



THE OHIO STATE UNIVERSITY

Industrial Sector Analysis

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Student Investment Management - BUSFIN 4228

Spring 2016



Agenda

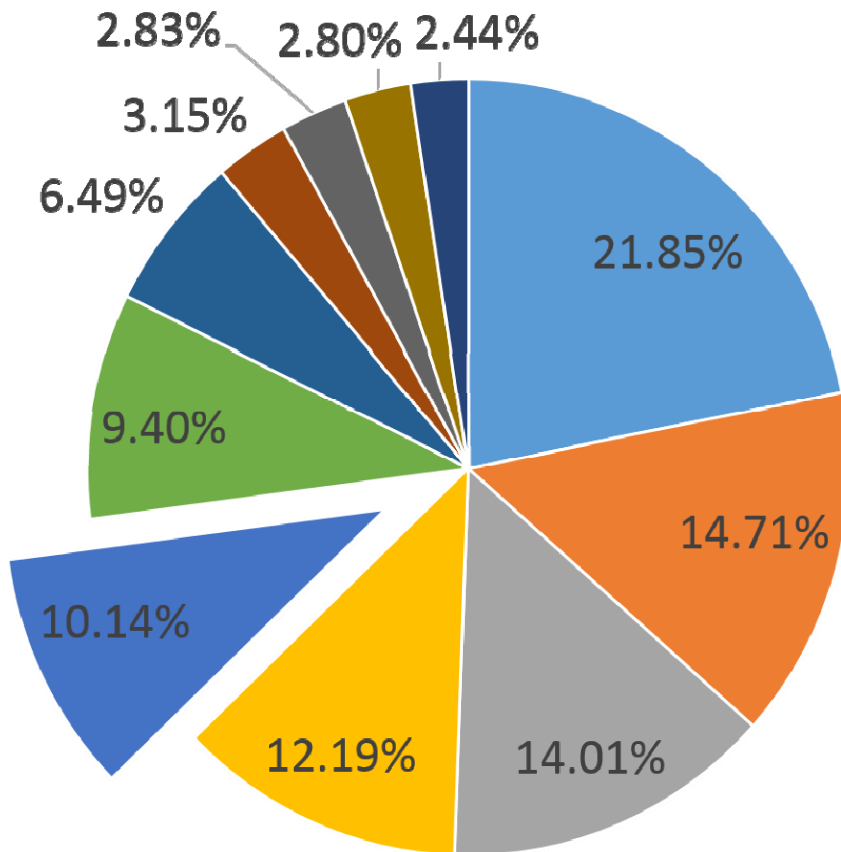
- Overview
- Business Analysis
- Economic Analysis
- Financial Analysis
- Valuation Analysis
- Recommendation



Overview



S&P 500 Sector Weightings



Name	Weight
INFO TECH	21.85%
FINANCIALS	14.71%
HEALTH CARE	14.01%
CONS DISCRET	12.19%
INDUSTRIALS	10.14%
CONS STAPLES	9.40%
ENERGY	6.49%
UTILITIES	3.15%
MATERIALS	2.83%
REAL ESTATE	2.80%
TELECOM SERV	2.44%

03/19/2017

Industrials 10.14% of S&P 500

Industrials 10.81% of SIM Porfolio (03/07/2017)



Industries Within the Sector (In Billion)

Name	Weight	Market Cap
Industrial Conglomerates (4 members)	23%	493.12
Aerospace & Defense (11 members)	23%	490.2
Machinery (14 members)	15%	318.67
Road & Rail (6 members)	9%	186.47
Air Freight & Logistics (4 members)	8%	167.27
Airlines (5 members)	6%	120.46
Electrical Equipment (5 members)	5%	113.66
Commercial Services & Supplies (4 members)	3%	74.12
Building Products (4 members)	3%	67.08
Professional Services (5 members)	3%	55.39
Trading Companies & Distributors (3 members)	2%	39.9
Construction & Engineering (3 members)	1%	19.87

12 Industries

**Total Mkt
Cap of 2.15T**

Source: Bloomberg Finance L.P

03/19/2017



Top 10 Largest Companies

Name	Weight	Market Cap
General Electric Co (Conglomerates)	12%	260.22 B
3M Co (Conglomerates)	5%	114.69 B
Boeing Co (Aerospace& Defense)	5%	109.52 B
Honeywell International Inc (Conglomerates)	5%	96.73 B
United Parcel Service Inc (Logistics)	4%	94.09 B
United Technologies Corp (Aerospace& D)	4%	90.95 B
Union Pacific Corp (Road& Rial)	4%	86.25 B
Lockheed Martin Corp (Aerospace& Defense)	4%	78.83 B
General Dynamics Corp (Aerospace& Defense)	3%	58.51 B
Caterpillar Inc (Machinery)	3%	54.49 B

Source: Bloomberg Finance L.P

03/19/2017



SIM: HONEYWELL INTERNATIONAL (Conglomerates) -4.65%
 UNITED CONTINENTAL HOLDINGS (Airlines) -1.61%
 EATON CORP PLC (Conglomerates) -4.55%



