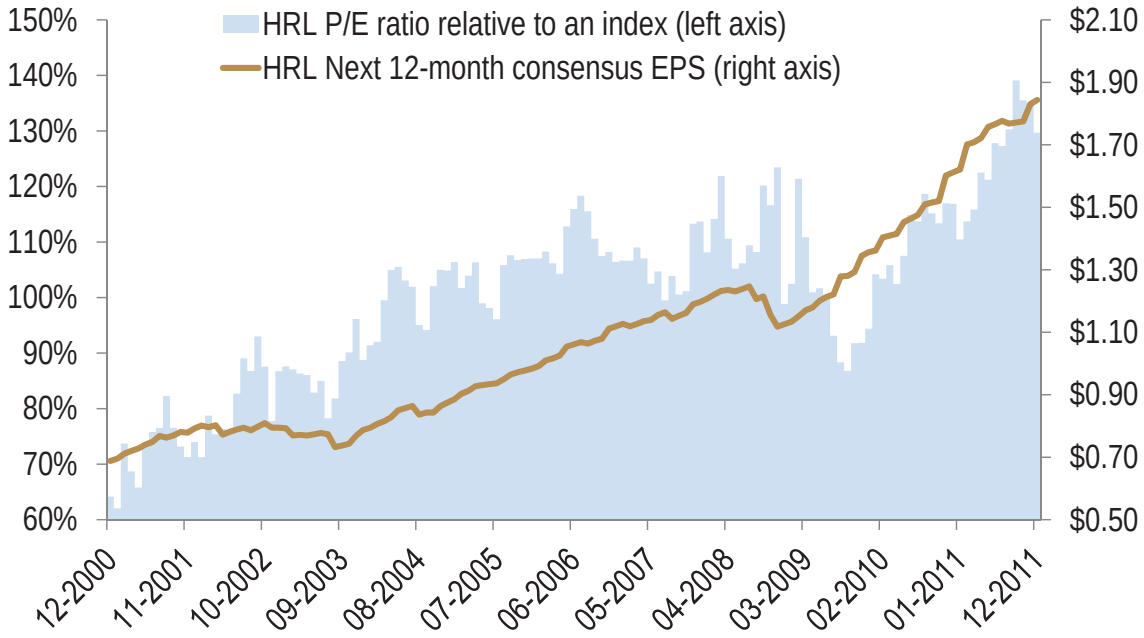
Eli Lilly



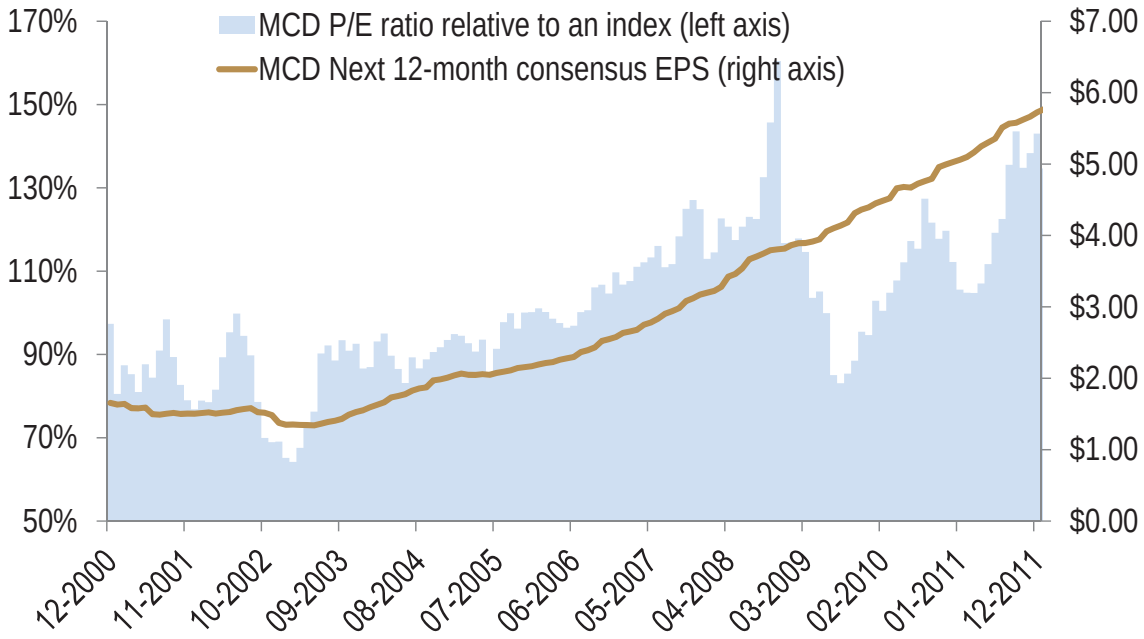
Costco



Hormel Foods



McDonald's



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

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Know Why Your Price Target Differs

