

**FISHER**

COLLEGE OF BUSINESS

THE OHIO STATE UNIVERSITY

Recommendation: Overweight

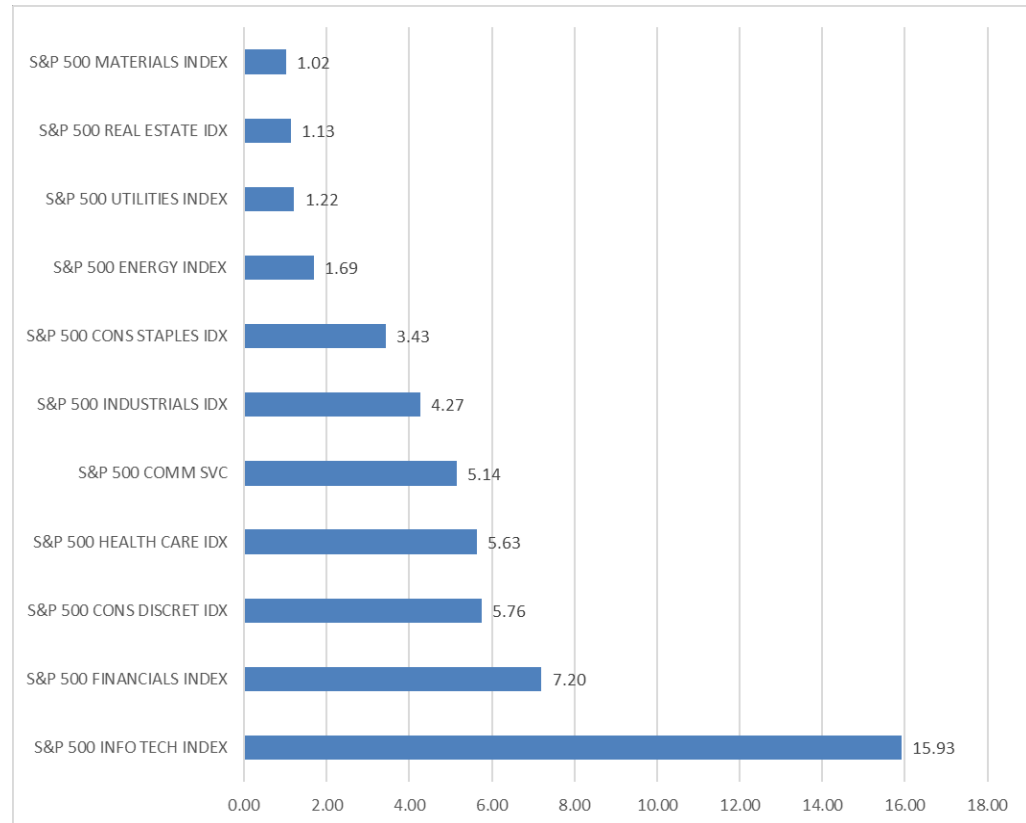
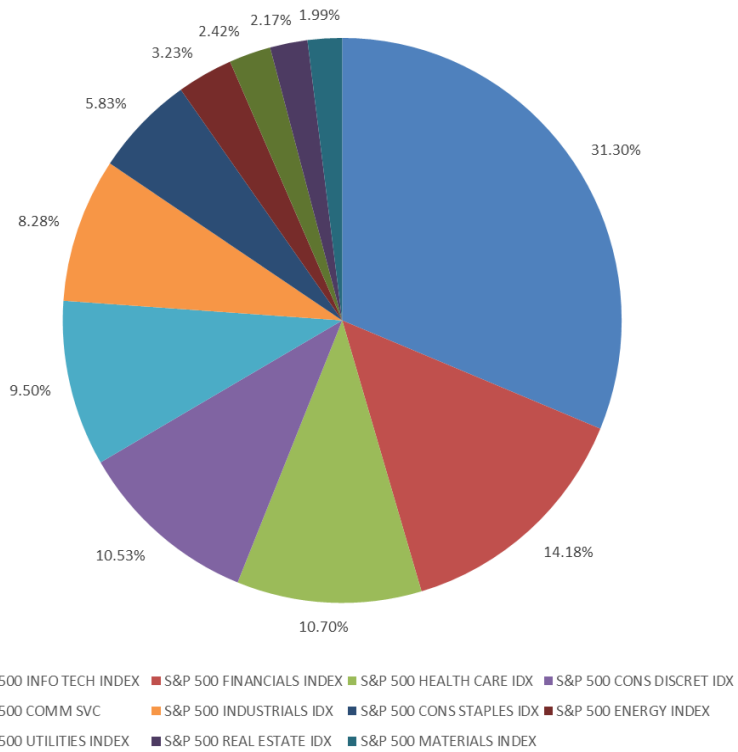
SIM: 1.92% vs SPX: 1.99%

Weightings as of 2/28/25

# Materials Sector Overview & Outlook

Bill Gu, Jack Guenther, Victoria Hacker, and Ben Hallis

# Sector Overview



Materials

Chemicals

- Industrial Gases
- Specialty Chemicals
- Commodity Chemicals
- Fertilizers & Agricultural Chemicals

Metals & Mining

- Copper
- Gold
- Steel

Containers & Packaging

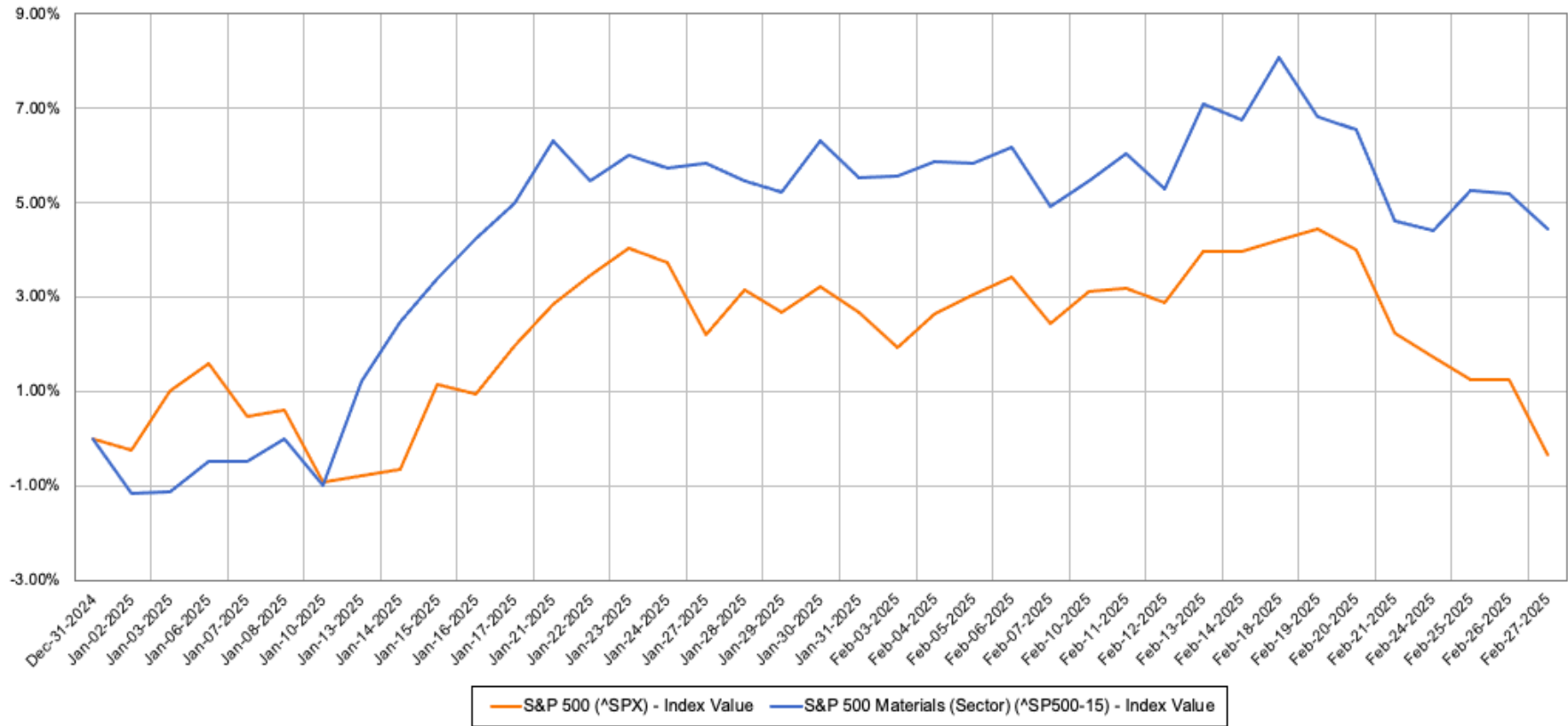
- Paper & Plastic Packaging Products
- Metal, Glass, & Plastic Containers

