

Global Industrials

BofA Industrial Momentum Indicator holds steady: ready to break-out through 2024?

Industry Overview

BofA Industrial Momentum Indicator stable MoM basis

The BofA Industrial Momentum Indicator was broadly unchanged MoM (i.e., stable) driven by relatively flattish readings across key inputs (Fund Manager positioning, copper, see exhibit 1). The Indicator remains at the high end of its tight range over the last 12 months – struggling to fully ‘break out’ to the upside yet resting well above bottoms observed in prior cycles (October ‘22, trade wars, COVID) to limit the downside. The Indicator typically leads Global PMI and industrial revisions (Exhibit 4) – suggesting flattish trends. There are some encouraging signs that a sustained upturn or ‘break out’ could be in play through ‘24 - BofA Truck Shipper Survey data points (key inputs) are starting to improve & BofA Commodities team expects a recovery in copper in the 2H.

BofA Indicators & Surveys signal mixed to positive signs

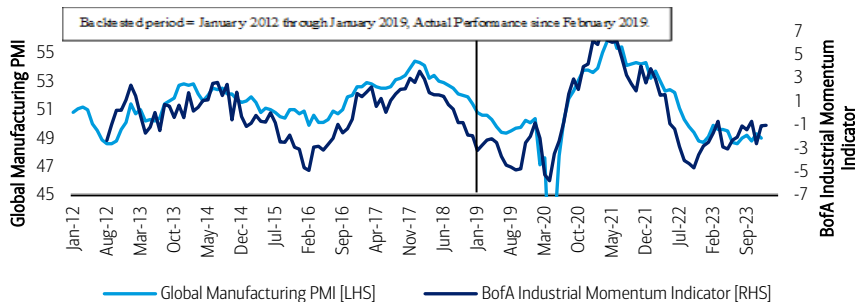
Along with the BofA Industrial Momentum Indicator, there are other signals across BofA global industrial department. For example, BofA Research analyst Andrew Obin’s Fluid Power Survey outlook and demand are positive yet trends broadly slowing. BofA Japan Factory Automation Indicator picked up to a new cycle high - first sign coming out of a protracted bottoming process. BofA analyst Ken Hoexter’s Truck Shipper Survey is still in a freight recession territory yet demand & rate indicators notably improved off the lows.

BofA fundamental analysts highlight

If the Indicator trends upwards (signal to cyclicals), BofA fundamental analysts highlight AL, PH, KNX, and VMC (Ex. 2). If the Indicator resumes its downward trend, BofA fundamental analysts highlight GD, HON, UNP, and RSG (Ex. 3).

Exhibit 4: BofA Industrial Momentum Indicator vs Global Manufacturing PMI

BofA Industrial Momentum Indicator typically leads Global Manufacturing PMI



Source: BofA Global Research, Backtested period = January 2012 through January 2019, Actual Performance since February 2019. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. Disclaimer: The indicator identified as BofA Industrial Momentum Indicator above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purposes, without the prior written consent of BofA Global Research. This indicator was not created to act as a benchmark

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Exhibit 1: BofA Industrial Momentum Indicator: Inputs and Sources

Inputs and Sources

Inputs	Source
Net % Say Global Profits Will Improve	BofA
Net % overweight in Basic Materials	BofA
BofA Truckload Diffusion Indicator (Demand)	BofA
BofA Truckload Diffusion Indicator	BofA
LME Copper Cash (\$)	FactSet

Source: BofA Global Research, FactSet

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Exhibit 2: When the Indicator is rising, BofA fundamental analysts highlight:

Based on BofA fundamental analysts

Sector (Region)	Analyst	Stock (Ticker)
A&D (US)	Ronald Epstein	Air Lease Corp. (AL)
Multis (US)	Andrew Obin	Parker Hannifin (PH)
Transportation (US)	Ken Hoexter	Knight-Swift (KNX)
Machinery (US)	Michael Feniger	Vulcan Materials (VMC)

Source: BofA Global Research, all Buy-rated stocks selected by BofA fundamental analysts

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Exhibit 3: When the Indicator is falling, BofA fundamental analysts highlight:

Based on BofA fundamental analysts

Sector (Region)	Analyst	Stock (Ticker)
A&D (US)	Ronald Epstein	General Dynamics (GD)
Multis (US)	Andrew Obin	Honeywell (HON)
Transportation (US)	Ken Hoexter	Union Pacific (UNP)
Machinery (US)	Michael Feniger	Republic Services (RSG)

Source: BofA Global Research, all Buy-rated stocks selected by BofA fundamental analysts

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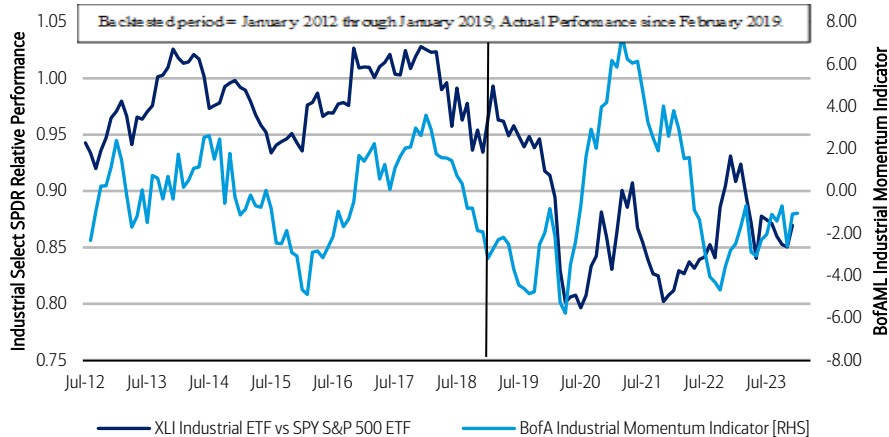
BofA Industrial Momentum Indicator

The BofA Industrial Momentum Indicator is a proprietary tool for identifying major inflection points for global industrial stocks spanning the US, European, and Japanese Machinery, Multi-Industry, Transportation, and Aerospace & Defense sectors. We worked with our Data Analytics team to create an indicator that is intended to lead Industrial sales revisions, earnings growth, and the Global Manufacturing Purchasing Managers' Index (Global Mfg PMI) on a two-month basis.

