



THE OHIO STATE UNIVERSITY

FISHER COLLEGE OF BUSINESS

Fall 2015

# SIM SECTOR PRESENTATION MATERIALS SECTOR

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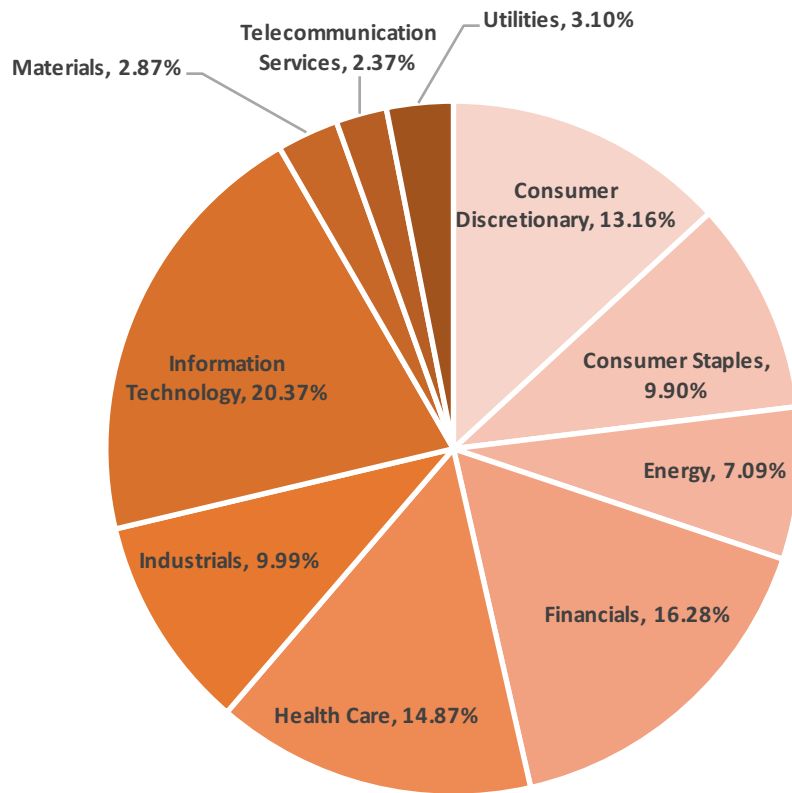


# AGENDA

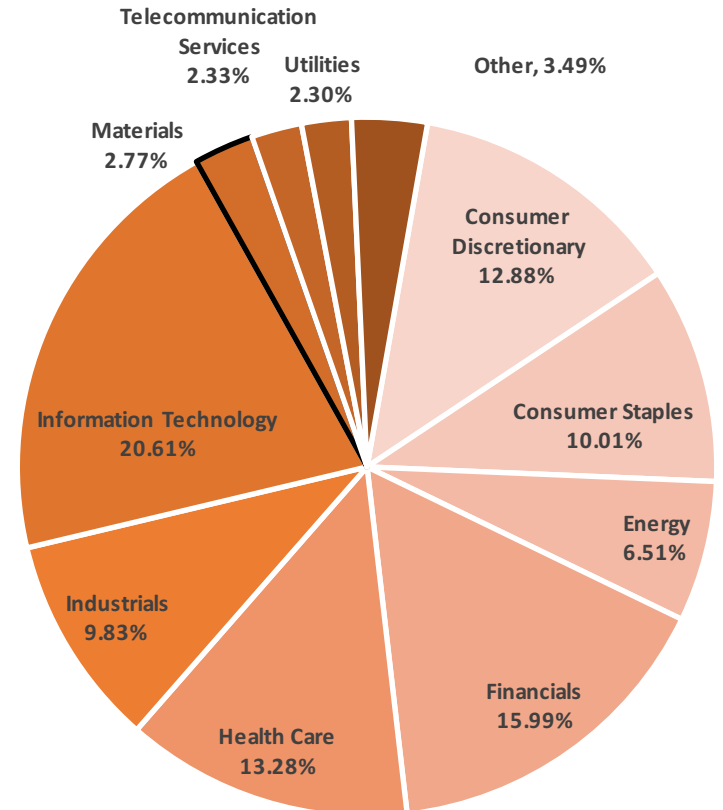
- **Sector Overview**
- **Business Analysis**
- **Economic Analysis**
- **Valuation**
- **Recommendations**



