



Materials Sector Report

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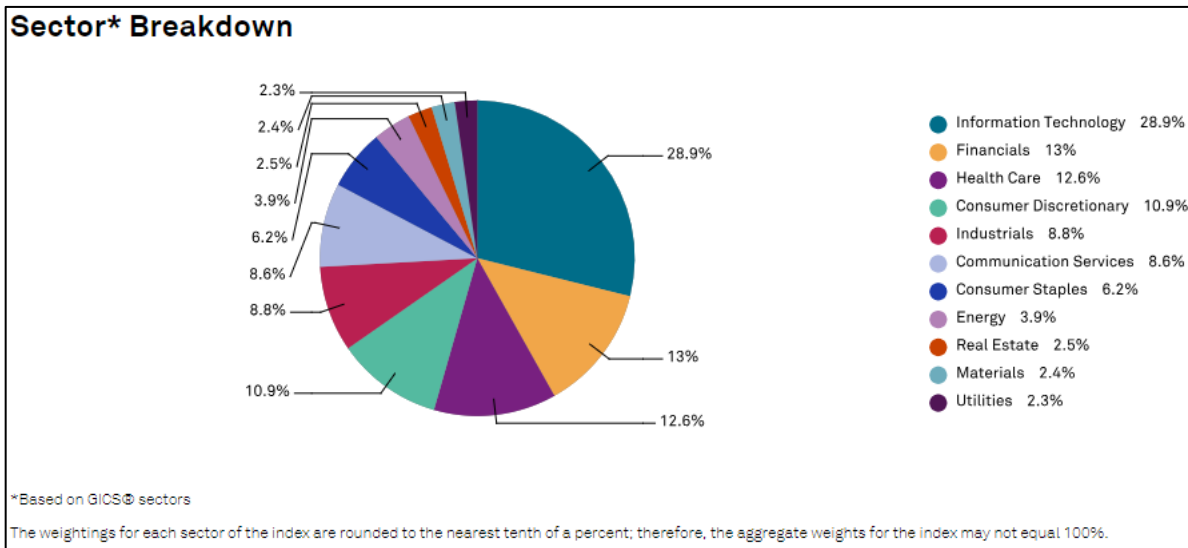
Introduction

The materials sector is a critical component of the global economy as it encompasses companies involved in the extraction, processing, and distribution of raw materials and commodities. The materials sector is diverse and includes industries engaged in mining, chemicals, forestry, paper, metals, and construction materials. This diversity reflects the broad range of materials needed for various economic activities. This equity sector report delves into a thorough examination of the materials sector including the sector’s size and historical performance, supplemented with financial and economic data. This report will ultimately offer data to drive decisions relating to sector allocation and security choices.

Wisman Fund Current Holdings

Boise Cascade Co. (BCC), Martin Marietta Materials Inc. (MLM)

Size and Comparison



As of December 29th, 2023, the materials sector accounts for 2.4% of the S&P 500 index's market capitalization (see the figure above), 28 different companies. The Wisman Fund weighs the materials sector at 2.6%. The total market capitalization of the materials sector is \$1.495 trillion.

Historical Performance



This graph shows the cyclical nature of this sector and the sector’s historical underperformance compared to the S&P 500 index.

