

Ticker: **BIIB**
Name: **Biogen Inc.**
Industry: **Biotechnology**

Current Price: **\$216.71**
Shares Outstanding **196,700,000**
Market Cap **\$42,626,857,000**

Prepared By MyMoneyTrainer On: **3/24/19**

Write Up

Biogen is a biotech that focuses on neurosciences with a particular focus right now around MS related diseases and moving quickly into spinal muscular atrophy diseases. Longer term they are focused on developing/expanding other areas related to neuroscience. These are the diseases that are least understood and in my opinion the ones with the most 'runway' ahead of them (as we attempt to solve some really, really, really bad diseases). By the way...1 BILLION people suffer from these diseases worldwide! They are the leading cause of disability and second leading cause of death.

I actually just listened to the Stan Druckenmiller interview on RealVision earlier this week finally and heard him talk about how the biggest part of his philanthropic effort is aimed squarely at neurosciences. He does this for the same reason that Biogen focuses on them. They are a huge problem, with almost no resolution to date. He views it as the most important thing he can focus his billions in wealth on to aid society. He is a smart guy so I'll trust him on it. Great interview by the way!

I've had this company on my short list of companies in the healthcare world for a while. This past week the stock got hammered (down greater than 30% from Wednesday's close) when they announced they were suspending one of their Alzheimer's drugs that was in Phase 3. Not good news BUT from what I see of this company they are excellent capital allocators on almost all fronts. So, if they think they need to stop expending capital on this then I have no reason to see that as horrible. I'm sure they have had this happen many times (and will many times more). All while still being around to tell the tale. That is part of the game in biotech (and they understand this and have been here before).

About the only thing I don't like about this company is the debt level. At 46% debt to equity it carries higher debt than typical biotech companies. They have around \$6 billion in long term debt. The average biotech runs around 26% debt to equity. BUT this is not a typical biotech company...it is a behemoth! Earlier in the past decade the company had much lower debt but in 2014 increased debt pretty substantially to 70% debt to equity. Since that time, they have bought back 34 million shares (or around 15% of share outstanding). This would be around \$11 billion-ish (using Wednesday's prices in the \$323+ range). Some would argue that that 'investment' has now been vaporized due to the large drop late last week. I wouldn't...each to his own.

Why does the higher than normal debt level cause me very, very, very little concern? I hate companies with debt and especially hate to see a company add to debt when they don't have to. This should be a huge red flag for me (and is). But this company also generates substantial cash flow and free cash flow. Even with the increase in debt the company can easily service their debt. It could pay off all debt with operating cash flow (based on 2018 figures) in 2 years and all long-term debt in 1 year. These numbers are very similar for free cash flow at 2.3 and 1.1 respectively. The Piotroski F-Score of 7 and the Altman Z-Score of 4.52 also indicate everything is good to go on the debt/financial strength front. So even though the debt level is higher than I'd like there is very little concern that the company is in any financial distress at all.

With the recent price decline the company is cheap across a variety of financial metrics like PS, PE, PB, PCF, EV/EBIT, EV/EBITDA, EV/REV, Shiller PE and Price to Owners Earnings (against the industry and against its own history). The company also has outstanding ROIC, ROE, ROA, and gross margins over the past decade which is a sign of a great business and/or great management or both. Of course, all of these could deteriorate drastically if they have more instances where they walk away from a major Alzheimer's drug in Phase 3. That is obviously a/the concern from Wall Street who crushed the stock late last week. My bet is they will have more successes than failures like this one.

It is rare that you get to buy a company that, I believe, is a very wide moat business at a big discount over similar businesses. It is also rare to get to buy that business at near what I calculate the Intrinsic Value of the firm to be. I've been looking to add a healthcare company to my portfolio for some time and this one is the one. Could this price drop be the beginning of me catching a falling knife in a business that will start to see more and more missteps? Maybe, but that is not what its history suggests. I believe I will hold this stock for a long time and will be a very happy shareholder. I'm purchasing the stock based on the 85% certainty rating I have calculated.

I'm sharing my analysis here. If you have thoughts on this company, I'd love to hear them hit me up on Twitter @mymoneytrainer

Certainty Rating

Test #0 - SUPER QUICK VALUATION	79%				
Estimated 'Intrinsic Value' Between: Between \$217.86 (101% of current price) and \$345.47 (159% of current price)					
Expected Return:	9.0%				
Test #0 - ENTERPRISE VALUE	104%				
EV Industry:	112%	EV Co. History:	96%		
Test #0 - LEVERAGE!	65%				
Average:	65%	Company's Current Debt To Equity:	46%		
Test #1 - SCREEN SELECTION	61%				
Valuation Score	17.00	84%	Quality Score	11.00	39%
Test #2 - INDUSTRY METRICS COMPARE	79%				
Average:	79%				
Test #3 - PRICE HISTORY COMPARE	98%				
Price/Earnings:	100%	Price/Sales:	100%	Price/Free CF:	100%
		Price/Book:	90%		
Test #4 - VALUATION SCENARIOS	69%				
Best Case - Expected Return:	9.5%	Last 10 Year Average - Expected Return:	6.0%		
Stress Test - Expected Return:	6.0%	Combined - Expected Return:	8.1%		
Test #5 - FINANCIALS REVIEW	94%				
Sales Growth:	100%	Gross Profit:	90%	Debt To Equity:	75%
Earnings Growth:	90%	Operating Margin:	100%	Dividend Sustainability:	100%
Sales Per Share Growth:	100%	Cap Ex:	90%		
Earnings Per Share Growth:	90%	Free Cash Flow:	100%		
Test #6 - BUYING / OWNERSHIP	100%				
Shares Outstanding / Buyback Program:	100%	Insider Ownership / Activity:	100%		
Test #7 - GOOD BUSINESS CHECK	85%	10 YR AVG ROIC: 20.4%	10 YR AVG ROE: 26.2%		
Return "Moat" Assessment:	93%	Leverage Assessment:	25%		
Business "Moat" Assessment:	94%	Compounding Assessment:	100%		
Competition "Moat" Assessment:	100%	Management Assessment:	100%		
Test #8 - MY GUT	100%				
Other's Analysis:	100%	PROS:	100%		
		CONS:	100%		
Test #9 - TECHNICALS / TIMING	90%				
Point & Figure:	100%	50/200 Day:	100%	MACD:	100%
		RSI:	100%	Money Flow:	50%
Certainty Grand Total:	85%				

Test #0 - SUPER QUICK VALUATION - Expected Case - Based On 1) NPV Earnings, 2) 5 Year DCF Free Cash Flow, 3) 10 Year NPV Cash Flow.

Tells Us Quickly If It Makes Sense To Even Dive Deeper (No Sense In Investing Unless Margin Of Safety Exists And Likelihood Of Decent Returns Is High).
 Multiples Of RFRR Are Good (Meaning This Model Kicks Out Higher Certainty Ratings For Higher Multiples).

Net Present Value Calculator (AKA Ben Graham Formula) (Run Assuming Zero Growth)

20-year AAA Corporate Bond Rate	3.8%	https://fred.stlouisfed.org/series/AAA	Last Updated:	3/24/19
EPS	\$25.63			
Constant PE (0% perpetual growth)	8.5			
Company's Perpetual Growth Rate	0.0%			
Minimum Risk Free Rate of Return	2.4%	https://fred.stlouisfed.org/series/TB3MS	Last Updated:	3/24/19
Graham's Intrinsic Value (Original Formula)	\$217.86			
% of Current Price	101%	BUY - Current Price Is Below IV		
Graham's Intrinsic Value (Revised Formula)	\$345.47			
% of Current Price	159%	BUY - Current Price Is Below IV		

5 Year Discounted Free Cash Flow (Owners Earnings) Calculator (AKA NPV) (Run Assuming Zero Growth)

Perpetual Growth Rate 0.0% Explanation: Run at zero perpetual growth to be super conservative.

		Discount Rate/WACC	PV of CFs	+ Terminal Value	= PV	
Last 3 Year Average:	\$20.95	9.2%	\$81.19	\$229.02	\$216.62	0.0%
Last 10 Year Average:	\$10.62	4.7%	\$46.34	\$224.59	\$216.54	0.1%
		6.9%				

Year	FCFPS
2008	\$3.14
2009	\$5.70
2010	\$5.95
2011	\$6.75
2012	-\$6.38
2013	\$11.03
2014	\$12.95
2015	\$14.85
2016	\$12.60
2017	\$23.31
2018	\$26.95

TTM FCF: \$5,302,000,000

Explanation: NA

10 Year NPV of Future Cashflows (Run Assuming Updated EPS (using most likely future annual estimate) & DPS and Zero Growth)

Return On Shareholder's Equity	119.9%	
Retained To Equity	119.9%	100%
Dividends Percent	0.0%	

Current and Projected Shareholder Equity and Projected Earnings

	Equity Base	EquityPS	Earnings	EarningsPS	Dividends	DivsPS	Added To Base	RetainedPS
2018	\$4,203,479,000	\$21.37	\$5,041,421,000	\$25.63	\$0	\$0.00	\$5,041,421,000	\$25.63
2019	\$9,244,900,000	\$47.00	\$5,041,421,000	\$25.63	\$0	\$0.00	\$5,041,421,000	\$25.63
2020	\$14,286,321,000	\$72.63	\$5,041,421,000	\$25.63	\$0	\$0.00	\$5,041,421,000	\$25.63
2021	\$19,327,742,000	\$98.26	\$5,041,421,000	\$25.63	\$0	\$0.00	\$5,041,421,000	\$25.63
2022	\$24,369,163,000	\$123.89	\$5,041,421,000	\$25.63	\$0	\$0.00	\$5,041,421,000	\$25.63
2023	\$29,410,584,000	\$149.52	\$5,041,421,000	\$25.63	\$0	\$0.00	\$5,041,421,000	\$25.63
2024	\$34,452,005,000	\$175.15	\$5,041,421,000	\$25.63	\$0	\$0.00	\$5,041,421,000	\$25.63
2025	\$39,493,426,000	\$200.78	\$5,041,421,000	\$25.63	\$0	\$0.00	\$5,041,421,000	\$25.63
2026	\$44,534,847,000	\$226.41	\$5,041,421,000	\$25.63	\$0	\$0.00	\$5,041,421,000	\$25.63
2027	\$49,576,268,000	\$252.04	\$5,041,421,000	\$25.63	\$0	\$0.00	\$5,041,421,000	\$25.63
2028	\$54,617,689,000	\$277.67	\$5,041,421,000	\$25.63	\$0	\$0.00	\$5,041,421,000	\$25.63

NPV of future cashflows

\$2,540.25	1% In Money
\$1,261.29	2% In Money
\$836.36	3% In Money
\$624.74	4% In Money
\$498.33	5% In Money
\$414.43	6% In Money
\$354.76	7% In Money
\$310.20	8% In Money
\$275.67	9% In Money
\$248.13	10% In Money
\$225.67	11% In Money
\$207.00	12% Too Expensive
\$191.24	13% Too Expensive
\$177.75	14% Too Expensive
\$166.08	15% Too Expensive
\$155.87	16% Too Expensive
\$146.87	17% Too Expensive
\$138.87	18% Too Expensive
\$131.72	19% Too Expensive
\$125.28	20% Too Expensive
\$119.45	21% Too Expensive
\$114.14	22% Too Expensive
\$109.30	23% Too Expensive
\$104.85	24% Too Expensive
\$100.76	25% Too Expensive

EPS Estimates	Avg	Low	High
Consensus '19 (#29)	\$28.60	\$25.63	\$30.50
Consensus '20 (#29)	\$29.45	\$26.49	\$32.45
Average	\$29.03	\$26.06	\$31.48

Explanation: I'm using the lowest of the current year estimates (from the 29 analyst for the coming two years). 2018 was \$26.20.

Expected Return - 5 Year DCF	6.9%
Expected Return - 10 NPV Cash Flows	11%
Expected Return Average	9.0%

Certainty Rating	
101%	Graham's Intrinsic Value (Original Formula)
159%	Graham's Intrinsic Value (Revised Formula)
30%	5 Year Discounted Free Cash Flow
60%	10 Year NPV of Future Cashflows
45%	Average
79%	Total

Hurdle Returns (vs. Risk Free)		
2.4%	0x	0%
4.8%	1x	15%
7.2%	2x	30%
9.6%	3x	45%
12.0%	4x	60%
14.3%	5x	75%
16.7%	6x	90%
19.1%	7x	105%
21.5%	8x	120%

Explanation: NA

Test #0 - ENTERPRISE VALUE - Valuations Using EV and Different Types Of Earnings.

Comparisons of EV (and other types of earnings) of the company against the Industry Median and the Company's Own History.

EV/EBITDA			
6.33	GuruFocus	18.08 0.4 x	Industry Median 11.1 0.6 x Co. History Median
EV/EBIT			
7.38	GuruFocus	22.17 0.3 x	Industry Median 12.95 0.6 x Co. History Median
EV/REV			
3.35	GuruFocus	13.69 0.2 x	Industry Median 5.2 0.6 x Co. History Median
Shiller PE			
19.68	GuruFocus	42.91 0.5 x	Industry Median 68.05 0.3 x Co. History Median
Price To Owners Earnings			
8.44	GuruFocus	34.35 0.2 x	Industry Median 20.53 0.4 x Co. History Median
Certainty		112%	96%

Multiplier	
0.1	140%
0.2	130%
0.3	120%
0.4	110%
0.5	100%
0.6	90%
0.7	80%
0.8	70%
0.9	60%
1.0	50%
1.1	40%
1.2	30%
1.3	20%
1.4	10%
1.5	0%

Explanation: With the recent price decline the company is cheap across a variety of financial metrics like EV/EBIT, EV/EBITDA, EV/REV, Shiller PE and Price to Owners Earnings (against the industry and against it's own history).