In our backtest period, Industrials generally underperformed the market in periods when the BofA Industrial Momentum Indicator was falling and typically outperformed when the Indicator bottomed and improved. This dynamic is also applicable when evaluating cyclical versus defensive sectors.

Exhibit 5: BofA Industrial Momentum Indicator vs XLI (Industrial Select) relative performance

BofA Industrial Momentum Indicator foreshadows turns in relative performance



Source: BofA Global Research, Backtested period = January 2012 through January 2019, Actual Performance since February 2019. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. Disclaimer: The indicator identified as BofA Industrial Momentum Indicator above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purposes, without the prior written consent of BofA Global Research. This indicator was not created to act as a benchmark

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Components: Indicator rises slightly on improvement across most components

The BofA Industrial Momentum Indicator's inputs include readings from BofA's Global Fund Manager Survey, BofA's Truckload Diffusion Indicator, and copper prices (see Exhibit 6). The Indicator's relatively unchanged position in December was largely driven by improved profit expectations by fund managers, early signs of recovery from BofA's Truck Diffusion Indicator, offset by flattish copper and Fund Manager positioning. More specifically, global corporate profit expectations in January improved to the most optimistic sentiment since February '22: net 21% of investors expect global profit expectations to worsen over the next 12 months, down from net 26% in December (vs net 36% in November vs net 37% in October), according to the Fund Manager Survey. These readings are now trending slightly above the lows seen over the past year, which were similar to levels around the collapse of LTCM (Long Term Capital Management), bursting of the Dotcom bubble, Lehman bankruptcy, and COVID. While BofA analyst Ken Hoexter's proprietary Truckload Diffusion Indicator remains at low levels, both rate and demand expectations have been improving. The positioning in Fund Manager Allocations to Materials remained flat at net 9% underweight in January (vs 9% underweight in December vs net 17% underweight in November). For more details on the Indicator's composition, see the Methodology section on pages 8-10.

Exhibit 6: BofA Industrial Momentum Indicator: Key Inputs

Key inputs include Fund Manager profit expectations, Fund Manager positioning, BofA Truckload Diffusion Indicator, and Copper

Inputs	Source	Description	Relevancy to Global Industrials
Net % Say Global Profits Will Improve	BofA	Global Fund Manager's outlook on global profits	Industrials are considered a cyclical sector, contingent on the global profit outlook
Net % overweight in Basic Materials	BofA	Global Fund Manager's positioning within Materials	Industrials are considered a broad derivative of the Basic Materials and Energy markets
BofA Truckload Diffusion Indicator (Demand)	BofA	Shipper's 0- to 3-month freight demand outlook	Survey over 1,000 shipping managers on demand expectations - touches all aspects of the economy
BofA Truckload Diffusion Indicator (Rates)	BofA	Shipper's 0- to 3-month freight rate outlook	Survey over 1,000 shipping managers on rate/pricing expectations - touches all aspects of the economy
LME Copper Cash (\$)	FactSet	Copper cash price from London Metal Exchange	Copper a barometer of global growth and particularly China - consumes nearly 60% of the copper market

Source: BofA Global Research, FactSet

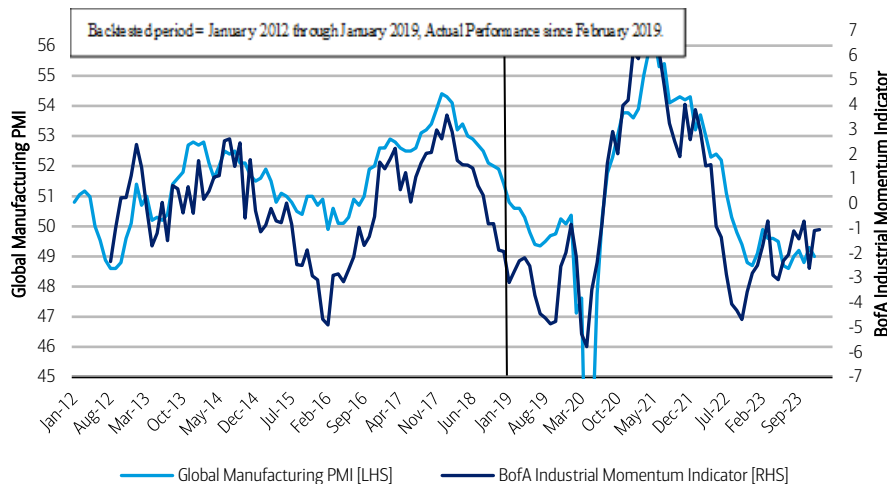
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1. Indicator leads global manufacturing sentiment

The BofA Industrial Momentum Indicator helps gauge the directional trend in the Global Manufacturing PMI. The Global Manufacturing PMI fell to 49.0 in December from 49.3 in November (vs 48.8 in October vs 49.2 in September vs 49.0 in August). We would note that December marks the sixteenth consecutive month (after more than two years) in which Manufacturing PMIs have entered contraction territory (sub 50 reading). More specifically, the Global Manufacturing PMI is a diffusion index; readings below 50 indicate net contraction. According to our back-tested analysis, the BofA Industrial Momentum Indicator has led the Global Manufacturing PMI by two months with a correlation of 0.73 since 2013.