Construction Materials

- Construction Materials

Paper & Forest Product

- Paper & Forest Product



**YTD**  
**Materials**  
 +2.88%  
 As of 3/4/25

**S&P 500**  
 -2.77%  
 As of 3/4/25

**In 2024**  
**Materials**  
 -1.63%

**S&P500**  
 +24.01%

Source: Net Advantage

Graph ss of 2/27/2025



219.17B USD



**SHERWIN-WILLIAMS.**

89.54B USD



69.47B USD



52.39B USD



75.66B USD

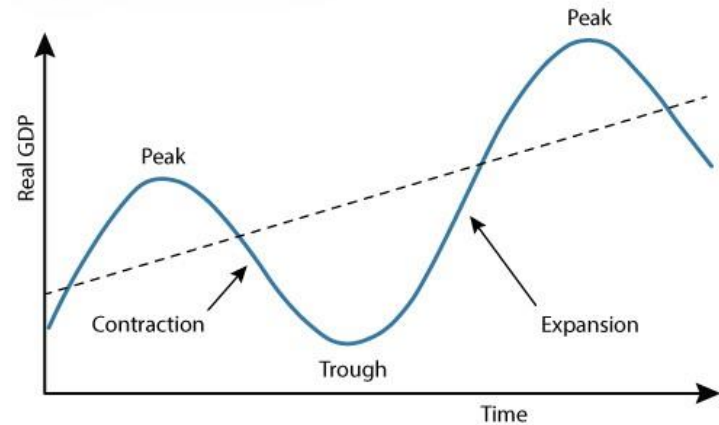


47.95B USD

# Business Analysis

**Phase of Life Cycle**

- The Materials Sector is in the Mature Stage
  - There is limited growth within the sector
- However, materials companies demonstrate stable earnings



**Classification by Business Cycle**

- Currently, the Materials Sector is coming to the end of a contraction period
  - Rising input costs, and some companies reporting declining earnings

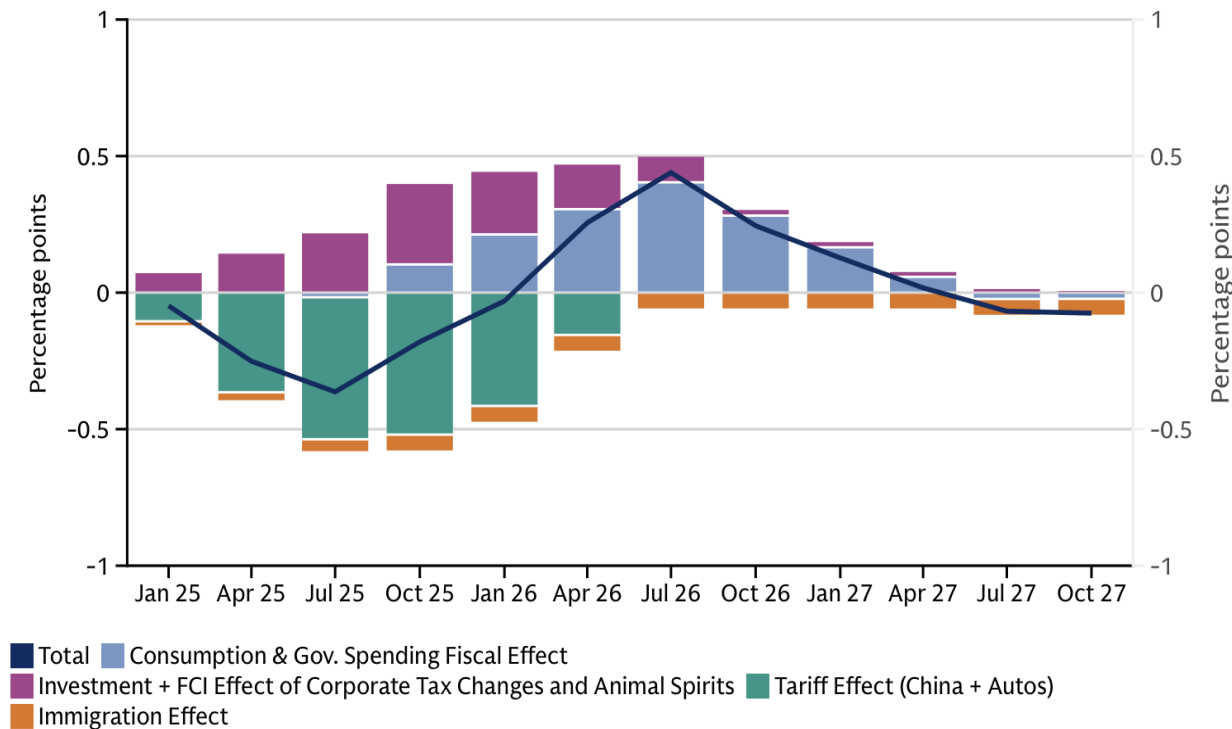
2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
10.11% Consumer discretionary	27.36% Energy	38.83% Information technology	8.47% Health care	50.29% Information technology	43.86% Information technology	54.64% Energy	65.72% Energy	57.84% Information technology	40.23% Communication services
6.89% Health care	23.49% Communication services	23.84% Materials	4.11% Utilities	32.69% Communication services	33.30% Consumer discretionary	46.19% Real estate	1.57% Utilities	55.80% Communication services	36.61% Information technology
6.90% Consumer staples	22.80% Financials	22.98% Consumer discretionary	0.85% Consumer discretionary	32.13% Financials	23.61% Communication services	35.04% Financials	-0.82% Consumer staples	42.41% Consumer discretionary	30.56% Financials
5.92% Information technology	18.86% Industrials	22.18% Financials	-0.29% Information technology	23.37% Industrials	20.73% Materials	34.53% Information technology	-1.95% Health care	18.13% Industrials	30.14% Consumer discretionary
4.68% Real estate	16.69% Materials	22.08% Health care	2.22% Real estate	29.01% Real estate	13.45% Health care	27.28% Materials	-5.48% Industrials	12.55% Materials	23.43% Utilities
3.40% Communication services	16.29% Utilities	21.03% Industrials	-6.9% Consumer staples	27.04% Consumer discretionary	11.06% Industrials	26.13% Health care	-10.01% Financials	12.3% Real estate	17.47% Industrials
-1.53% Financials	13.1% Information technology	13.48% Consumer staples	-12.5% Communication services	27.61% Consumer staples	10.8% Consumer staples	24.43% Consumer discretionary	-12.27% Materials	12.15% Financials	1.87% Consumer staples
-2.53% Industrials	3.03% Consumer discretionary	12.11% Utilities	-13.03% Financials	26.35% Utilities	0.48% Utilities	21.57% Communication services	-26.13% Real estate	2.06% Health care	5.72% Energy
-4.85% Utilities	5.38% Consumer staples	10.85% Real estate	-13.29% Industrials	24.58% Materials	-1.69% Financials	21.12% Industrials	-28.19% Information technology	0.52% Consumer staples	5.23% Real estate
-3.38% Materials	3.39% Real estate	-1.01% Energy	-14.70% Materials	-2.82% Health care	-2.17% Real estate	18.63% Consumer staples	-37.03% Consumer discretionary	-1.33% Energy	2.58% Health care
-21.12% Energy	-2.69% Health care	-1.25% Communication services	-18.10% Energy	11.81% Energy	-33.68% Energy	17.67% Utilities	-39.89% Communication services	-7.08% Utilities	-0.04% Materials