Industrial Sector YTD Performance



Source: Fidelity

03/20/2017

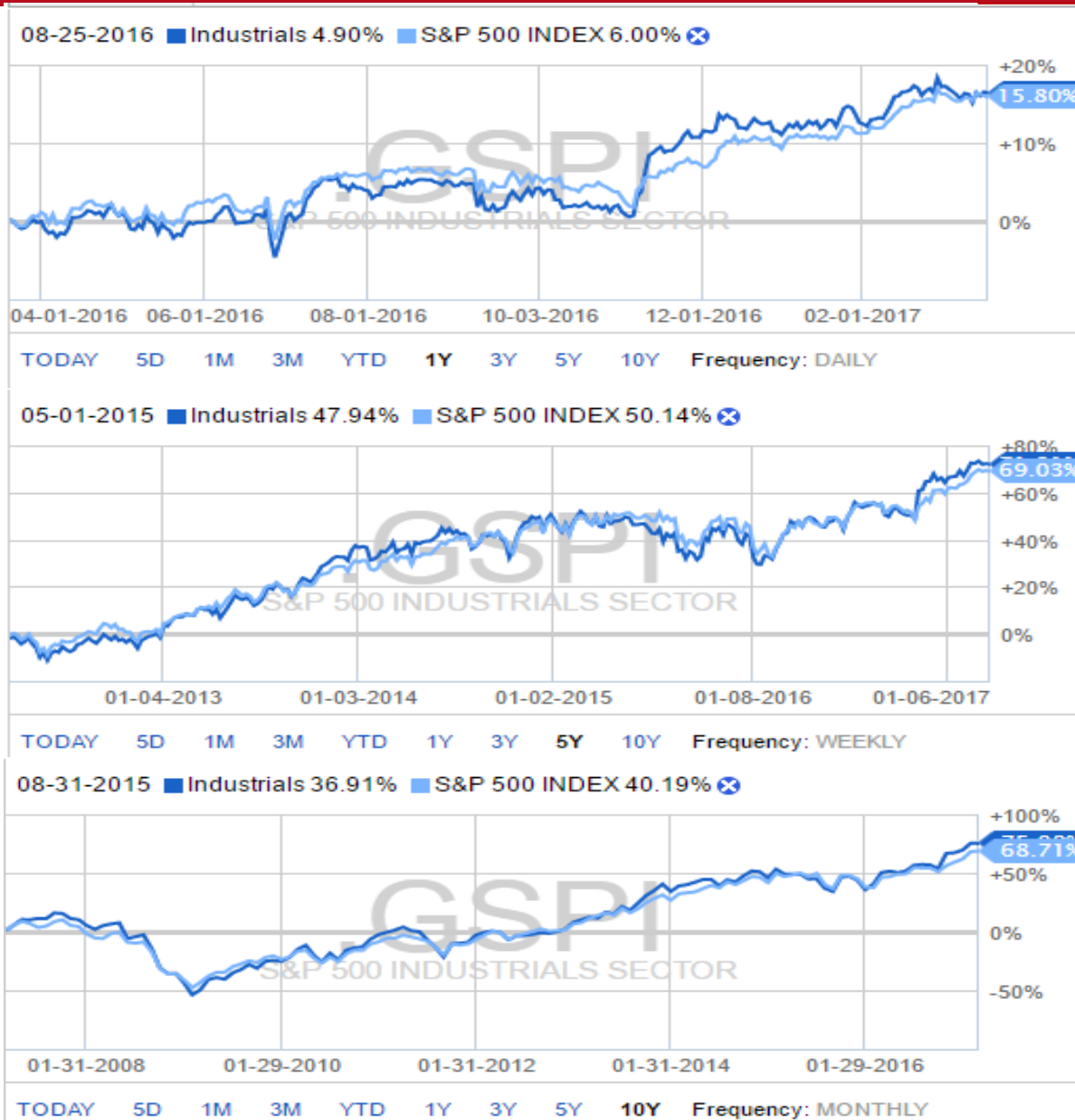


Industrial Sector Performance

Sector Name	Last % Change ▼	1 Day	5 Day	1 Month	3 Month	YTD	1 Year	3 Year	5 Year	10 Year
Materials (.GSPM)	+0.39%	+0.39%	+1.01%	+0.76%	+4.40%	+5.93%	+15.94%	+11.46%	+39.72%	+42.18%
Real Estate (.GSPRE)	+0.13%	+0.13%	+1.78%	-0.57%	+1.17%	+1.32%	--	--	--	--
Consumer Staples (.GSPS)	+0.12%	+0.12%	+0.58%	+1.46%	+5.65%	+6.66%	+5.03%	+30.43%	+63.75%	+111.95%
Information Technology (.GSPT)	+0.10%	+0.10%	+0.75%	+2.70%	+10.32%	+12.05%	+25.03%	+51.69%	+83.16%	+158.31%
Energy (.GSPE)	-0.12%	-0.13%	+0.16%	-2.32%	-8.79%	-7.81%	+7.99%	-19.13%	-8.88%	+15.95%
Industrials (.GSPI)	-0.19%	-0.19%	+0.07%	-0.39%	+3.45%	+4.74%	+16.31%	+26.87%	+71.75%	+74.21%
Health Care (.GSPA)	-0.21%	-0.21%	-0.79%	+2.07%	+8.32%	+8.93%	+12.09%	+26.47%	+103.38%	+123.57%
Consumer Discretionary (.GSPD)	-0.25%	-0.25%	+0.42%	+0.73%	+5.14%	+7.14%	+11.82%	+32.64%	+96.89%	+132.58%
Telecommunication Services (.GSPL)	-0.36%	-0.37%	+0.73%	+1.79%	-2.05%	-2.80%	+1.05%	+16.13%	+28.77%	+7.58%
Utilities (.GSPU)	-0.67%	-0.68%	+0.34%	+3.11%	+4.59%	+4.72%	+4.55%	+26.58%	+47.03%	+31.44%
Financials (.GSPF)	-0.90%	-0.89%	-1.88%	-0.63%	+3.63%	+4.32%	+31.38%	+35.60%	+89.10%	-15.11%
S&P 500® Index (.SPX)	-0.20%	-0.20%	0.00%	+0.95%	+4.90%	+6.01%	+15.80%	+27.55%	+68.36%	+69.28%

Source: Fidelity

03/20/2017



Source: Fidelity

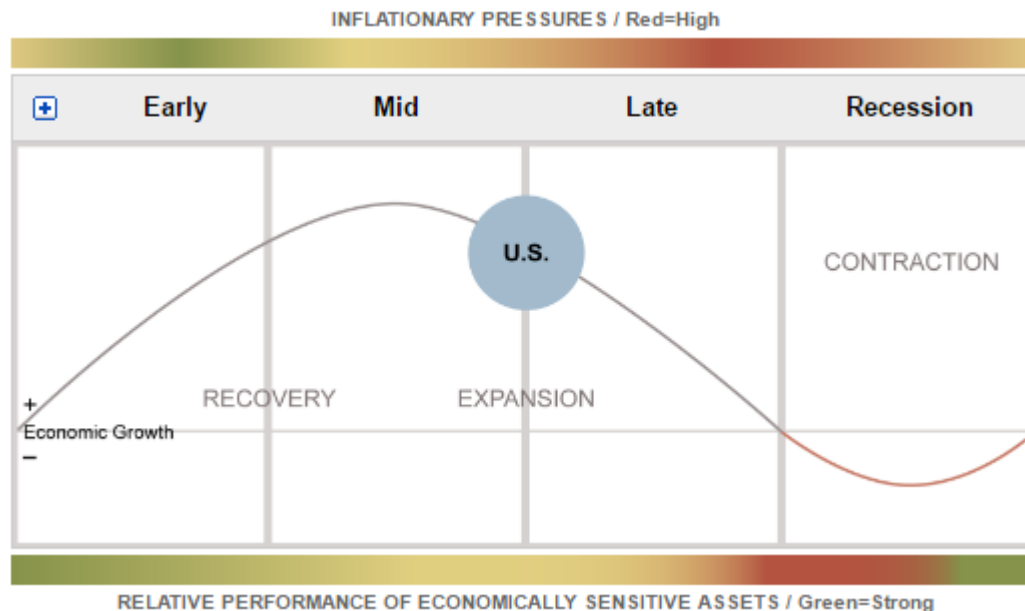


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Business Analysis



Business Life Cycle



- Cyclical
- Outperforms market: expansion/ recovery
- Underperforms market: recession

Sector Performance by Business Cycle Phase

Sector	Early	Mid	Late	Recession
Industrials	++	+		--

++ Consistently Overperform -- Consistently Underperform □ No Clear Pattern
 + Overperform - Underperform

Source: Fidelity



Barriers to Entry	High	Capital expenditure requirement	Brand awareness and economies of scale of existing company
Buyer Power	Moderate	Demand is cyclical and depending on economy	Low Switching cost
Supplier Power	Moderate	Raw materials easily accessible	Low Switching cost
Threat of Substitutes	Moderate	Technology development for current products	Buyers low switching cost to substitutes
Rivalry	High	Industry is dominated by several large companies	High exit barriers