Test #0 - LEVERAGE! Wipeout Risks Due To Cap Structure (ie DEBT). Is It Good AND Improving?

Debt To Equity Ratio (LT Debt)	Company	Industry	%
	46%	26%	177%

No Is the Company's Debt To Equity Ratio Lower Than the Industry's

Year	Total Debt
2014	\$3,508,000,000
2015	\$10,132,000,000
2016	\$10,737,000,000
2017	\$11,040,000,000
2018	\$12,249,000,000
AVG	\$9,533,200,000
LOW	\$3,508,000,000

Stockholder Equity	Debt To Equity
\$10,809,000,000	32%
\$9,373,000,000	108%
\$12,140,000,000	88%
\$12,613,000,000	88%
\$13,040,000,000	94%
AVG	82%
LOW	32%

Certainty Rating
65%

- No Is Total Debt Lower Than Average?
- No Is Total Debt Currently At Lowest Level?
- No Is Debt To Equity Lower Than Average?
- No Is Debt To Equity Currently At Lowest Level?

Year	Long Term Debt
2014	\$582,000,000
2015	\$6,522,000,000
2016	\$6,513,000,000
2017	\$5,935,000,000
2018	\$5,937,000,000
AVG	\$5,097,800,000
LOW	\$582,000,000

Stockholder Equity	Debt To Equity
\$10,809,000,000	5%
\$9,373,000,000	70%
\$12,140,000,000	54%
\$12,613,000,000	47%
\$13,040,000,000	46%
AVG	44%
LOW	5%

- No Is Total Long Term Debt Lower Than Average?
- No Is Total Long Term Debt Currently At Lowest Level?
- No Is Debt To Equity Lower Than Average?
- No Is Debt To Equity Currently At Lowest Level?

Explanation: The company went from basically no debt in 2014 to carrying a pretty substantial amount of debt (especially for a biotech company). Most biotechs carry little to no debt.

Year	Operating CF	Payoff Yrs. (Total Debt)		Payoff Yrs. (Long Term Debt)	
2014	\$2,942,000,000	1.2	84%	0.2	505%
2015	\$3,716,000,000	2.7	37%	1.8	57%
2016	\$4,522,000,000	2.4	42%	1.4	69%
2017	\$4,551,000,000	2.4	41%	1.3	77%
2018	\$6,187,000,000	2.0	51%	1.0	104%
AVG	\$4,383,600,000	2.1	51%	1.1	163%

- Yes Is Current Operating Cash Flow Higher Than Average
- Yes Is Total Debt Payoff Below Average (Higher %/Lower Years)
- Yes Is Long Term Debt Payoff Below Average (Higher %/Lower Years)

Payoff Years	
1	130%
2	120%
3	110%
4	100%
5	90%
6	80%
7	70%
8	60%
9	50%
10	40%
11	30%
12	20%
13	10%
14	0%

Year	Free CF	Payoff Yrs. (Total Debt)		Payoff Yrs. (Long Term)	
2014	\$2,654,000,000	1.3	76%	0.2	456%
2015	\$3,073,000,000	3.3	30%	2.1	47%
2016	\$3,794,000,000	2.8	35%	1.7	58%
2017	\$2,588,000,000	4.3	23%	2.3	44%
2018	\$5,302,000,000	2.3	43%	1.1	89%
AVG	\$3,482,200,000	2.8	42%	1.5	139%

- Yes Is Current Free Cash Flow Higher Than Average
- Yes Is Total Debt Payoff Below Average (Higher %/Lower Years)
- Yes Is Long Term Debt Payoff Below Average (Higher %/Lower Years)

Piotroski F-Score (Range 1 - 9)

Used to assess strength of company's financial position (based on Profitability, Leverage/Liquidity/Source of Funds, Operating Efficiency)

7 Current Score

Piotroski F-Score	
1	-20%
2	0%
3	20%
4	40%
5	60%
6	80%
7	100%
8	120%
9	140%

Altman Z-Score

It uses profitability, leverage, liquidity, solvency and activity to predict whether a company has high probability of being insolvent.

4.52 Current Score

Altman Z-Score	
1.81	0%
2.99	50%
3.00	100%

Headed for bankruptcy
 Could be headed for bankruptcy
 Financially stable

Beneish M-Score

A mathematical model that uses financial ratios and eight variables to identify whether a company has manipulated its earnings.

-2.70 Current Score

Beneish M-Score	
<-2.22	0%
>-2.22	100%

Is not an accounting manipulator.
Is likely an accounting manipulator

WACC to ROIC

ROIC (return on invested capital) measures how well a company generates cash flow relative to the capital it has invested in its business. If a company's WACC (weighted average cost of capital) is lower than ROIC then it is earning excess returns. A firm that expects to continue generating positive excess returns on new investments in the future will see its value increase as growth increases.

ROIC 29.95%
WACC 11.39% 2.6 x ROIC/WACC Ratio

Yes Is WACC Lower Than ROIC?

ROIC/WACC Ratio	
1.5	100%
2.0	110%
2.5	120%
3.0	130%
3.5	140%
4.0	150%
4.5	160%

Explanation: Even with the increase in debt the company can easily service the debt. It could payoff all debt with operating cash flow (based on 2018) in 2 years and all long term debt in 1 year. These numbers are very simliar for free cash flow at 2.3 and 1.1 respectively. The Piotroski F-Score of 7, the Altman Z-Score of 4.52 also indicate everything is good to go on the debt front. So even though the debt level is high there is very little concern that the company is in any financial distress at all.

Test #1 - SCREEN SELECTION - Expect Investment To Score Highly On Both Valuation AND Quality Criteria.

Tells Us Quickly If It Makes Sense To Even Dive Deeper (No Sense In Investing Unless Margin Of Safety Exists And Likelihood Of Decent Returns Is High).

Valuation Scoring (Max Possible Score 25.25)

		3.00	Base (+5) – PE (FYF) vs. Market PE
		5.00	Base (+5) – PE (FYF) vs. Industry
17.00	Total Valuation Score	4.00	Base (+5) – PE (FYF) vs. Static Hurdle (Case Shiller Mean)
67%	Percent of Max Possible Score	0.40	Extra Credit (+1) – PE (TTM) vs. Market PE
100%	Percent of Current Universe	0.40	Extra Credit (+1) – PE (MRFY) vs. Market PE
84%	Combined	1.00	Extra Credit (+1) – Sales (TTM) vs. Industry
		1.00	Extra Credit (+1) – CF (MRFY) vs. Industry
		0.60	Extra Credit (+1) – CF (MRFY) vs. Market
		0.60	Extra Credit (+1) – BV (MRQ) vs. Industry
		0.00	Extra Credit (+2) – PEG (TTM) vs. Market
		0.50	Extra Credit (+.25) – Analyst – Schwab
		0.25	Extra Credit (+.25) – Analyst – Morningstar
		0.00	Extra Credit (+.25) – Analyst – Credit Suisse
		0.00	Extra Credit (+.25) – Analyst – Ned Davis
		0.00	Extra Credit (+.25) – Analyst – S&P Cap IQ Earnings and Div Rank
		0.00	Extra Credit (+.25) – Analyst – S&P CFRA
		0.00	Extra Credit (+.25) – Analyst – Argus
		0.00	Extra Credit (+.25) – Analyst – Market Edge
		0.25	Extra Credit (+.25) – Analyst – Reuters

Certainty Rating	
Valuation:	84%
Quality:	39%
Combined:	61%

Quality Scoring (Max Possible Score 26.50)

		1.00	Base (+1) – Positive PE (FYF)
		1.00	Base (+1) – Positive Net Profit Margin
11.00	Total Quality Score	1.00	Base (+1) – Positive Price To Cash Flow
42%	Percent of Max Possible Score	1.00	Base (+1) – Positive Cash Flow Per Share
36%	Percent of Current Universe	1.00	Base (+1) – Positive ROE
39%	Combined	1.00	Base (+1) – Positive ROI
		1.50	Base (+1) – Quick Ratio Greater Than Static Hurdle
		0.00	Base (+1) – Quick Ratio Higher Than Industry
		1.50	Base (+1) – Current Ratio Greater Than Static Hurdle
		0.00	Base (+1) – Current Ratio Higher Than Industry
		0.00	Base (+5) – Debt To Equity Lower Than Static Hurdle
		0.00	Base (+5) – Debt To Equity Lower Than Industry
		0.00	Base (+1) – Net Profit Margin Higher Than Industry
		0.00	Base (+1) – Industry ROE vs. Market ROE
		0.00	Base (+1) – ROE vs. Industry
		0.00	Base (+1) – Industry ROI vs. Market ROI
		0.00	Base (+1) – ROI vs. Industry
		1.00	Base (+1) – Market Cap
		1.00	Extra Credit (+.25%) – Morningstar Moat
		0.00	Extra Credit (+.25%) – Morningstar Stewardship

Explanation: Note that many of these metrics were calculated before the recent 30%+ price drop (because I haven't reprocessed my tool's data). The quality metrics are lower due to the extra debt the company carries (especially relative to it's industry).

Test #2 - INDUSTRY METRICS COMPARE - Is it a good deal compared to other companies in the industry?

Compare a variety of financial valuation metrics of the company against the other companies in its industry to ensure a margin of safety.

Industry: Biotechnology

Number of Companies In Industry: 39

	Industry	Stock		
Average Price/Earnings (FYF):	21.7	11.4	Better	100%
Average Price/Earnings (TTM):	38.5	15.1	Better	100%
Average Price/Earnings (MRFY):	38.1	15.1	Better	100%
Average Price/Book (MRQ):	7.6	5.0	Better	100%
Average Price/Sales (TTM):	23.4	4.8	Better	100%
Average Price/Cash Flow (MRFY):	33.6	11.5	Better	100%
Average PEG (TTM):	9.8	3.1	Better	100%
Average Debt To Equity (MRQ):	26.0%	46.0%	Worse	0%
Average Net Profit Margin (MRFY):	-0.5%	33.4%	Better	100%
Average Return On Equity (TTM):	-2.0%	34.7%	Better	100%
Average Return On Assets (MRFY):	-7.9%	18.4%	Better	100%
Average Quick Ratio (MRQ):	4.5	2.0	Worse	0%
Average Current Ratio (MRQ):	9.6	2.3	Worse	0%
Average Cash Flow Per Share (TTM):	\$3.07	\$27.41	Better	100%

Average (Certainty Rating): 79%

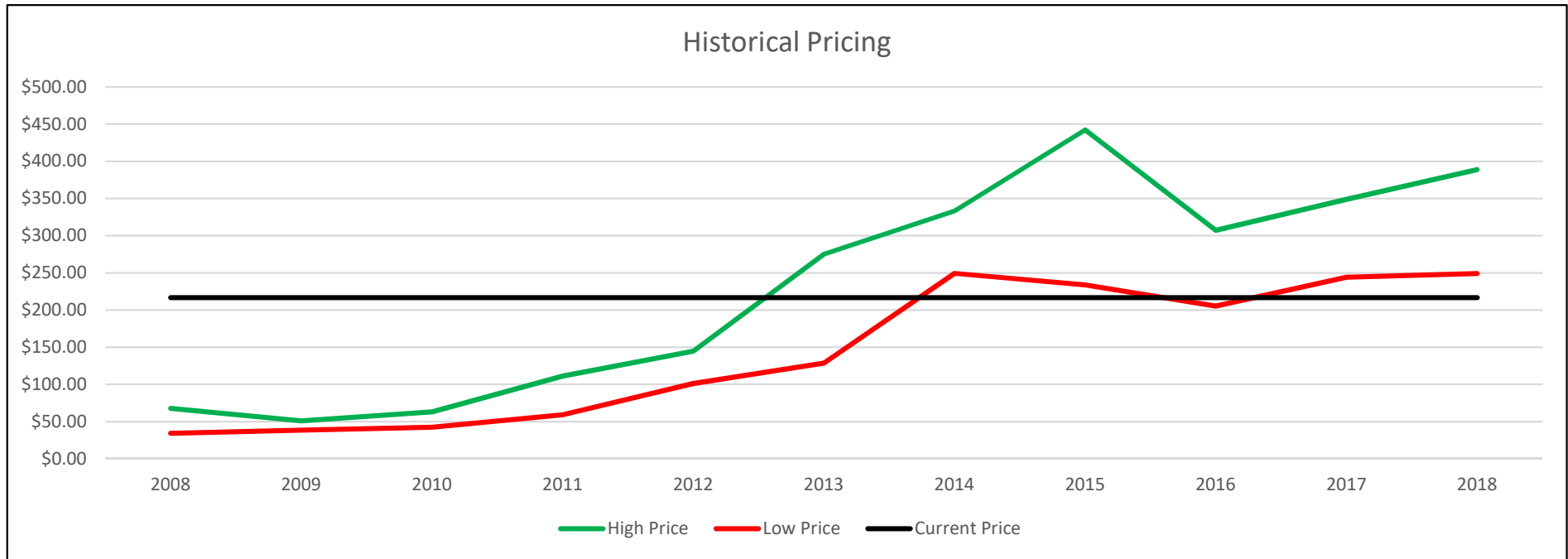
Explanation: Note that many of these metrics were calculated before the recent 30%+ price drop (because I haven't reprocessed my tool's data). Again scores here are lowered only by the amount of debt the company has relative to its peers.

Test #3 - PRICE HISTORY COMPARE - Is it a good deal based on its own history? "Price is what you pay, value is what you get!"

Compare a variety of financial valuation metrics of the company against the historical prices of the company to ensure a margin of safety.

