



THE OHIO STATE UNIVERSITY

FISHER COLLEGE OF BUSINESS

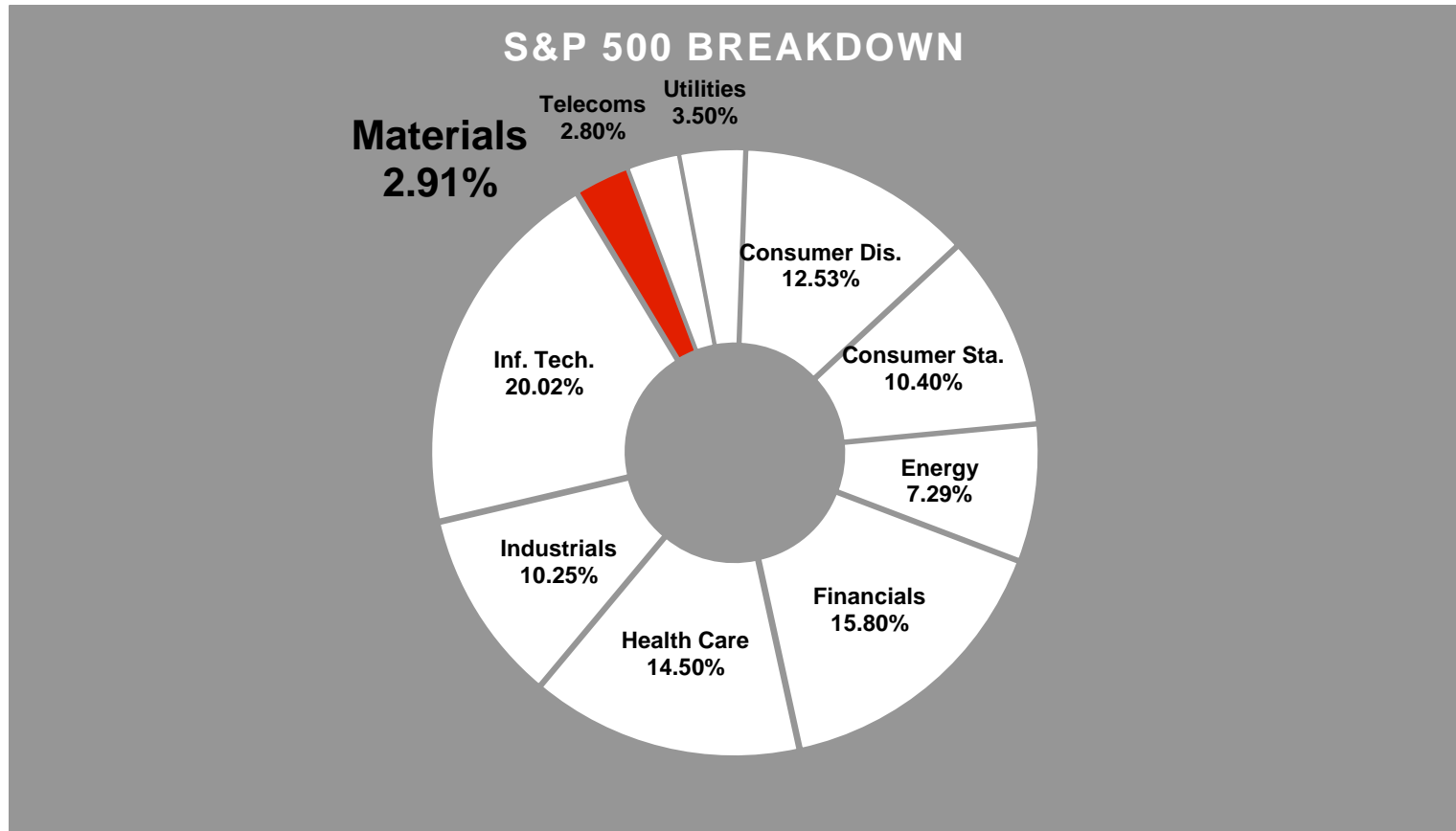


THE OHIO STATE UNIVERSITY

Material Sector

Krista Rye

Eric Rittenour



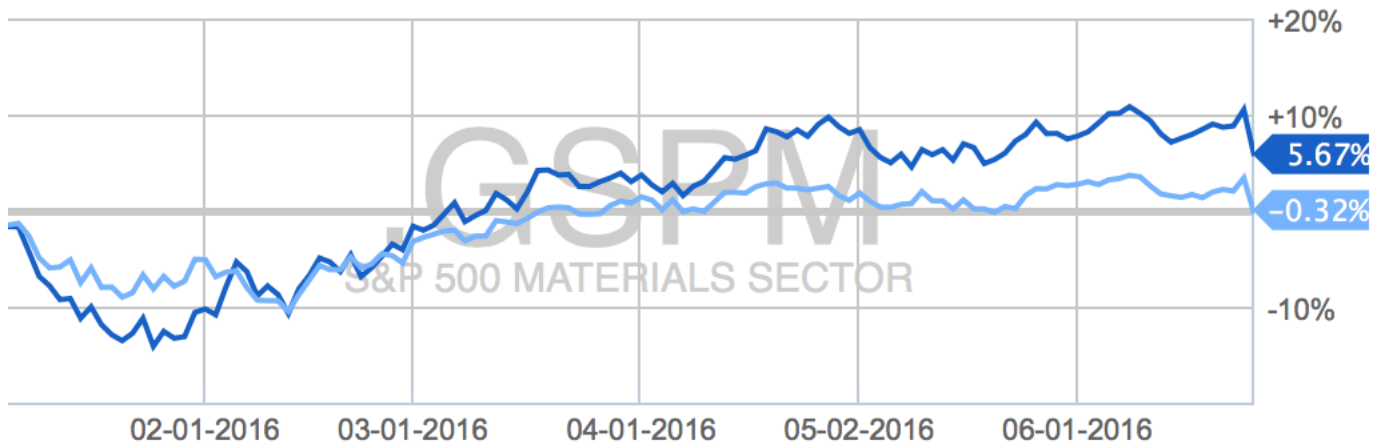
Currently holding 2.9% in SIM portfolio



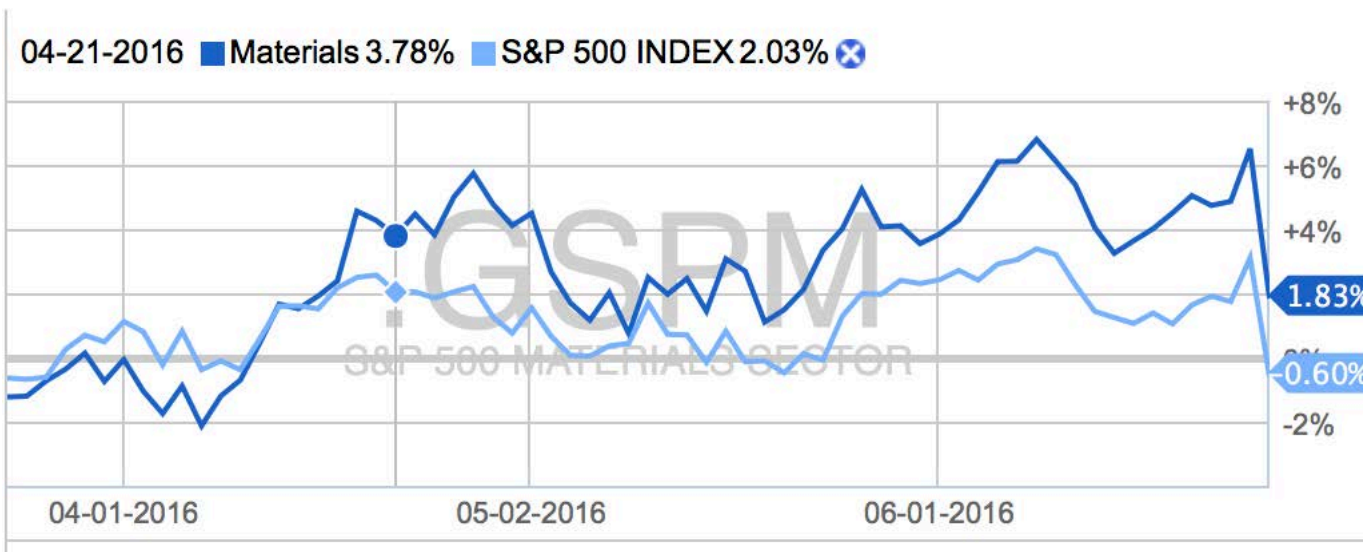
Industry ▲	Last % Change 04:59 PM ET 06/24/2016	% CHANGE			
		YTD	1 - Year 06/24/2016	3 - Year	5 - Year
Materials	-4.38%	+5.67%	-8.43%	+17.94%	+22.61%
Chemicals	-4.62%	+0.82%	-9.44%	+21.41%	+48.78%
Construction Materials	-0.22%	+30.13%	+30.06%	+109.38%	+171.96%
Containers & Packaging	-5.45%	+2.98%	-12.66%	+31.91%	+47.26%
Metals & Mining	-3.79%	+38.45%	-9.45%	-15.82%	-51.90%
Paper & Forest Products	--	--	--	--	--
S&P 500 ® Index	-3.59%	-0.32%	-4.09%	+27.94%	+58.74%