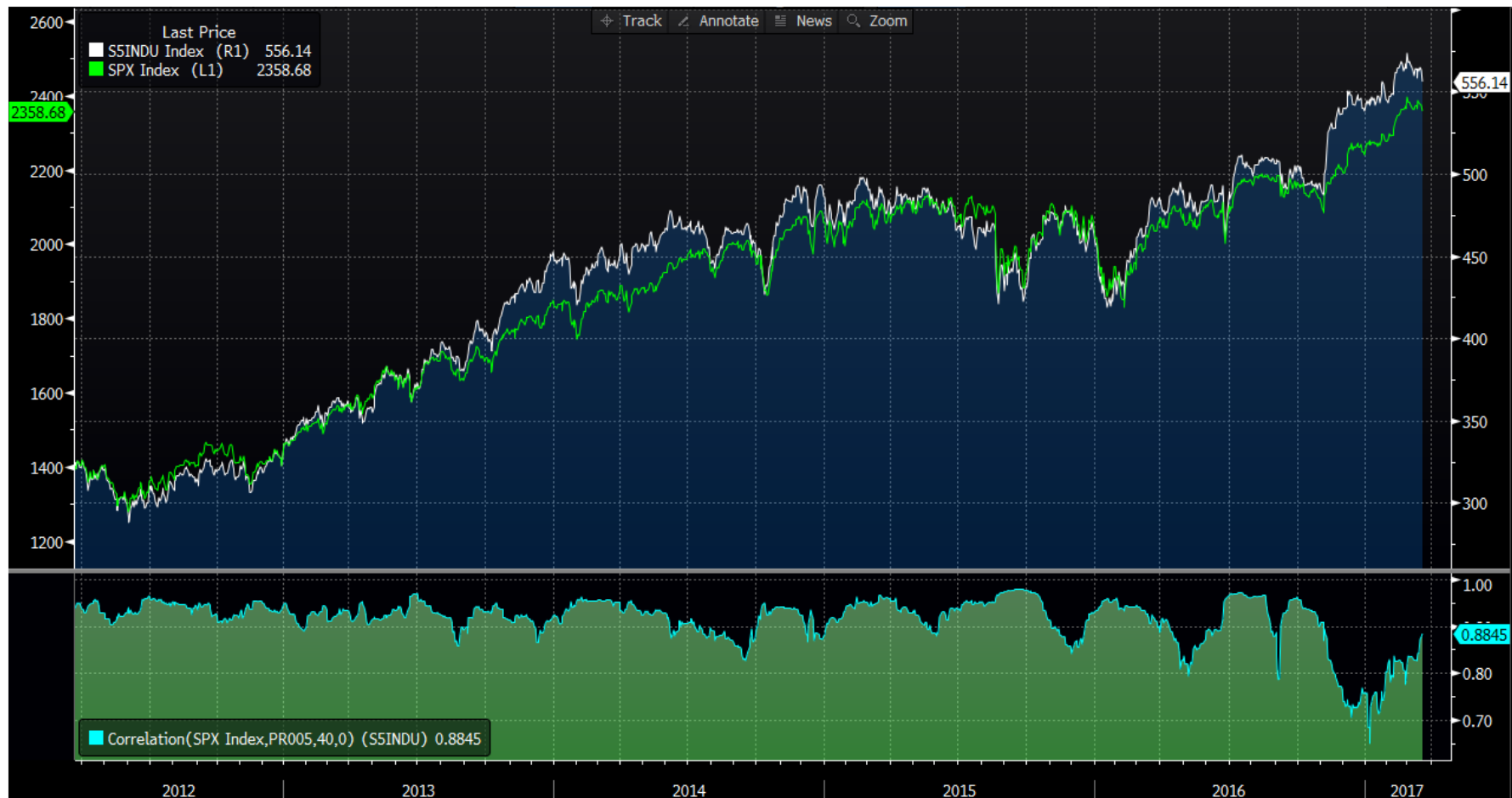
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Economic Analysis