Historical Pricing					Max Price Movements		
Year	High Price	Low Price	Volume	Shares Out		Drawdown	Gain
2008	\$67.78	\$34.27	4,181,352	289,000,000	1%	49%	98%
2009	\$50.97	\$38.46	3,538,295	255,000,000	1%	25%	33%
2010	\$63.19	\$42.33	2,962,575	245,000,000	1%	33%	49%
2011	\$111.14	\$59.21	2,247,024	240,000,000	1%	47%	88%
2012	\$144.78	\$101.37	1,229,531	238,000,000	1%	30%	43%
2013	\$275.24	\$128.70	1,413,840	237,000,000	1%	53%	114%
2014	\$333.37	\$249.27	1,530,431	231,000,000	1%	25%	34%
2015	\$442.29	\$233.96	2,290,085	219,000,000	1%	47%	89%
2016	\$307.33	\$205.43	1,905,439	213,000,000	1%	33%	50%
2017	\$348.84	\$244.28	1,424,436	205,000,000	1%	30%	43%
2018	\$388.67	\$249.17	1,580,508	205,000,000	1%	36%	56%

Average:	\$230.33	\$144.22				37%	60%
Max:	\$442.29	\$249.27				44%	77%
Min:	\$50.97	\$34.27				33%	49%
AT High vs. AT Low:	\$442.29	\$34.27				92%	1191%



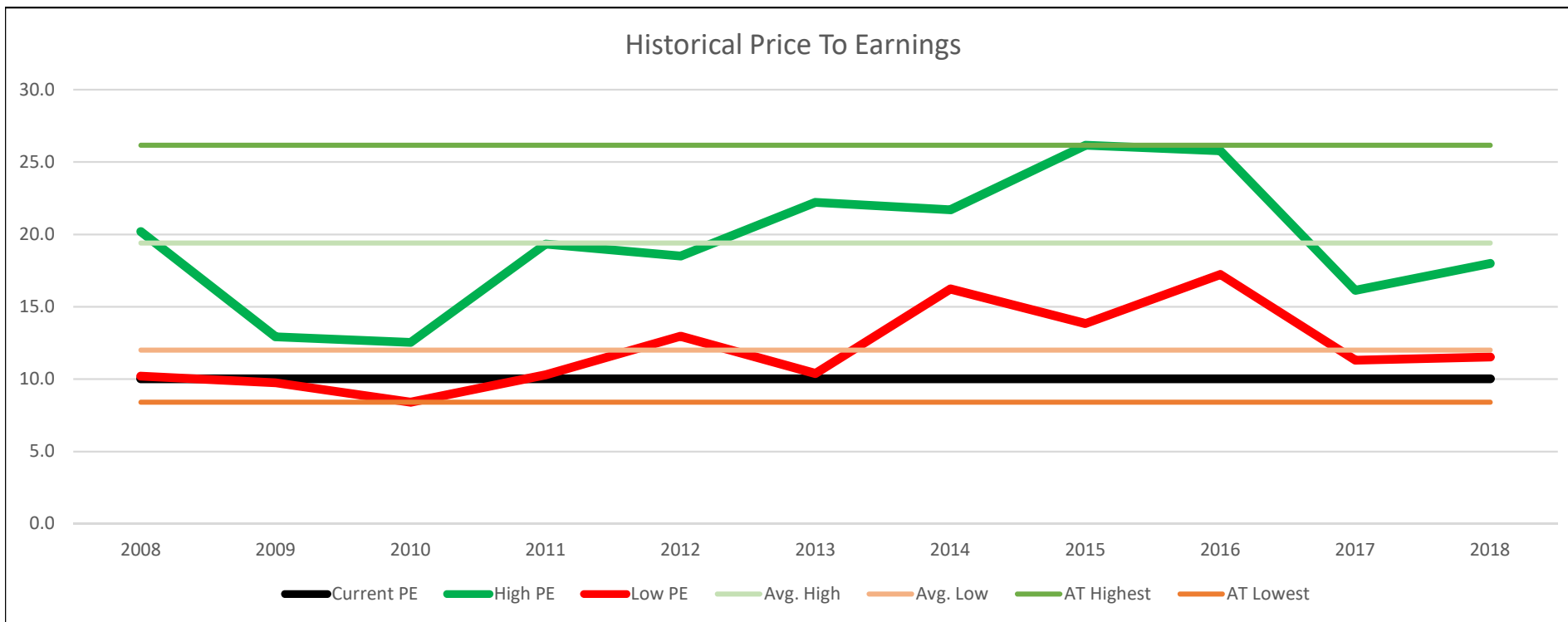
Explanation: [NA](#)

Price To Earnings Over Time

Price to Earnings Over Time				
Year	EPS	Earnings	High PE	Low PE
2008	\$3.36	\$970,000,000	20.2	10.2
2009	\$3.94	\$1,005,000,000	12.9	9.8
2010	\$5.04	\$1,234,000,000	12.5	8.4
2011	\$5.75	\$1,380,000,000	19.3	10.3
2012	\$7.82	\$1,862,000,000	18.5	13.0
2013	\$12.38	\$2,935,000,000	22.2	10.4
2014	\$15.35	\$3,547,000,000	21.7	16.2
2015	\$16.91	\$3,703,000,000	26.2	13.8
2016	\$11.92	\$2,539,000,000	25.8	17.2
2017	\$21.61	\$4,430,000,000	16.1	11.3
2018	\$21.61	\$4,430,000,000	18.0	11.5

Average:	\$11.43	\$2,548,636,364	19.4	12.0
Max:	\$21.61	\$4,430,000,000	26.2	17.2
Min:	\$3.36	\$970,000,000	12.5	8.4

Certainty Rating	100%
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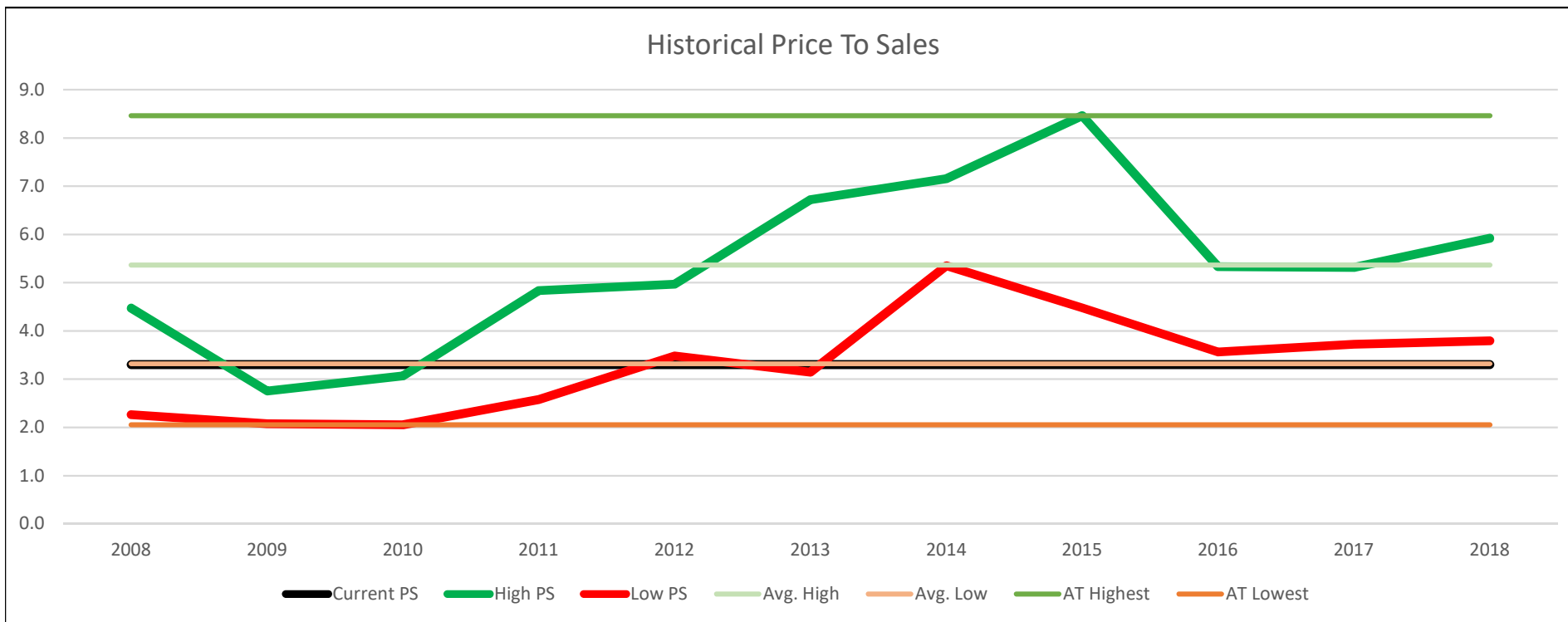
Explanation: At 10x it is well below the average low of 12x and near the all time low of 8.4x.

Price To Sales Over Time

Price to Sales Over Time				
Year	SPS	Sales	High PS	Low PS
2008	\$15.15	\$4,377,000,000	4.5	2.3
2009	\$18.49	\$4,716,000,000	2.8	2.1
2010	\$20.61	\$5,049,000,000	3.1	2.1
2011	\$22.98	\$5,516,000,000	4.8	2.6
2012	\$29.13	\$6,932,000,000	5.0	3.5
2013	\$40.94	\$9,703,000,000	6.7	3.1
2014	\$46.59	\$10,763,000,000	7.2	5.3
2015	\$52.27	\$11,448,000,000	8.5	4.5
2016	\$57.62	\$12,273,000,000	5.3	3.6
2017	\$65.62	\$13,452,000,000	5.3	3.7
2018	\$65.62	\$13,452,000,000	5.9	3.8

Average:	\$39.55	\$8,880,090,909	5.4	3.3
Max:	\$65.62	\$13,452,000,000	8.5	5.3
Min:	\$15.15	\$4,377,000,000	2.8	2.1

Certainty Rating	100%
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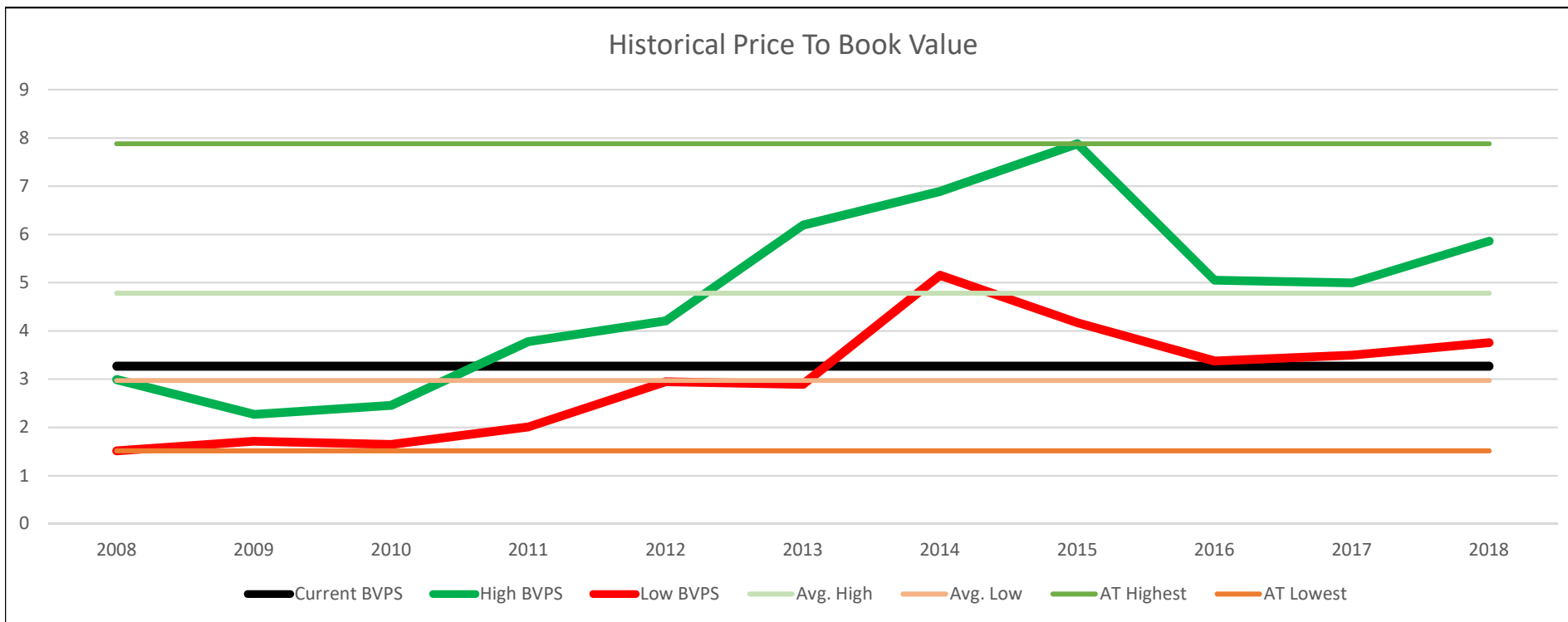
Explanation: It is trading at near the average low value at 3.3x sales.