05-05-2016 ■ Materials 4.97% ■ S&P 500 INDEX 0.33% ✕



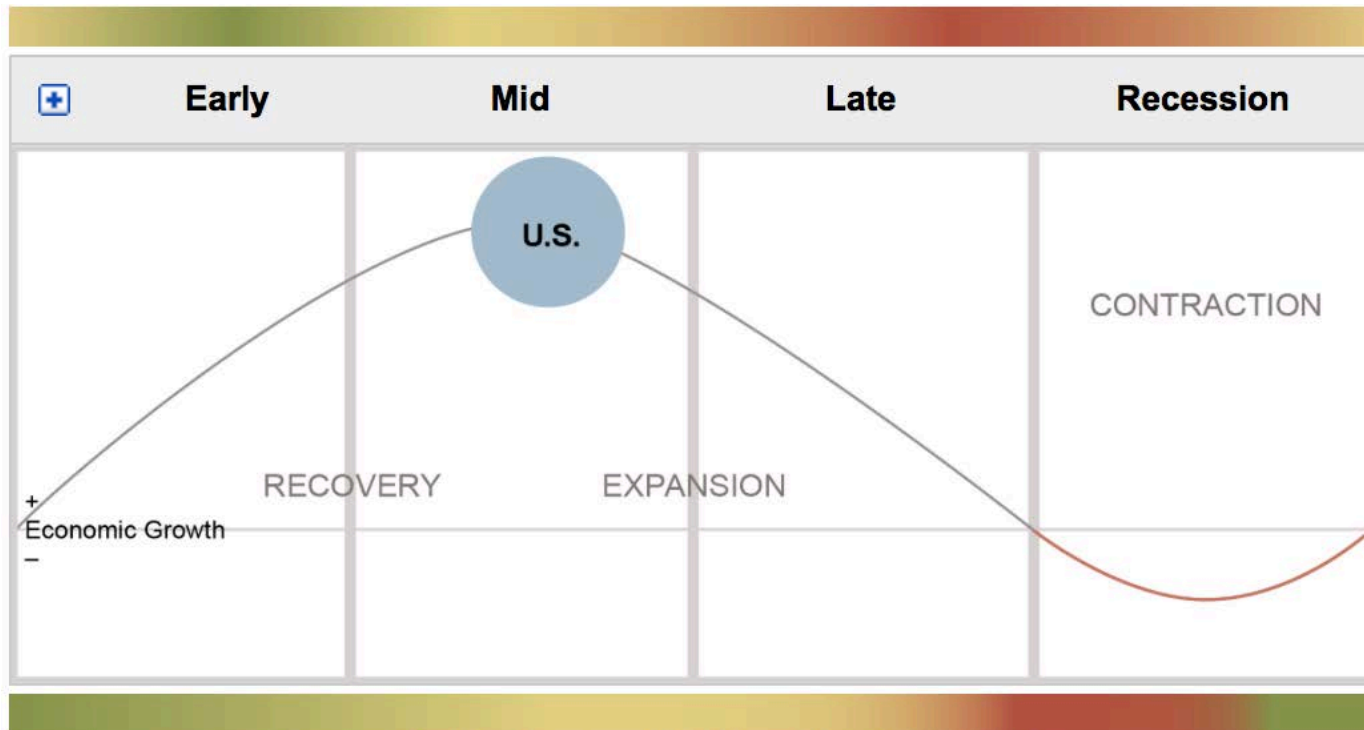
TODAY 5D 1M 3M YTD 1Y 3Y 5Y 10Y Frequency: DAILY





Sector	Early	Mid	Late	Recession
Materials		--	++	-

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



RELATIVE PERFORMANCE OF ECONOMICALLY SENSITIVE ASSETS / Green=Strong



External Factors

Positive factors for the materials sector include:

- **Increased demand:** Developing countries continue to need more raw materials to support their infrastructure building.
- **Accommodative monetary policy:** Central banks in the developed world are now largely in easing mode, with the notable exception of the Fed, which should help to support economic activity and the materials sector.
- **Reduction in austerity programs:** Some fiscal restraint measures seem to be easing, which could help to stimulate growth.
- **Flattening dollar trend:** The solid strengthening the dollar has seen over the past couple of years tends to hurt global sectors like materials. That trend appears to be breaking down, potentially helping boost the sector's performance.



External Factors

Negative factors for the materials sector include:

- **Reduction in demand from China:** Chinese demand for processed commodities might be slowing as technological advances and a build-out of production facilities allow the country to produce more of its own materials. China recently transitioned from being a net importer to a net exporter of steel.
- **Larger inventories in China:** Reports of large supplies could dampen hopes for a sharp rebound, as it could take time to work through those stockpiles.
- **Increased labor costs:** Wage costs are rising in the materials sector, as we've seen skilled-labor shortages in certain segments of the market.



Porter's 5 Force Model

Force	Description
Treat of New Entrants Low	<ul style="list-style-type: none">• High initial capital investments• Acquisition of rich land and/or other resources
Bargaining Power of Buyers High	<ul style="list-style-type: none">• Little differentiation between products• Low cost to switch between suppliers• Similar prices between companies
Rivalry among Existing Competition Very High	<ul style="list-style-type: none">• Mature industry therefore:<ul style="list-style-type: none">○ Low growth rates○ High price competition due to little differentiation between suppliers
Supplier Power Low	<ul style="list-style-type: none">• Many companies are vertically intergraded<ul style="list-style-type: none">○ Inputs made within company or within the sector
Threat of Substitutes Low	<ul style="list-style-type: none">• Not many alternatives exist for raw materials



Supply and Demand Analysis

- Prices are driven by demand
- Demand is driven by the economy
- Recently, there has been oversupply due to expected increases in demand that have been driving prices downwards