### S&P WEIGHTS



### SIM WEIGHTS



Basic Materials Market Cap: **\$540.87 Billion**



## Sector Breakdown

Sector	Industry	Sub-Industry
<b>Basic Materials</b>	<b>Chemicals</b>	Commodity Chemicals
		Diversified Chemicals
		Fertilizers and Agricultural Chemicals
		Industrial Gases
		Specialty Chemicals
	<b>Construction Materials</b>	Construction Materials
	<b>Containers and Packaging</b>	Metal and Glass Containers
		Paper Packaging
	<b>Metals and Mining</b>	Aluminum
		Diversified Metals and Mining
		Gold
		Precious Metals and Minerals
		Silver
	<b>Paper and Forest Products</b>	Steel
		Forest Products
	Paper Products	



## LARGEST COMPANIES IN MATERIALS SECTOR

Ticker	Name	Market Cap(In Billions)	YTD Return
DOW	Dow Chemical	46.45	3.99%
DD	El du Pont De Nemours	42.81	-18.67%
MON	Monsanto Co	39.02	-23.19%
LYB	LyondellBasell	37.57	14.50%
ECL	Ecolab	31.84	13.19%
PX	Praxair	28.6	-16.82%
APD	Air Products & Chemicals	26.79	-6.29%
PPG	PPG Industries	23.14	-13.16%
SHW	Sherwin-Williams	20.43	-9.26%
SIAL	Sigma-Aldrich	16.57	1.85%