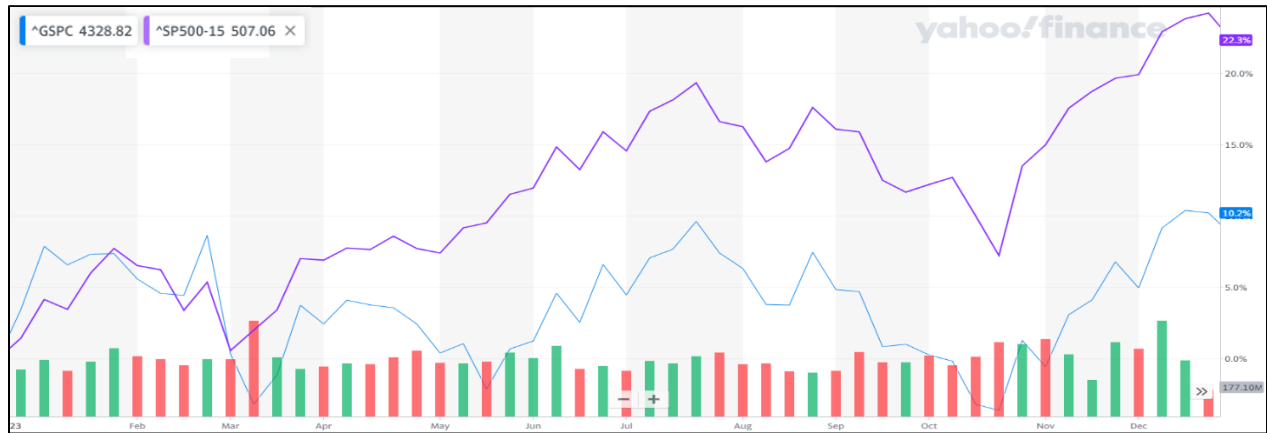
Composition of Materials Sector

The materials sector is made up of 5 different industries: paper & forest products, metals & mining, containers & packaging, construction materials, chemicals. The top ten weighted companies in the S&P 500 index are seen in the list below. These constituents make up over 65% of the materials sector. The Wisman Fund contains none of the top weighted stocks and 1 of the 28 total in the S&P 500 materials sector, Martin Marietta Materials (MLM).

Ticker	Name	S&P 500 Weight	Mkt. Cap
LIN	Linde PLC	21.59%	\$201.35 B
SHW	Sherwin-Williams Co.	7.79%	\$79.55 B
FCX	Freeport-McMoRan Inc.	6.00%	\$55.04 B
ECL	Ecolab Inc.	5.50%	\$57.65 B
APD	Air Products and Chemicals Inc.	5.11%	\$48.87 B
NUE	Nucor Corp.	4.93%	\$45.59 B
CTVA	Corteva Inc.	4.10%	\$37.29 B
DOW	Dow Inc.	4.09%	\$37.81 B
NEM	Newmont Corp.	3.80%	\$38.50 B
PPG	PPG Industries Inc.	3.54%	\$32.61 B

Overall, Price Returns

As of December 29th, 2023, 1-year returns for the materials sector in the S&P 500 saw growth at 10.23%, from December 29th, 2022. Whereas the S&P 500 saw a staggering 24.23% increase over the past year. The materials sector in the Wisman Fund accounts for 2.6% of the portfolio and has provided an overall weighted 1-year return of 1.27%. The graph below shows the overall performance data from Dec. 29th, 2022, to Dec. 29th, 2023. This illustrates the vast underperformance of the sector in terms of 1-year returns compared to the S&P 500 index. (*^GSPC is the S&P 500 index ticker symbol, ^SP500-15 is the materials sector ticker symbol*)



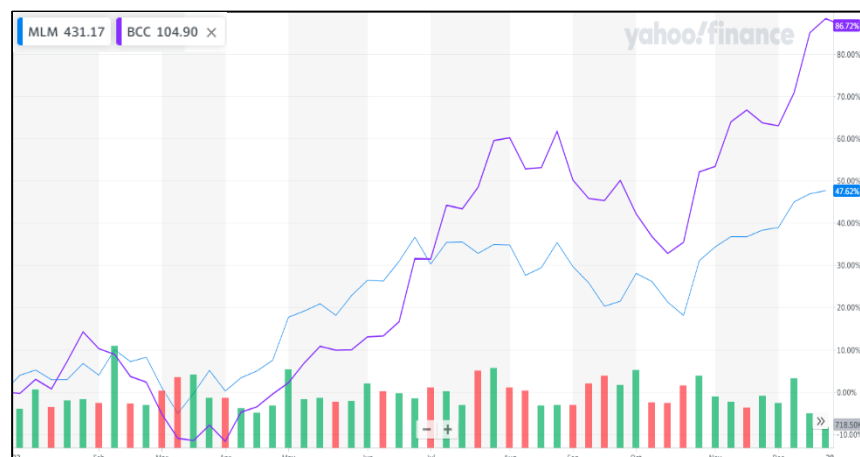
S&P 500 YTD Returns

Though it underperformed the overall market the materials sector has proven to be a relatively strong performer in the overall market. The sectors YTD returns have beaten the financials, health care, consumer staples, utilities, real estate, and energy sectors. This is confirmed in the graphic to the right, computed by calculations completed by the IMP class.