Sector Annual Returns from 2015 to 2024

Source: Thrivent

### Goldman Sachs Research expects a small hit to growth in 2025 and a moderate boost in 2026 under its baseline policy assumptions

Impact on US year-over-year real GDP growth, GS baseline



Source: Goldman Sachs Research



Looking at forecasts (GS)

- GDP growth looks to be in decline for the first half of 2025
- And then increase into 2026 before leveling out in 2027

How will the Materials Sector be influenced by the US Economy?

- Immediate impacts of decreasing economic activity are weak demand for materials, chemicals, etc.
- Short term: reduced profits (already seen in recent 10-Ks)
- Long term: hopes for stable growth; however, we need to take into consideration the policies of the Trump Administration (domestic inflation, foreign markets considerations, etc.)

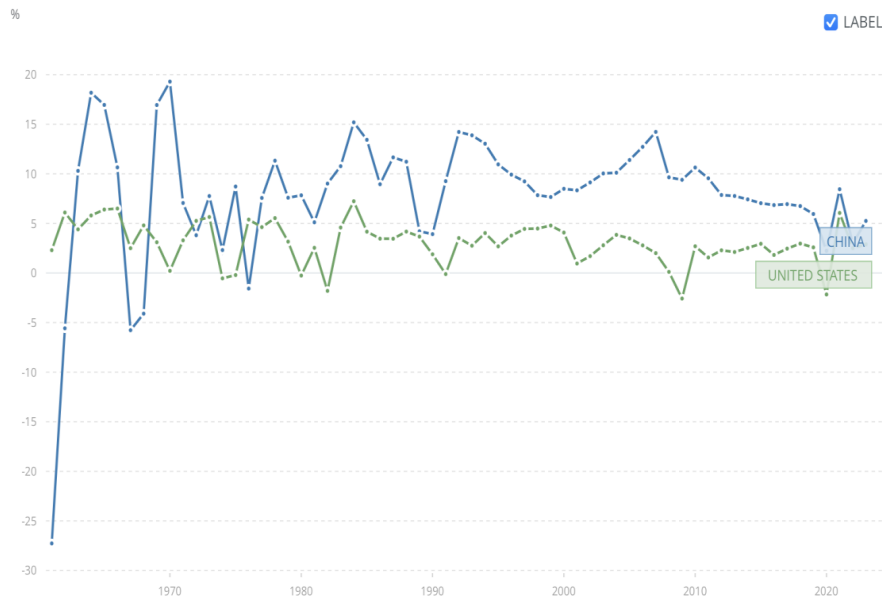
<b>P</b>	<b>E</b>	<b>S</b>	<b>T</b>	<b>E</b>	<b>L</b>
<b>Political:</b> <ul style="list-style-type: none"> <li>• Trade/tariffs and their impacts</li> </ul>	<b>Economic:</b> <ul style="list-style-type: none"> <li>• GDP growth expectations</li> </ul>	<b>Sociological:</b> <ul style="list-style-type: none"> <li>• Growing demand (eco-friendly prod.)</li> </ul>	<b>Technological:</b> <ul style="list-style-type: none"> <li>• Advancement in technologies</li> </ul>	<b>Ecological:</b> <ul style="list-style-type: none"> <li>• Companies CSR in reducing carbon emiss.</li> </ul>	<b>Legal:</b> <ul style="list-style-type: none"> <li>• Banning of certain chemicals</li> </ul>
<ul style="list-style-type: none"> <li>• Government infrastructure spending driving demand</li> </ul>	<ul style="list-style-type: none"> <li>• Fluctuations in commodity prices based on supply-demand</li> </ul>	<ul style="list-style-type: none"> <li>• Consumer boycotts of certain chemicals/minerals</li> </ul>	<ul style="list-style-type: none"> <li>• Innovation that leads to either less or more materials demanded</li> </ul>	<ul style="list-style-type: none"> <li>• A greater focus on recycling and re-using old materials</li> </ul>	<ul style="list-style-type: none"> <li>• Labor laws protecting workers from unethical practices</li> </ul>
<ul style="list-style-type: none"> <li>• Regulations regarding environmental standards</li> </ul>	<ul style="list-style-type: none"> <li>• Interest rate changes and inflationary pressures</li> </ul>	<ul style="list-style-type: none"> <li>** Due to growing awareness about unethical labor practices</li> </ul>	<ul style="list-style-type: none"> <li>• New chemicals introduced into the market</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental impacts on supply chain and future harvesting of materials</li> </ul>	<ul style="list-style-type: none"> <li>• Production practice laws that limit material extraction</li> </ul>