Industrials vs S&P 500

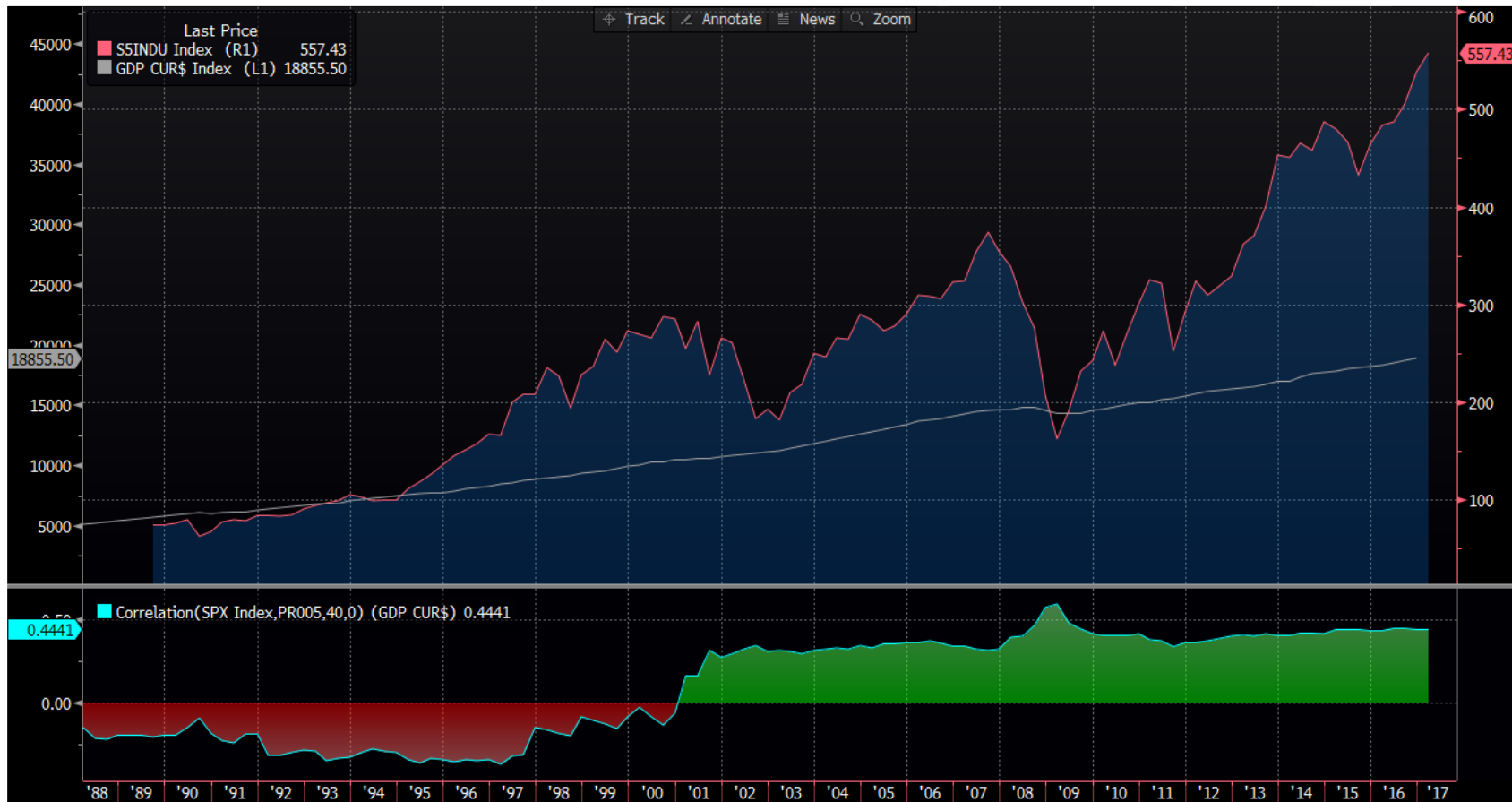
Correlation: 0.8845





Industrials vs GDP

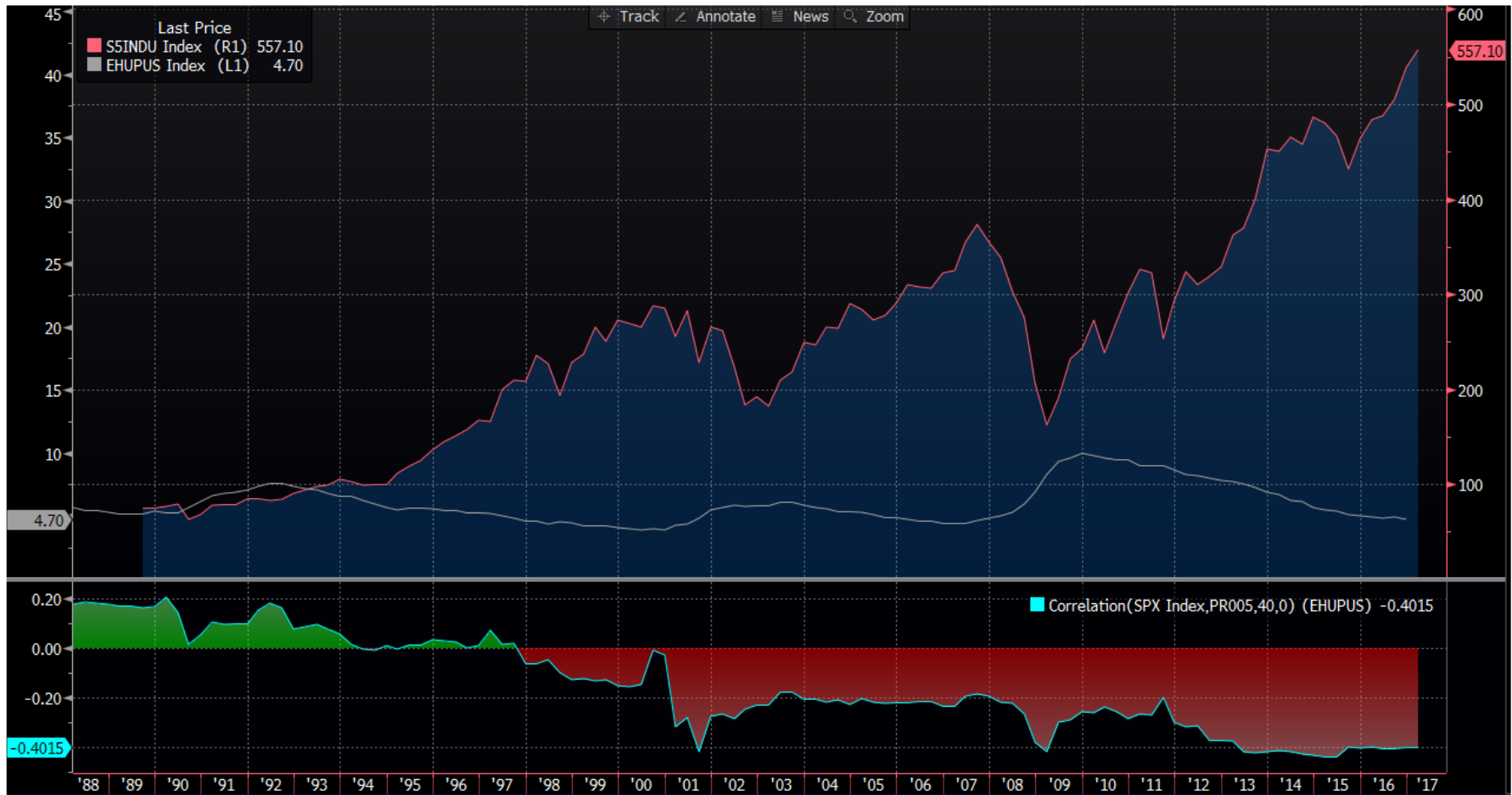
Correlation: 0.4441





Industrials vs Unemployment Rate

Correlation: -0.4015





Industrials vs Crude Oil

Correlation: 0.3474





Other Indicators

Index/ Indicator	Correlation
Steel	0.695
Copper	0.599
Capital Spending	0.384



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Financial Analysis

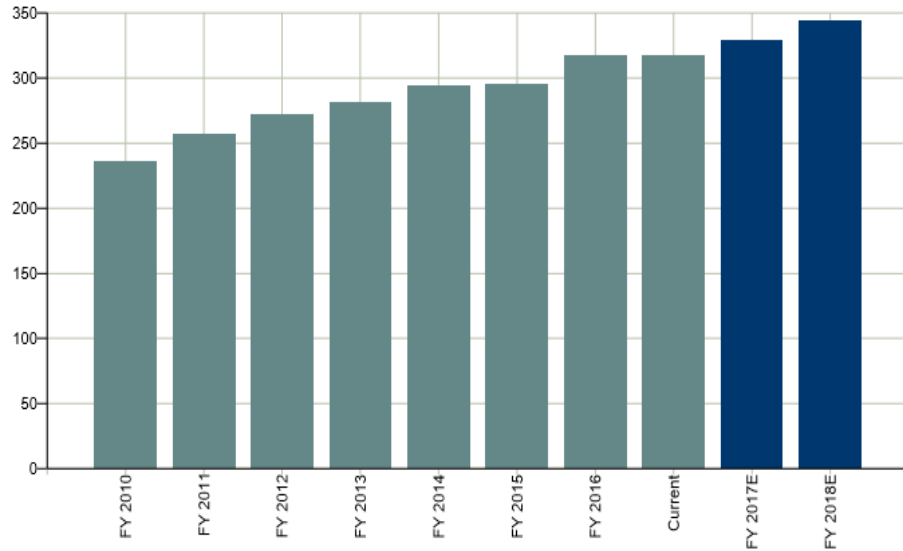


12 Months Ending	CY 2010 12/31/2010	CY 2011 12/30/2011	CY 2012 12/31/2012	CY 2013 12/31/2013	CY 2014 12/31/2014	CY 2015 12/31/2015	CY 2016 12/30/2016	Current 03/20/2017	CY 2017 Est 12/30/2017	CY 2018 Est 12/30/2018
Income & Expenses per Share										
Sales	236.72	257.15	272.46	281.60	294.04	294.87	318.22	317.71	329.34	344.43
Gross Margin %	27.70%	27.84%	26.28%	27.18%	27.90%	27.22%	25.78%	25.68%	27.11%	27.19%
Growth (YoY)		8.63%	5.96%	3.35%	4.42%	0.28%	7.92%	-0.16%	3.66%	4.58%
EBIT	26.75	31.32	32.26	35.07	38.49	39.27	38.47	38.41	47.44	51.83
Margin %	11.27%	12.04%	11.83%	12.37%	12.95%	13.07%	12.03%	12.04%		
Growth (YoY)		17.08%	3.00%	8.72%	9.74%	2.02%	-2.03%	-0.16%		
EBITDA	36.61	41.00	42.94	46.63	49.71	50.91	51.92	51.85	59.35	63.88
Margin %	15.47%	15.95%	15.76%	16.56%	16.91%	17.27%	16.32%	16.32%		
Growth (YoY)		12.00%	4.74%	8.57%	6.61%	2.42%	1.99%	-0.15%		
R&D Expense	6.20	7.41	7.48	6.83	6.98	6.87	7.59	7.56		
% of Sales	2.62%	2.88%	2.75%	2.43%	2.37%	2.33%	2.39%	2.38%		
Growth (YoY)		19.53%	0.91%	-8.67%	2.10%	-1.48%	10.49%	-0.40%		
Earnings	17.55	20.83	22.68	23.97	26.68	26.08	27.93	27.86	30.01	33.80
Growth (YoY)		18.67%	8.90%	5.70%	11.30%	-2.25%	7.09%	-0.24%	7.71%	12.64%
Return on Common Equity	16.37	18.22	17.53	19.76	18.42	19.47	19.78	19.75	19.59	22.15
Growth (YoY)		11.29%	-3.78%	12.74%	-6.81%	5.70%	1.62%	-0.15%	-0.82%	13.06%
Free Cash Flow	20.51	20.33	18.35	23.71	24.76	24.28	19.72	19.71	26.58	30.44
Growth (YoY)		-0.86%	-9.73%	29.16%	4.46%	-1.96%	-18.77%	-0.07%	34.85%	14.52%