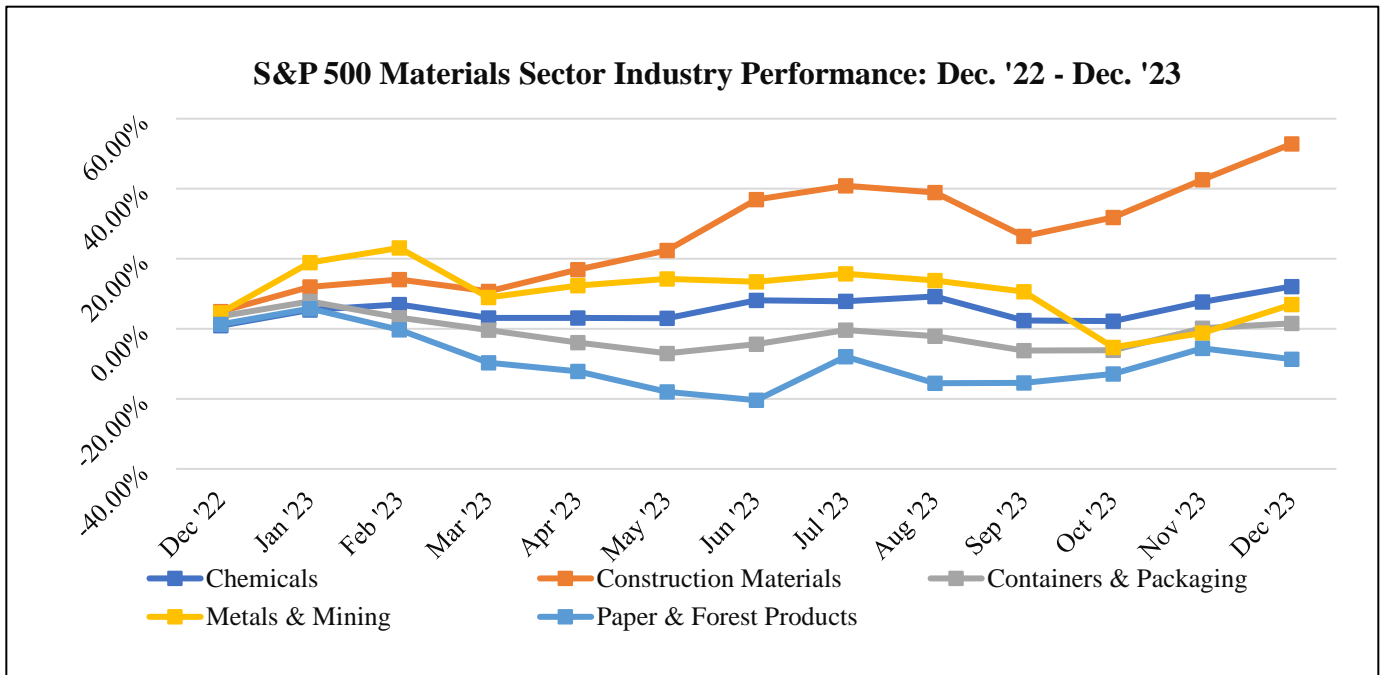
S&P 500 RETURN YTD 2023	
12/31/2023	Price RETURN
Energy	-4.80%
Materials	10.23%
Industrials	16.04%
Consumer Discretionary	41.04%
Consumer Staples	-2.16%
Health Care	0.30%
Financials	9.94%
Information Technology	56.39%
Communication Services	54.36%
Utilities	-10.20%
Real Estate	8.27%
S&P 500	24.23%

The Wisman Fund

The securities from the materials sector in The Wisman fund provided weighted 1-year returns (for the entire fund) as follows: BCC = 0.78%, and MLM = 0.52%. The graph on the right shows the 1-year fluctuations and growth for the current holdings.



Industry Returns



These graphics above and to the right, depict the importance of the construction materials industry to the overall materials sector. In summary, the construction materials industry is crucial for economic development, job creation, infrastructure improvement, and overall societal well-being. Its significance extends beyond the construction industry, impacting various sectors of the economy and serving as a barometer for economic health. An important industry to focus on is the metals and mining industry, more specifically the lithium subindustry. Towards the end of 2023, the lithium market began to get oversaturated, demand was decreasing, and prices began to fall. This was seen in the prices around lithium stocks like Sigma Lithium which used to be held by the Wisman Fund. This was also seen in the stock price and performance of Tesla. What is usually a top performer for the materials sector, the metals and mining industry has slowed in growth, but it is something to watch out for in the near future as demand begins to rise again.