Economic Factors

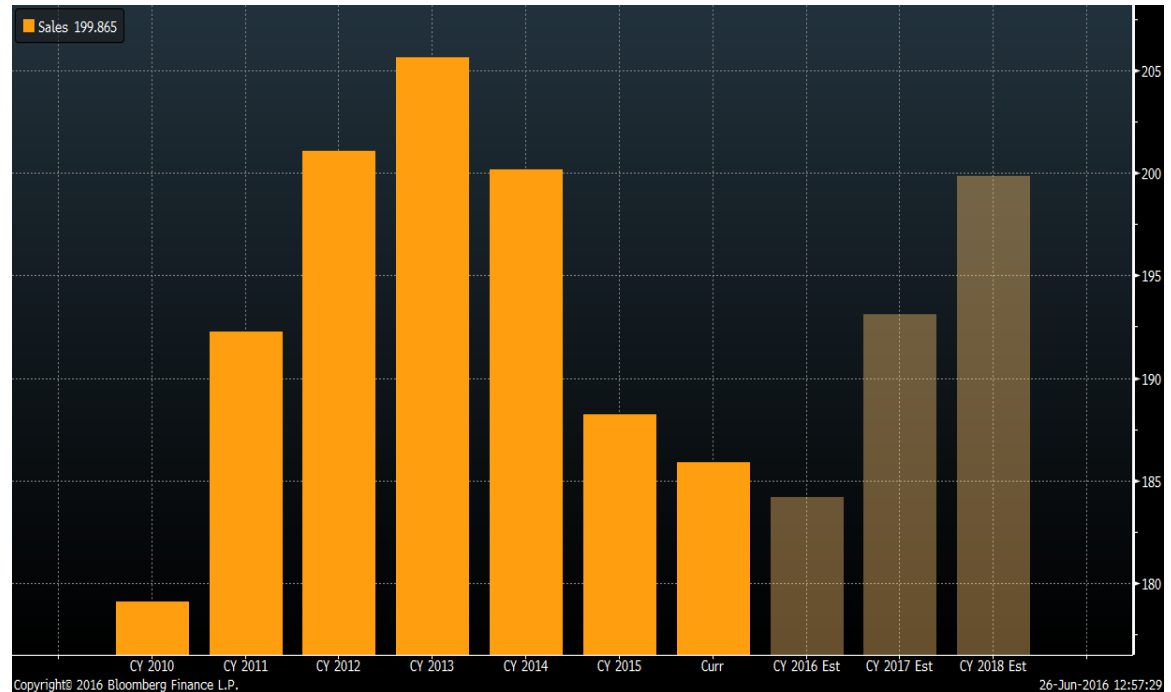
- Subject to supply and demand fluctuations, much like the consumer sector.
- When the demand decreases for consumer goods, so does the demand for their raw material inputs.
- Also affected by shifts in the housing market.
- The sector follows commodity prices.
- It is more volatile compared to the market.



Sales Estimate

Sales dropped off in 2015 and is expected to take until 2018 to reach pre-2015 levels.

Date	Sales (Billions)
CY 2018 Est	200
CY 2017 Est	193
CY 2016 Est	184
Current YTD	186
CY 2015	188
CY 2014	200
CY 2013	206
CY 2012	201
CY 2011	192
CY 2010	179

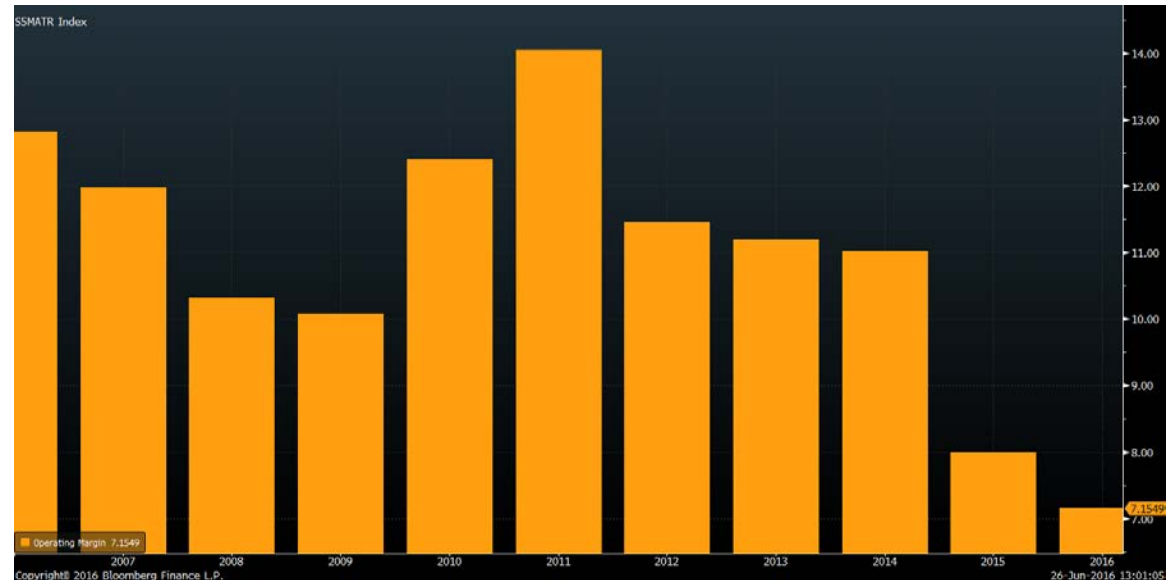




Operating Margins

- **Operating margins decreased significantly in 2015 with the decrease in sales.**
- **Margins are expected to increase as the sales increase and cost saving measures are implemented.**