Price To Book Over Time

Price to Book Over Time				
Year	BVPS	Book Value	High BVPS	Low BVPS
2008	\$22.64	\$6,542,960,000	3.0	1.5
2009	\$22.44	\$5,722,200,000	2.3	1.7
2010	\$25.73	\$6,303,850,000	2.5	1.6
2011	\$29.43	\$7,063,200,000	3.8	2.0
2012	\$34.38	\$8,182,440,000	4.2	2.9
2013	\$44.46	\$10,537,020,000	6.2	2.9
2014	\$48.37	\$11,173,470,000	6.9	5.2
2015	\$56.13	\$12,292,470,000	7.9	4.2
2016	\$60.81	\$12,952,530,000	5.1	3.4
2017	\$69.81	\$14,311,050,000	5.0	3.5
2018	\$66.29	\$13,589,450,000	5.9	3.8

Average:	\$43.68	\$9,879,149,091	4.8	3.0
Max:	\$69.81	\$14,311,050,000	7.9	5.2
Min:	\$22.44	\$5,722,200,000	2.3	1.5

Certainty Rating	90%
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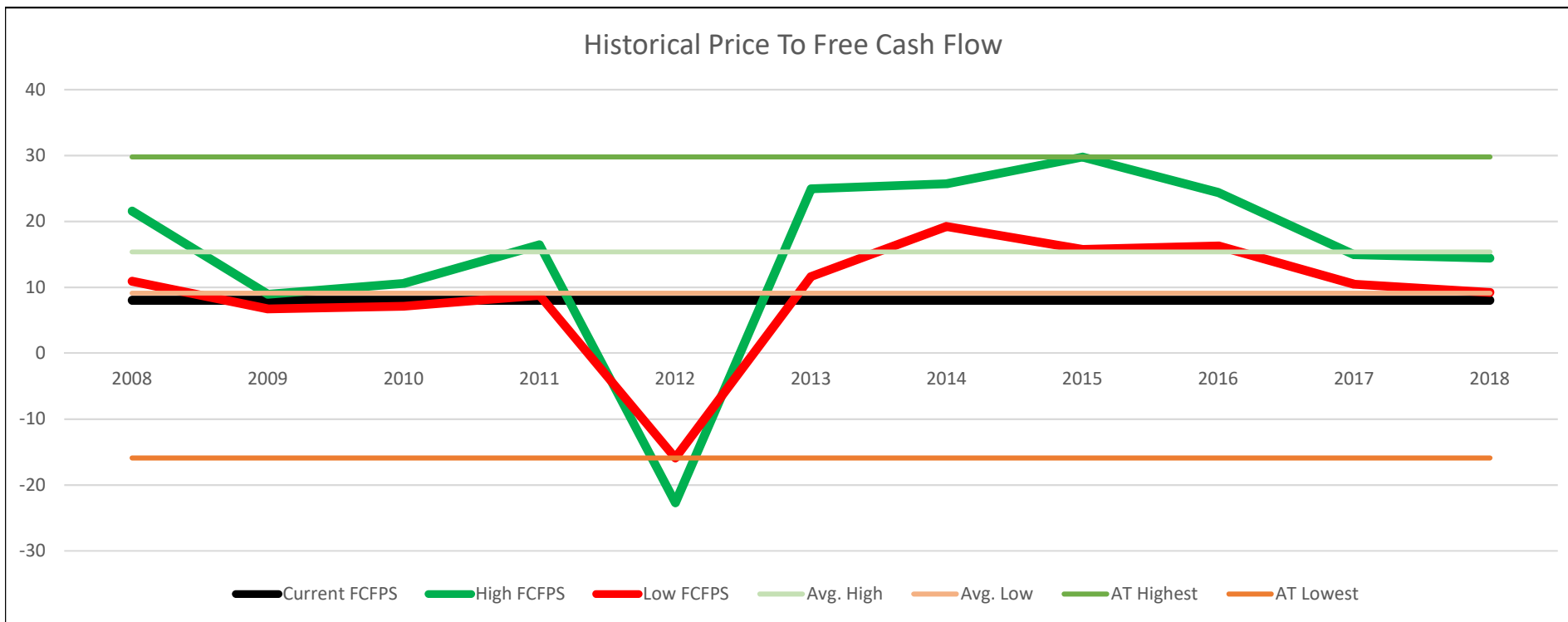
Explanation: At 3.27x it is trading near the average low of 3.0x.

Price To Free Cash Flow Over Time

Price to Free Cash Flow Over Time				
Year	FCFPS	Free Cash Flow	High FCFPS	Low FCFPS
2008	\$3.14	\$907,460,000	21.6	10.9
2009	\$5.70	\$1,453,500,000	8.9	6.7
2010	\$5.95	\$1,457,750,000	10.6	7.1
2011	\$6.75	\$1,620,000,000	16.5	8.8
2012	-\$6.38	-\$1,518,440,000	-22.7	-15.9
2013	\$11.03	\$2,614,110,000	25.0	11.7
2014	\$12.95	\$2,991,450,000	25.7	19.2
2015	\$14.85	\$3,252,150,000	29.8	15.8
2016	\$12.60	\$2,683,800,000	24.4	16.3
2017	\$23.31	\$4,778,550,000	15.0	10.5
2018	\$26.95	\$5,525,724,453	14.4	9.2

Average:	\$10.62	\$2,342,368,587	15.4	9.1
Max:	\$26.95	\$5,525,724,453	29.8	19.2
Min:	-\$6.38	-\$1,518,440,000	-22.7	-15.9

Certainty Rating	100%
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Explanation: At 8x it is trading below the long term average low value of 9.1x.

Test #4 - VALUATION SCENARIOS - 1) Best Case, 2) Stress Test (50% Reduction In Expected) 3) Last 10 Year Earnings Average.

Since Valuation Models Can Be Made To Spit Out Any Result Anyone Wants We Make Sure To Run Several Conservative Scenarios. Multiples Of RFRR Are Good.

Best Case (with expected growth)**Net Present Value Calculator (AKA Ben Graham Formula) (Run Assuming Zero Growth)**

20-year AAA Corporate Bond Rate	3.8%	https://fred.stlouisfed.org/series/AAA	Last Updated:	3/24/19
EPS	\$28.60			
Constant PE (0% perpetual growth)	8.5			
Company's Perpetual Growth Rate	0.0%			
Minimum Risk Free Rate of Return	2.4%	https://fred.stlouisfed.org/series/TB3MS	Last Updated:	3/24/19
Graham's Intrinsic Value (Original Formula)	\$243.10			
% of Current Price	112%	BUY - Current Price Is Below IV		
Graham's Intrinsic Value (Revised Formula)	\$385.50			
% of Current Price	178%	BUY - Current Price Is Below IV		

5 Year Discounted Free Cash Flow (Owners Earnings) Calculator (AKA NPV) (Run Assuming Expected Growth)

Perpetual Growth Rate	0.0%	Explanation:	NA
	Discount Rate/WACC	PV of CFs	+ Terminal Value = PV
Morningstar Current	\$20.95	9.2%	\$81.19 \$229.02 \$216.62 0.0%
Brokerage CF (TTM)	\$10.62	4.7%	\$46.34 \$224.59 \$216.54 0.1%
		6.9%	

Explanation: NA

10 Year NPV of Future Cashflows (Run Assuming Updated EPS (using best case future annual estimate) & DPS and Expected Growth)

Return On Shareholder's Equity	133.8%	
Retained To Equity	133.8%	100%
Dividends Percent	0.0%	

Current and Projected Shareholder Equity and Projected Earnings

	Equity Base	EquityPS	Earnings	EarningsPS	Dividends	DivsPS	Added To Base	RetainedPS
2018	\$4,203,479,000	\$21.37	\$5,625,620,000	\$28.60	\$0	\$0.00	\$5,625,620,000	\$28.60
2019	\$9,829,099,000	\$49.97	\$5,625,620,000	\$28.60	\$0	\$0.00	\$5,625,620,000	\$28.60
2020	\$15,454,719,000	\$78.57	\$5,625,620,000	\$28.60	\$0	\$0.00	\$5,625,620,000	\$28.60
2021	\$21,080,339,000	\$107.17	\$5,625,620,000	\$28.60	\$0	\$0.00	\$5,625,620,000	\$28.60
2022	\$26,705,959,000	\$135.77	\$5,625,620,000	\$28.60	\$0	\$0.00	\$5,625,620,000	\$28.60
2023	\$32,331,579,000	\$164.37	\$5,625,620,000	\$28.60	\$0	\$0.00	\$5,625,620,000	\$28.60
2024	\$37,957,199,000	\$192.97	\$5,625,620,000	\$28.60	\$0	\$0.00	\$5,625,620,000	\$28.60
2025	\$43,582,819,000	\$221.57	\$5,625,620,000	\$28.60	\$0	\$0.00	\$5,625,620,000	\$28.60

2026	\$49,208,439,000	\$250.17	\$5,625,620,000	\$28.60	\$0	\$0.00	\$5,625,620,000	\$28.60
2027	\$54,834,059,000	\$278.77	\$5,625,620,000	\$28.60	\$0	\$0.00	\$5,625,620,000	\$28.60
2028	\$60,459,679,000	\$307.37	\$5,625,620,000	\$28.60	\$0	\$0.00	\$5,625,620,000	\$28.60

NPV of future cashflows	\$2,834.62	1% In Money
	\$1,407.45	2% In Money
	\$933.27	3% In Money
	\$697.14	4% In Money
	\$556.07	5% In Money
	\$462.45	6% In Money
	\$395.87	7% In Money
	\$346.14	8% In Money
	\$307.61	9% In Money
	\$276.89	10% In Money
	\$251.82	11% In Money
	\$230.99	12% In Money
	\$213.40	13% Too Expensive
	\$198.35	14% Too Expensive
	\$185.32	15% Too Expensive
	\$173.93	16% Too Expensive
	\$163.89	17% Too Expensive
	\$154.96	18% Too Expensive
	\$146.98	19% Too Expensive
	\$139.79	20% Too Expensive
	\$133.29	21% Too Expensive
	\$127.37	22% Too Expensive
	\$121.96	23% Too Expensive
	\$117.00	24% Too Expensive
	\$112.43	25% Too Expensive

EPS Estimates	Avg	Low	High
Consensus '19 (#29)	\$28.60	\$25.63	\$30.50
Consensus '20 (#29)	\$29.45	\$26.49	\$32.45
<hr/>			
Average	\$29.03	\$26.06	\$31.48

Explanation: I'm using the average 2019 analyst value.

Expected Return - 5 Year DCF	6.9%
Expected Return - 10 NPV Cash Flows	12%
Expected Return Average	9.5%

Certainty Rating	
112%	Graham's Intrinsic Value (Original Formula)
178%	Graham's Intrinsic Value (Revised Formula)
30%	5 Year Discounted Free Cash Flow
75%	10 Year NPV of Future Cashflows
45%	Average
88%	Total

Hurdle Returns (vs. Risk Free)		
2.4%	0x	0%
4.8%	1x	15%
7.2%	2x	30%
9.6%	3x	45%
12.0%	4x	60%
14.3%	5x	75%
16.7%	6x	90%
19.1%	7x	105%
21.5%	8x	120%

Explanation: NA

Stress Test (50% Reduction In Expected) (with zero growth)

Net Present Value Calculator (AKA Ben Graham Formula) (Run Assuming Zero Growth)

20-year AAA Corporate Bond Rate	3.8%	https://fred.stlouisfed.org/series/AAA	Last Updated:	3/24/19
EPS	\$12.82			
Constant PE (0% perpetual growth)	8.5			
Company's Perpetual Growth Rate	0.0%			
Minimum Risk Free Rate of Return	2.4%	https://fred.stlouisfed.org/series/TB3MS	Last Updated:	3/24/19
Graham's Intrinsic Value (Original Formula)	\$108.93			
% of Current Price	50%	DON'T BUY - Current Price is Above IV		
Graham's Intrinsic Value (Revised Formula)	\$172.73			
% of Current Price	80%	DON'T BUY - Current Price is Above IV		

5 Year Discounted Free Cash Flow (Owners Earnings) Calculator (AKA NPV) (Run Assuming Zero Growth)

Perpetual Growth Rate	0.0%	Explanation:	Run at zero perpetual growth to be super conservative.			
		Discount Rate/WACC	PV of CFs	+ Terminal Value	= PV	
Morningstar Current	\$20.95	9.2%	\$81.19	\$229.02	\$216.62	0.0%
Brokerage CF (TTM)	\$10.62	4.7%	\$46.34	\$224.59	\$216.54	0.1%
		6.9%				

Explanation: NA

10 Year NPV of Future Cashflows (Run Assuming Updated EPS (using 1/2 best case future annual estimate) & DPS and Zero Growth)

Return On Shareholder's Equity	60.0%	
Retained To Equity	60.0%	100%
Dividends Percent	0.0%	

Current and Projected Shareholder Equity and Projected Earnings

	Equity Base	EquityPS	Earnings	EarningsPS	Dividends	DivsPS	Added To Base	RetainedPS
2018	\$4,203,479,000	\$21.37	\$2,520,710,500	\$12.82	\$0	\$0.00	\$2,520,710,500	\$12.82
2019	\$6,724,189,500	\$34.19	\$2,520,710,500	\$12.82	\$0	\$0.00	\$2,520,710,500	\$12.82
2020	\$9,244,900,000	\$47.00	\$2,520,710,500	\$12.82	\$0	\$0.00	\$2,520,710,500	\$12.82
2021	\$11,765,610,500	\$59.82	\$2,520,710,500	\$12.82	\$0	\$0.00	\$2,520,710,500	\$12.82
2022	\$14,286,321,000	\$72.63	\$2,520,710,500	\$12.82	\$0	\$0.00	\$2,520,710,500	\$12.82
2023	\$16,807,031,500	\$85.45	\$2,520,710,500	\$12.82	\$0	\$0.00	\$2,520,710,500	\$12.82
2024	\$19,327,742,000	\$98.26	\$2,520,710,500	\$12.82	\$0	\$0.00	\$2,520,710,500	\$12.82
2025	\$21,848,452,500	\$111.08	\$2,520,710,500	\$12.82	\$0	\$0.00	\$2,520,710,500	\$12.82
2026	\$24,369,163,000	\$123.89	\$2,520,710,500	\$12.82	\$0	\$0.00	\$2,520,710,500	\$12.82
2027	\$26,889,873,500	\$136.71	\$2,520,710,500	\$12.82	\$0	\$0.00	\$2,520,710,500	\$12.82
2028	\$29,410,584,000	\$149.52	\$2,520,710,500	\$12.82	\$0	\$0.00	\$2,520,710,500	\$12.82