# Supply and Demand Analysis

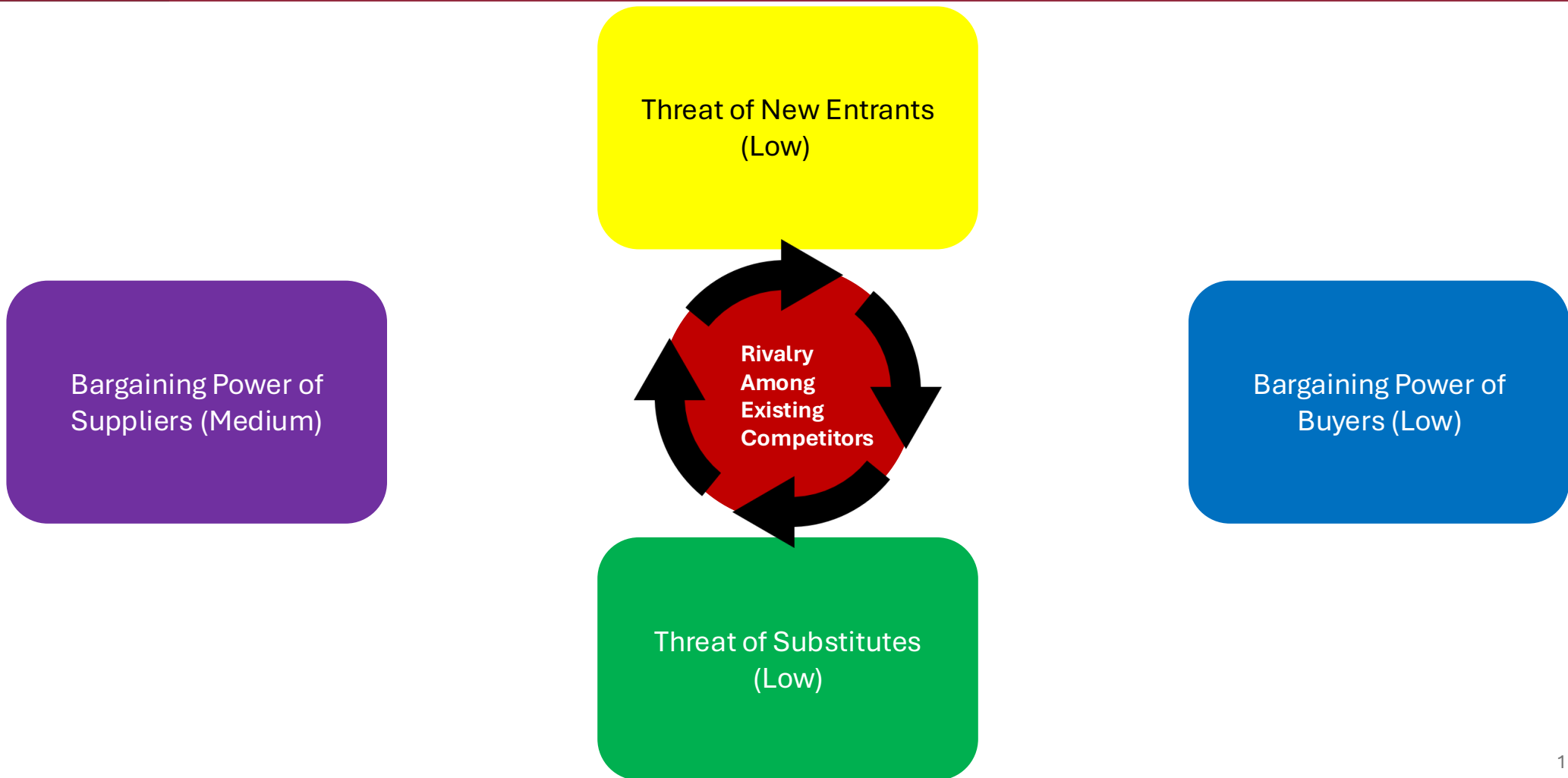
- Chemicals, natural resources, building materials, and paper products are core to the global economy
- There is an inherent cyclical nature of this sector; many portfolio managers attempt to diversify their materials holdings based on these cycles
- High commodity prices often boost the prices of material sector stocks
- Supply for companies within the materials sector relies on:
  - Supply chain efficiency or complexity
  - The prices of commodities
  - Overall demand (inventory turnover)



# China, the World's Largest Industrial Economy



- The materials sector is also greatly impacted by China's economy
- Economic downturn, or economic growth, can greatly impact both supply and demand



# Economic Analysis

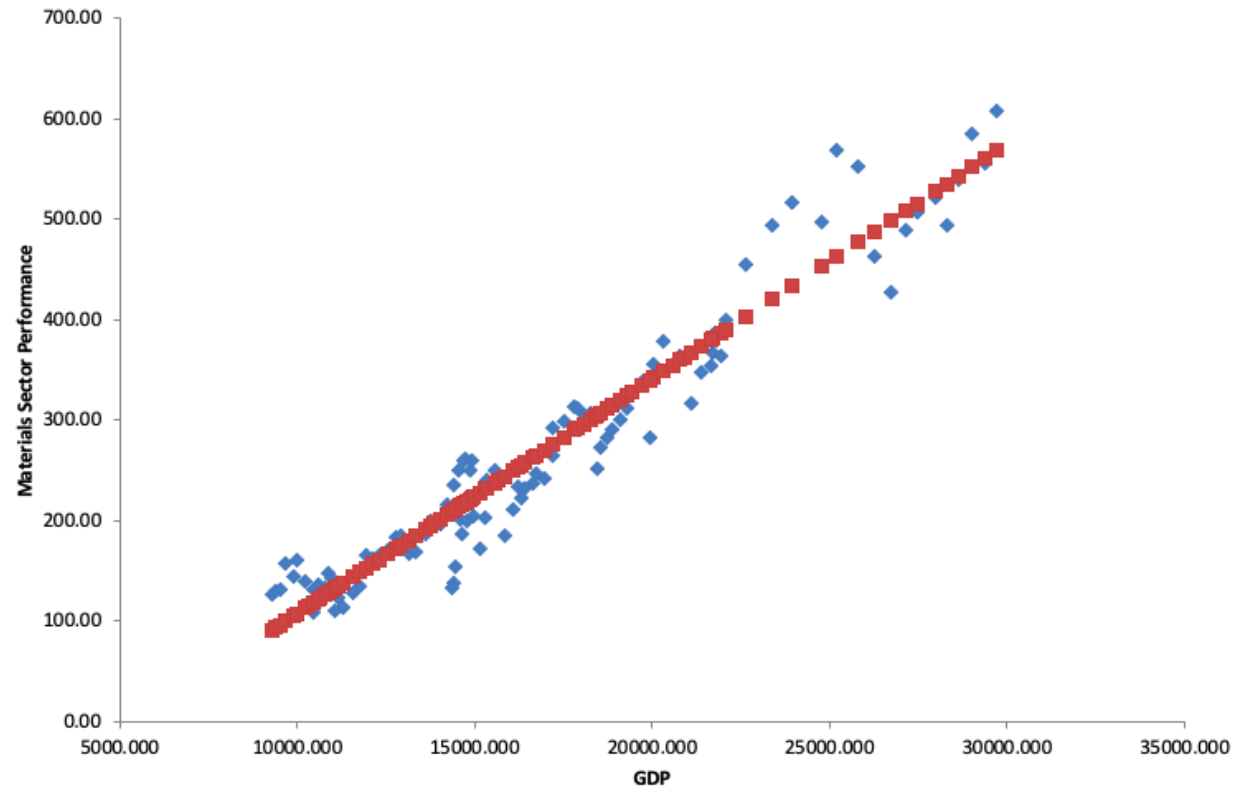
- Cyclical Sector
  - Sensitive to Economic and Business Cycles
- Indicators of Interest:
  - GDP Growth
  - Producer Price Index (PPI)
  - Consumer Price Index (CPI)
  - 10 Year Treasury Yield
  - Currency Fluctuations
  - Home Prices