Date	Operating Margin
Current CY 2016	7.15
CY 2015	7.99
CY 2014	11.03
CY 2013	11.20
CY 2012	11.46
CY 2011	14.05
CY 2010	12.40
CY 2009	10.07
CY 2008	10.32
CY 2007	11.97
CY 2007	12.82

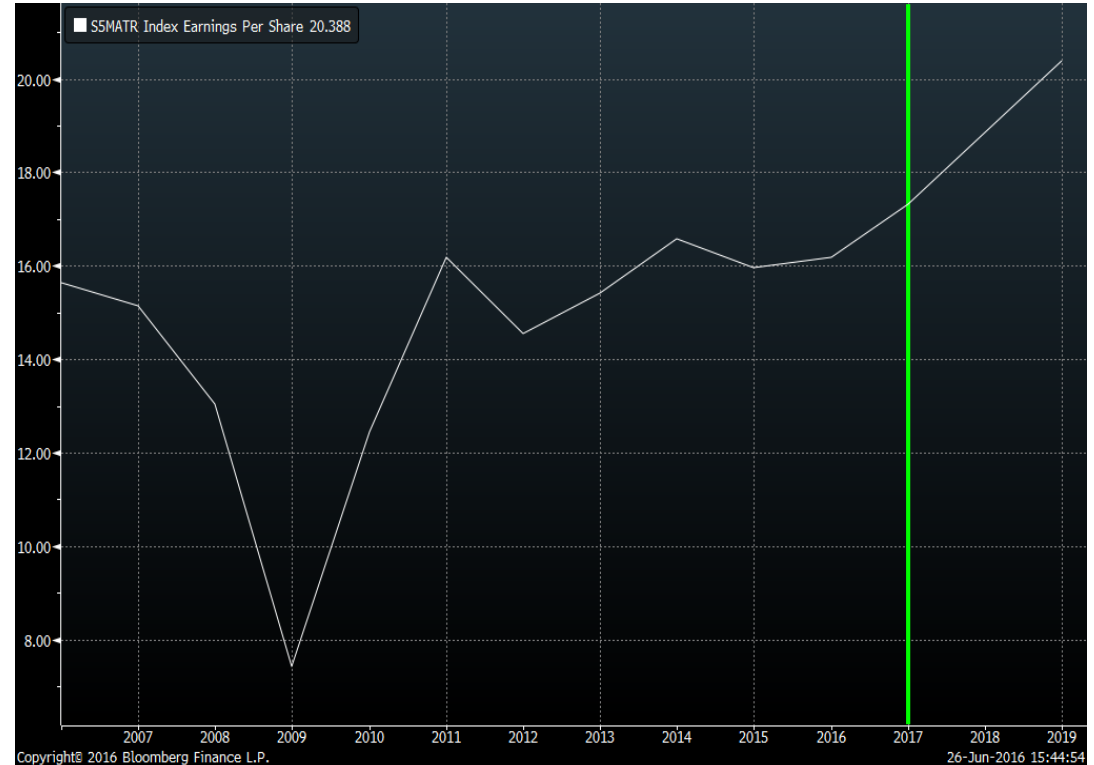




Earnings per Share

EPS is expected to grow in the future along with the economy.

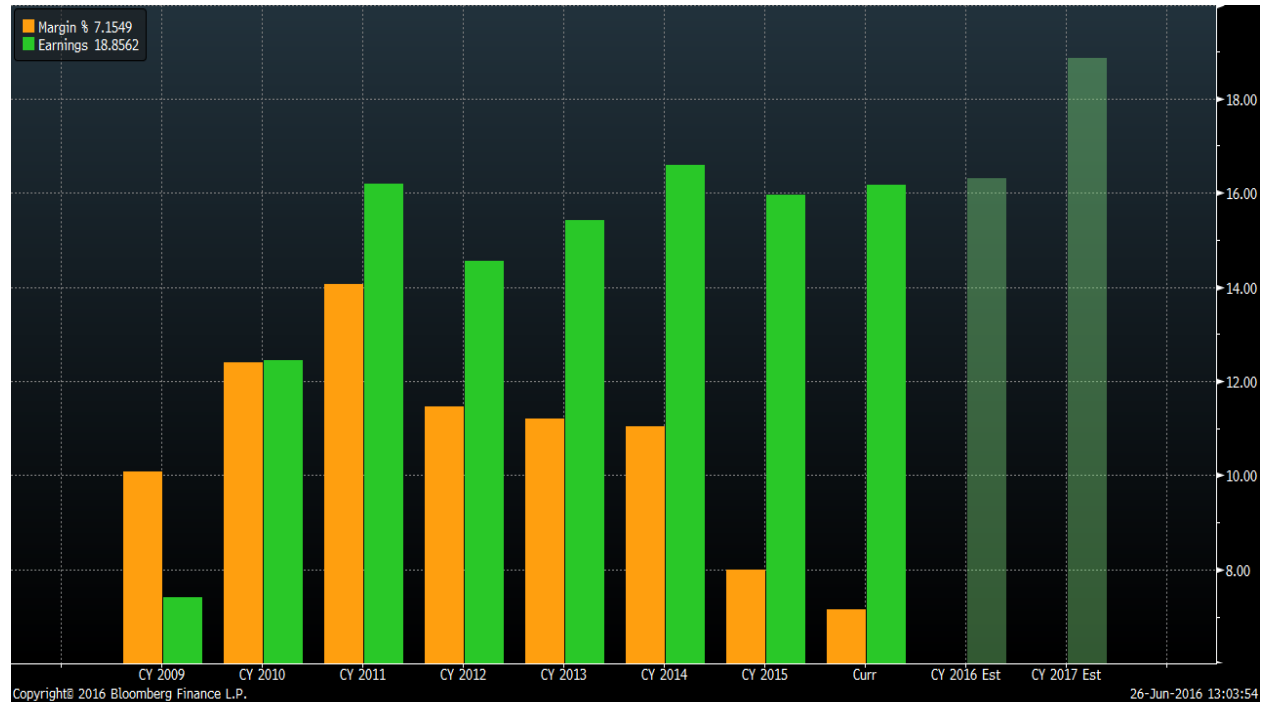
Date	Materials EPS
CY 2019 Est	20.39
CY 2018 Est	18.86
CY 2017 Est	17.32
Curr CY 2016	16.17
CY 2015	15.96
CY 2014	16.59
CY 2013	15.42
CY 2012	14.55
CY 2011	16.18
CY 2010	12.45
CY 2009	7.42
CY 2008	13.03
CY 2007	15.15