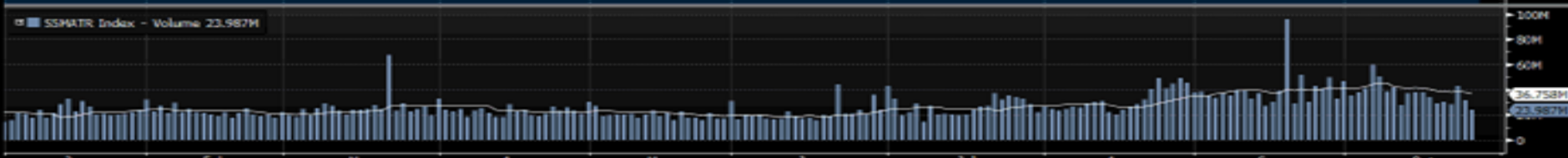
### Year-to-Date Performance

SSMATR ↓ 279.23 -1.36  
 At 17:00 0 280.18 H 280.60 L 277.07 Prev 280.59

SSMATR Index 95 Compare 96 Actions 97 Edit Line Chart

12/31/2014 - 10/27/2015

1D 3D 1M 6M **YTD** 1Y 5Y Max Daily Table Security/Study Event





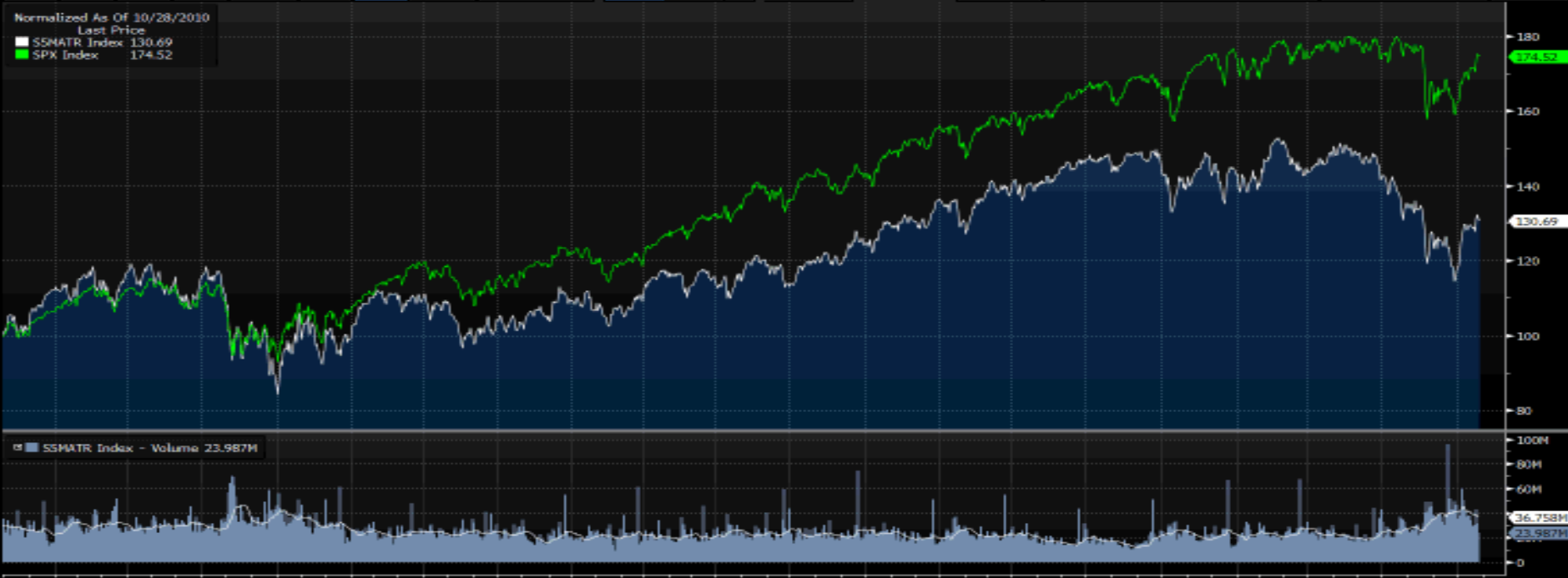
### Five Year Performance

S5MATR ↓ 279.23 -1.36  
 At 17:00 0 280.18 H 280.60 L 277.07 Prev 280.59

S5MATR Index 95 Compare 96 Actions 97 Edit Line Chart

10/28/2010 - 10/27/2015

1D 3D 1M 6M YTD 1Y 5Y Max Daily Table Security/Study Event



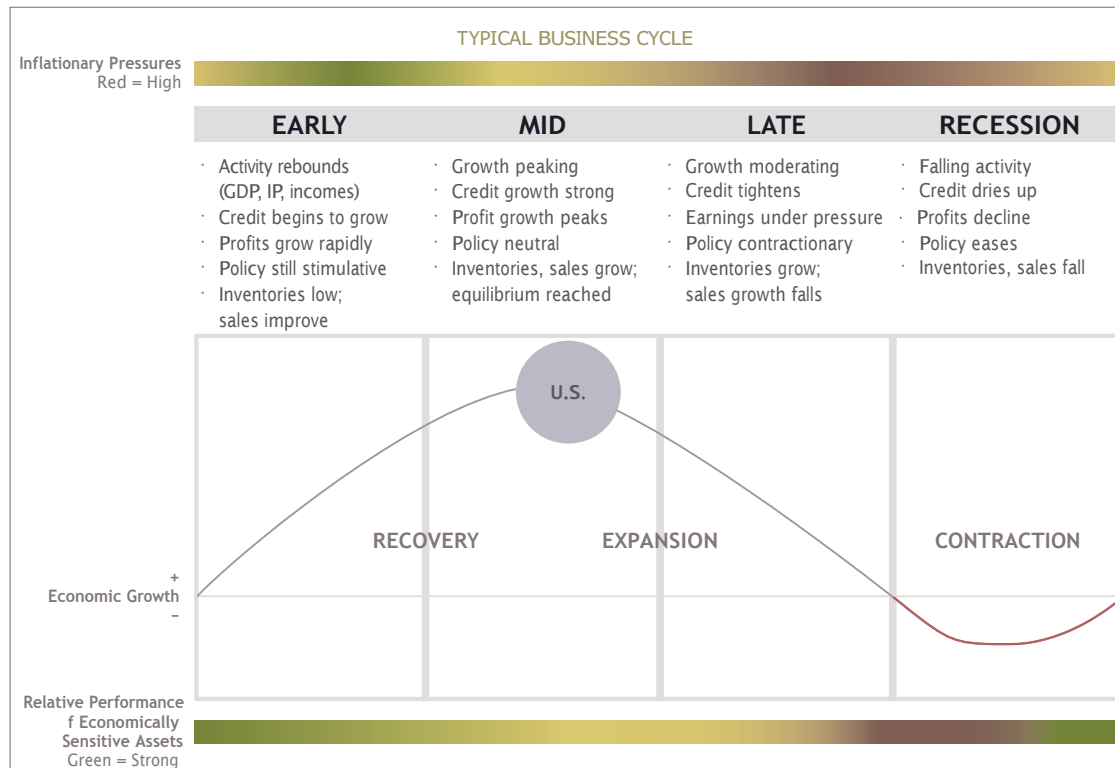
2010	2011	2012	2013	2014	2015
Australia 61 2 9777 8600	Brazil 5511 2395 9000	Europe 44 20 7330 7500	Germany 49 69 9204 1210	Hong Kong 852 2977 6000	
Japan 81 3 3201 8900	Singapore 65 6212 1000	U.S. 1 212 318 2000			