Industries	1-year ↕
Materials	+2.13%
Chemicals	--
Construction Materials	+40.36%
Containers & Packaging	+3.00%
Metals & Mining	-9.37%
Paper & Forest Products	--

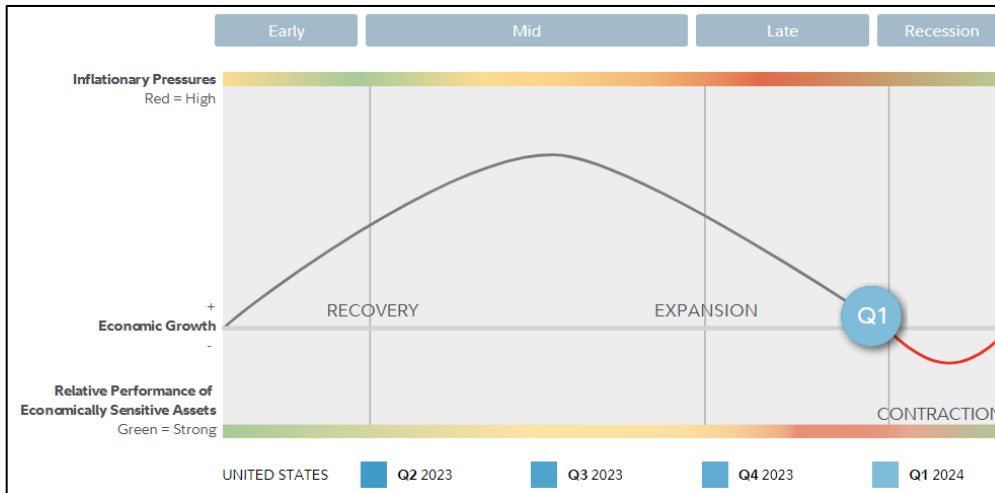
The Wisman Fund

The Wisman fund contains companies from the construction materials industry (BCC, MLM).

Business Analysis

Economic Cycle

Fidelity indicates that the US economy is in the very late expansion stage of the economic cycle, as seen in the graphic directly below.



The late expansion stage of the economic cycle represents a mature phase of economic growth where growth continues but at a slower pace. It is characterized by low unemployment, rising inflation, higher interest rates, potential stock market volatility, and a focus on preparing for the next economic downturn. These characterizations are addressed in the economic analysis section. Understanding this phase is essential for businesses, and investors to make informed decisions and navigate the economic landscape effectively.

Business Cycle

As seen below, data for the performance of the materials sector is relatively pessimistic during recessionary periods. The materials sector is intrinsically linked to economic cycles and tends to perform relatively well during the late expansion stage. Demand for basic materials remains strong as construction and industrial activity continue, but the sector faces challenges such as rising costs and increased stock price volatility. As the economy progresses further towards a recession, the materials sector may experience a downturn, highlighting its cyclical nature.

Business cycle				
Historical performance of sectors during business cycle phases.				
Sector	Early	Mid	Late	Recession
Materials	+	- -		-

Materials Sector in the Economy

The materials sector is essential to the global economy due to its role in producing the raw materials and commodities necessary for the construction, manufacturing, and infrastructure development across various industries.

Relationship with the Economy: A thriving materials sector is often a sign of economic growth and development. Investment in infrastructure and construction stimulates economic activity, creating jobs and driving demand for materials.

Product Segmentation:

- *Metals:* This category includes ferrous metals (like steel and iron) and non-ferrous metals (such as aluminum, copper, and gold).
- *Chemicals:* Chemical materials include a diverse array of products used in various industries, from basic chemicals to specialty chemicals.
- *Construction Materials:* Materials like cement, concrete, asphalt, and aggregates are critical for building infrastructure and buildings.
- *Industrial Minerals:* Minerals such as sand, gravel, and limestone are used in construction and manufacturing.
- *Wood and Timber:* Wood products find use in construction, furniture, and paper production.
- *Plastics and Polymers:* These materials are utilized extensively in manufacturing, packaging, and consumer goods.

Macroeconomic Factors: The materials sector's success is closely tied to the broader macroeconomic environment. It relies on factors such as economic growth, construction and infrastructure development, manufacturing activity, commodity prices, and government regulations.