EPS vs Operating Margin

Date	Margin %	EPS
CY 2017 Est		18.86
CY 2016 Est		16.30
Current YTD	7.15	16.17
CY 2015	7.99	15.96
CY 2014	11.03	16.59
CY 2013	11.20	15.42
CY 2012	11.46	14.55
CY 2011	14.05	16.18
CY 2010	12.40	12.45
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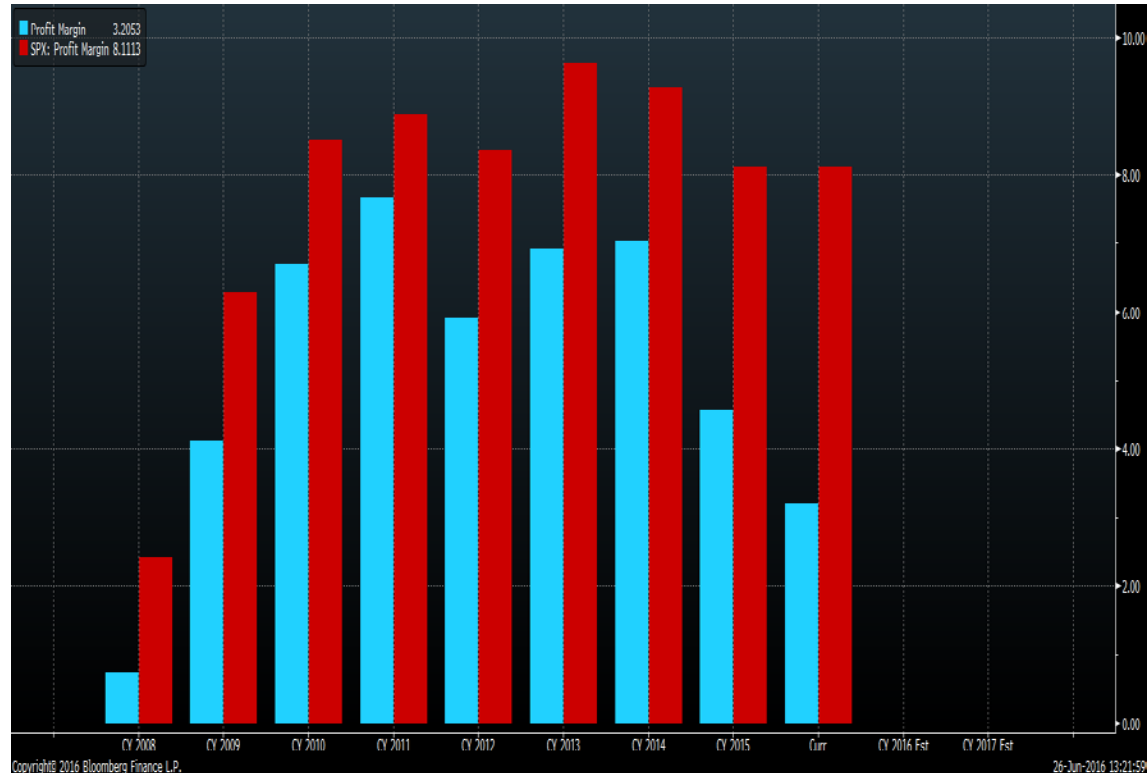




Profit Margins – Sector vs S&P 500

Profit margins are trending downwards in recent years due to competition and increased costs.