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### Business Cycle

Sector	Early	Mid	Late	Recession
Materials		--	++	-







## Porters 5 Forces Model

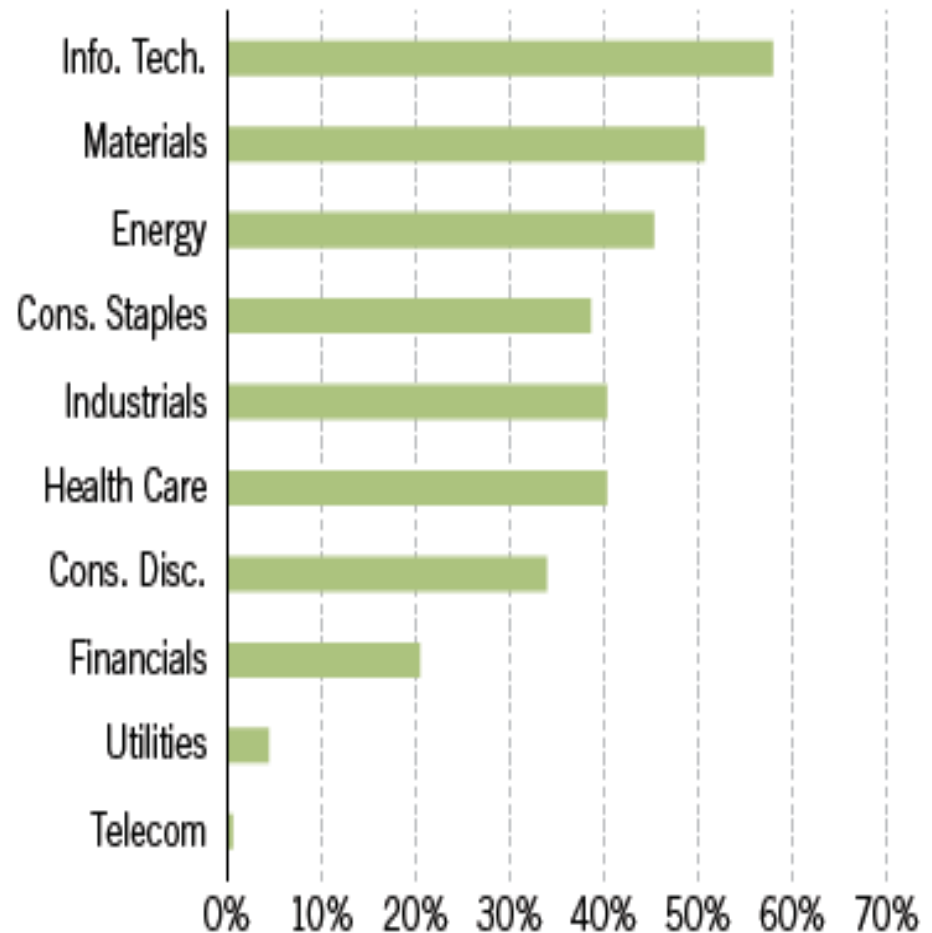
Forces	Intensity	Description
<b>Threat of New Entrants</b>	Low	<ul style="list-style-type: none"><li>• Requires large amount of initial capital</li><li>• Requires land rich with resources</li></ul>
<b>Bargaining Power of Suppliers</b>	Low	<ul style="list-style-type: none"><li>• Most inputs are made by companies within sector</li></ul>
<b>Bargaining Power of Buyers</b>	High	<ul style="list-style-type: none"><li>• Low price changes</li><li>• Intense pricing competition</li></ul>
<b>Threat of Substitutes</b>	Low	<ul style="list-style-type: none"><li>• Not many alternatives for raw materials</li></ul>
<b>Rivalry Among Existing Competition</b>	High	<ul style="list-style-type: none"><li>• Heavy price competition</li><li>• Low differentiation</li></ul>