Exhibit 7: BofA Industrial Momentum Indicator vs Global Manufacturing PMI

Bottoms in the BofA Industrial Momentum Indicator lead bottoms in Global Manufacturing PMI



Source: BofA Global Research, Backtested period = January 2012 through January 2019, Actual Performance since February 2019. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. Disclaimer: The indicator identified as BofA Industrial Momentum Indicator above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purposes, without the prior written consent of BofA Global Research. This indicator was not created to act as a benchmark

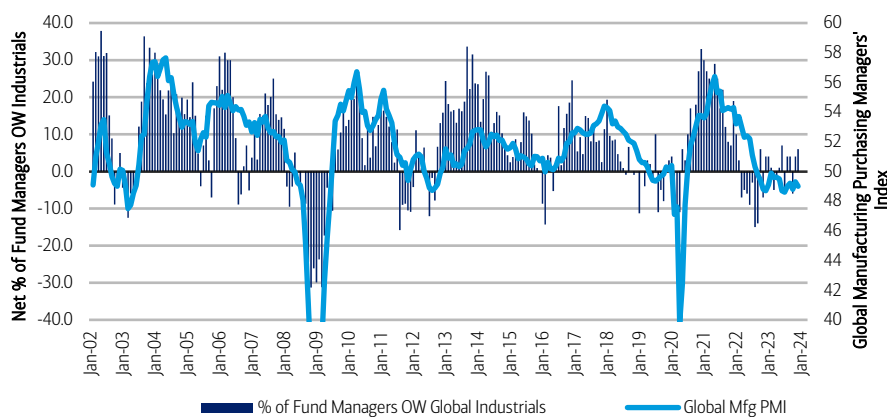
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Fund managers are slightly overweight Industrials on a global level

According to our BofA Global Fund Manager Survey, allocation to Industrials increased 2ppt MoM to 6% overweight in January (vs 4% overweight in December vs 6% underweight in November vs 4% overweight in October and September). This reading is 0.1 standard deviation below the long-term average. In January, Fund Managers have rotated into REITs, staples, commodities and added to cash, and trimmed longs in bonds, banks, insurance, telecoms and cut further UK, according to the Fund Manager Survey. The top overweight sectors include Pharma, Technology, Industrials, and Staples, followed by underweight sectors Communication Services, Discretionary, Banks, Energy, Materials, Insurance, and Utilities. The exhibit below illustrates the relationship between the Global Manufacturing PMI and Fund Manager positioning within Industrials. When the Global Manufacturing PMI slides to 50 (or below), fund managers typically reduce their overweight position. When Global Manufacturing PMI rises into deeper expansionary territory (50 and above), investors tend to position for an industrial recovery via Industrials sector.

Exhibit 8: Global Fund Managers' Positioning Industrials versus Global Manufacturing Purchasing Managers' Index

There is a tight relationship between Global PMIs and Fund Manager positioning with Industrials



Source: BofA Global Research, Bloomberg

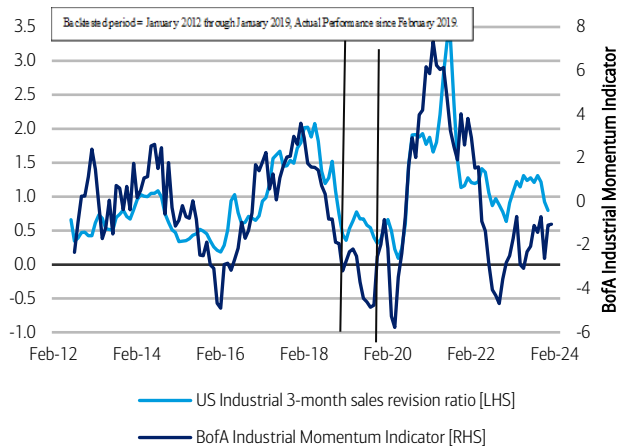
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2. Indicator leads Industrial Sales Revision Ratio

The US and Global sales revision ratios have started to moderate and roll over following the recovery post COVID recession, suggesting less conviction on the industrial recovery near-term. Based on our backtested analysis, the Indicator has led the Global and US industrial sales revision ratios by two months with correlations of 0.73 and 0.66, respectively, since 2013.

Exhibit 9: BofA Industrial Momentum Indicator versus US Industrials Sales Revision Ratio (3 months)

BofA Industrial Momentum Indicator typically leads US Industrial Sales Revisions

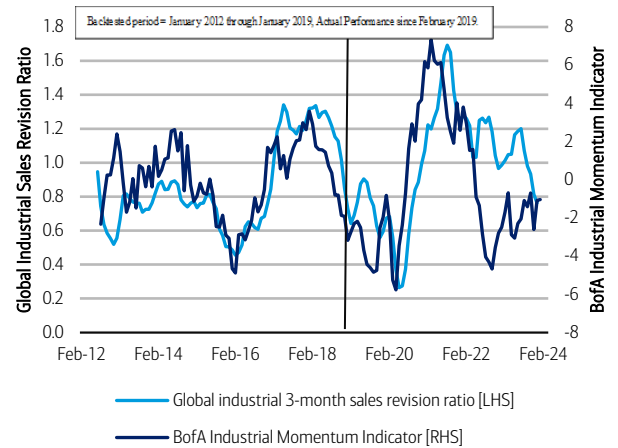


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Exhibit 10: BofA Industrial Momentum Indicator versus Global Industrials Sales Revision Ratio (3 months)