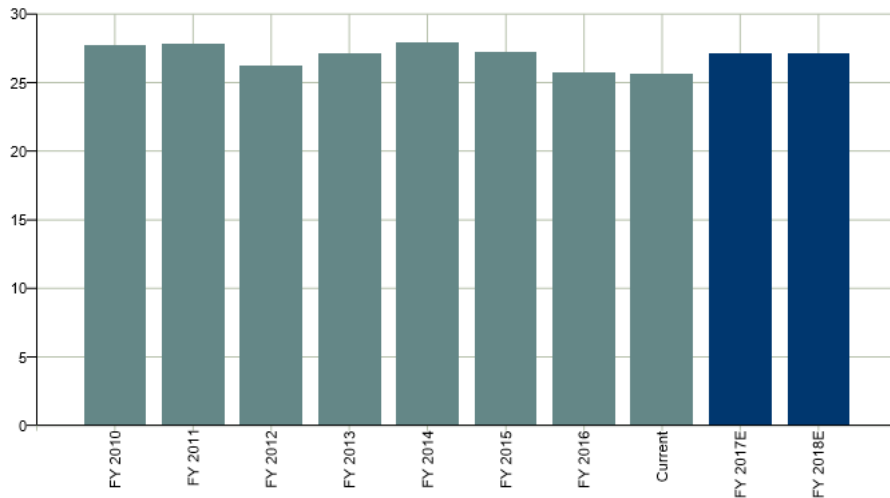
Source: Bloomberg



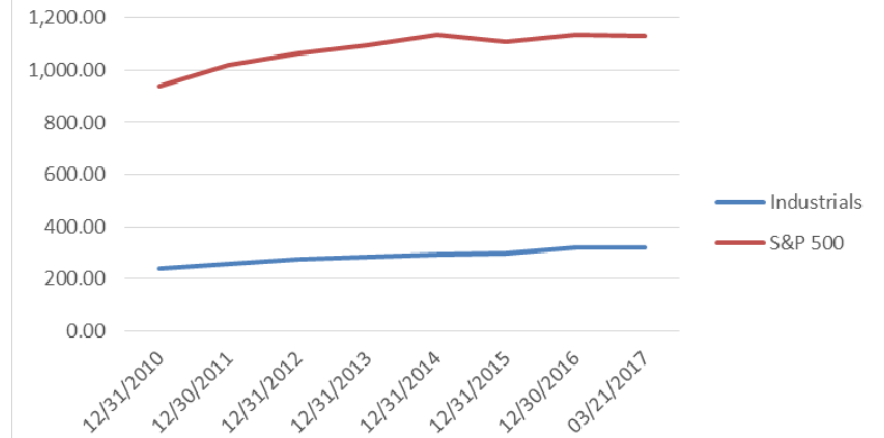
Sales



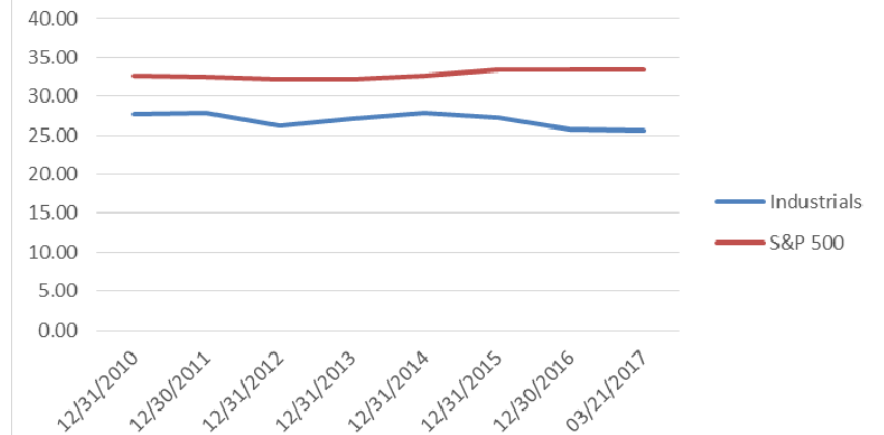
Gross Margin %



Sales



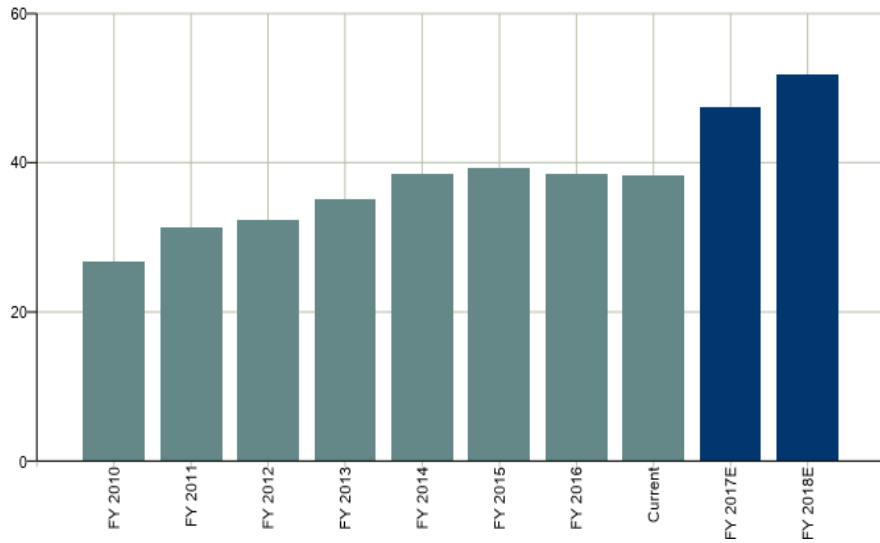
Gross Margin



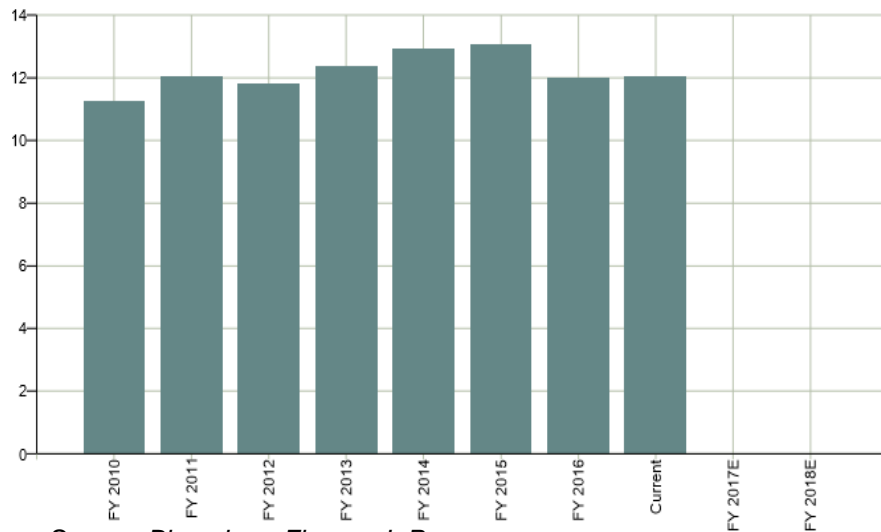
Source: Bloomberg Finance L.P



EBIT