## Key Drivers:

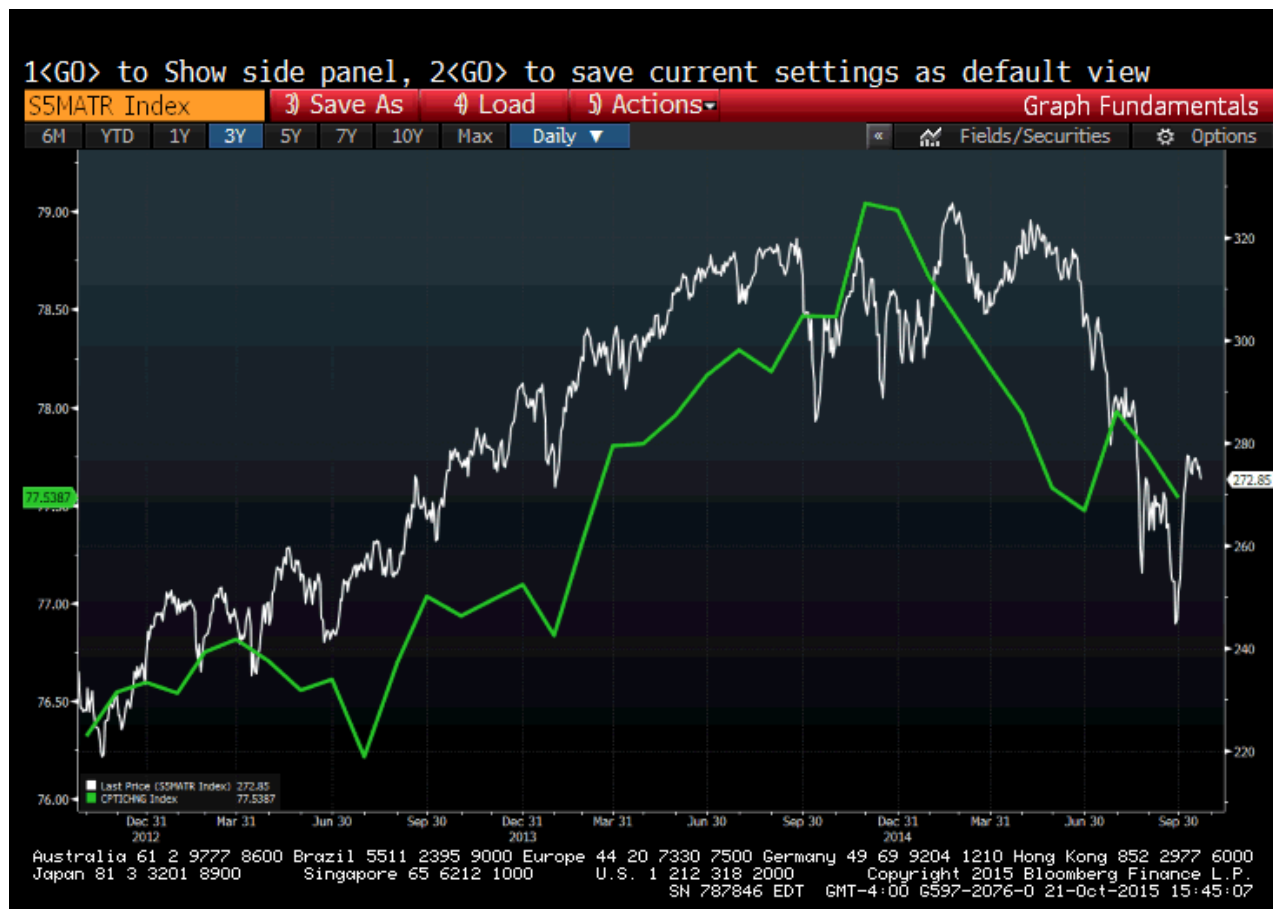
1. Economic Growth
2. Commodity Prices
3. Exploration and Development Costs
4. Production Costs
5. Taxes and Regulations

SECTORS' FOREIGN SALES EXPOSURE





# Capacity Utilization





# US Durable Goods

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# US Commodity





Sales	2012	2013	2014	2015 Est.	2016 Est.	Avg. YOY growth rate
Chemicals	250.73	261.8	274.62	254.89	260.10	4.18%
Construction Materials	39.87	42.86	48.11	50.86	57.8	4.91%
Containers and Packaging	221.27	203.29	205.25	209.63	216.61	4.34%
Metals and Mining	157.98	151	126.24	104.99	111.6	-6.24%
Paper and Forest Products	246.89	250.88	237.37	235.71	237.46	0.89%

Earnings	2012	2013	2014	2015 Est.	2016 Est.	Avg. YOY growth rate
Chemicals	22.11	24.28	27.39	28.5	31.18	11.55%
Construction Materials	-1.02	-0.03	2.03	4.59	7.3	49.04%
Containers and Packaging	10.46	9.08	10.61	12.73	14.59	5.44%
Metals and Mining	10.59	7.6	7.89	3.01	5.33	-14.34%
Paper and Forest Products	9.14	11.66	12.14	15.71	17.23	16.07%

## Sales and Earning Growth Rate

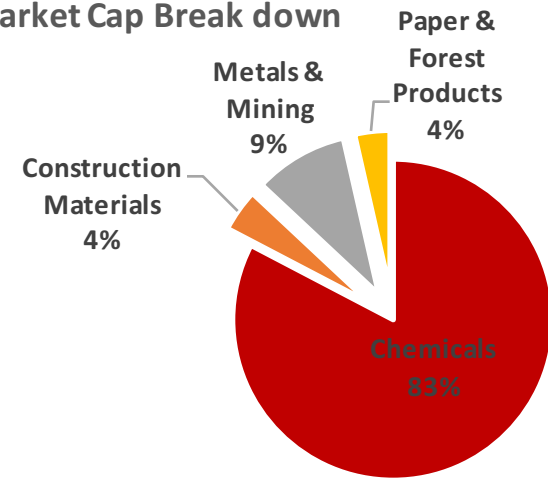


	<b>Operating Marging</b>	<b>Profit Margin</b>	<b>ROA</b>	<b>FCF Yield</b>
<b>Chemicals</b>	<b>15.15</b>	<b>10.87</b>	<b>8.03</b>	<b>4.61</b>
<b>Construction Materials</b>	<b>12.1</b>	<b>4.81</b>	<b>2.16</b>	<b>0.92</b>
<b>Containers and Packaging</b>	<b>8.79</b>	<b>3.59</b>	<b>2.96</b>	<b>6.65</b>
<b>Metals and Mining</b>	<b>-12.97</b>	<b>-14.64</b>	<b>-7.26</b>	<b>1.16</b>
<b>Paper and Forest Products</b>	<b>8.19</b>	<b>3.91</b>	<b>3.06</b>	<b>7.35</b>