BofA Industrial Momentum Indicator typically leads Global Industrial Sales Revisions



Source: BofA Global Research, Backtested period = January 2012 through January 2019, Actual Performance since February 2019. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. Disclaimer: The indicator identified as BofA Industrial Momentum Indicator above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purposes, without the prior written consent of BofA Global Research. This indicator was not created to act as a benchmark

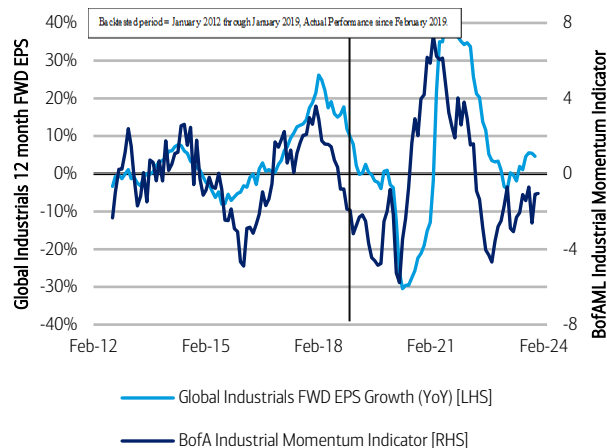
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3. Indicator leads Global Industrial earnings

The BofA Industrial Momentum Indicator could be a helpful guide for analyzing earnings the trajectory for Global Industrials. As illustrated in exhibits below, there is a strong relationship between the Indicator and Global Industrial Earnings growth. In our backtest, the Global Industrial Earnings Multiple de-rated in periods when the Indicator decelerated and re-rated when the Indicator improved. Upward momentum in the Indicator over the past seven months provides the case for upward revisions to forward EPS growth going forward for industrials.

Exhibit 11: BofA Industrial Momentum Indicator versus Global Industrials Forward EPS Growth

BofA Industrial Momentum Indicator typically leads Industrial EPS growth

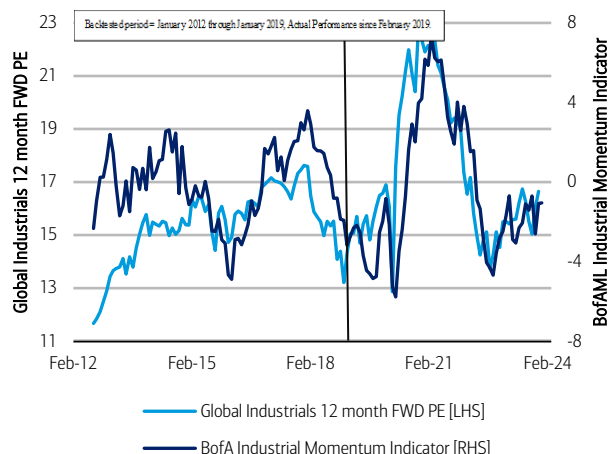


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Exhibit 12: BofA Industrial Momentum Indicator versus Global Industrials Forward PE

BofA Industrial Momentum Indicator typically leads Industrials multiple



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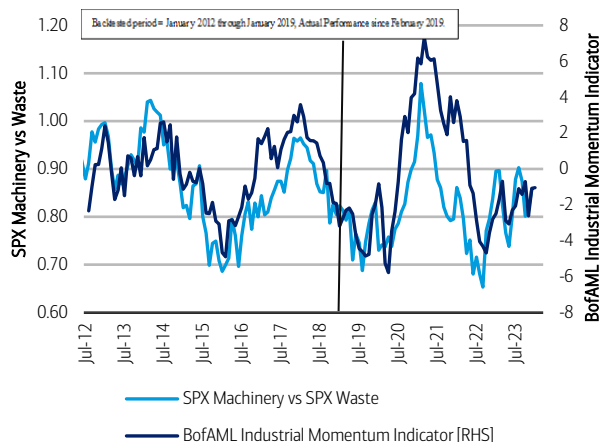
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4. Cyclical versus Defensive debate

The BofA Industrial Momentum Indicator is intended to provide investors with a tool to assess cyclical versus defensive positioning from a top-down approach. When the Indicator rises, cyclical sectors of the market (i.e., Industrials, transportation) have typically outperformed defensive sectors like Utilities, based on our backtest. This holds on a global basis (see exhibits below). We believe this dynamic exists within the industrial complex as well and helps empower investors to determine if they should favor more defensive-minded industrials (i.e., waste) or be more overweight deeper cyclicals (i.e., machinery, transports). We note that historical performance is not an indicator of future performance.