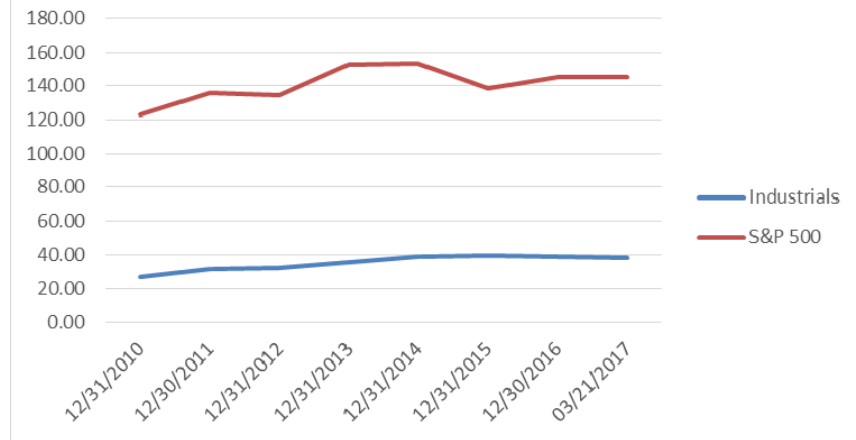


Margin %

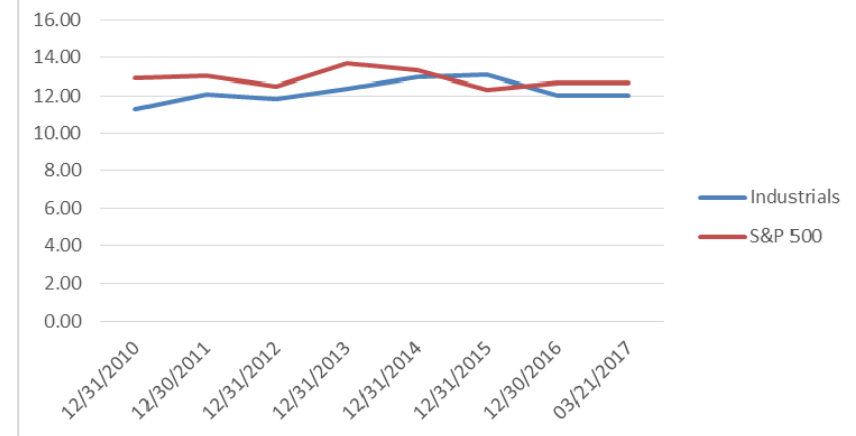


Source: Bloomberg Finance L.P

EBIT

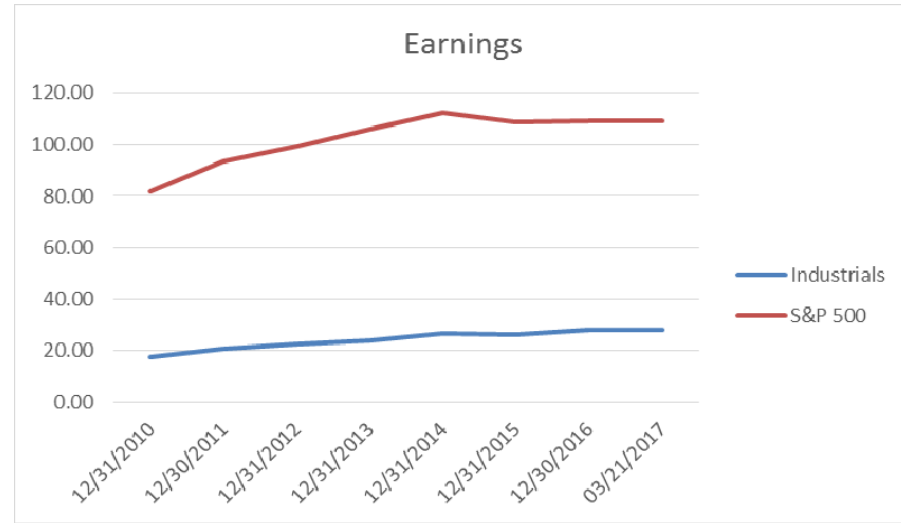
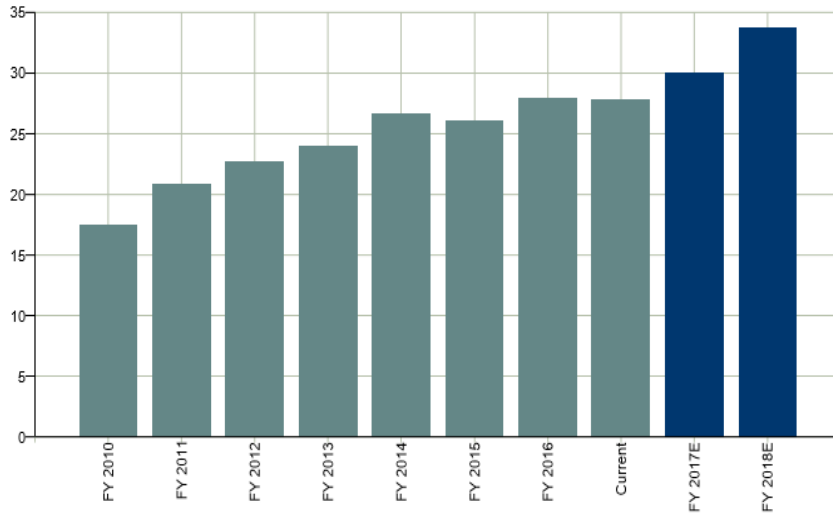


EBIT Margin

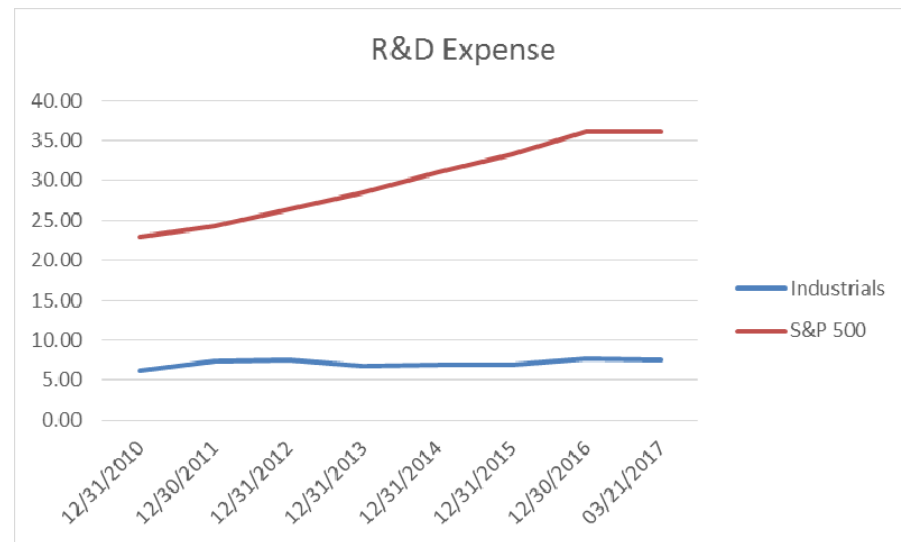
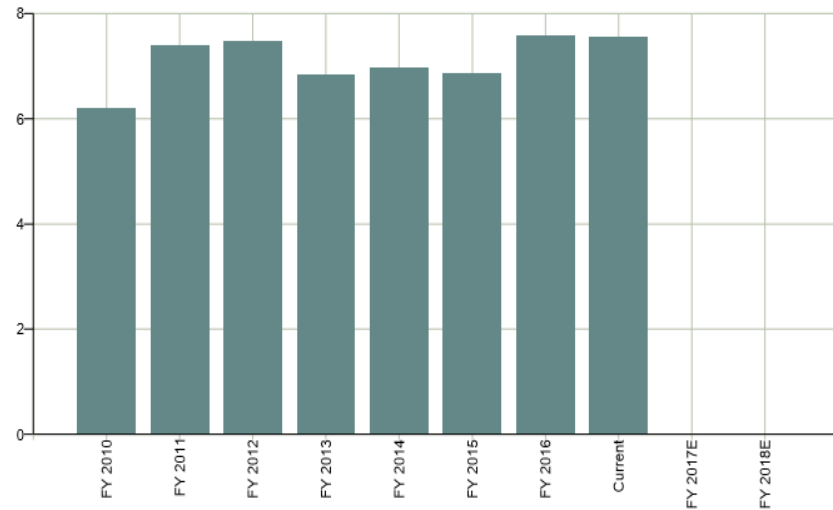