If the upside to your pric 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
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Setting Parameters for Exiting a Stock

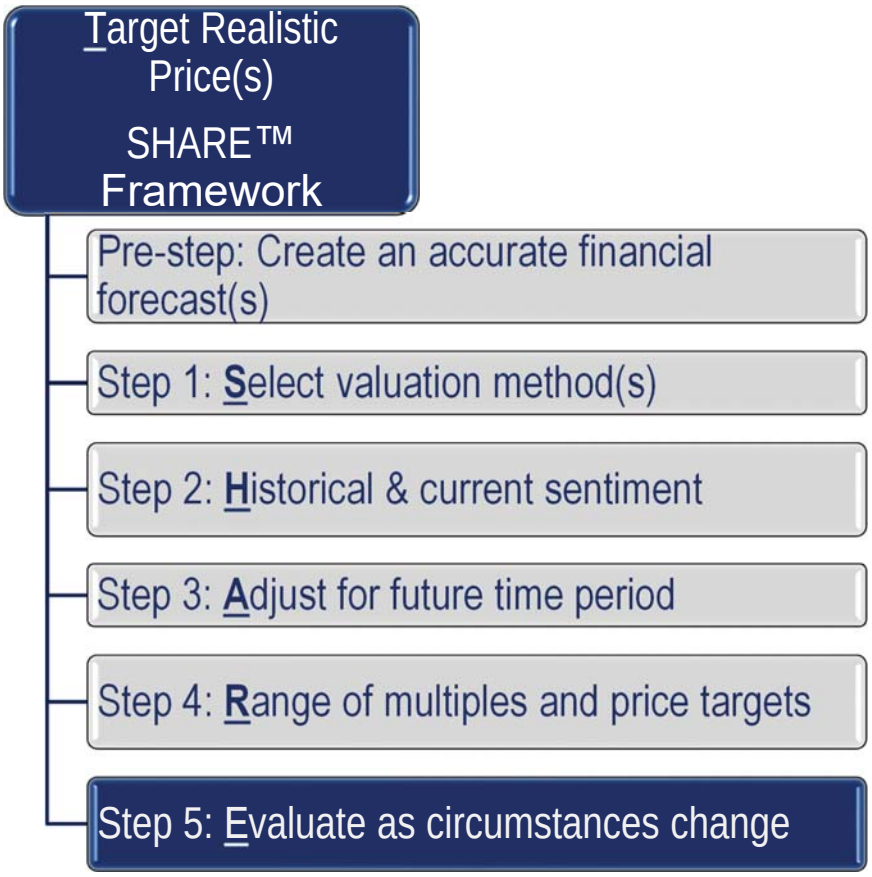
- Document a range of exit thresholds in advance of making the recommendation (they may be within the "upside" and "downside" scenarios), which will reduce biases from creeping into decisions at a later date
  - **Upside exit threshold to begin selling some** of the position when it's playing out as expected. This would be the point to stop reiterating the call to your colleagues/clients
  - **Upside exit threshold to sell the entire** 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™?