S5MATRX (5Y)	High	Low	Average	Median	Current
P/E	20.64	10.89	17.07	17.53	17.56
P/B	3.86	2.04	2.87	2.81	3.48
P/S	1.65	0.96	1.33	1.31	1.50
EV/EBITDA	13.18	6.46	10.24	10.01	13.17

### Market Cap Break down



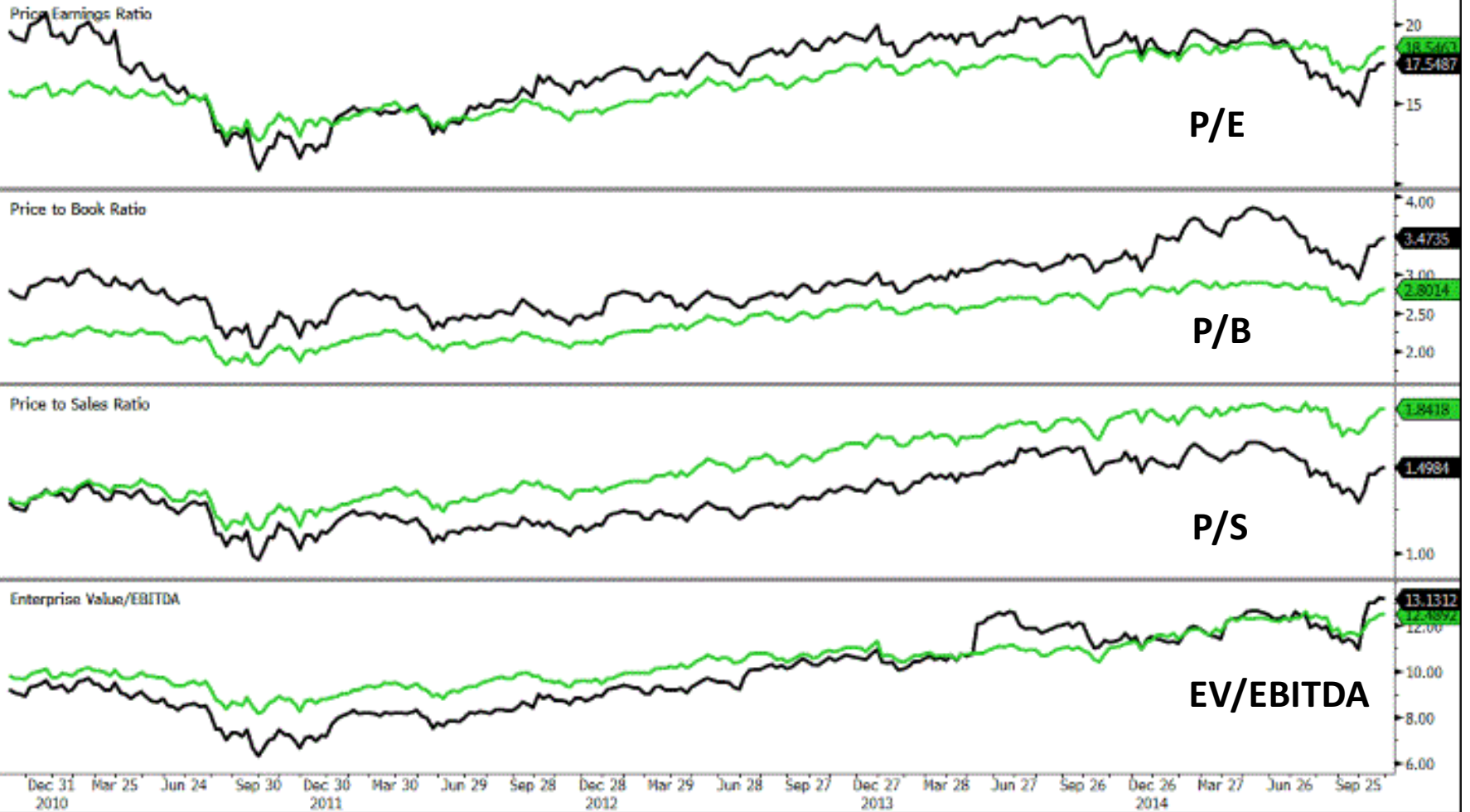
Name	Industry	P/E	Price	Rev YOY Growth:Q
Vulcan Materials Co	Construction Materials	103.8	95.64	13.15%
Martin Marietta Materials Inc	Construction Materials	42.85	153.15	37.68%
Sigma-Aldrich Corp	Chemicals	32.94	139.79	-0.57%
Ecolab Inc	Chemicals	26.9	114.94	-5.02%
Freeport-McMoRan Inc	Metals & Mining	26.29	11.76	-35.38%