**Gross Domestic Product (GDP)** measures the monetary value of goods purchased.

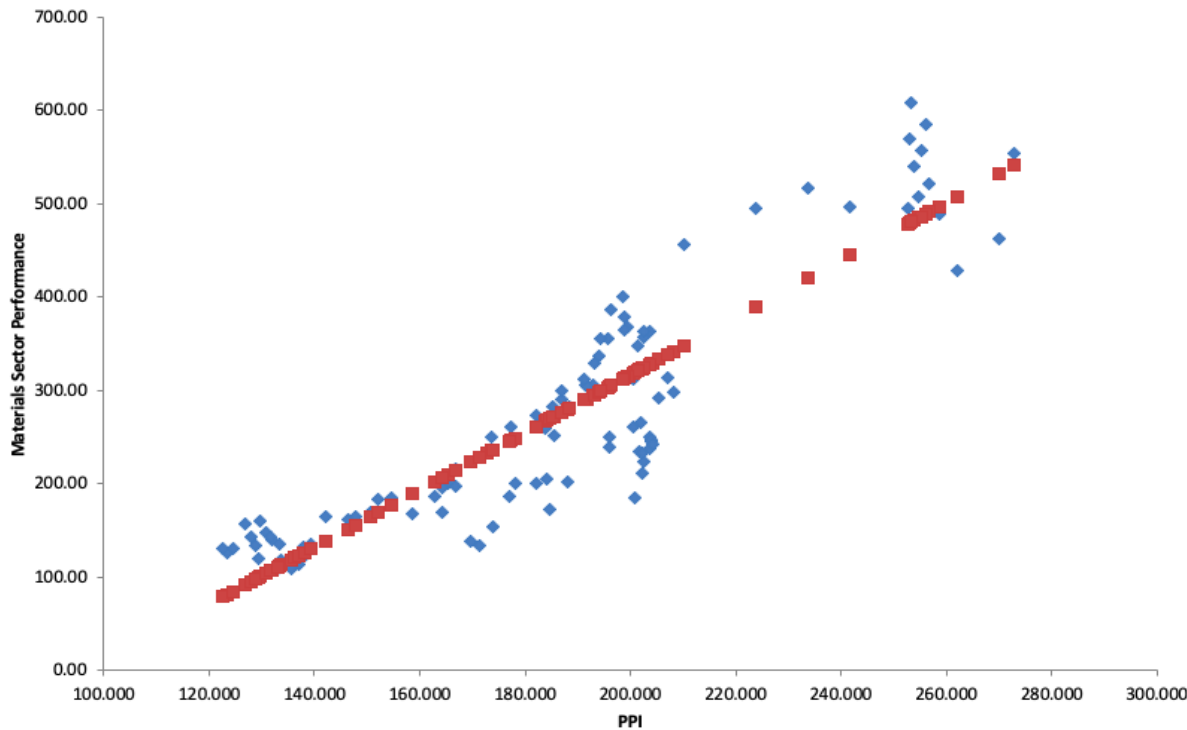
**Model:**  $y = -126.73 + 0.023x$   
R-squared = 0.935

- Materials Sector performance is **strongly positively** correlated with GDP.

**Correlation between Sector & GDP since 1998**



Correlation between Sector & PPI since 1998



**Producer Price Index (PPI)** measures the average change of prices received by producers for output.

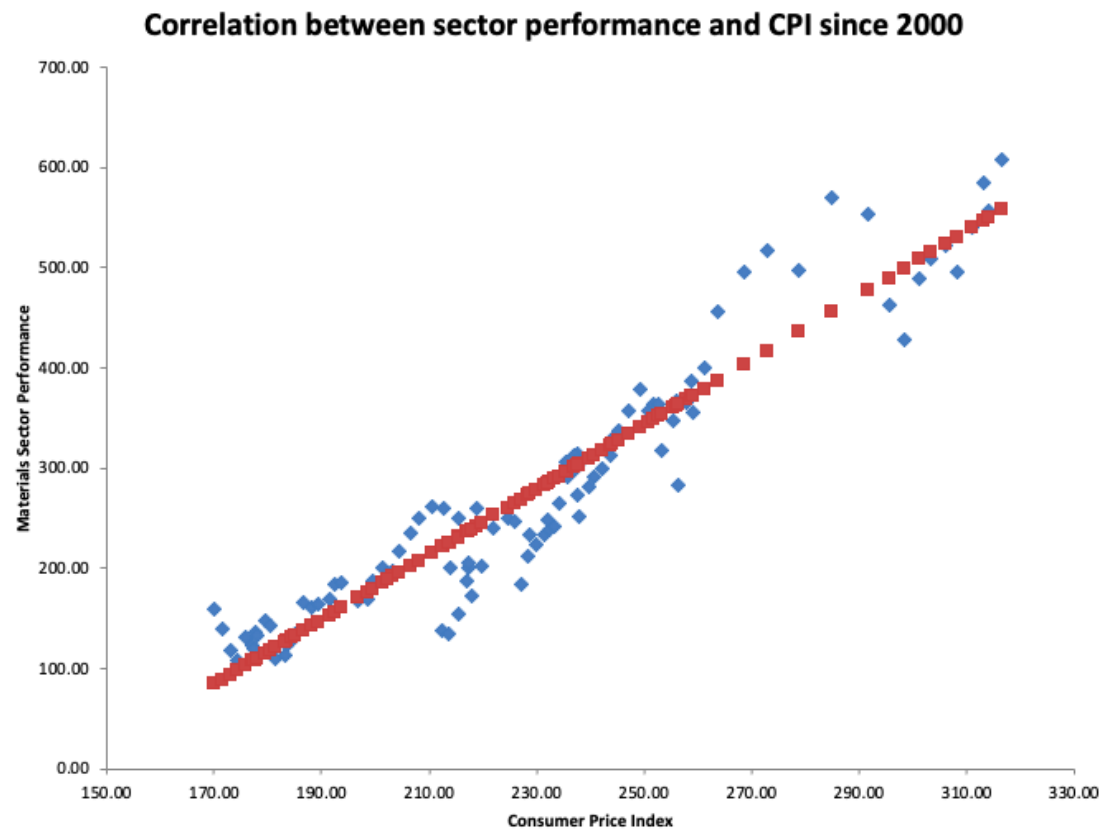
**Model:**  $y = -298.23 + 3.075x$   
R- squared = 0.82

➤ Materials Sector is **strongly positively** correlated with PPI.