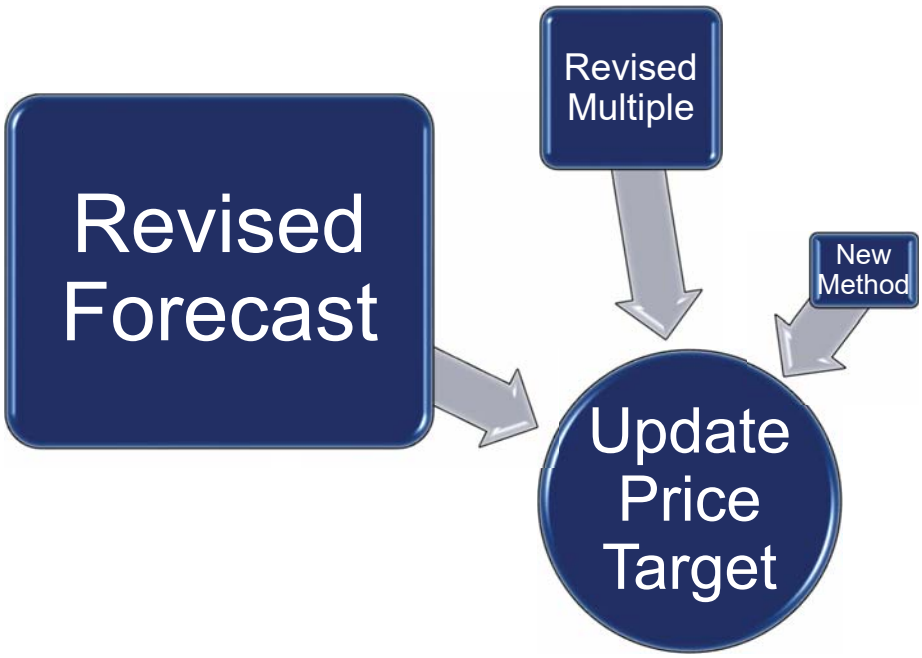
STEP 4: Range of Multiples and Price Targets

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)



Catalysts for Changing Price Targets



Catalysts for Changing Price Targets: Revised Forecast

Revised Forecast

- Objective, defendable 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

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

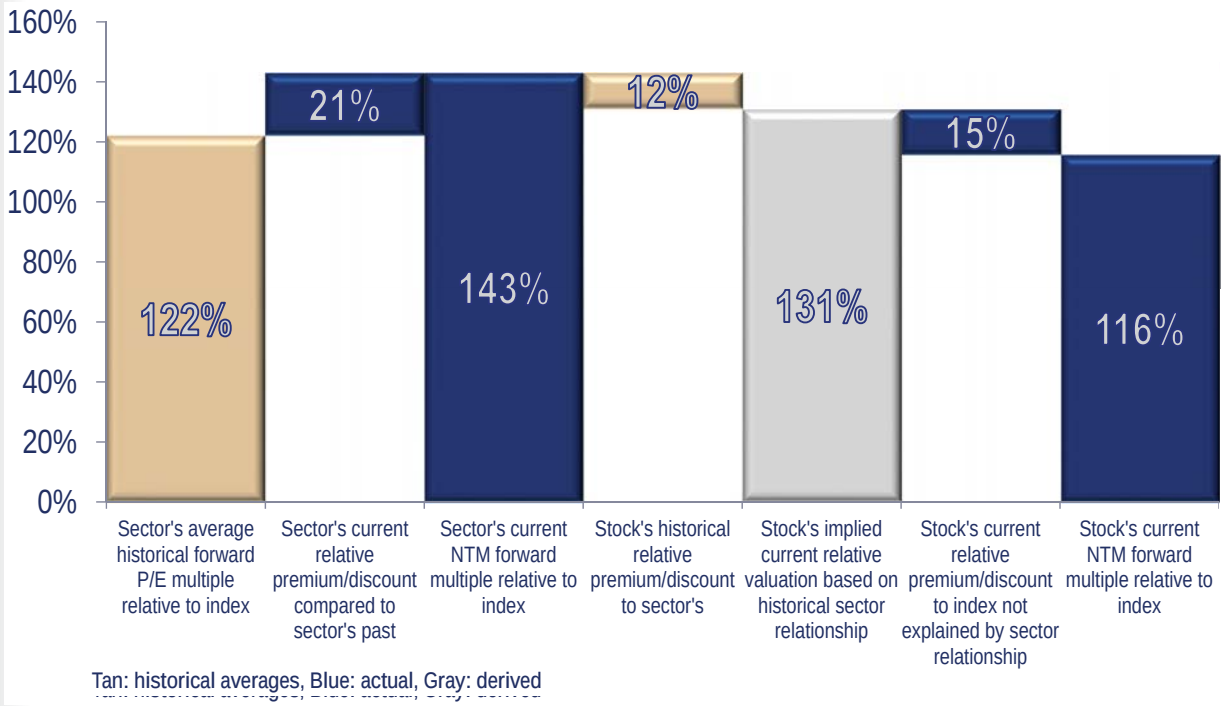
What Could Lucas Have Learned from Step 5 of SHARE™?