- *Economic Growth:* The overall health of the economy is a primary driver of demand for materials. During periods of strong economic growth, there is increased demand for construction, manufacturing, and infrastructure development, which in turn drives the need for raw materials and commodities produced by the sector.
- *Construction & Infrastructure Development:* Construction is a major driver of materials demand. New residential, commercial, and infrastructure projects require significant quantities of construction materials, such as cement, steel, and lumber.
- *Manufacturing Activity:* The manufacturing sector relies on materials like metals, plastics, and chemicals. The level of manufacturing activity, including the production of consumer goods, machinery, and industrial equipment, affects the demand for these materials.
- *Commodity Prices:* The prices of commodities such as metals, oil, and chemicals can be volatile and impact the cost structure of materials production. Fluctuations in commodity prices can affect the profitability of materials companies.
- *Government Regulations:* Regulations related to environmental sustainability and emissions can affect materials production processes and costs. Compliance with environmental standards may require investments in cleaner technologies.

SWOT Analysis: Materials Sector

- **Strengths (Internal):**
 - *Resource Abundance:* The sector benefits from an abundance of natural resources, including minerals, metals, chemicals, and raw materials, which serve as the foundation for various industries.
 - *Global Demand:* There is a consistent global demand for materials, driven by infrastructure development, construction, manufacturing, and technological advancements.
 - *Technological Innovation:* Advancements in technology have improved extraction methods, efficiency, and sustainability in resource-intensive industries.
- **Weaknesses (Internal):**
 - *Cyclical Nature:* The Materials Sector is highly cyclical and sensitive to economic downturns, with demand often fluctuating with the business cycle.
 - *Environmental Concerns:* Resource extraction and production can have adverse environmental impacts, leading to regulatory challenges and increased scrutiny.
 - *High Capital Requirements:* Many materials sector businesses require substantial capital for infrastructure, equipment, and exploration, making it capital-intensive.
- **Opportunities (External):**
 - *Infrastructure Development:* Increasing investments in infrastructure projects globally provide growth opportunities for materials companies.
 - *Sustainable Practices:* Companies that adopt sustainable and environmentally friendly practices can meet growing demand for responsible sourcing.
 - *Emerging Markets:* Expanding into emerging markets with growing populations and industrialization can create new customer bases.
- **Threats (External):**
 - *Economic Downturns:* Economic recessions can lead to reduced construction, manufacturing, and demand for materials.
 - *Geopolitical Instability:* Political tensions and conflicts in resource-rich regions can disrupt supply chains.
 - *Substitute Materials:* Technological advancements may lead to the development of alternative materials or processes, reducing demand for traditional materials.

Economic Analysis

This economic analysis will consider important factors like PCE Inflation, Unemployment, the FED interest rate and monetary policy.

- *Inflation:* The PCE (Personal Consumption Expenditures) inflation rate is at 2.8%, which is above the Federal Reserve's target of 2%, but lower than the 3.3% projection. This indicates that there is currently elevated inflation in the economy. The FED acknowledges this and expresses its commitment to returning inflation to its 2% objective.
- *Unemployment:* The unemployment rate is at 3.8%. This suggests a very tight labor market with low levels of unemployment, which is typically associated with a strong job market.
- *Economic Activity:* The Federal Reserve indicates that economic activity has been expanding at a solid pace. This is a positive sign for the overall health of the economy, although it mentions that job gains have slowed in recent months. Despite this slowdown, the job market remains strong. 2023 percent change in GDP was well above the September projection.
- *Monetary Policy:* The Federal Reserve has decided to maintain the target range for the federal funds rate at 5-1/4 to 5-1/2 percent. This suggests that the FED is holding interest rates steady at a relatively high level, likely to combat inflation. The Fed also mentions its commitment to reducing its holdings of Treasury securities and agency debt and agency mortgage-backed securities, which is a part of its strategy to normalize its balance sheet.
- *Uncertainty:* The FED acknowledges uncertainty regarding the effects of tighter credit conditions on economic activity, hiring, and inflation. This uncertainty suggests that the central bank is closely monitoring economic developments and may adjust its monetary policy as needed.

The table below acknowledges changes, and projections in real GDP, unemployment, PCE inflation and core PCE inflation.