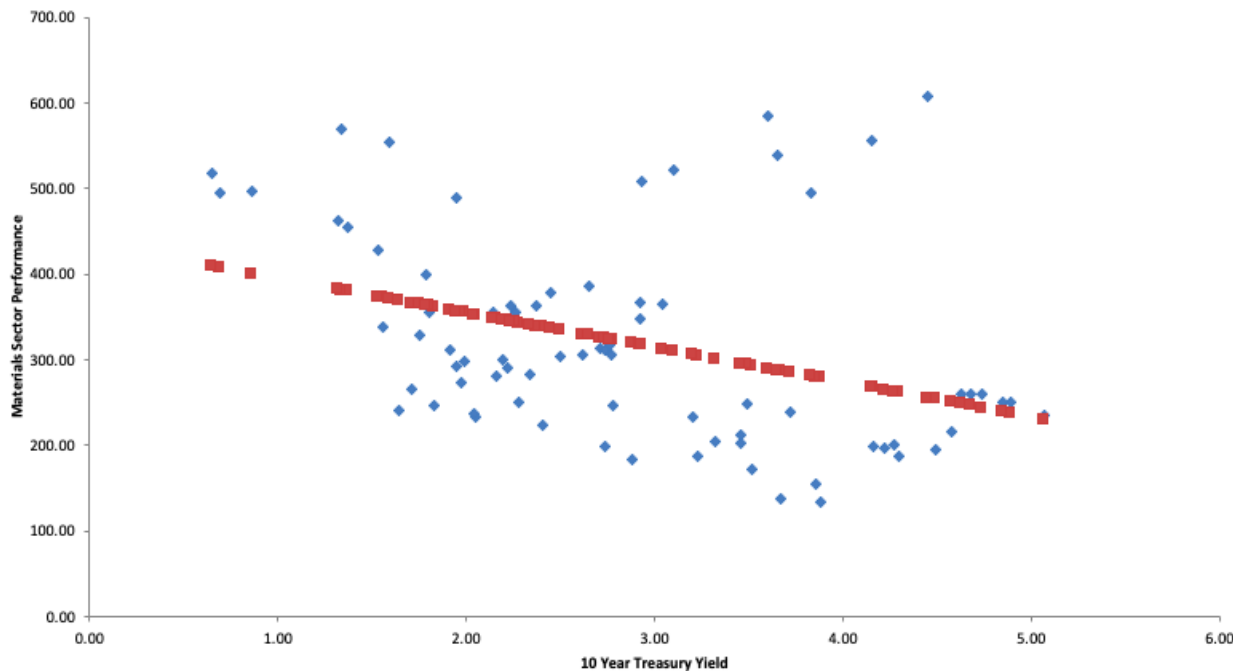
**Consumer Price Index (CPI)** measures the average change of prices paid by consumers for goods and services.

**Model:**  $y = -464.76 + 3.23x$   
R-squared = 0.91

➤ Materials Sector is **strongly positively** correlated with CPI.



Correlation between Sector Performance and 10 Year Treasury Yield since 2005



**The 10 Year Treasury Yield** measures the interest the US pays for borrowing money by issuing a bond.

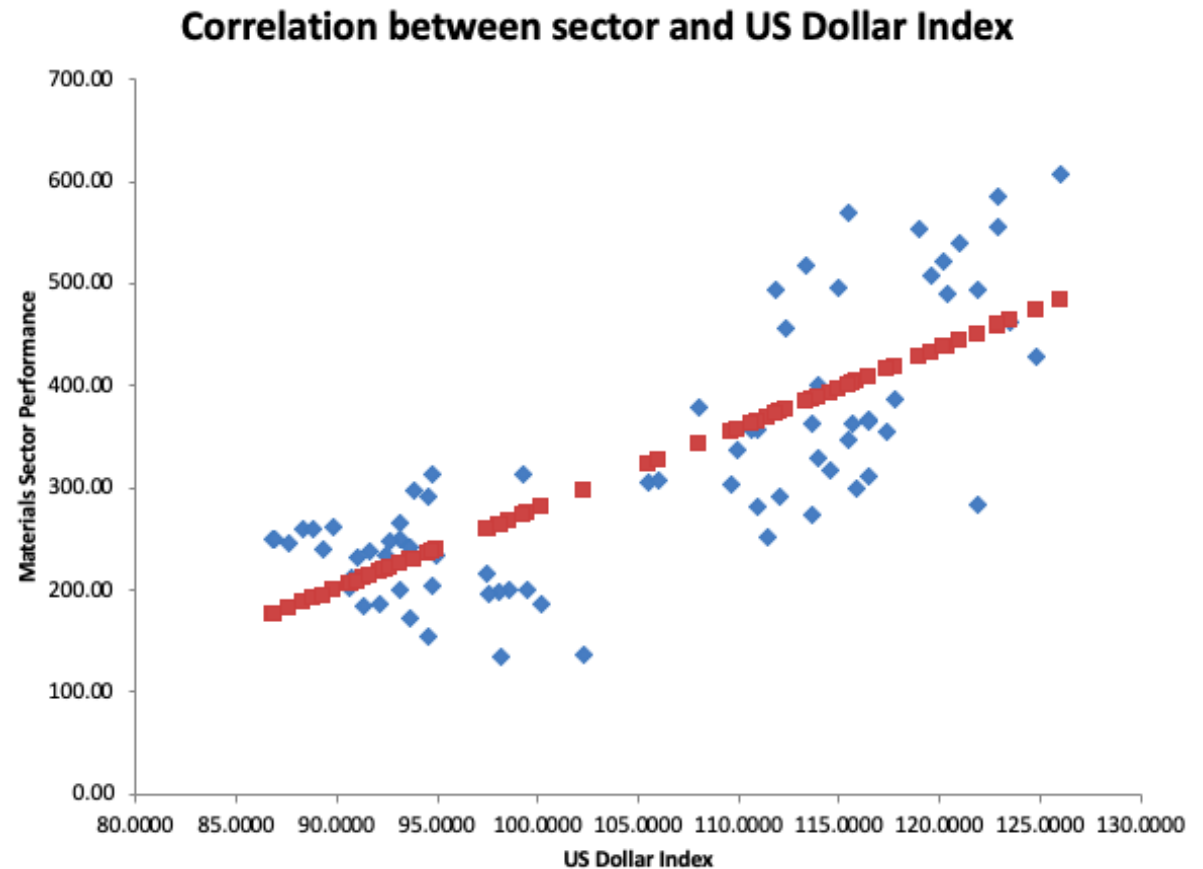
**Model:**  $y = 435.09 - 40.43x$   
R-squared = 0.14

➤ Materials Sector is **weakly negatively** correlated with the 10 year US Treasury Yield.