Earnings



R&D Expense

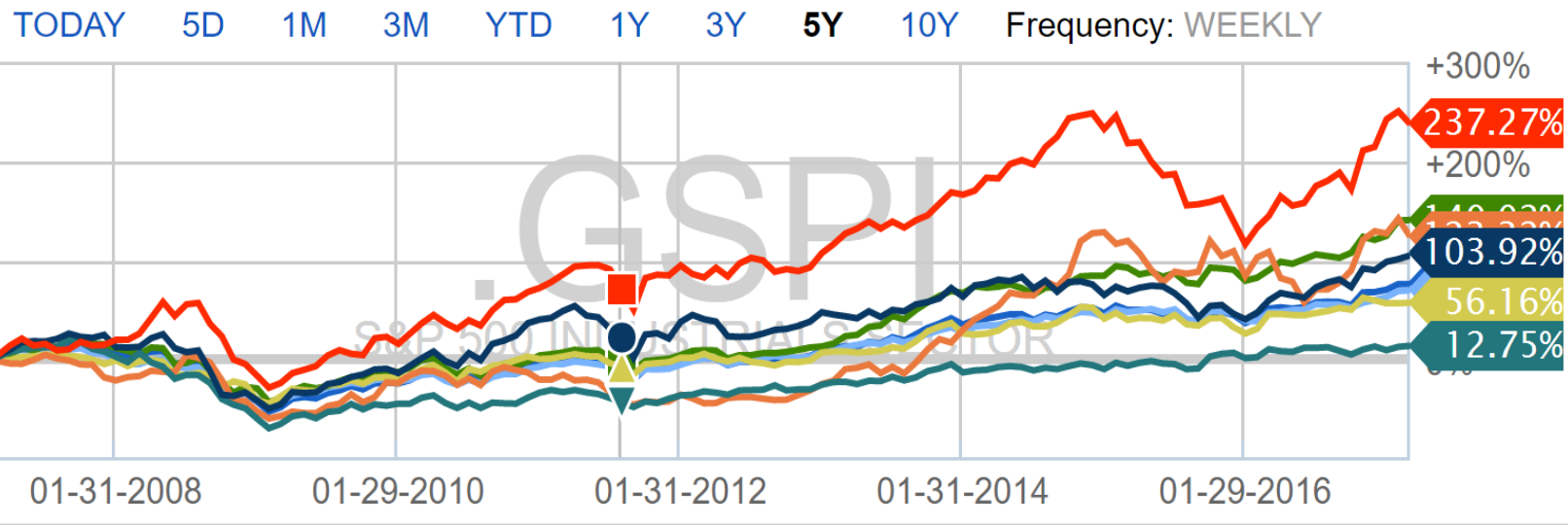
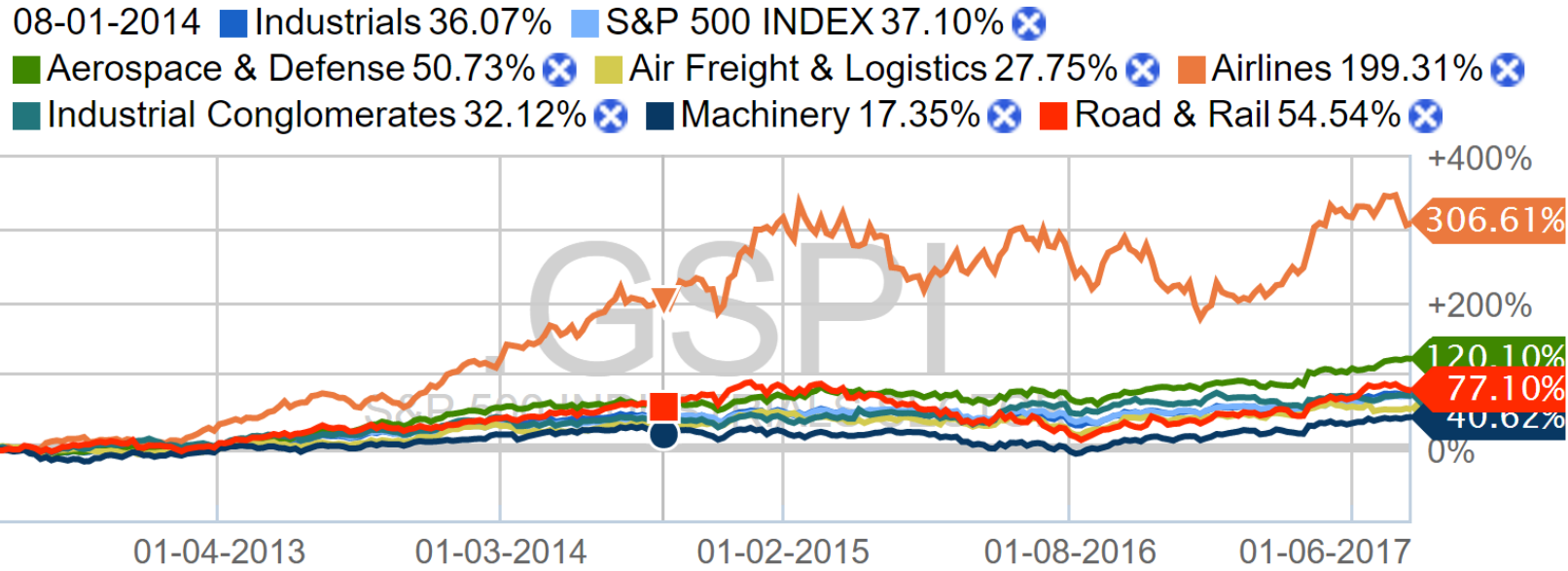


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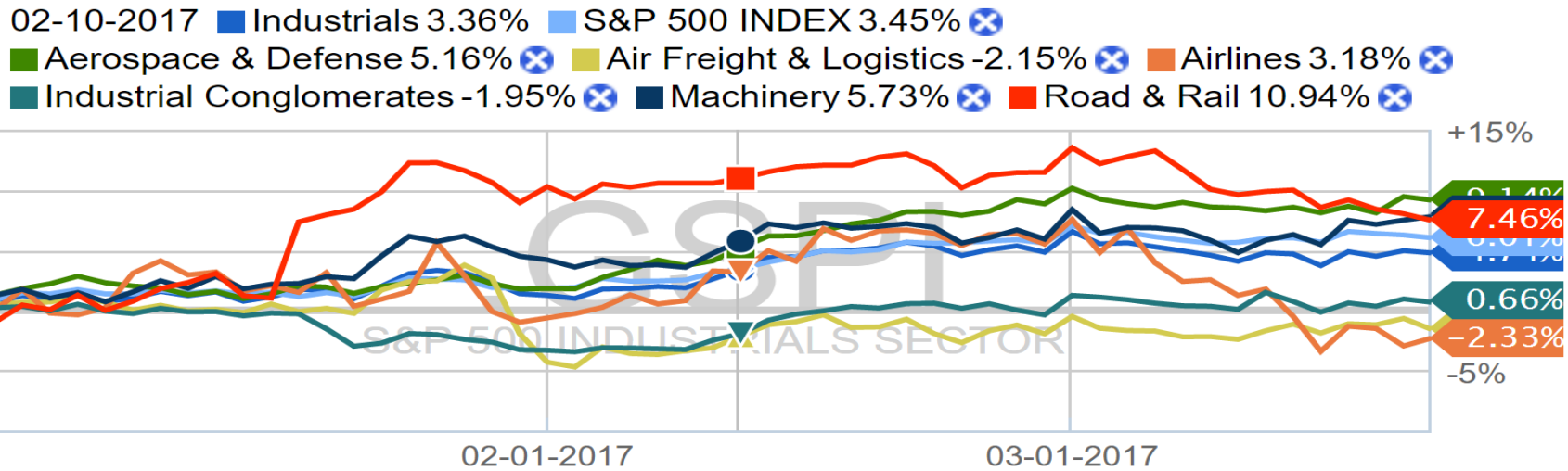