Percent															
Variable	Median ¹					Central Tendency ²					Range ³				
	2023	2024	2025	2026	Longer run	2023	2024	2025	2026	Longer run	2023	2024	2025	2026	Longer run
Change in real GDP	2.6	1.4	1.8	1.9	1.8	2.5-2.7	1.2-1.7	1.5-2.0	1.8-2.0	1.7-2.0	2.5-2.7	0.8-2.5	1.4-2.5	1.6-2.5	1.6-2.5
September projection	2.1	1.5	1.8	1.8	1.8	1.9-2.2	1.2-1.8	1.6-2.0	1.7-2.0	1.7-2.0	1.8-2.6	0.4-2.5	1.4-2.5	1.6-2.5	1.6-2.5
Unemployment rate	3.8	4.1	4.1	4.1	4.1	3.8	4.0-4.2	4.0-4.2	3.9-4.3	3.8-4.3	3.7-4.0	3.9-4.5	3.8-4.7	3.8-4.7	3.5-4.3
September projection	3.8	4.1	4.1	4.0	4.0	3.7-3.9	3.9-4.4	3.9-4.3	3.8-4.3	3.8-4.3	3.7-4.0	3.7-4.5	3.7-4.7	3.7-4.5	3.5-4.3
PCE inflation	2.8	2.4	2.1	2.0	2.0	2.7-2.9	2.2-2.5	2.0-2.2	2.0	2.0	2.7-3.2	2.1-2.7	2.0-2.5	2.0-2.3	2.0
September projection	3.3	2.5	2.2	2.0	2.0	3.2-3.4	2.3-2.7	2.0-2.3	2.0-2.2	2.0	3.1-3.8	2.1-3.5	2.0-2.9	2.0-2.7	2.0
Core PCE inflation ⁴	3.2	2.4	2.2	2.0		3.2-3.3	2.4-2.7	2.0-2.2	2.0-2.1		3.2-3.7	2.3-3.0	2.0-2.6	2.0-2.3	
September projection	3.7	2.6	2.3	2.0		3.6-3.9	2.5-2.8	2.0-2.4	2.0-2.3		3.5-4.2	2.3-3.6	2.0-3.0	2.0-2.9	
Memo: Projected appropriate policy path															
Federal funds rate	5.4	4.6	3.6	2.9	2.5	5.4	4.4-4.9	3.1-3.9	2.5-3.1	2.5-3.0	5.4	3.9-5.4	2.4-5.4	2.4-4.9	2.4-3.8
September projection	5.6	5.1	3.9	2.9	2.5	5.4-5.6	4.6-5.4	3.4-4.9	2.5-4.1	2.5-3.3	5.4-5.6	4.4-6.1	2.6-5.6	2.4-4.9	2.4-3.8

Financial Analysis

These financial fundamentals are used together to assess the financial health and performance of a company. Analysts often consider them alongside other metrics, industry benchmarks, and qualitative factors to form a comprehensive view of a company's financial situation and prospects. It's important to note that the interpretation of these metrics can vary depending on the industry, company size, and economic conditions, so they should be analyzed in context.

Financial fundamentals

Why these factors?

- *ROE*: a financial ratio that shows how much net income a company generates per dollar of invested capital. It helps investors understand how efficiently a firm uses its money to generate profit.
- *EPS Growth Rate*: the net income generated in a given period as allocated to each common share outstanding.
- *ROA*: measures how efficient a company's management is in generating profit from their total assets on their balance sheet.
- *Profit Margin*: represents the portion of a company's sales revenue that it gets to keep as a profit, after subtracting all of its costs.

	S&P 500	Materials Sector
ROE	23.24%	11.39%
EPS Growth Rate	3.2%	-17.85%
ROA	4.44%	4.74%
Net Profit Margin	10.7%	3.1%

The S&P 500 outperforms the materials sector in terms of ROE, EPS growth rate and profit margin. However, it lags behind in terms of ROA. These differences may be attributed to the specific characteristics and challenges within the materials sector, such as volatility in commodity prices and global economic conditions.

Major Companies

	Linde PLC (LIN)	Sherwin-Williams Inc. (SHW)	Freeport-McMoRan Inc. (FCX)
ROE	15.55%	70.7%	11.46%
EPS Growth Rate	15.50%	9.35%	1.29%
ROA	7.73%	10.49%	3.57%
Net Profit Margin	18.87%	10.36%	8.09%

These major companies in the S&P 500 index materials sector tend to outperform the market and the sector on every front. The top performers are Sherwin-Williams Co. and Linde PLC.

Valuation Analysis

Valuation ratios, including metrics like the P/E ratio, P/B ratio, P/S ratio and DY play a crucial role in evaluating a company's worth. These ratios are evaluated in conjunction with other financial indicators, industry benchmarks, and qualitative factors to develop a comprehensive understanding of a company's financial standing and future potential.

Why these ratios?