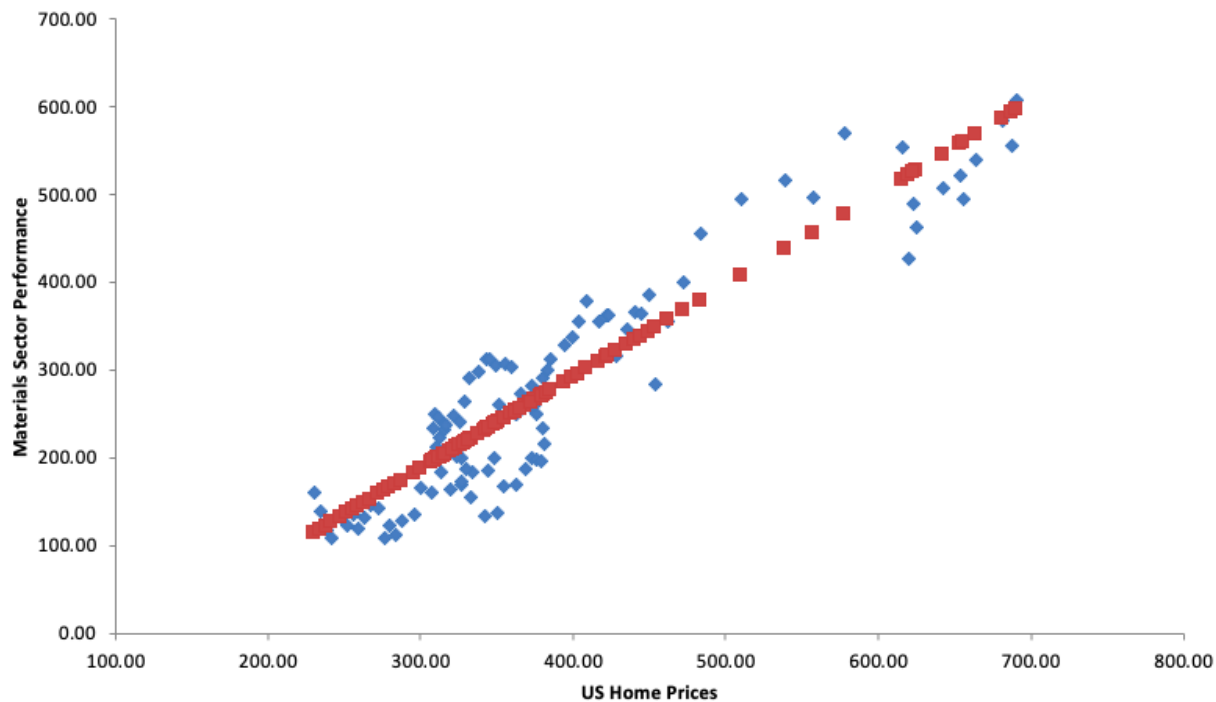
**Nominal Broad US Dollar Index** measures the value of the US dollar relative to other currencies.

**Model:**  $y = -506.48 + 7.86x$   
R-squared = 0.62

- Materials Sector performance is **moderately positively** correlated with the strength of the US dollar.



**Correlation between Sector Performance and Home Prices  
since 2000**



**All-Transaction House Price Index** measures the price movements in single family homes in the US from the previous quarter.

**Model:**  $y = -127.31 + 105x$   
R-squared = 0.86

- Materials Sector performance is **strongly positively** correlated with US home prices.

Economic Indicator	Correlation with Materials Sector	Strength of Correlation
GDP	<b>Positive</b>	<b>Strong</b>
PPI	<b>Positive</b>	<b>Strong</b>
CPI	<b>Positive</b>	<b>Strong</b>
10 Year Treasury Yield	Negative	Weak
Strength of US Dollar	Positive	Moderate
Home Prices	<b>Positive</b>	<b>Strong</b>

# Financial Analysis

## S&P 500 Materials Sector

Index Key Ratios					
P/E (LTM)	28.3x	Earnings from Cont. Ops Margin	8.5%	Return on Assets %	4.9%
P/BV	2.9x	Net Income Margin %	8.4%	Return on Equity %	10.8%
P/Tang BV	7.5x	Index Market Cap / EBT Excl. Unusual Items	17.4x	Index Market Cap / Total Revenue	2.2x
Values as of Mar-01-2025 (GMT-5)   Intraday quotes are delayed by at least 20 minutes   US Dollar					

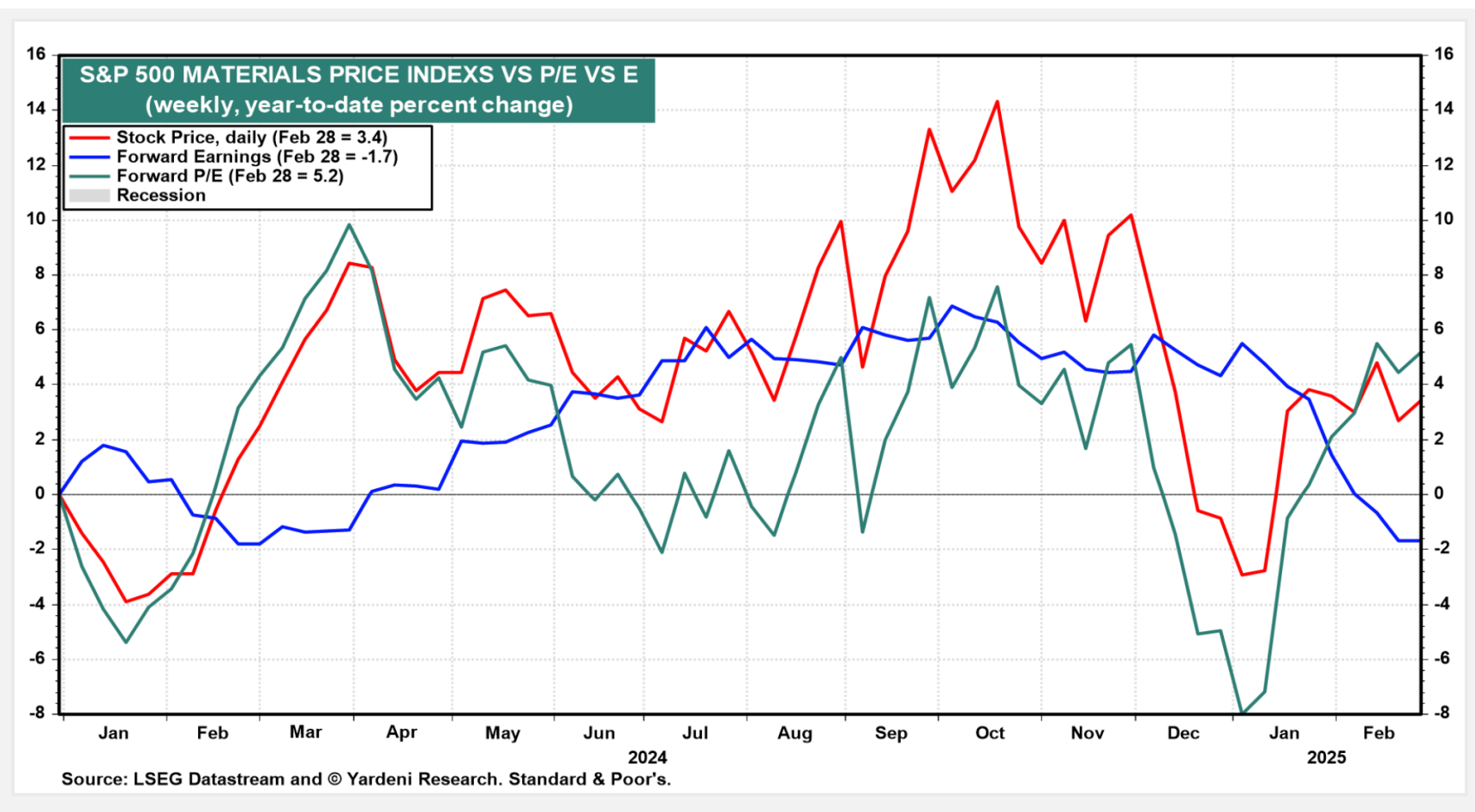
## S&P 500

Index Key Ratios					
P/E (LTM)	28.1x	Earnings from Cont. Ops Margin	11.4%	Return on Assets %	3.4%
P/BV	5.0x	Net Income Margin %	11.4%	Return on Equity %	17.9%
P/Tang BV	12.4x	Index Market Cap / EBT Excl. Unusual Items	20.5x	Index Market Cap / Total Revenue	3.2x
Values as of Mar-01-2025 (GMT-5)   Intraday quotes are delayed by at least 20 minutes   US Dollar					