Date	Profit Margin	SPX: Profit Margin
Current YTD	3.21	8.11
CY 2015	4.57	8.11
CY 2014	7.02	9.27
CY 2013	6.93	9.62
CY 2012	5.91	8.36
CY 2011	7.67	8.88
CY 2010	6.69	8.51
CY 2009	4.13	6.28
CY 2008	0.73	2.41





Sector Valuation – 10 year data

- The Material sector is currently trading above the 10 year averages.
- These ratios are expected to fall closer to the median by 2017

Absolute Basis	High	Low	Median	Current
P/E	26.93	10.56	17.16	18.29
P/B	3.57	2.14	2.91	3.57
P/S	1.59	0.68	1.34	1.59
P/EBITDA	11.29	4.32	7.81	11.3



Sector Valuation relative to the S&P 500

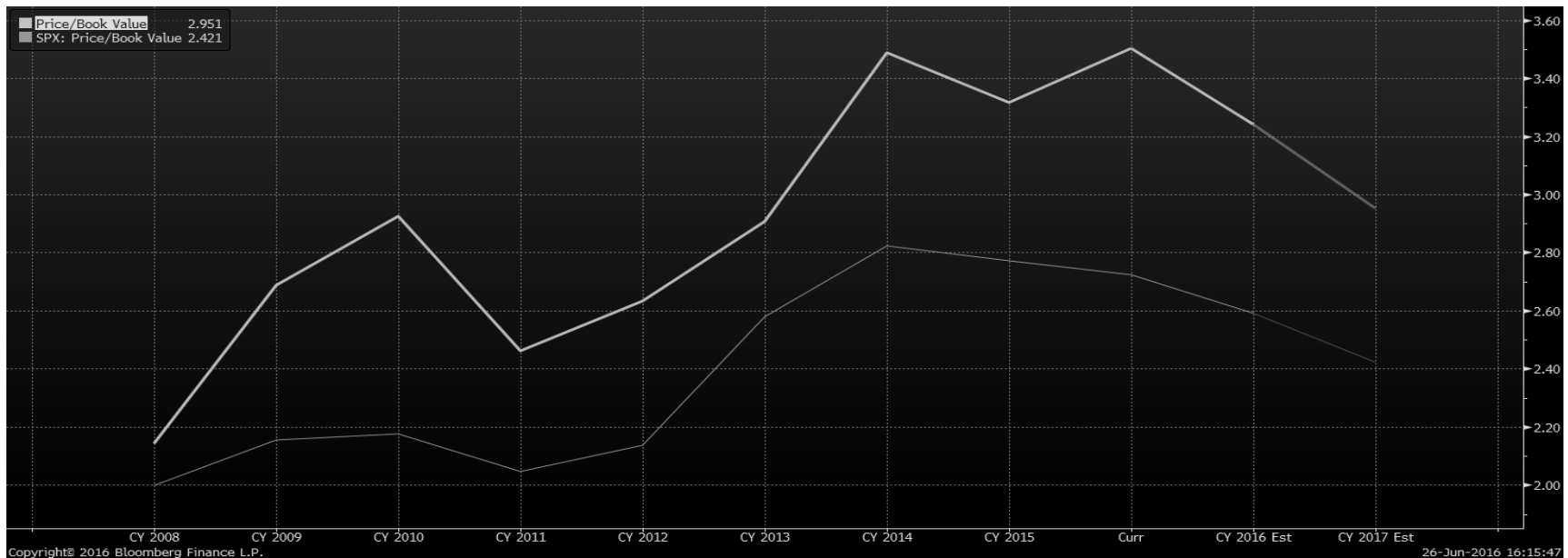
- The Material sector is currently trading below the market but very close to the median.
- The Material sector should stay close to the market index, in good times it will trade slightly higher and in bad times it will trade just below.

Relative to SP500	High	Low	Median	Current
P/E	1.52	0.63	1.02	0.96
P/B	1.34	0.85	1.14	1.27
P/S	1.07	0.73	0.88	0.87
P/EBITDA	1.33	0.80	0.99	1.04