NPV of future cashflows	\$1,270.13	1% In Money
	\$630.65	2% In Money
	\$418.18	3% In Money
	\$312.37	4% In Money
	\$249.16	5% In Money
	\$207.21	6% Too Expensive
	\$177.38	7% Too Expensive
	\$155.10	8% Too Expensive
	\$137.83	9% Too Expensive
	\$124.07	10% Too Expensive
	\$112.84	11% Too Expensive
	\$103.50	12% Too Expensive
	\$95.62	13% Too Expensive
	\$88.88	14% Too Expensive
	\$83.04	15% Too Expensive
	\$77.93	16% Too Expensive
	\$73.43	17% Too Expensive
	\$69.44	18% Too Expensive
	\$65.86	19% Too Expensive
	\$62.64	20% Too Expensive
	\$59.72	21% Too Expensive
	\$57.07	22% Too Expensive
	\$54.65	23% Too Expensive
	\$52.43	24% Too Expensive
	\$50.38	25% Too Expensive

Explanation: [NA](#)

Expected Return - 5 Year DCF	6.9%
Expected Return - 10 NPV Cash Flows	5%
Expected Return Average	6.0%

Hurdle Returns (vs. Risk Free)		
2.4%	0x	0%
4.8%	1x	15%
7.2%	2x	30%
9.6%	3x	45%
12.0%	4x	60%
14.3%	5x	75%
16.7%	6x	90%
19.1%	7x	105%
21.5%	8x	120%

Certainty Rating	
50%	Graham's Intrinsic Value (Original Formula)
80%	Graham's Intrinsic Value (Revised Formula)
30%	5 Year Discounted Free Cash Flow
30%	10 Year NPV of Future Cashflows
30%	Average
44%	Total

Explanation: [NA](#)

Last 10 Year Earnings Average (with zero growth)

20-year AAA Corporate Bond Rate	3.8%	https://fred.stlouisfed.org/series/AAA	Last Updated:	3/24/19
EPS	\$11.43			
Constant PE (0% perpetual growth)	8.5			
Company's Perpetual Growth Rate	0.0%			
Minimum Risk Free Rate of Return	2.4%	https://fred.stlouisfed.org/series/TB3MS	Last Updated:	3/24/19
Graham's Intrinsic Value (Original Formula)	\$97.13			
% of Current Price	45%	DON'T BUY - Current Price is Above IV		
Graham's Intrinsic Value (Revised Formula)	\$154.02			
% of Current Price	71%	DON'T BUY - Current Price is Above IV		

5 Year Discounted Free Cash Flow (Owners Earnings) Calculator (AKA NPV) (Run Assuming Zero Growth)

Perpetual Growth Rate	0.0%	Explanation:	Run at zero perpetual growth to be super conservative.			
		Discount Rate/WACC	PV of CFs	+ Terminal Value	= PV	
Morningstar Current	\$20.95	9.2%	\$81.19	\$229.02	\$216.62	0.0%
Brokerage CF (TTM)	\$10.62	4.7%	\$46.34	\$224.59	\$216.54	0.1%
		6.9%				

Explanation: NA

10 Year NPV of Future Cashflows (Run Assuming Updated EPS (using 1/2 best case future annual estimate) & DPS and Zero Growth)

Return On Shareholder's Equity	53.5%	
Retained To Equity	53.5%	100%
Dividends Percent	0.0%	

Current and Projected Shareholder Equity and Projected Earnings

	Equity Base	EquityPS	Earnings	EarningsPS	Dividends	DivsPS	Added To Base	RetainedPS
2018	\$4,203,479,000	\$21.37	\$2,247,658,039	\$11.43	\$0	\$0.00	\$2,247,658,039	\$11.43
2019	\$6,451,137,039	\$32.80	\$2,247,658,039	\$11.43	\$0	\$0.00	\$2,247,658,039	\$11.43
2020	\$8,698,795,079	\$44.22	\$2,247,658,039	\$11.43	\$0	\$0.00	\$2,247,658,039	\$11.43
2021	\$10,946,453,118	\$55.65	\$2,247,658,039	\$11.43	\$0	\$0.00	\$2,247,658,039	\$11.43
2022	\$13,194,111,158	\$67.08	\$2,247,658,039	\$11.43	\$0	\$0.00	\$2,247,658,039	\$11.43
2023	\$15,441,769,197	\$78.50	\$2,247,658,039	\$11.43	\$0	\$0.00	\$2,247,658,039	\$11.43
2024	\$17,689,427,237	\$89.93	\$2,247,658,039	\$11.43	\$0	\$0.00	\$2,247,658,039	\$11.43
2025	\$19,937,085,276	\$101.36	\$2,247,658,039	\$11.43	\$0	\$0.00	\$2,247,658,039	\$11.43
2026	\$22,184,743,315	\$112.78	\$2,247,658,039	\$11.43	\$0	\$0.00	\$2,247,658,039	\$11.43
2027	\$24,432,401,355	\$124.21	\$2,247,658,039	\$11.43	\$0	\$0.00	\$2,247,658,039	\$11.43
2028	\$26,680,059,394	\$135.64	\$2,247,658,039	\$11.43	\$0	\$0.00	\$2,247,658,039	\$11.43

NPV of future cashflows \$1,132.54 1% In Money

Last 10 Years Earnings

\$562.33	2% In Money
\$372.88	3% In Money
\$278.53	4% In Money
\$222.17	5% In Money
\$184.77	6% Too Expensive
\$158.17	7% Too Expensive
\$138.30	8% Too Expensive
\$122.90	9% Too Expensive
\$110.63	10% Too Expensive
\$100.61	11% Too Expensive
\$92.29	12% Too Expensive
\$85.26	13% Too Expensive
\$79.25	14% Too Expensive
\$74.04	15% Too Expensive
\$69.49	16% Too Expensive
\$65.48	17% Too Expensive
\$61.91	18% Too Expensive
\$58.72	19% Too Expensive
\$55.85	20% Too Expensive
\$53.25	21% Too Expensive
\$50.89	22% Too Expensive
\$48.73	23% Too Expensive
\$46.75	24% Too Expensive
\$44.92	25% Too Expensive

Year	EPS	Earnings	Shares Out
2008	\$3.36	\$970,000,000	289,000,000
2009	\$3.94	\$1,005,000,000	255,000,000
2010	\$5.04	\$1,234,000,000	245,000,000
2011	\$5.75	\$1,380,000,000	240,000,000
2012	\$7.82	\$1,862,000,000	238,000,000
2013	\$12.38	\$2,935,000,000	237,000,000
2014	\$15.35	\$3,547,000,000	231,000,000
2015	\$16.91	\$3,703,000,000	219,000,000
2016	\$11.92	\$2,539,000,000	213,000,000
2017	\$21.61	\$4,430,000,000	205,000,000
2018	\$21.61	\$4,430,000,000	205,000,000
Average EPS	\$11.43		

Explanation: NA

Expected Return - 5 Year DCF	6.9%
Expected Return - 10 NPV Cash Flows	5%
Expected Return Average	6.0%

Certainty Rating	
45%	Graham's Intrinsic Value (Original Formula)
71%	Graham's Intrinsic Value (Revised Formula)
30%	5 Year Discounted Free Cash Flow
30%	10 Year NPV of Future Cashflows
30%	Average
41%	Total

Explanation: NA

Hurdle Returns (vs. Risk Free)		
2.4%	0x	0%
4.8%	1x	15%
7.2%	2x	30%
9.6%	3x	45%
12.0%	4x	60%
14.3%	5x	75%
16.7%	6x	90%
19.1%	7x	105%
21.5%	8x	120%

Valuation Scenarios Summary

Test #1 - Expected Case (with zero growth)

55% Weighting

Expected Return - 5 Year DCF	6.9%
Expected Return - 10 NPV Cash Flows	11.0%
Expected Return Total	9.0%
Certainty Rating	79%

Test #2 - Best Case (with expected growth)

15% Weighting

Expected Return - 5 Year DCF	6.9%
Expected Return - 10 NPV Cash Flows	12.0%
Expected Return Total	9.5%
Certainty Rating	88%

Test #2 - Stress Test (50% Reduction In Expected Case)

15% Weighting

Expected Return - 5 Year DCF	6.9%
Expected Return - 10 NPV Cash Flows	5.0%
Expected Return Total	6.0%
Certainty Rating	44%

Test #2 - Last 10 Year Earnings Average (with zero growth)

15% Weighting

Expected Return - 5 Year DCF	6.9%
Expected Return - 10 NPV Cash Flows	5.0%
Expected Return Total	6.0%
Certainty Rating	41%

Consolidation Of All Scenarios (Weighted)

Expected Return - 5 Year DCF	6.9%
Expected Return - 10 NPV Cash Flows	9.4%
Expected Return Total	8.1%
Certainty Rating	69%

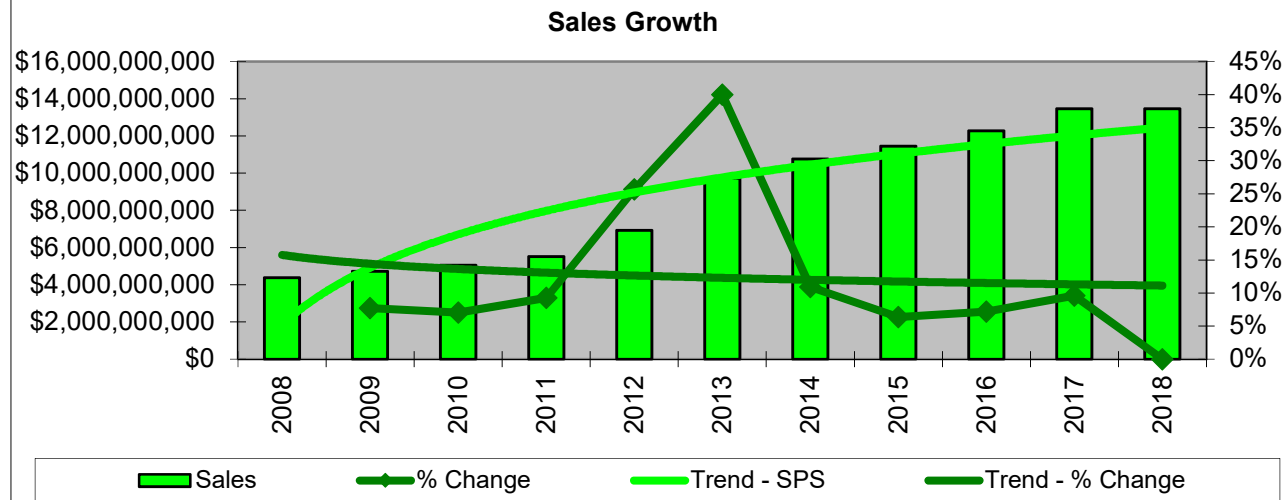
Test #5 - FINANCIALS REVIEW - Review Of 10 Year Financial Trends For Key Metrics

Tells Us The Business Has Pricing Power, History Of Success, Growth, Rate Of Growth, And Our Initial Rate Of Return.

Growing Sales & Growing Earnings - Earnings and Sales are 1) Consistent, 2) Strong, and 3) Growing At A Steady Rate.

Year	Sales	
2008	\$4,377,000,000	
2009	\$4,716,000,000	8%
2010	\$5,049,000,000	7%
2011	\$5,516,000,000	9%
2012	\$6,932,000,000	26%
2013	\$9,703,000,000	40%
2014	\$10,763,000,000	11%
2015	\$11,448,000,000	6%
2016	\$12,273,000,000	7%
2017	\$13,452,000,000	10%
2018	\$13,452,000,000	0%

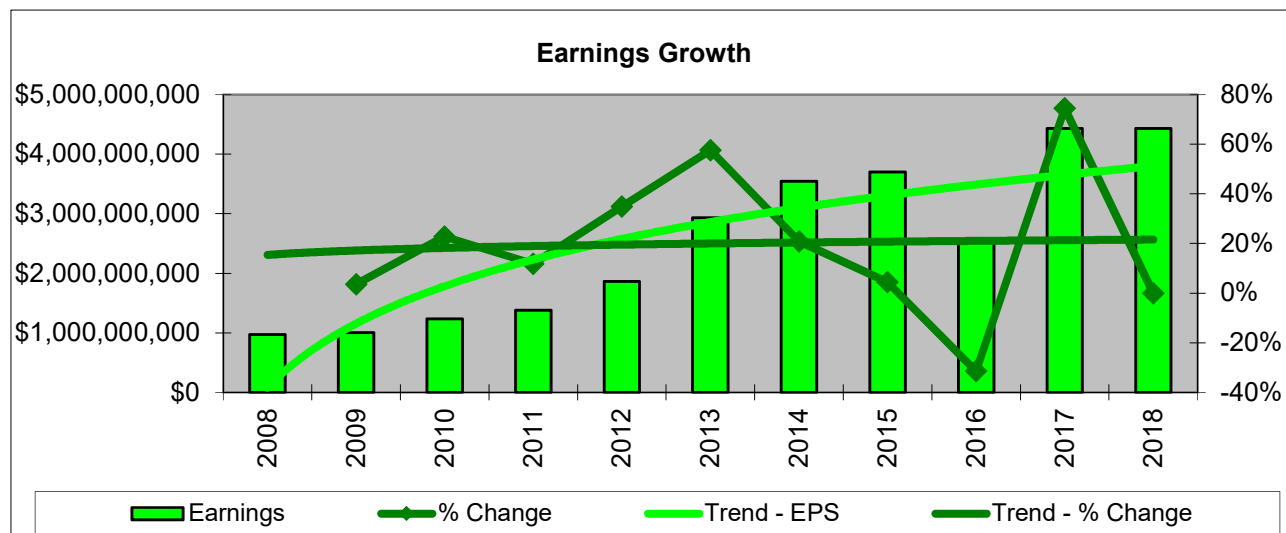
Certainty Rating: **100%**



Explanation: Company has grown like gangbusters over the past decade.