## Calendar Year Performance

	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
<b>Total Return</b>	-0.04%	12.55%	-12.27%	27.28%	20.73%	24.58%	-14.7%	23.84%	16.69%	-8.38%
<b>Price Return</b>	-1.83%	10.23%	-14.06%	25%	18.1%	21.87%	-16.45%	21.39%	14.08%	-10.36%
<b>Net Total Return</b>	-0.58%	11.85%	-12.81%	26.59%	19.93%	23.76%	-15.23%	23.1%	15.9%	-8.98%
<b>BENCHMARK* Total Return</b>	25.02%	26.29%	-18.11%	28.71%	18.4%	31.49%	-4.38%	21.83%	11.96%	1.38%
<b>BENCHMARK* Price Return</b>	23.31%	24.23%	-19.44%	26.89%	16.26%	28.88%	-6.24%	19.42%	9.54%	-0.73%
<b>BENCHMARK* Net Total Return</b>	24.5%	25.67%	-18.51%	28.16%	17.75%	30.7%	-4.94%	21.1%	11.23%	0.75%

\* The index benchmark is the S&P 500



# Valuation Analysis

## Current Valuation Ratios

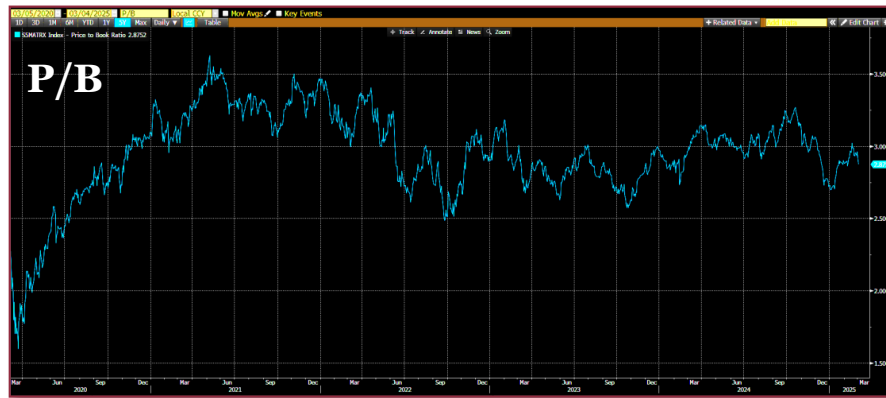
<b>Materials Sector</b>			
<b>Current</b>			
P/E	P/S	P/B	P/CF
<b>23.0</b>	<b>2.2</b>	<b>2.9</b>	<b>14.5</b>

<b>S&amp;P 500</b>			
<b>Current</b>			
P/E	P/S	P/B	P/CF
<b>22.7</b>	<b>2.9</b>	<b>4.5</b>	<b>16.11</b>

Industries	P/E	P/S	P/B	P/CF
Chemicals	21.1	1.7	2.5	10.9
Metals & Mining	12.9	15.2	4.0	9.9
Containers & Packaging	17.0	0.8	2.3	8.3
Construction Materials	20.1	4.5	3.6	19.4
Paper & Forrest Products	12.5	0.6	2.5	10.6
<b>Average</b>	<b>16.7</b>	<b>4.5</b>	<b>3.0</b>	<b>11.8</b>
<b>Median</b>	<b>17.0</b>	<b>1.7</b>	<b>2.5</b>	<b>10.6</b>
<b>Range</b>	<b>8.6</b>	<b>14.6</b>	<b>1.7</b>	<b>11.1</b>
<b>Materials Sector</b>	<b>23.0</b>	<b>2.2</b>	<b>2.9</b>	<b>14.5</b>

Major Companies	P/E	P/S	P/B	P/CF
Linde (LIN)	30.0	6.7	5.8	23.4
Sherwin-Williams (SHW)	34.3	3.9	22.0	28.2
Ecolab (ECL)	44.1	4.9	8.7	27.2
DuPont (DD)	28.3	2.6	1.4	17.7
FMC (FMC)	10.9	1.1	1.0	6.8
Crown (CCK)	20.0	0.9	3.7	8.7
Sealed Air (SEE)	12.6	0.8	7.3	6.3
<b>Average</b>	<b>25.7</b>	<b>3.0</b>	<b>7.1</b>	<b>16.9</b>
<b>Median</b>	<b>28.3</b>	<b>2.6</b>	<b>5.8</b>	<b>17.7</b>
<b>Range</b>	<b>33.2</b>	<b>5.9</b>	<b>21.0</b>	<b>21.9</b>
<b>Materials Sector</b>	<b>23.0</b>	<b>2.2</b>	<b>2.9</b>	<b>14.5</b>

# Movement of Valuation Ratios



## **Future of Valuation Ratios**

### **Key Drivers:**

- Interest Rates
- Tariffs and Demand
- Stimulus for Infrastructure and Green Energy

### **Conclusion:**

- Materials sector valuations will slightly expand compared to the market overall.

# Recommendation

<b>Industry in Materials Sector</b>	<b>Recommended Weighting</b>
Chemicals	Overweight
Metals & Mining	Overweight
Containers & Packaging	Neutral
Construction Materials	Overweight
Paper & Forest Product	Underweight

Securities Allocation			
Sector	S&P 500 Weight	SIM Weight	+/-
Information Technology	30.69%	27.88%	-2.81%
Health Care	10.77%	12.67%	1.90%
Financials	14.52%	14.78%	0.26%
Consumer Discretionary	10.50%	7.99%	-2.51%
Consumer Staples	5.88%	8.72%	2.84%
Industrials	8.32%	9.62%	1.30%
Energy	3.30%	3.79%	0.49%
Utilities	2.39%	0.79%	-1.60%
Materials	1.99%	1.92%	-0.07%
Communication Services	9.45%	11.36%	1.91%
Real Estate	2.19%	0.49%	-1.70%
Total	100.00%	100.00%	0.00%

We recommend the Materials sector be **overweight** (1.92%) relative to the S&P 500 (1.99%). Therefore, the current SIM weight should change as of 3/4/2025.

Thank you!