Sector Valuation relative to the S&P 500

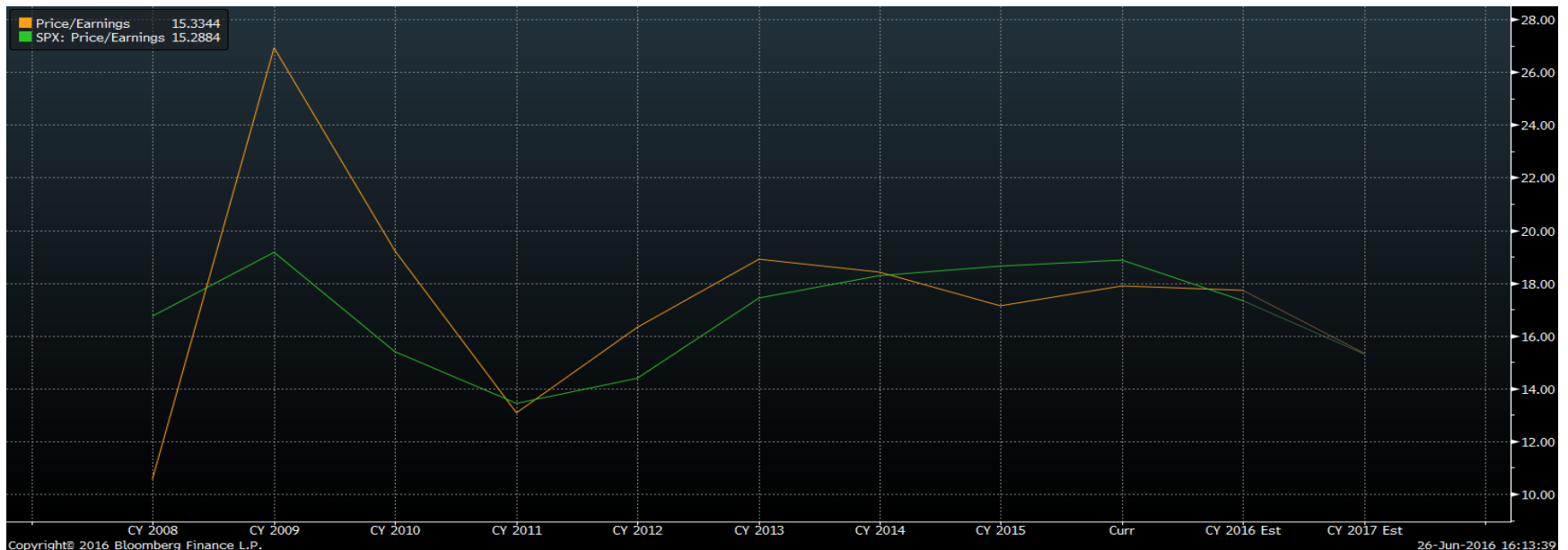
- **Price to Book – Historically the P/B ratio has always been higher than the market.**
- **The gap has increased in recent years nearing the 10 year high.**





Sector Valuation relative to the S&P 500

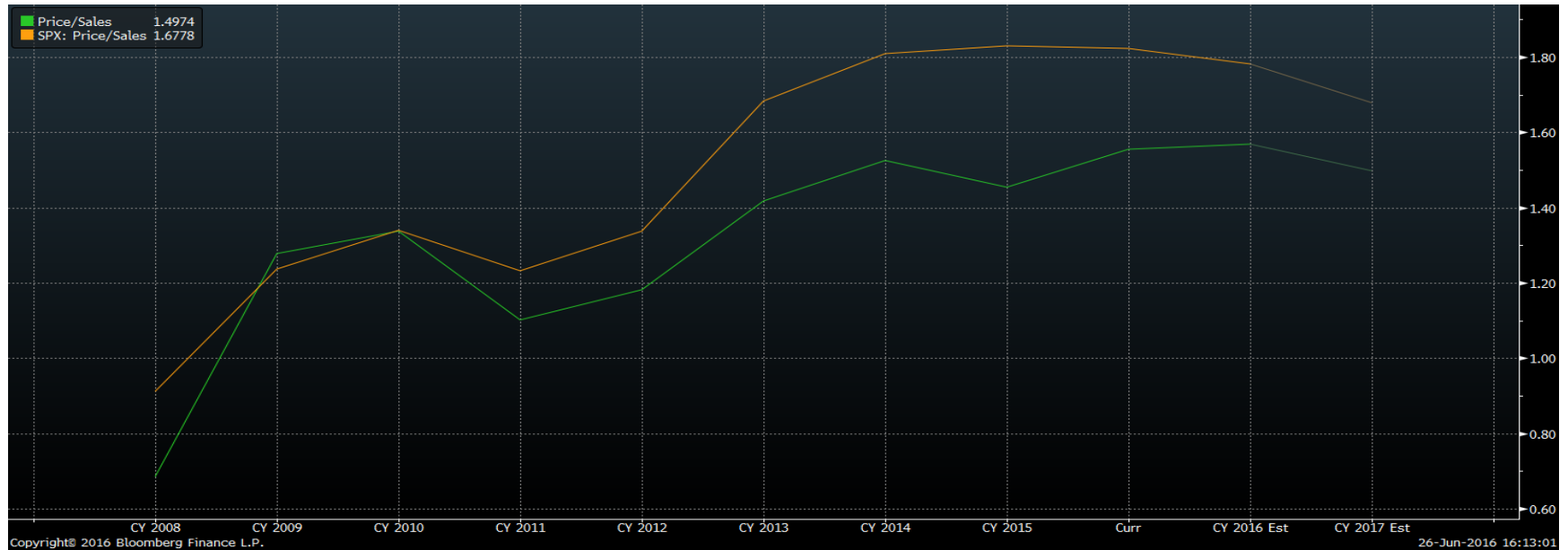
- **Price to Earnings – Historically the P/E ratio has traded relatively close to the market.**
- **Currently the sector is trading below the market but is expected to level out by the end of 2017**





Sector Valuation relative to the S&P 500

- **Price to Sale – Historically the P/S ratio has traded below the market and this trend is expected to continue moving forward.**





We recommend that we hold and continue to mirror the weight of the S&P 500.

- Pre Brexit the sector was outperforming the market by 1300 BP.
- Commodity prices are rebounding off their recent lows.
 - Leads to increased margins
- Slowing Chinese economy and oversupply of raw materials prevent us from upgrading to overweight



Industry Recommendations

Per 3 year averages:

- Overweight – Construction Materials and Containers and Packaging
- Underweight – Metals and Mining



Questions?