Year	Earnings	
2008	\$970,000,000	
2009	\$1,005,000,000	4%
2010	\$1,234,000,000	23%
2011	\$1,380,000,000	12%
2012	\$1,862,000,000	35%
2013	\$2,935,000,000	58%
2014	\$3,547,000,000	21%
2015	\$3,703,000,000	4%
2016	\$2,539,000,000	-31%
2017	\$4,430,000,000	74%
2018	\$4,430,000,000	0%

Certainty Rating: **90%**

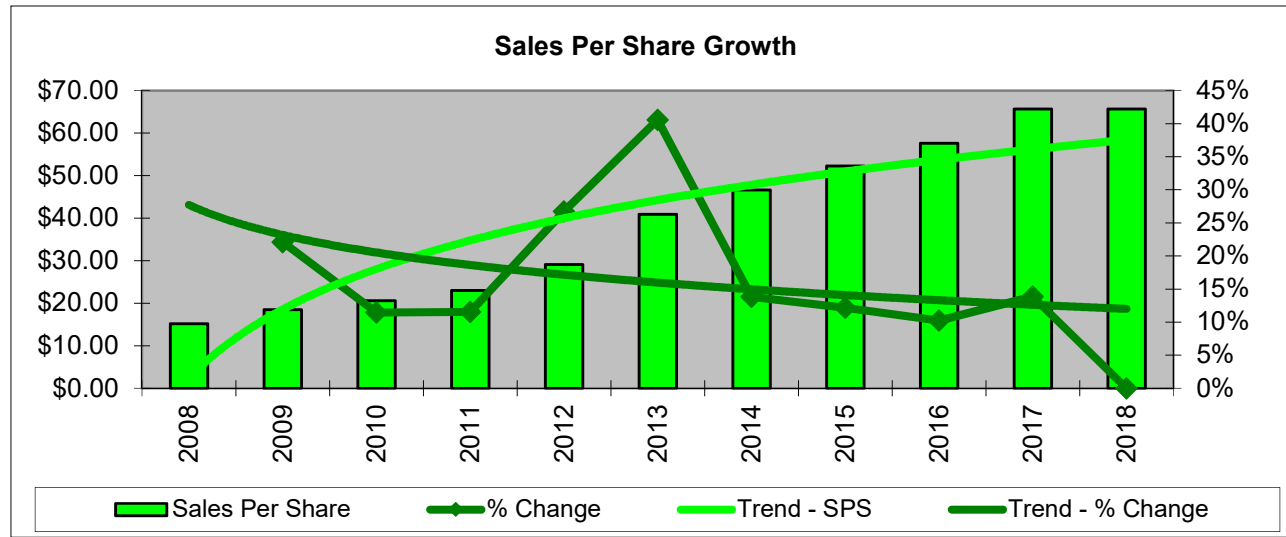


Explanation: Earnings have grown faster than sales over the past decade.

SPS & EPS - Earnings are 1) Consistent, 2) Strong, and 3) Growing At A Steady Rate. Ideally Closely Matching Growing Sales.

Year	Sales Per Share	
2008	\$15.15	
2009	\$18.49	22%
2010	\$20.61	11%
2011	\$22.98	12%
2012	\$29.13	27%
2013	\$40.94	41%
2014	\$46.59	14%
2015	\$52.27	12%
2016	\$57.62	10%
2017	\$65.62	14%
2018	\$65.62	0%

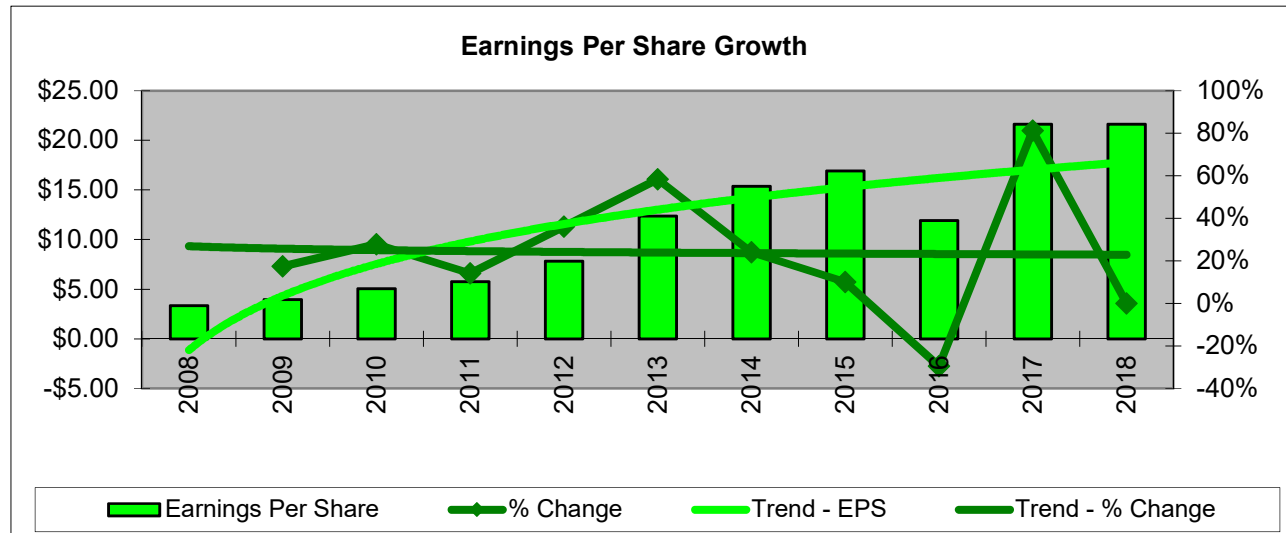
Certainty Rating: 100%



Explanation: SPS have been growing at 10%+ for a decade.

Year	Earnings Per Share	
2008	\$3.36	
2009	\$3.94	17%
2010	\$5.04	28%
2011	\$5.75	14%
2012	\$7.82	36%
2013	\$12.38	58%
2014	\$15.35	24%
2015	\$16.91	10%
2016	\$11.92	-30%
2017	\$21.61	81%
2018	\$21.61	0%

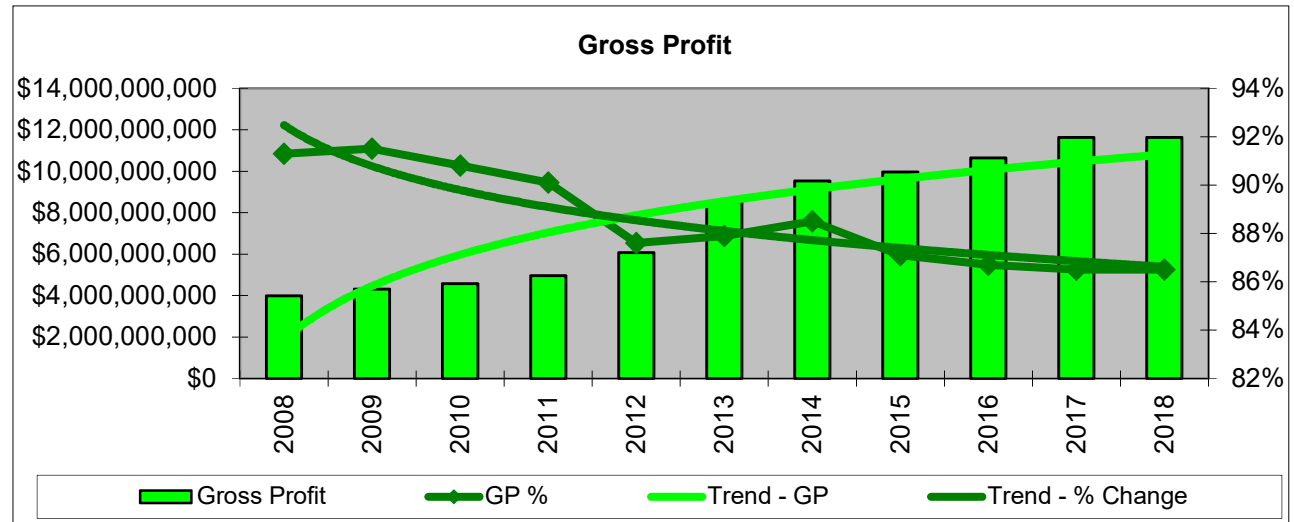
Certainty Rating: 90%



Explanation: EPS have been growing faster than sales for a decade (with only one year where they didn't grow YoY).

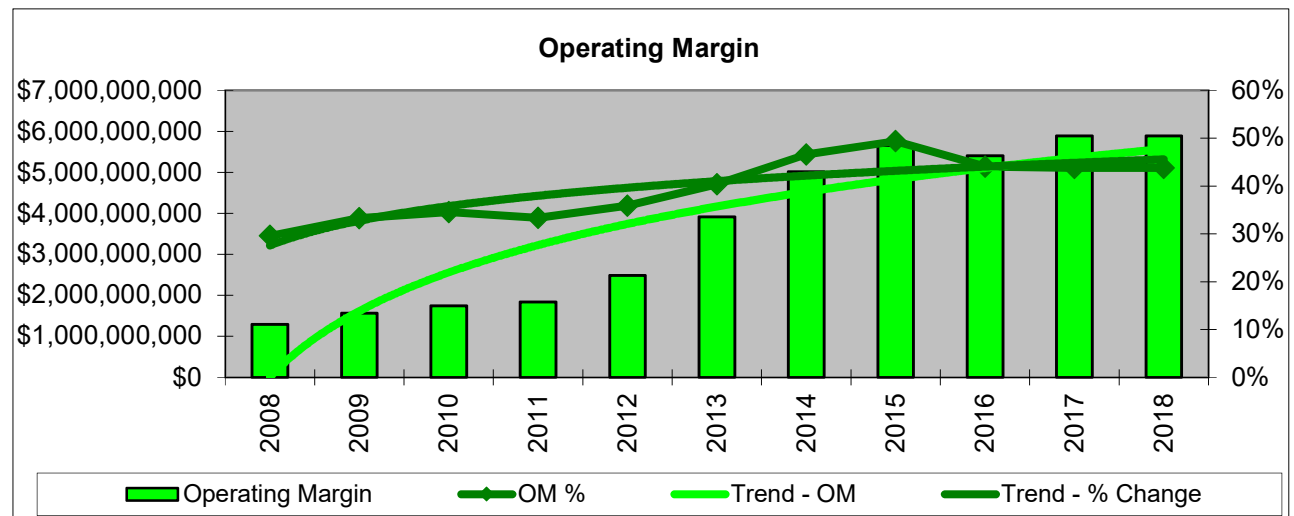
Margins - Are 1) Consistent, 2) Strong, and 3) Growing At A Steady Rate.

Year	Gross Profit	
2008	\$3,996,201,000	91%
2009	\$4,315,140,000	92%
2010	\$4,584,492,000	91%
2011	\$4,969,916,000	90%
2012	\$6,072,432,000	88%
2013	\$8,528,937,000	88%
2014	\$9,525,255,000	89%
2015	\$9,971,208,000	87%
2016	\$10,640,691,000	87%
2017	\$11,635,980,000	87%
2018	\$11,635,980,000	87%
Average:		89%
High:		92%
Low:		87%
Certainty Rating:		90%



Explanation: Gross Margins are lower...but they are still 87%?!? Which is absurdly high!

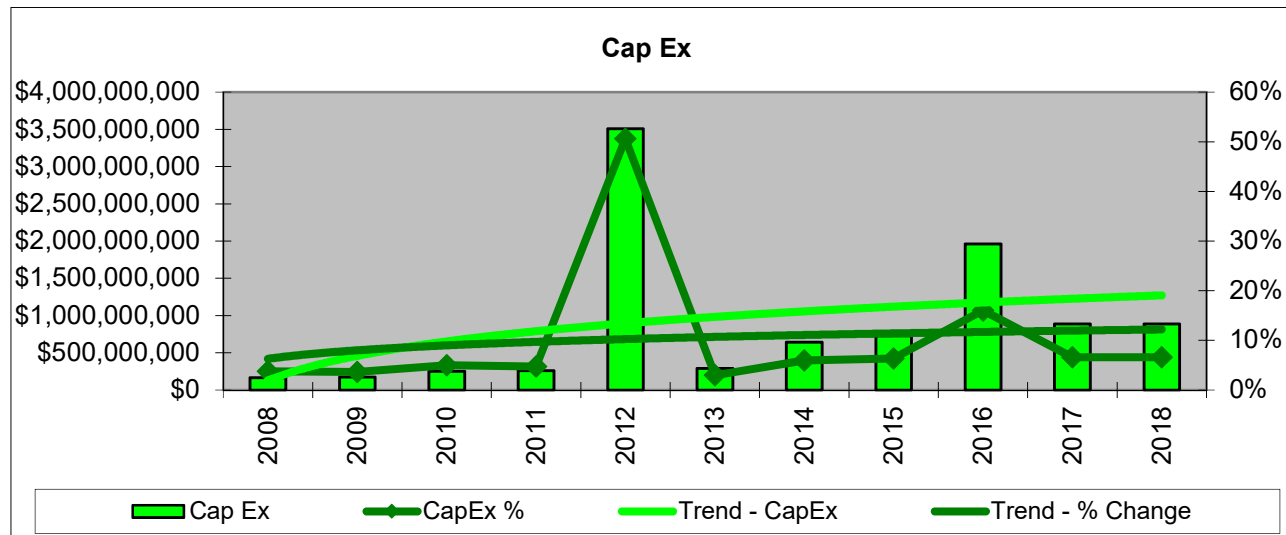
Year	Operating Margin	
2008	\$1,295,000,000	30%
2009	\$1,569,000,000	33%
2010	\$1,744,000,000	35%
2011	\$1,838,000,000	33%
2012	\$2,490,000,000	36%
2013	\$3,917,000,000	40%
2014	\$5,014,000,000	47%
2015	\$5,653,000,000	49%
2016	\$5,408,000,000	44%
2017	\$5,888,000,000	44%
2018	\$5,888,000,000	44%
Average:		40%
High:		49%
Low:		30%
Certainty Rating:		100%



Explanation: Operating margin has grown considerably and the margin % has also grown and is above the 40% average (currently running at 44%).