STEP 5: Evaluate as Circumstances Change

Lucas…

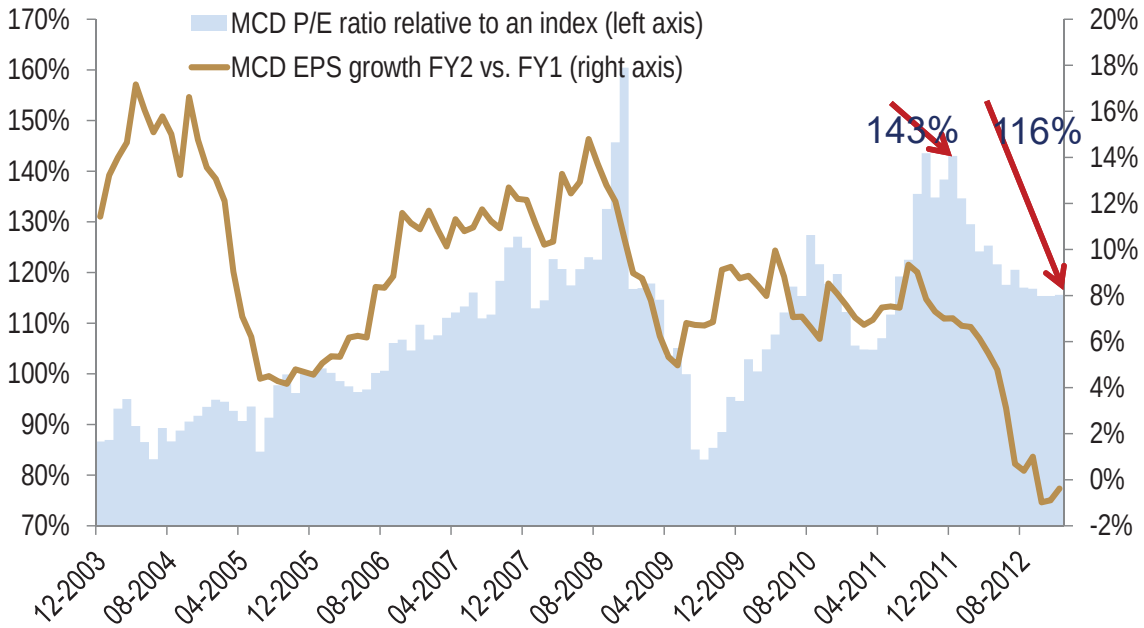
- Doesn't fully appreciate that price targets should be changed when:
  - Assumptions change in his earnings or cash flow projections
  - Time passes, leading to new forecast periods (e.g. each month that passed will likely cause the next 12-month forward estimate to increase)
  - Valuation multiples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