Exhibit 13: US: Machinery vs Waste

BofA Industrial Momentum Indicator can help assess cyclical vs defensive positioning (Global Industrials vs Global Utilities)

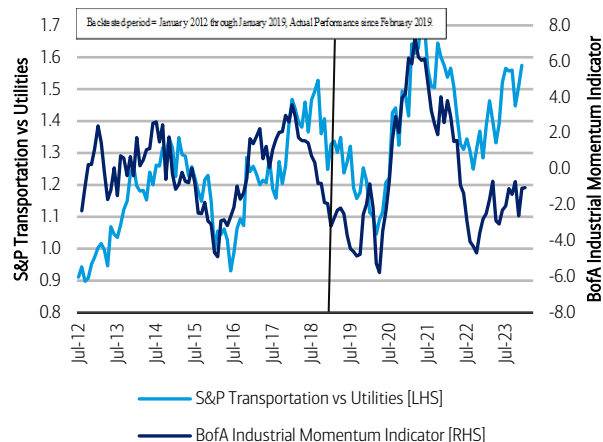


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Exhibit 14: US: S&P Transportation versus S&P Utilities

BofA Industrial Momentum Indicator can help assess cyclical vs defensive positioning (S&P Transportation vs Utilities)

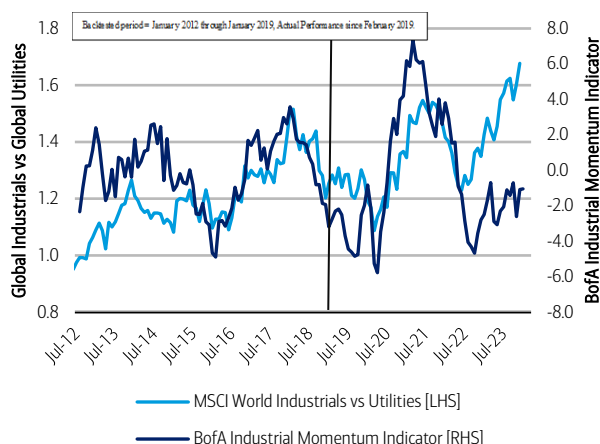


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Exhibit 15: Global MSCI Industrials versus MSCI Utilities

BofA Industrial Momentum Indicator can help assess cyclical vs defensive positioning (Global Industrials vs Global Utilities)

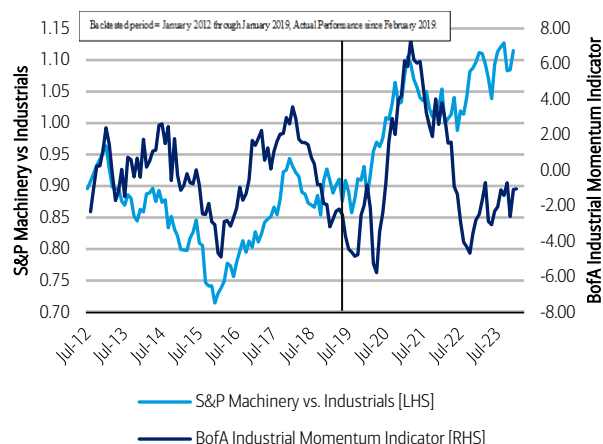


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Exhibit 16: US: Machinery vs Industrials

BofA Industrial Momentum Indicator can help assess cyclical vs defensive positioning (S&P Machinery vs S&P Industrials)



Source: BofA Global Research, Backtested period = January 2012 through January 2019, Actual Performance since February 2019. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. Disclaimer: The indicator identified as BofA Industrial Momentum Indicator above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purposes, without the prior written consent of BofA Global Research. This indicator was not created to act as a benchmark

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Background on the BofA Industrial Momentum Indicator

This is not your typical regression

The primary analytics method used in our analysis is called principal component analysis, which differs from a typical linear regression. Principal component analysis is a mathematical technique that converts a set of possibly correlated variables into linearly uncorrelated variables called principal components. As most of our inputs are correlated with each other, we found principal component analysis to be an appropriate choice. We then determined a subset of the principal components (derived from our inputs) which are added together to create a series that best correlates with the target variable, or Global Manufacturing PMI.

Methodology

Our BofA Industrial Momentum Indicator was developed using principal component analysis, or PCA. Under this approach, the input data series are first standardized using their respective means and standard deviations. PCA converts the original five data series (which are likely correlated) into five new data series that are uncorrelated with each other. These five new data series are called the principal components, or PCs, and each is a combination of the five original data series, weighted and added together (see Table 3). Each PC represents a portion of the total variance of the original data series.

Exhibit 17: “Principal components” weights by input

Weights by input

Inputs	PC1	PC2	PC3	PC4	PC5
Net % overweight in Basic Materials	0.32	0.80	-0.05	0.51	-0.01
Net % say global profit will improve	0.41	0.25	-0.51	-0.71	-0.01
LME Copper cash (\$)	0.38	0.11	0.84	-0.34	-0.13
BofA Truckload Diffusion Indicator (Demand)	0.52	-0.42	-0.17	0.29	-0.66
BofA Truckload Rates Indicator (Rates)	0.55	-0.34	-0.01	0.19	0.74

Source: BofA Global Research

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We then ran an exhaustive list of various combinations of the PCs against the target variable (Global Manufacturing PMI) to determine the correlation for each combination. This results in a table of the various combinations of the PCs and their respective results, which we use to choose a combination (based on our discretion) that we found had a high correlation to be our indicator.

Framework specification

Based on the results from the principal component analysis, our BofA Industrial Momentum Indicator is PC1+PC2+PC5. As a way of back-testing the model, we split the model into training (range: August 2012 – April 2018) and test (May 2018 – January 2019) periods. This combination results in a correlation with Global Manufacturing PMI during the training period of 0.70 and during the test period of 0.97.