As of 11/2/2015





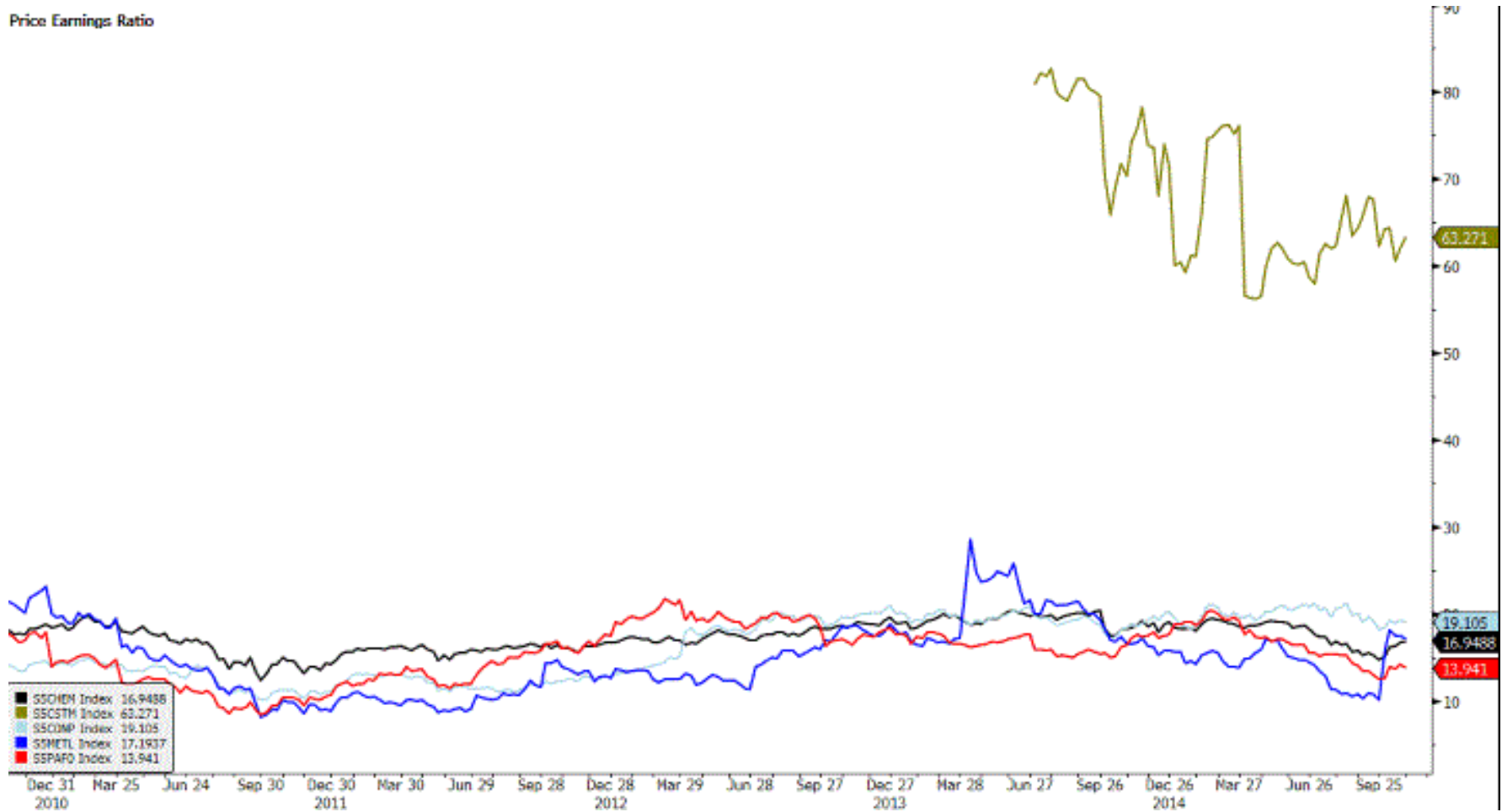
# Valuation Multiptles-5 year trend





# Industry Comparison-P/E ratio

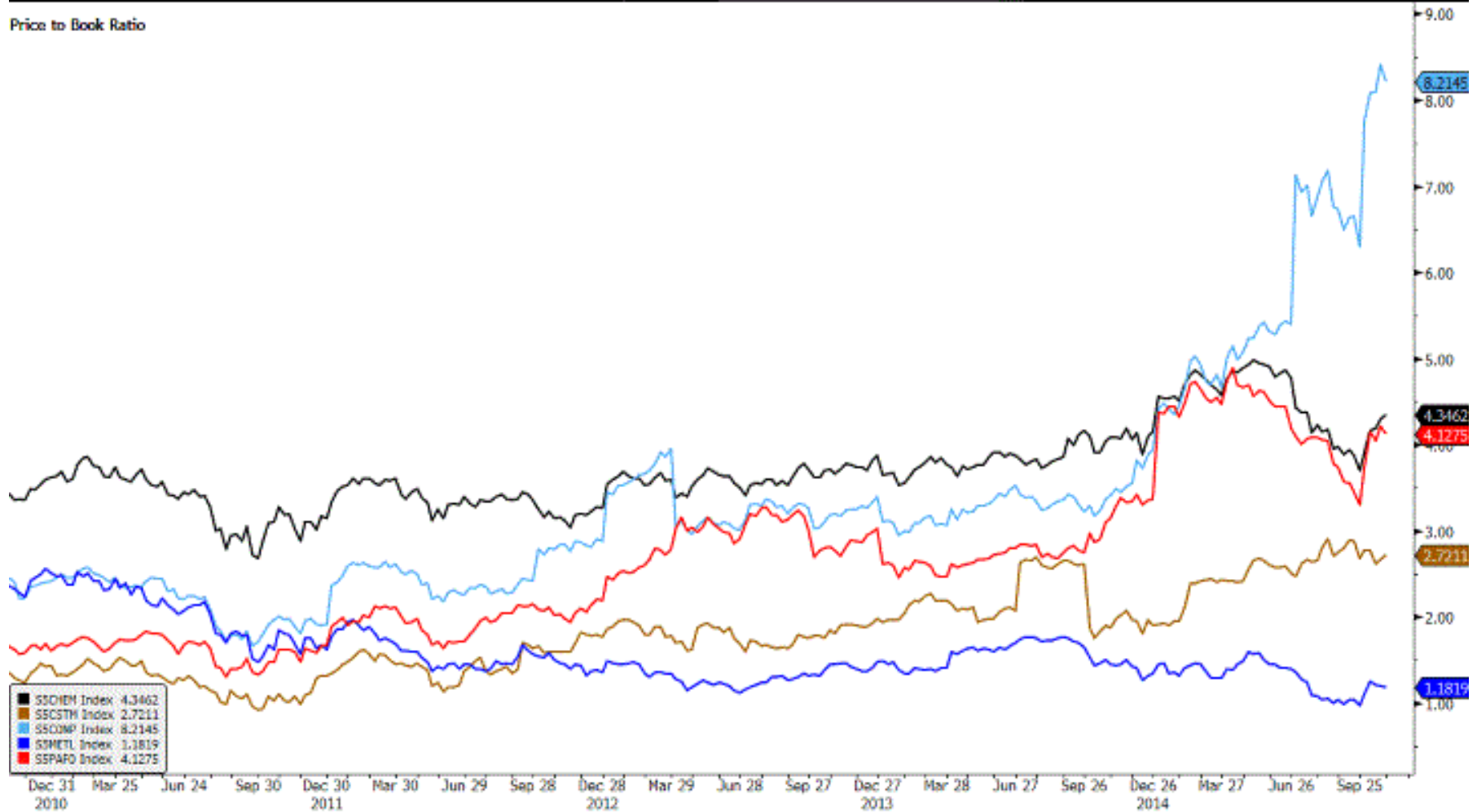
Price Earnings Ratio





# Industry Comparison-P/B ratio

Price to Book Ratio





**Recommendations:**

Continue to **Slightly Underweight** as compared to S&P 500

**Underweight:**

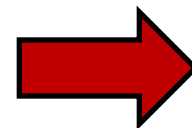
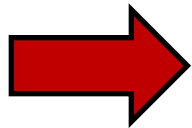
Metals and Mining

**Overweight:**

Chemicals

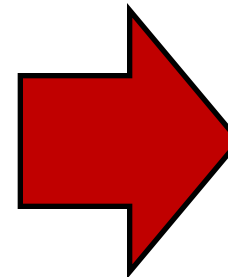
Low input Costs

Plant Outages in  
Europe (13% in Q2)



Input prices falling  
faster than output

Tight control of  
supply in Europe  
compared to demand



Increased Earnings  
Margins 2015-2016