Name	Revenue	EBITDA	EBITA Mrgn	Net Income	ROE
Aerospace & Defense (11 members)	314.53B	42.70B	17.97%	25.77B	60.10%
Air Freight & Logistics (4 members)	135.38B	15.36B	6.90%	9.71B	79.56%
Airlines (5 members)	142.73B	28.97B	-	11.54B	35.83%
Building Products (4 members)	36.64B	4.01B	13.33%	4.14B	114.32%
Commercial Services & Supplies (4 members)	31.64B	7.87B	15.93%	3.18B	16.29%
Construction & Engineering (3 members)	37.36B	1.84B	4.99%	1.12B	6.91%
Electrical Equipment (5 members)	47.34B	5.92B	17.10%	5.55B	20.81%
Industrial Conglomerates (4 members)	192.89B	29.58B	21.02%	26.09B	23.22%
Machinery (14 members)	179.74B	25.88B	12.79%	15.24B	17.21%
Professional Services (5 members)	18.40B	4.87B	28.15%	2.86B	27.00%
Road & Rail (6 members)	56.57B	22.11B	27.17%	9.65B	17.63%
Trading Companies & Distributors (3 members)	19.86B	4.93B	24.90%	2.05B	30.84%

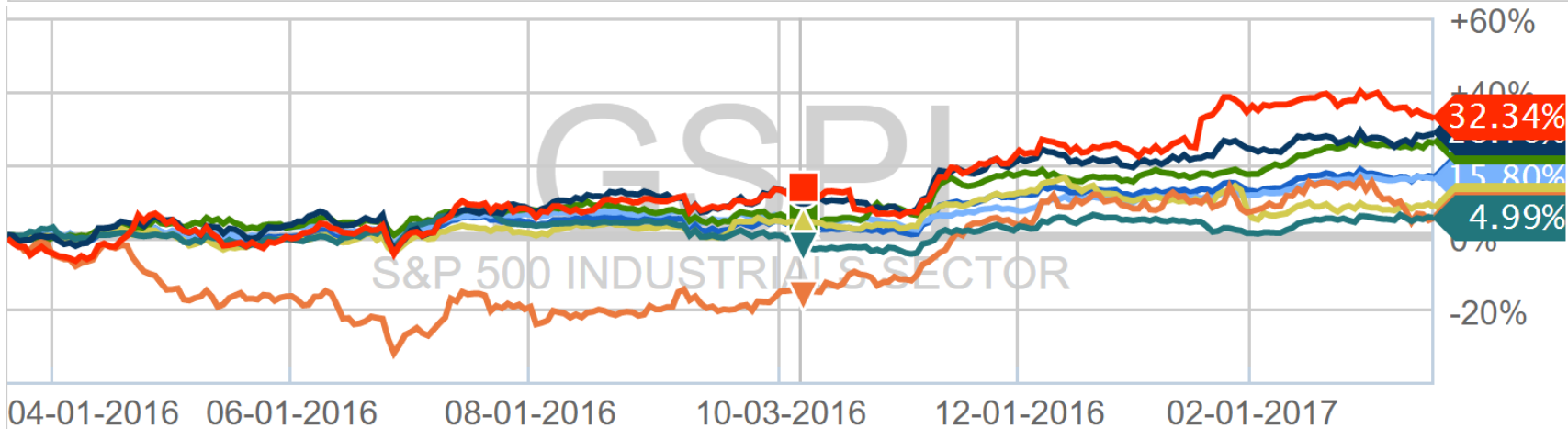
Source: Bloomberg Finance L.P



Source: Fidelity



TODAY 5D 1M 3M YTD 1Y 3Y 5Y 10Y Frequency: DAILY



TODAY 5D 1M 3M YTD 1Y 3Y 5Y 10Y Frequency: DAILY

Source: Fidelity



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Valuation Analysis



Valuation of Industrials Compared to S&P 500

	CY 2008	CY 2009	CY 2010	CY 2011	CY 2012	CY 2013	CY 2014	CY 2015	CY 2016	Current
Price/Earnings	10.05	17.17	17.16	14.04	14.49	18.87	18.23	17.77	19.27	19.99
S&P 500 Index	16.74	19.17	15.42	13.43	14.38	17.44	18.33	18.83	20.48	21.60
Price/Cash Flow	6.17	8.68	9.95	8.83	9.85	11.67	12.21	11.02	14.09	14.60
S&P 500 Index	5.81	7.83	8.35	7.19	8.55	9.21	11.00	10.78	12.36	13.04
Price/Sales	0.81	1.09	1.27	1.14	1.21	1.61	1.65	1.57	1.69	1.75
S&P 500 Index	0.91	1.24	1.34	1.23	1.34	1.68	1.81	1.84	1.97	2.08
Price/Book Value	2.27	2.46	2.78	2.65	2.69	3.19	3.62	3.70	4.45	4.60
S&P 500 Index	2.00	2.15	2.17	2.05	2.14	2.58	2.82	2.77	2.93	3.09

Source: Bloomberg Finance L.P

Price/Book

12/31/2008	12/31/2009	12/31/2010	12/30/2011	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/30/2016
91.33	98.75	108.38	110.39	122.13	141.87	134.53	125.24	120.85



Industry Valuation Basis

Ticker	Name	P/EBITDA	P/S	P/B	P/E
Average	Industrial Conglomerates (4 members)	16.1	3.53	5.79	25.72
Average	Aerospace & Defense (11 members)	10.81	1.83	21.88	19.56
Average	Machinery (14 members)	12.13	1.87	4.5	22.24
Average	Road & Rail (6 members)	7.67	2.91	3.63	20.49
Average	Air Freight & Logistics (4 members)	11.8	1.25	61.64	20.13
Average	Airlines (5 members)	4.75	1.11	3.7	10.06
Average	Electrical Equipment (5 members)	13.93	2.71	5.15	22.87
Average	Commercial Services & Supplies (4 members)	10.19	2.3	4.65	26.66
Average	Building Products (4 members)	13.05	1.95	22.88	20.72
Average	Professional Services (5 members)	11.24	3.54	6.38	24.12
Average	Trading Companies & Distributors (3 members)	10.36	2.33	7.23	23.68
Average	Construction & Engineering (3 members)	11.01	0.58	1.85	21.26



Valuation Basis of Industrials

Absolute Basis	High	Low	Median	Current
P/E	20.39	13.38	17.93	19.96
P/B	4.69	2.5	3.33	4.59
P/S	1.73	1.04	1.53	1.69
P/EBITDA	10.96	6.91	9.41	10.73

Relative to SP500	High	Low	Median	Current
P/E	0.94	1.00	1.01	0.93
P/B	1.50	1.24	1.26	1.49
P/S	0.88	0.90	0.91	0.87
P/EBITDA	0.97	1.02	1.02	0.96

Source: Bloomberg Finance L.P



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Recommendation



Industrials Sector

Hold

	S&P 500	SIM Portfolio	+/-
Industrials	10.14%	10.81%	+0.67%

Major Positives

- Late expansion stage of business cycle
- Trends in increasing oil related capex spending
- Potential Trump's infrastructure plan
- Currently fairly valued

Major Negatives

- Appreciation of USD hurts exporters
- Potential Trump's infrastructure plan
- Risk in oil price

Industry

Underweight: Airline industry