- *P/E*: a way to value a company by comparing the price of a stock to its earnings.
- *P/B*: measures the market's valuation of a company relative to its book value.
- *P/S*: an investment valuation ratio that shows a company's market capitalization divided by the company's sales for the previous 12 months.
- *DY*: a financial ratio that tells you the percentage of a company's share price that it pays out in dividends each year.

	S&P 500	Materials Sector
P/E	23.27	23.45
P/B	4.04	2.45
P/S	2.33	1.6
Dividend Yield	1.51%	2.5%

The materials sector has a lower P/B ratio, and P/S ratio indicating potentially more attractive valuations based on book value and sales. These ratios conclude that the materials sector is either undervalued or the sector is not worth as much. However, the materials sector offers a higher average dividend yield, implying a potentially better income generation for investors.

Major Companies

	Linde PLC (LIN)	Sherwin-Williams Co. (SHW)	Freeport-McMoRan Inc. (FCX)
P/E	32.62	33.72	33.26
P/B	5.01	21.49	3.66
P/S	6.15	3.49	2.69
Dividend Yield	1.24%	0.78%	1.41%

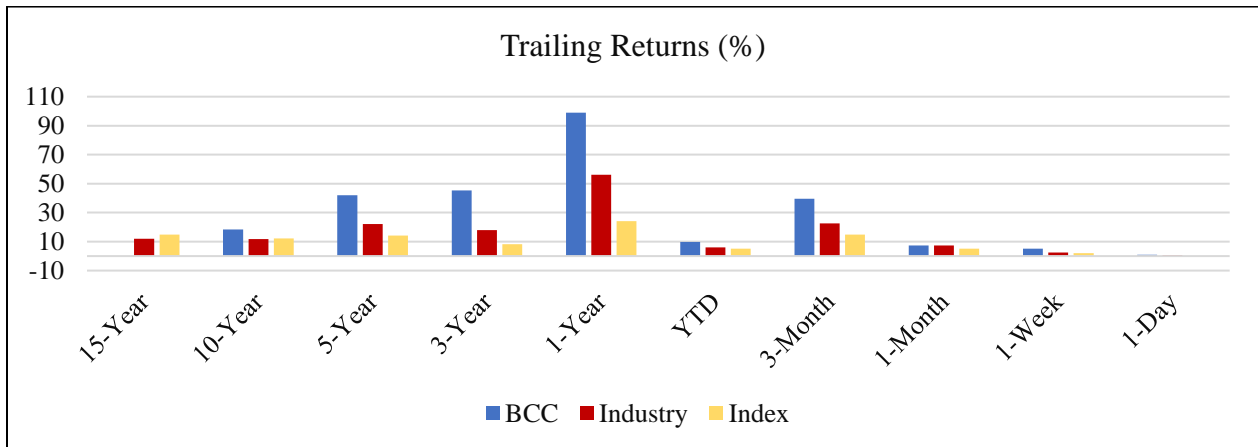
These major companies show an overvaluation in regard to the market and sector comparison. Despite the attractive nature of these individual companies, it is important to remember that the overvaluation and the current economic outlook suggest that investors wait to purchase such securities.

Current Holdings Trialing Returns

Why Trailing Returns?

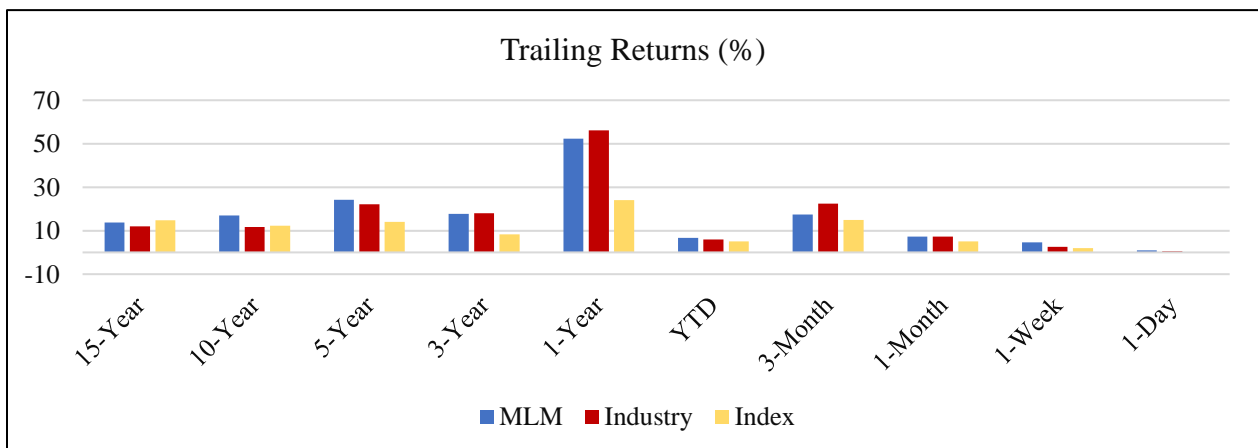
Trailing returns on an absolute basis can give you an idea of how much an investment has grown on a nominal basis, which can be compared to the benchmark. Trailing returns relative to a benchmark can tell you if an investment has outperformed or underperformed the benchmark over the measured time horizon.