Exhibit 18: Components of BofA Industrial Momentum Indicator

Components

Inputs	PC1	PC2	PC5	Indicator Weights(PC1+PC2+PC5)
Net % overweight in Basic Materials	0.32	0.80	-0.01	1.11
Net % say global profit will improve	0.41	0.25	-0.01	0.65
LME Copper cash (\$)	0.38	0.11	-0.13	0.36
BofA Truckload Diffusion Indicator (Demand)	0.52	-0.42	-0.66	-0.56
BofA Truckload Rates Indicator (Rates)	0.55	-0.34	0.74	0.95

Source: BofA Global Research

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These components can then be combined to give a final indicator:

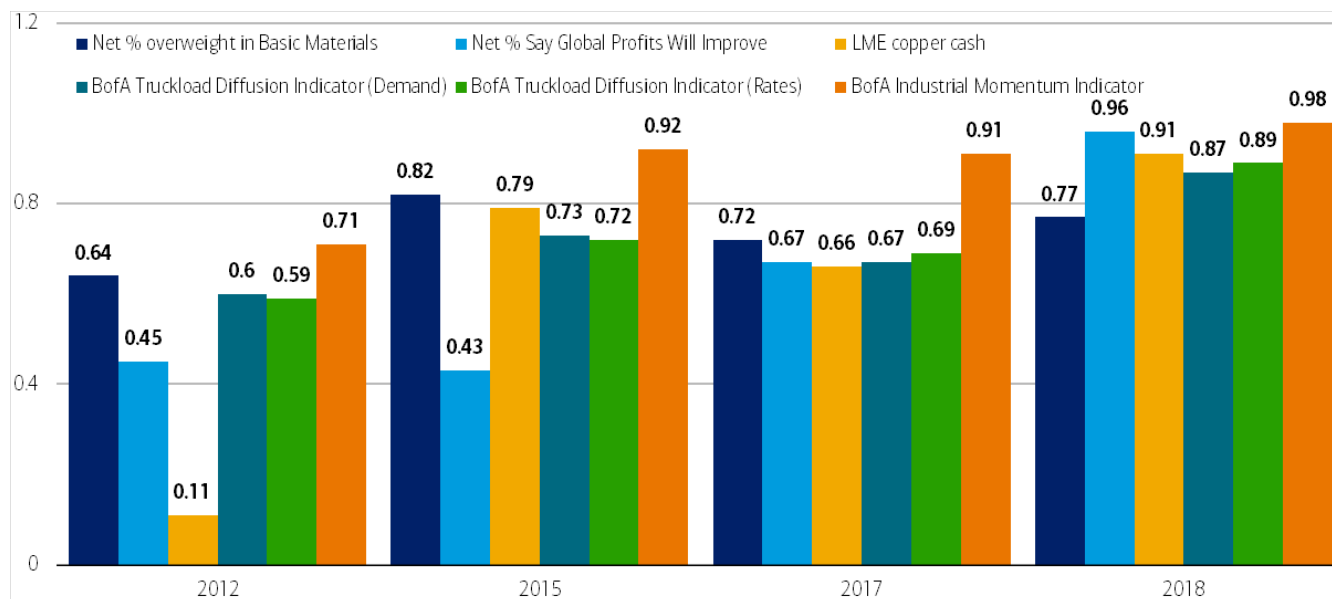
$$\begin{aligned} \text{Indicator} = & (\text{Net \% overweight in Basic Materials Sector}) \times 1.11 + \\ & (\text{Net \% say global profit will improve}) \times 0.65 + \\ & (\text{LME copper cash}) \times 0.36 + \\ & (\text{BofA Truckload Diffusion Indicator (Demand)}) \times -0.56 + \\ & (\text{BofA Truckload Diffusion Indicator (Rates)}) \times 0.95 \end{aligned}$$

Indicator Performance Comparison

We have observed that none of the individual inputs is as highly correlated to the Global Manufacturing PMI as the BofA Industrial Momentum Indicator.

Exhibit 19: Correlation: We have observed that none of the individual inputs is as highly correlated to the Global Manufacturing PMI as the BofA Industrial Momentum Indicator

Correlation analysis



Source: BofA Global Research

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Risks to our Indicator

Fund managers positioning in basic materials and shipping manager's rate expectations have the highest weightings in the BofA Industrial Momentum Indicator. Changes in these inputs may significantly impact the Indicator. Additionally, any spikes in the copper market due to supply events rather than demand could impact the Indicator.

Historical framework testing

In order to test the model over various historical time periods, a rolling 2-year window (starting 2013) correlation of the modeled indicator and the corresponding historical target variable was examined. According to our backtest, the overall average correlation across all 2 year rolling windows is 0.82.

The performance of the Indicator as set out in this report is backtested and does not represent the actual performance of any account or fund. Backtested performance depicts the hypothetical backtested performance of a particular strategy over the time period indicated. In future periods, market and economic conditions will differ and the same strategy will not necessarily produce the same results. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. In fact, there are frequently sharp differences between backtested returns and the actual results realized in the actual management of a portfolio. Backtested performance results are created by applying an investment strategy or methodology to historical data and attempts to give an indication as to how a strategy might have performed during a certain period in the past if the product had been in existence during such time. Backtested results have inherent limitations including the fact that they are calculated with the full benefit of hindsight, which allows the security selection methodology to be adjusted to maximize the returns. Further, the results shown do not reflect actual trading or the impact that material economic and market factors might

have had on a portfolio manager's decision-making under actual circumstances.
Backtested returns do not reflect advisory fees, trading costs, or other fees or expenses.