Cap Ex - Is Consistent.

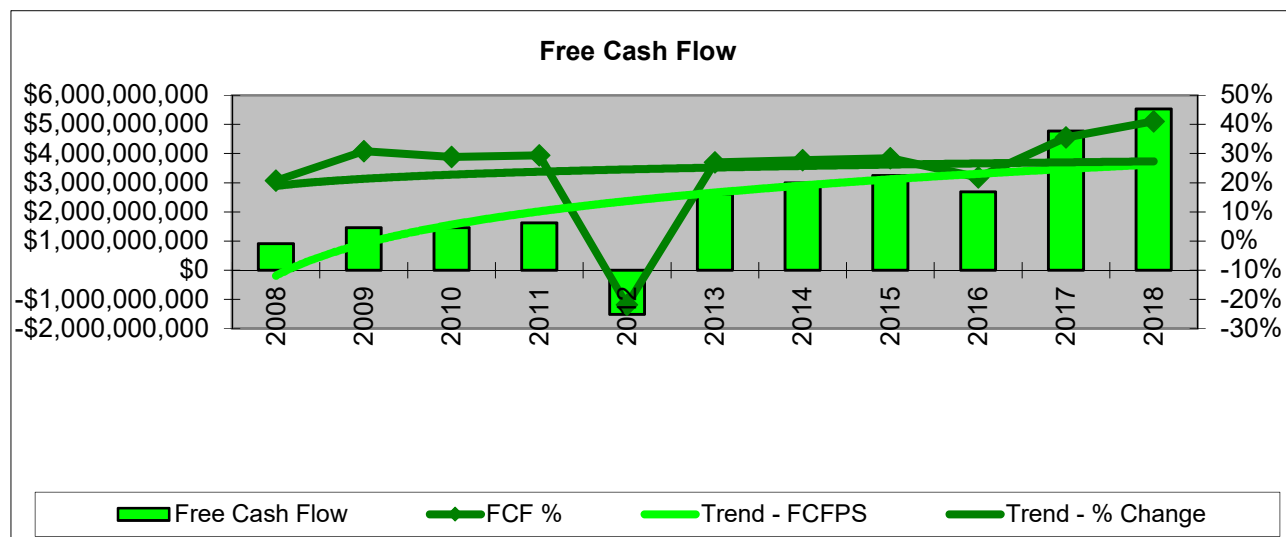
Year	Cap Ex	
2008	\$166,000,000	4%
2009	\$173,000,000	4%
2010	\$252,000,000	5%
2011	\$261,000,000	5%
2012	\$3,509,000,000	51%
2013	\$288,000,000	3%
2014	\$643,000,000	6%
2015	\$728,000,000	6%
2016	\$1,962,000,000	16%
2017	\$886,000,000	7%
2018	\$886,000,000	7%
Average:		10%
High:		51%
Low:		3%
Certainty Rating:		90%



Explanation: Other than in a few years CapEx has been consistent (and is today). 2012 and 2016 were the last years it was higher than average.

Free Cash Flow - Is 1) Consistent, 2) Strong, and 3) Growing At A Steady Rate.

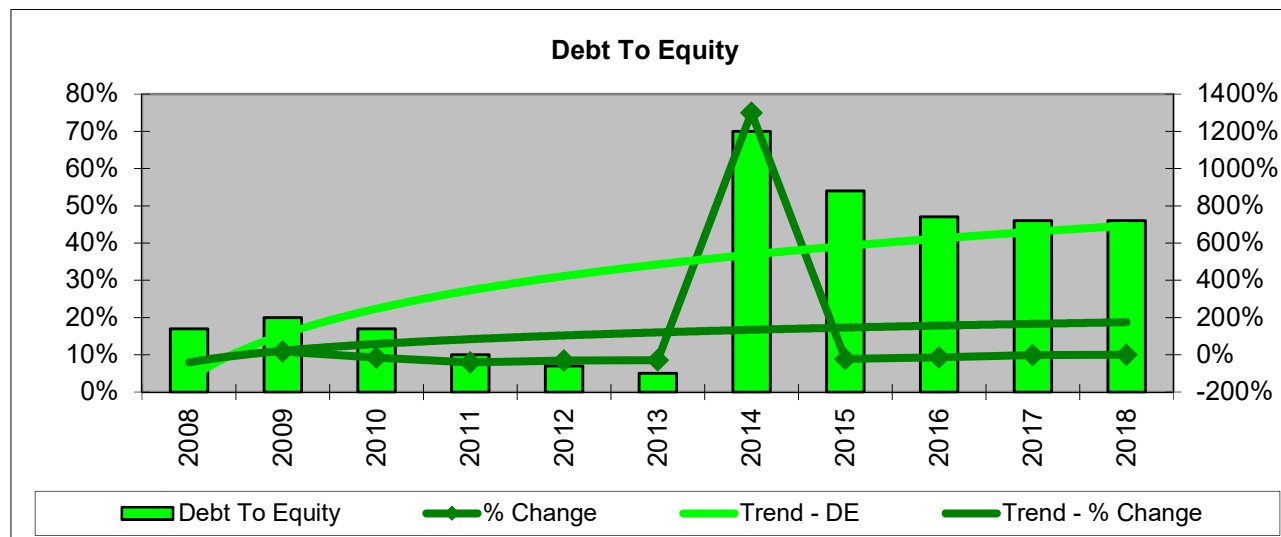
Year	Free Cash Flow	
2008	\$907,460,000	21%
2009	\$1,453,500,000	31%
2010	\$1,457,750,000	29%
2011	\$1,620,000,000	29%
2012	-\$1,518,440,000	-22%
2013	\$2,614,110,000	27%
2014	\$2,991,450,000	28%
2015	\$3,252,150,000	28%
2016	\$2,683,800,000	22%
2017	\$4,778,550,000	36%
2018	\$5,525,724,453	41%
Average:		25%
High:		41%
Low:		-22%
Certainty Rating:		100%



Explanation: The only negative year was the year they had a major spike in CapEx in a single year (2012). Other than that it has been growing steadily and is currently, at 41%, well above the average (25%)

Debt To Equity - Is 1) Consistent, and 2) Low (and/or Lowering Quickly).

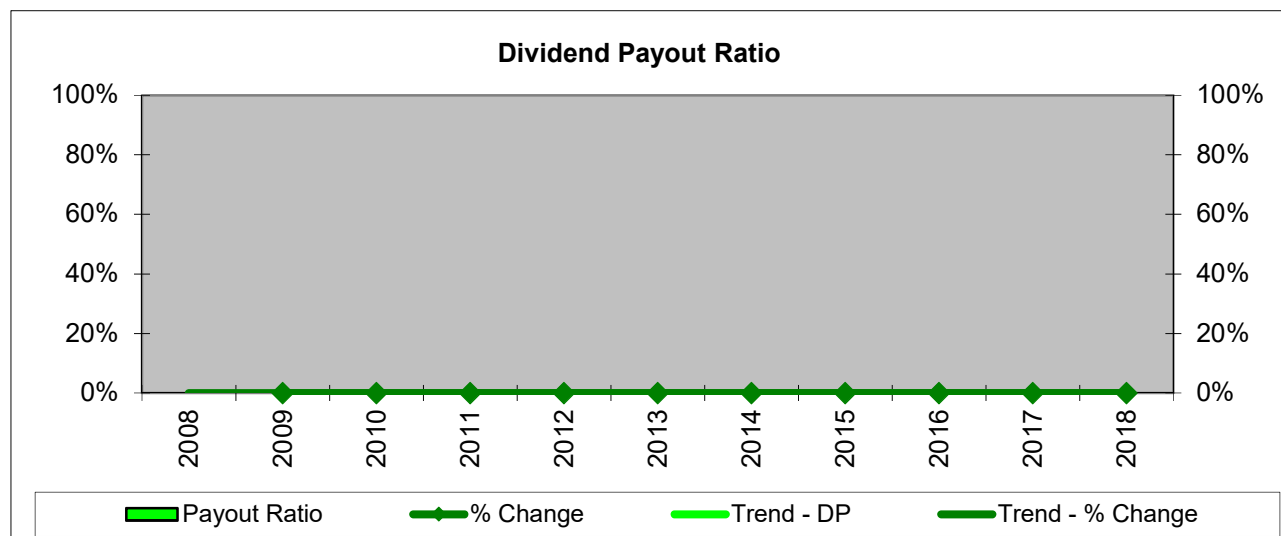
Year	Debt To Equity	
2008	17%	
2009	20%	18%
2010	17%	-15%
2011	10%	-41%
2012	7%	-30%
2013	5%	-29%
2014	70%	1300%
2015	54%	-23%
2016	47%	-13%
2017	46%	-2%
2018	46%	0%
Average:	31%	
High:	70%	
Low:	5%	
Certainty Rating:		75%



Explanation: Prior to 2014 their debt to equity was low and in line with the industry average. It is down since then but still above average for the industry (but not terrible in relation to other industries/companies). STILL...I never like to see a company lever up for any reason. The outstanding shares are down 32% from the peak (so they've added debt to do buybacks).

Dividend Sustainability

Year	Payout Ratio	
2008	0%	
2009	0%	#DIV/0!
2010	0%	#DIV/0!
2011	0%	#DIV/0!
2012	0%	#DIV/0!
2013	0%	#DIV/0!
2014	0%	#DIV/0!
2015	0%	#DIV/0!
2016	0%	#DIV/0!
2017	0%	#DIV/0!
2018	0%	#DIV/0!
Average:	0%	
High:	0%	
Low:	0%	
Certainty Rating:		100%



Explanation: No dividend.

Test #6 - BUYING / OWNERSHIP

Tells Us Whether The People Closest To The Business Are 1) Buying (And At Attractive Valuations) and/or 2) Owners.

Shares Outstanding / Buyback Program

Shares Outstanding	
Peak Past 10 Years	289,000,000
Current Outstanding	196,700,000
Shares Added/Subtracted	-92,300,000
% Added/Subtracted	-32%

Current Buyback Program	
Years	0
Value	\$0
Potential Shares At Current Price	0
Potential Shares Repurchased	0%

Certainty Rating: 100%

Year	Shares Out
2008	289,000,000
2009	255,000,000
2010	245,000,000
2011	240,000,000
2012	238,000,000
2013	237,000,000
2014	231,000,000
2015	219,000,000
2016	213,000,000
2017	205,000,000
2018	205,000,000

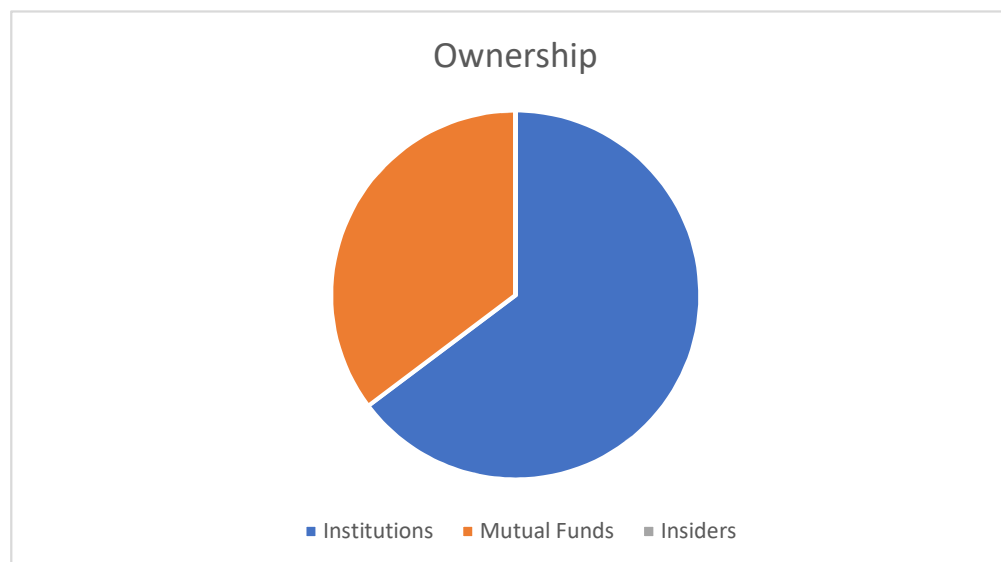
Explanation: Shares outstanding today are 196k...so they continue to buyback shares.

Insider Ownership / Activity

Ownership (In Millions)		
Institutions	99,290,000,000	65%
Mutual Funds	54,066,000,000	35%
Insiders	0	0%
Total	153,356,000,000	

Insider Buying / Selling	
6 Month Buying	Yes
6 Month Selling	Yes

Certainty Rating: 100%



Explanation: Buying and selling on this one...with not a ton of insider ownership.

Test #7 - GOOD BUSINESS CHECK - Do important metrics indicating a 'good business' show that it is indeed a 'good business'?

Tells Us The Business Has A Good Financial Model And Whether Management Understands How To Operate It Effectively Compared To The Industry and Market.

Return "Moat" Assessment - Not A "Low Return" Business. Charlie Munger says that eventually over time returns will match ROIC.