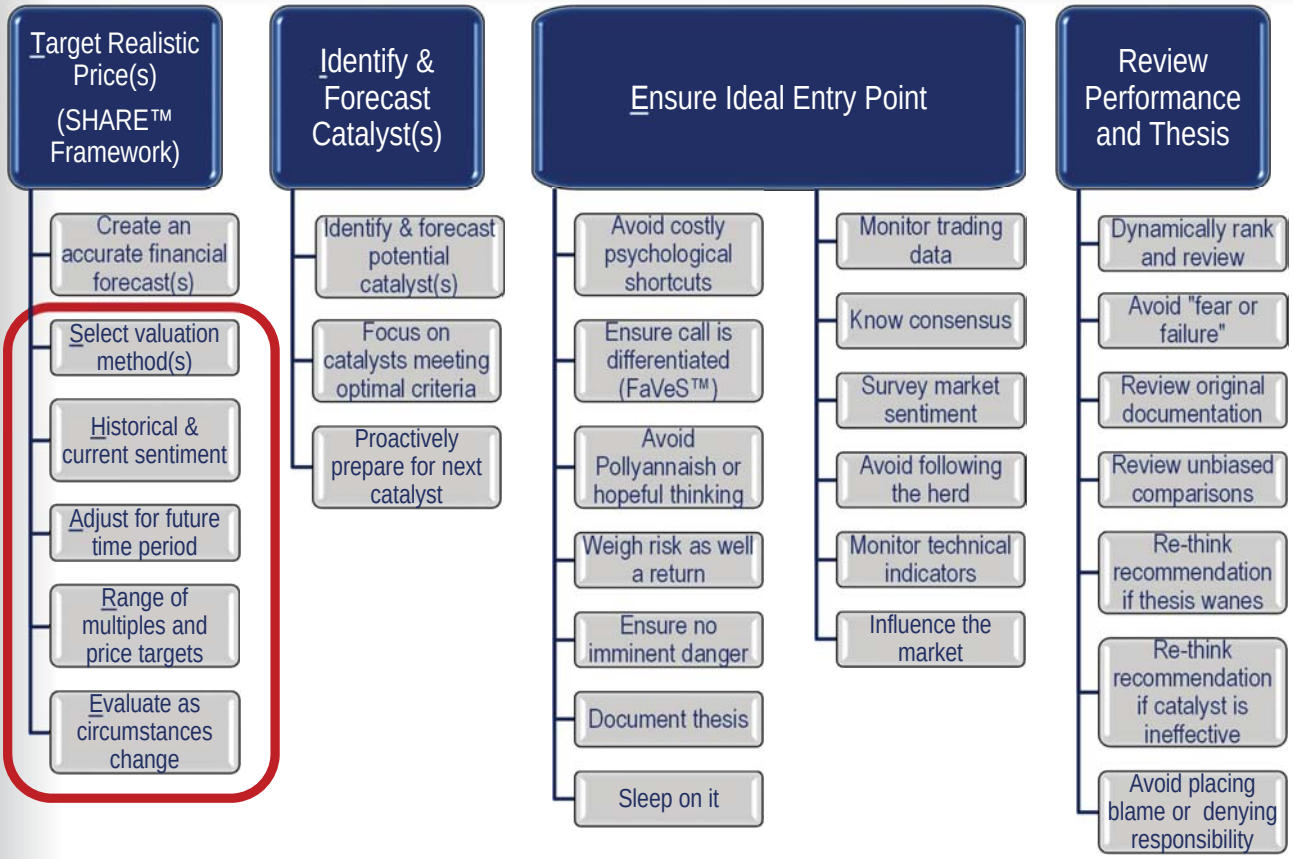
So What Happened to MCD?



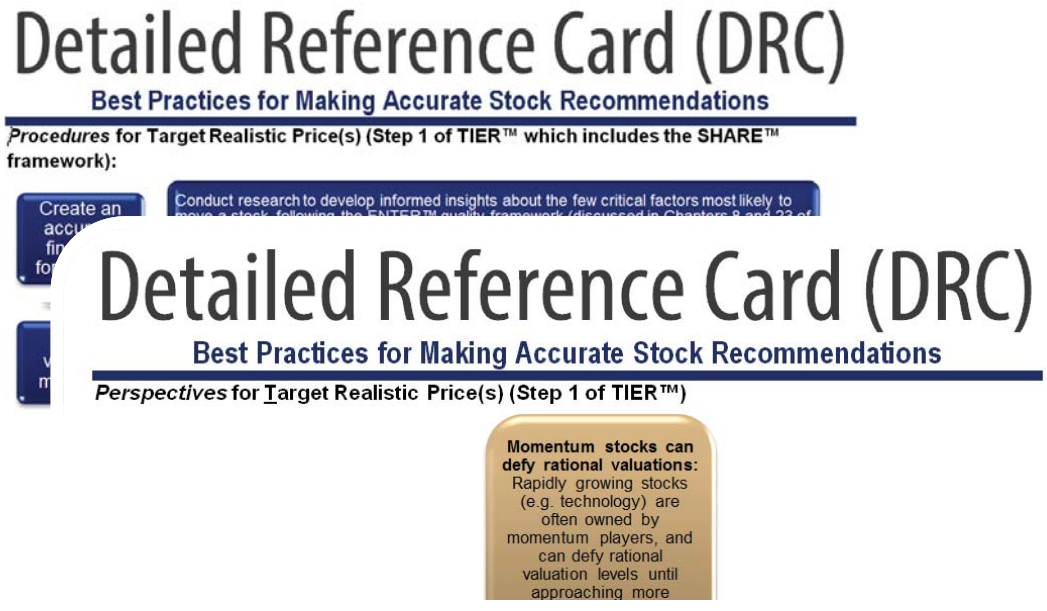
Tan: historical averages, Blue: actual, Gray: derived

So What Happened to MCD?





Target Realistic Price(s) Reference Cards



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…

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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