Abbreviations & Stock symbols:

PMI = Purchasing Manager Index

FMS = Fund Manager Survey

ISM = Institute of Supply management

UNP = Union Pacific Corp

VMC = Vulcan Materials

AL = Air Lease Corporation

PH = Parker Hannifin

GD = General Dynamics Corp

HON = Honeywell

KNX = Knight-Swift Transportation

RSG = Republic Services

Exhibit 20: Stock Mentioned

Stock prices and ratings mentioned in this report

BofA Ticker	Bloomberg ticker	Company name	Price	Rating
AL	AL US	Air Lease Corp.	US\$ 43.10	B-1-7
GD	GD US	General Dynamics	US\$ 264.75	B-1-7
HON	HON US	Honeywell	US\$ 203.05	B-1-7
KNX	KNX US	Knight-Swift	US\$ 57.67	B-1-7
PH	PH US	Parker Hannifin	US\$ 476.46	B-1-7
RSG	RSG US	Republic Services	US\$ 171.47	A-1-7
UNP	UNP US	Union Pacific	US\$ 245.12	B-1-7
VMC	VMC US	Vulcan Materials	US\$ 229.40	B-1-7

Source: BofA Global Research

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Price objective basis & risk

Air Lease Corporation (AL)

We derive our PO of \$60 using a 0.9x price-to-book value on our 2024 estimate of AL book value. We expect the percentage of net book value at risk to disappear by the end of 2023 due to improving market conditions (with commercial traffic recovering of pre-pandemic levels by the end of 2023) and sale of riskier assets as they come off lease.

Downside risks to our price PO are global economic weakness, fuel price spikes, inability to access capital markets at attractive terms, terrorism and geopolitical events, a downturn in aircraft values resulting from rising supply, flattening yield curve, continued sharp appreciation of the U.S. dollar, changes in equity risk premiums, and overall stock market and financial company valuations.

Upside risks to our PO are stronger than expected economic growth, faster than expected recovery to air travel demand, continued weakness in fuel prices, U.S. dollar depreciation, and easier access to credit at attractive rates.

General Dynamics (GD)

We derive our PO of \$295 using a two-stage discounted cash flow (DCF) analysis, which assumes a 9.1% discount rate, 5.0% 2028-2032 growth rate, and 2.6% long-term growth rate. In our view, GD's defense program exposure to land and sea priorities, coupled with Gulfstream could provide near-term and medium-term organic growth. Additionally, the company's strong balance sheet and solid cash generation could sustain dividend growth and share repurchases.

Downside risks to our PO are 1) a downturn could occur in business jets, due to an exogenous factor, 2) given that business jets are priced in dollars, an unexpected devaluation in the dollar could significantly impact order activity, 3) poor execution on defense programs could adversely impact margins, 4) defense budget cuts could limit growth in the medium and long term.

Honeywell International Inc. (HON)

We base our \$250 price objective on 15x 2025E EV/EBITDA. Our target multiple is a premium to peers trading at 14x EV/EBITDA on 2024E. We argue a premium multiple is warranted given top quartile execution and end market exposure to aerospace and oil & gas.

Downside risks to our price objective are: 1) Acquisitions, specifically that Honeywell overpays for deals in the pursuit of diversifying and expanding into new, faster-growing adjacent markets, 2) Unforeseen future sales deceleration due to economic pressures (e.g., slowing global flying hours, oil price volatility and muted O&G capex outlook), and 3) execution around ongoing simplification efforts.

Knight-Swift Transportation Holdings Inc (KNX)

Our \$64 price objective is based on a 25.5x target multiple on our 2024 EPS estimate. Our target multiple is above the upper end of its one-standard-deviation 22-year historical trading range of 14x-25x on year ahead estimates, as it moves past trough earnings. We view downside as somewhat limited given its diversified model and strong operational performance, and a truckload market that is beginning to work out excess capacity (though recognize the pendulum can overswing on rate declines and cost pressures). Nevertheless, given its diversification moves (LTL, Intermodal, Brokerage/Logistics, and Trucking/Dedicated) it looks to prove earnings will be more sustainable than in prior cycles.

Risks to our price objective are volatility at its truckload segment (particularly its historical SWFT segment, which is more exposed to large retail and project pricing),

slower earnings growth from its LTL acquisitions, weaker-than-expected economic conditions, an inability for the company to have trucking rates offset rising costs (driver pay, insurance, depreciation, and fuel), a severe accident impacting the company's image and finances, over-expanding (or acquiring assets) without maintaining its focus on cost controls, and a lack of growth opportunities, and the failure to complete its acquisition of US Xpress, which may affect its growth outlook.

Parker Hannifin Corporation (PH)

We base our \$525 price objective on a 14x EV/EBITDA multiple applied to our CY25E estimate. Our 14x target multiple is at a discount to the 16x multi-industrial peer average on 2024E and 17x Aerospace Suppliers peer average on 2024E. Parker has historically traded at a discount, but we believe it should start to close the gap with high quality peers AME and ITW.

Downside risks are: 1) industrial short-cycle destocking worse than expected, 2) Meggitt integration, and 3) the ability to offset material inflation through pricing. Upside risks: 1) Aerospace recovery has more upside given more exposure from Meggitt, and 2) Multiple expansion as the company closes the performance gap.

Republic Services (RSG)

Our \$182 price objective is based on 14x EV/EBITDA for 2024E, near the high end of its historical valuation range and consistent with peer Waste Management. We believe the high end of the range is appropriate as earnings are likely to continue to recover in 2024, waste offers higher visibility than other sectors, pricing backdrop continues to improve, and FCF is likely to remain positive. Relative to history, higher multiple stems from an improving pricing discipline for the waste industry, sustainability initiatives and overall stability in an uncertain, global industrial backdrop, in our view.