Return on Invested Capital	
Year	
2008	13.5%
2009	14.6%
2010	17.7%
2011	17.8%
2012	21.7%
2013	28.6%
2014	26.4%
2015	22.3%
2016	14.1%
2017	24.0%
2018	24.0%

Company (10 Year Average)	20.4%
Company (10 Year High)	28.6%
Company (10 Year Low)	13.5%
Company (Current Year/TTM)	24.0%
Industry (Current Year)	9.5%
Overall Market Without Financials (Current Year)	14.1%

Explanation: NA

- Yes Is the ROIC equal to or higher than the overall market?
 Yes Is the ROIC equal to or higher than the industry?
 Yes Has the ROIC always been positive?
 Yes Is the ROIC steady (not really far from average, or high/low)?

Return on Equity	
Year	
2008	16.1%
2009	17.3%
2010	20.9%
2011	20.6%
2012	23.9%
2013	30.2%
2014	35.2%
2015	34.4%
2016	20.5%
2017	34.5%
2018	34.5%

Company (10 Year Average)	26.2%
Company (10 Year High)	35.2%
Company (10 Year Low)	16.1%
Company (Current Year/TTM)	34.5%
Industry (Current Year)	-2.0%
Overall Market Without Financials (Current Year)	11.9%

Explanation: NA

- Yes Is the ROE equal to or higher than the overall market?
 Yes Is the ROE equal to or higher than the industry?
 Yes Has the ROE always been positive?
 Yes Is the ROE steady (not really far from average, or high/low)?

Return on Assets	
Year	
2008	11.4%
2009	12.1%
2010	14.4%
2011	14.4%
2012	16.9%
2013	22.4%
2014	21.0%
2015	17.5%
2016	10.9%
2017	18.1%
2018	18.1%

Company (10 Year Average)	16.1%
Company (10 Year High)	22.4%
Company (10 Year Low)	10.9%
Company (Current Year/TTM)	18.1%
Industry (Current Year)	-7.9%
Overall Market Without Financials (Current Year)	4.3%

Explanation: NA

- Yes Is the ROA equal to or higher than the overall market?
- Yes Is the ROA equal to or higher than the industry?
- Yes Has the ROA always been positive?
- Yes Is the ROA steady (not really far from average, or high/low)?

Asset Turnover	
Year	
2008	0.51
2009	0.57
2010	0.58
2011	0.58
2012	0.63
2013	0.74
2014	0.64
2015	0.54
2016	0.53
2017	0.55
2018	0.55

Company (10 Year Average)	0.58
Company (10 Year High)	0.74
Company (10 Year Low)	0.51
Company (Current Year/TTM)	0.55

Explanation: NA

- Yes Is the Asset Turnover consistent over time?
- No Is the Asset Turnover improving (trending higher)?

Certainty Rating:	93%
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Explanation: NA

Business "Moat" Assessment - Not A "Mediocre" Business

Net Margin %	
Year	
2008	22.2%
2009	21.3%
2010	24.5%
2011	25.0%
2012	26.9%
2013	30.3%
2014	33.0%
2015	32.3%
2016	20.7%
2017	32.9%
2018	32.9%

Company (10 Year Average)	27.4%
Company (10 Year High)	33.0%
Company (10 Year Low)	20.7%
Company (Current Year/TTM)	32.9%
Industry (Current Year)	-0.5%
Overall Market Without Financials (Current Year)	9.7%

Explanation: [NA](#)

- [Yes](#) Is the Net Margin % equal to or higher than the overall market?
- [Yes](#) Is the Net Margin % equal to or higher than the industry?
- [Yes](#) Has the Net Margin % always been positive?
- [Yes](#) Is the Net Margin % steady (not really far from average, or high/low)?

Gross Margin %	
Year	
2008	91.3%
2009	91.5%
2010	90.8%
2011	90.1%
2012	87.6%
2013	87.9%
2014	88.5%
2015	87.1%
2016	86.7%
2017	86.5%
2018	86.5%

Company (10 Year Average)	88.6%
Company (10 Year High)	91.5%
Company (10 Year Low)	86.5%
Company (Current Year/TTM)	86.5%

Explanation: [NA](#)

- [Yes](#) Has the Gross Margin % always been positive?
- [No](#) Is the Gross Margin % generally improving?
- [Yes](#) Is the Gross Margin % steady (not really far from average, or high/low)?

Operating Margin %	
Year	
2008	29.6%
2009	33.3%
2010	34.5%
2011	33.3%
2012	35.9%
2013	40.4%
2014	46.6%
2015	49.4%
2016	44.1%
2017	43.8%
2018	43.8%

Company (10 Year Average)	39.5%
Company (10 Year High)	49.4%
Company (10 Year Low)	29.6%
Company (Current Year/TTM)	43.8%

Industry (Current Year) **22.5%**

Overall Market Without Financials (Current Year) **11.3%**

Explanation: **NA**

- Yes Is the Operating Margin % equal to or higher than the overall market?
- Yes Is the Operating Margin % equal to or higher than the industry?
- Yes Has the Operating Margin % always been positive?
- Yes Is the Operating Margin % generally improving?
- Yes Is the Operating Margin % steady (not really far from average, or high/low)?

- Yes Is The Business Unique? Or Does It Have Something That Makes It Unique?
- Yes Price Is Not The Single Most Important Motivating Factor In Purchase Of Product.
- Yes Prices Can Be Adjusted For Inflation?
- Yes Is Revenue "Safe" (Long-Term Contracts, Long-Term Retention, Don't Have To Resell Everything Every Time)?
- Yes Does The Company Have Strong/Recognized Brands?
- Yes Is There An Attachment To The Companies Brand(s)? Is There An Identifiable Consumer Monopoly?

Certainty Rating: 94%

Explanation: **NA**

Competition "Moat" Assessment - Not A "Commodity-Type" Business

- Yes Is Business Competition Free? There Is Not A Company That Directly Competes With This One.
- Yes Is Business Competition Free? There Is Not A Presence Of Multiple Producers In Industry?
- Yes Is Business Competition Free? There Is Not Substantial Excess Production Capacity In Industry?
- Yes It Would Be Hard To Start A Company To Compete With This Business. There Are Large Barriers To Entry To This Business.
- Yes It Would Be Hard To Make A Dent In Business Without The Most Money and Best Management Talent.

Certainty Rating: 100%

Explanation: **NA**

Leverage Assessment - Is The Business Conservatively Financed (Providing Additional Margin Of Safety...Oh And Saving Money)?

Financial Leverage (Asset To Equity Ratio)	
Year	
2008	1.37
2009	1.50
2010	1.41
2011	1.46
2012	1.38
2013	1.32
2014	2.08
2015	1.88
2016	1.88
2017	1.94
2018	1.94

Company (10 Year Average)	1.65
Company (10 Year High)	2.08
Company (10 Year Low)	1.32
Company (Current Year/TTM)	1.94

Explanation: NA

- No Is the Financial Leverage consistent over time?
- No Is the Financial Leverage improving (ie lowering)?

Debt To Equity		Shares	
Year			
2008	17%	289,000,000	Company (10 Year Average)
2009	20%	255,000,000	Company (10 Year High)
2010	17%	245,000,000	Company (10 Year Low)
2011	10%	240,000,000	Company (Current Year/TTM)
2012	7%	238,000,000	Industry (Current Year)
2013	5%	237,000,000	Overall Market Without Financials (Current Year)
2014	70%	231,000,000	
2015	54%	219,000,000	
2016	47%	213,000,000	
2017	46%	205,000,000	
2018	46%	205,000,000	

Company (10 Year Average)	30.8%
Company (10 Year High)	70.0%
Company (10 Year Low)	5.0%
Company (Current Year/TTM)	46.0%
Industry (Current Year)	26.0%
Overall Market Without Financials (Current Year)	114.0%

Explanation: NA

- Yes Is The Debt To Equity Low Versus Static Measure (Less Than 50%)?
- Yes Is The Debt To Equity Low Versus Market (Less Than Market)?
- No Is The Debt To Equity Low Versus Industry (Less Than Industry)?
- No Has The Debt To Equity Lowered Over Time?
- No The Company Is Not Adding Debt In Order To Increase ROE.
- No The Company Is Not Adding Debt In Order To Do Share Buybacks.

Certainty Rating:	25%
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Explanation: NA

Compounding Assessment - Is The Company A (Or Going To Continue To Be A) Compounder?

- Yes Does The Company Retain Its Earnings (Ideally No Payouts Unless There Is No Additional Expansion Opportunity)?
- Yes Is The Company Able To Spend Little On Maintaining Current Operations (Is CapEx Rebuilding Or Expansion)?
- Yes Is Company Reinvesting Earnings In New Businesses, Expansion Of Existing Businesses (That Will Increase Value)?
- Yes Is Company Reinvesting Earnings In Share Repurchases (That Will Increase Value)?

Certainty Rating: 100%

Explanation: NA

Management Assessment - Does The Company's Management Add Value To The Business?

- Yes Management Has Candor And Can Admit Mistakes
- Yes Management Has Been In Place For Some Time
- Yes Management Does What It Says It Will Do
- Yes Management Knows The Business (Rarely Surprised)
- Yes Management Is Allocating Capital (Reinvested Earnings) Into Businesses, Expansion That Will Increase Value.
- Yes Profitability Is Not Almost Entirely Dependent Upon Management's Abilities To Efficiently Utilize Tangible Assets (Idiot Run Test).

Certainty Rating: 100%

Explanation: NA

GOOD BUSINESS CHECK	
Return "Moat" Assessment:	93%
Business "Moat" Assessment:	94%
Competition "Moat" Assessment:	100%
Leverage Assessment:	25%
Compounding Assessment:	100%
Management Assessment:	100%
	85%

Explanation: NA

Test #8 - MY GUT

Trust My Gut...It Is Large And In Charge (Unfortunately!)

Other's Analysis - Company

	Annual Report
	Latest 10K
	Latest 10Q (+)

Other's Analysis - Outsiders

	Available Analyst Reports
	Morningstar Reports
	Internet Searches, News, Articles

Certainty Rating: 100%

Explanation: NA

PROS

40 year old company that has grown quickly and invested capital wisely over many years...in a market segment that could easily be one of the largest areas of pharma...ever.

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Certainty Rating: 100%

Explanation: NA

CONS

Has more debt than competitors...but is also much larger than competitors (so debt is more than offset by cashflows). Not your typical biotech.

Just had a Phase 3 alzheimers drug drop off...which caused the stock to get hit buy over 30%. That is overkill! I promise!

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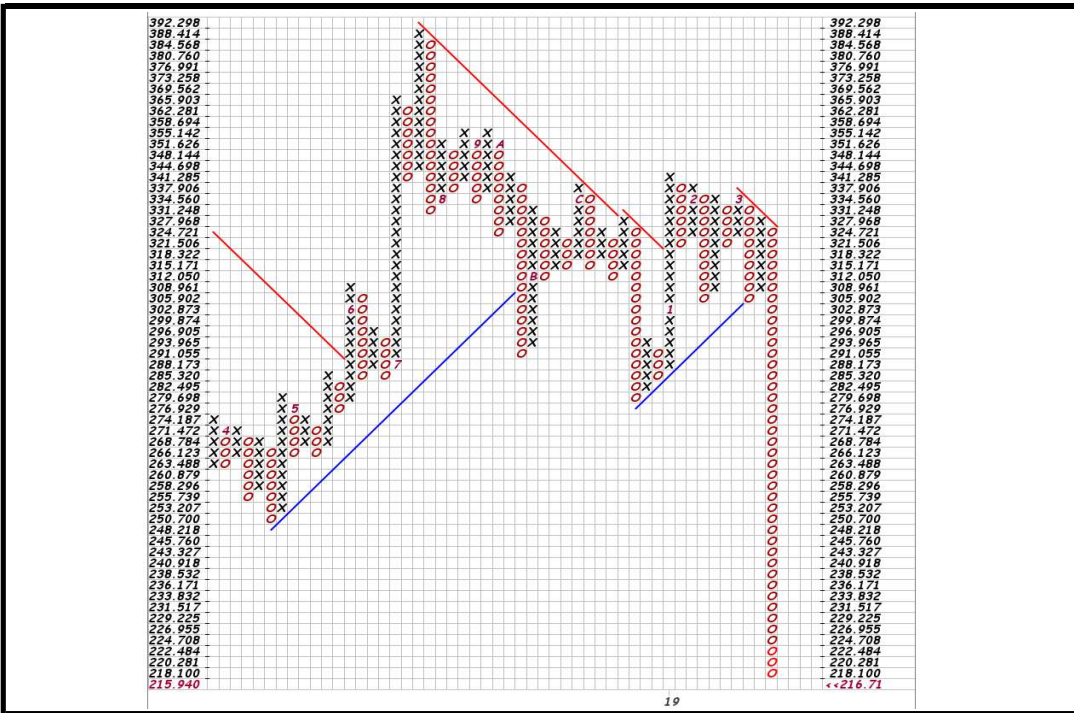
Certainty Rating: 100%

Explanation: NA

Test #9 - TECHNICALS / TIMING

Do Weekly Technicals Point Towards An Attractive Entry Point (Either Oversold / Turning / Trending)

Point And Figure



Certainty Rating: **100%**

Explanation: Off the charts drop of over 30% in a single day to the lowest price in the past 5 years. It is also about half the price of the all time high of \$442 per share back in 2015!

Weekly Candlestick



50/200 Day Trend Line (Crossing?)

Certainty Rating: **100%**

Explanation: NA

RSI (Cheap, Falling Knife?)

Certainty Rating: **100%**

Explanation: NA

MACD (Crossing?)

Certainty Rating: **100%**

Explanation: No really trend, has been muddled recently.

Money Flow (Oversold?)

Certainty Rating: **50%**

Explanation: I'd like to see a further oversold value here than currently exists.