Boise Cascade Co. (BCC)



BCC demonstrated remarkable performance, particularly in the 1-Year, 3-Year, and 5-Year periods, consistently outperforming both its industry peers and the broader market. The 1-year return, 98.94% is particularly noteworthy. BCC, over the long-run, significantly outperforms the industry and index.

Martin Marietta Materials Inc. (MLM)



Though relatively slight dips in short-term performance MLM has demonstrated resilience and strong performance, particularly in the medium term to longer term, consistently outpacing both its industry peers and the broader market index.

Recommendation

Based on the current market conditions and historical performance, we recommend the following actions regarding the Wisman Fund's allocation within the materials sector:

Underweight Materials Sector: Considering the cyclical nature, economic outlook, historical data, current financial data, and the SWOT analysis, the materials sector should be **underweighted**. The weight of the materials sector in the S&P 500 Index as of December 29th, 2023, was 2.6%. It is recommended that the fund find a target weight between 2.0%-2.2%. Underweighting this sector will help mitigate potential risks associated with the sector's underperformance in the rate-cut environment.

The Wisman Fund Current Holdings: Considering the underweighting recommendation, it is crucial to look at the current holdings to determine what the fund can sell. The information regarding these stocks can be found below.

	Boise Cascade Co. (BCC)	Martin Marietta Materials Inc. (MLM)
YTD Return	88.4%	47.6%
Holding Return	80.8%	137.1%
Total Time Held	1 yr. 8 mo.	6 yr. 1 mo.
Portfolio Weight	0.98%	0.94%
Sector Weight	50.9%	40.1%
Market Cap (Size)	\$5.67 B (Mid)	\$33.29 B (Large)

The Wisman Fund holdings in Boise Cascade Co. and Martin Marietta Materials Inc. are very strong positions in the materials sector. Year after year these two stocks have performed very well in the IMP portfolio. The IMP cohort should look to underweight this sector by maintaining its position in these two securities and not purchasing anymore. If change were to be made to this decision, it would be to decrease the weight of the sector by selling off portions of either BCC or MLM. The fund has reaped major benefits of holding these securities and will continue to see returns into the future.

Sources

<https://www.spglobal.com/spdji/en/indices/equity/sp-500/#data>

<https://digital.fidelity.com/prgw/digital/research/sector/detail/materials>

<https://www.sectorspdrs.com/mainfund/xlb>

[file:///C:/Users/codyw/Downloads/fs-sp-500-materials-sector%20\(1\).pdf](file:///C:/Users/codyw/Downloads/fs-sp-500-materials-sector%20(1).pdf)

<https://www.yardeni.com/pub/peacockperf.pdf>

https://institutional.fidelity.com/app/item/RD_13569_40890/business-cycle-update.html

<https://www.bea.gov/data/personal-consumption-expenditures-price-index>

https://www.gurufocus.com/economic_indicators/categories/market-trend/sp-500-indicators/sp-500-metrics

https://csimarket.com/Industry/industry_ManagementEffectiveness.php?s=100

<https://www.macrotrends.net/stocks/charts/LIN/linde/eps-earnings-per-share-diluted#:~:text=Linde%20EPS%20for%20the%20twelve,a%2055.63%25%20increase%20from%202020>

<https://www.macrotrends.net/stocks/charts/SPGI/s-p-global/pe-ratio>

<https://www.morningstar.com/stocks/xnys/bcc/trailing-returns>

<https://www.carboncollective.co/sustainable-investing/trailing-returns#:~:text=Trailing%20returns%20on%20an%20absolute,over%20the%20measured%20time%20horizon.>