Upside risks to our PO are: 1) stronger-than-expected housing data, 2) higher-than-expected pricing trends, and 3) more aggressive cash return to shareholders than we currently envision. Downside risks to our PO are: 1) lower-than-expected CPI, 2) environmental liabilities. 3) Mix impact from higher waste generation at the home. 4) continued COVID-19 concerns.

Union Pacific (UNP)

Our \$274 price objective is based on a 24.5x multiple on our 2024 EPS estimate, as we are above the top of its 14x-20x historical range given the rapidly improving service gains under new CEO Jim Vena. We believe 2024 earnings will rebound from 2023's trough, particularly aided by the operational and cultural turnaround launched by Mr. Vena. The company should significantly improve its earnings outlook, drive improved cash flow, and return to buybacks in 2024. We target leverage to remain between 2.8x-3.0x, and look for it to re-engage in top-line growth, drive improved returns and cash flow.

Risks to our price objective are a more muted economic recovery, accelerating coal volume declines, muted winter weather leading utilities to build coal inventories, increased pricing competition neutralizing the benefits from the pricing currently enjoyed by the rail industry, higher than expected fuel prices, employee/union strikes, inability to exercise pricing power due to regulatory changes or legal challenges from customers, disruptive rail re-regulation that limits the company's ability to earn proper returns on its investments or mandates open access with unfavorable terms, risk from the Canadian Pacific (CP)-Kansas City Southern (KSU) merger absorbing Mexico vols, or harsh weather that disrupts operations beyond normal. Additionally, aggressive moves by in-region peer BNSF to take share, or if UNP's service metrics cannot improve, it could see sustained higher costs.

Vulcan Materials (VMC)



Our \$260/share price objective is based on 17x 2024E EV/EBITDA, which is near the middle of the historical average (12-21x). Vulcan Materials is exposed to construction markets that are vulnerable to an economic slowdown and higher rates. In our view, there several factors are likely to underpin Vulcan's multiple from trading at the very bottom of its range: i) Infrastructure stimulus provides funding visibility over the next few years even as the economic recovery matures, ii) BofA Strategists prefer high quality firms with strong cash flow characteristics and inflation protection, and iii) minimal exposure to the more uncertain themes facing Industrials (China, supply chains, capacity constraints). Additionally, VMC is a much more profitable and cash generative company in the past on a unit shipment basis.

Downside risks are: 1) aggregates prices and volumes fail to rise as we forecast, 2) bottlenecks (labor, supply chain, COVID) push out the volume recovery, 3) dislocation in rates slow down housing and non-residential construction recovery, 4) price-cost dynamics struggle to improve, limiting operating leverage, 5) Mexico quarry issues unresolved.

Analyst Certification

We, Andrew Obin, Ken Hoexter, Michael Feniger and Ronald J. Epstein, hereby certify that the views each of us has expressed in this research report accurately reflect each of our respective personal views about the subject securities and issuers. We also certify that no part of our respective compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

US - Aerospace and Defense Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	AerCap Holdings N.V.	AER	AER US	Ronald J. Epstein
	Air Lease Corporation	AL	AL US	Ronald J. Epstein
	Booz Allen Hamilton	BAH	BAH US	Mariana Perez Mora
	BWX Technologies, Inc.	BWXT	BWXT US	Ronald J. Epstein
	CACI International	CACI	CACI US	Mariana Perez Mora
	Cadre Holdings Inc	CDRE	CDRE US	Ronald J. Epstein
	Crane Co.	CR	CR US	Ronald J. Epstein
	Embraer	ERJ	ERJ US	Ronald J. Epstein
	General Dynamics	GD	GD US	Ronald J. Epstein
	HEICO Corporation	HEI	HEI US	Ronald J. Epstein
	Howmet Aerospace Inc.	HWM	HWM US	Ronald J. Epstein
	KBR	KBR	KBR US	Mariana Perez Mora
	Leidos Holdings	LDOS	LDOS US	Mariana Perez Mora
	Leonardo DRS, Inc.	DRS	DRS US	Ronald J. Epstein
	Northrop Grumman	NOC	NOC US	Ronald J. Epstein
	Palantir Technologies	PLTR	PLTR US	Mariana Perez Mora
	Parsons Corporation	PSN	PSN US	Mariana Perez Mora
	RBC Bearings Inc	RBC	RBC US	Ronald J. Epstein
	Rocket Lab	RKLB	RKLB US	Ronald J. Epstein
	Teledyne Technologies Inc	TDY	TDY US	Ronald J. Epstein
	TransDigm Group Inc.	TDG	TDG US	Ronald J. Epstein
	Triumph Group	TGI	TGI US	Ronald J. Epstein
NEUTRAL				
	Albany International	AIN	AIN US	Ronald J. Epstein
	Boeing	BA	BA US	Ronald J. Epstein
	Garmin	GRMN	GRMN US	Ronald J. Epstein
	Hexcel Corporation	HXL	HXL US	Ronald J. Epstein
	L3Harris	LHX	LHX US	Ronald J. Epstein
	Lockheed Martin	LMT	LMT US	Ronald J. Epstein
	RTX Corp	RTX	RTX US	Ronald J. Epstein
	Textron	TXT	TXT US	Ronald J. Epstein
UNDERPERFORM				
	Bombardier	BDRBF	BDRBF US	Ronald J. Epstein
	Bombardier Inc.	YBBD B	BBD/B CN	Ronald J. Epstein
	CAE Inc.	YCAE	CAE CN	Ronald J. Epstein
	CAE Inc.	CAE	CAE US	Ronald J. Epstein
	Huntington Ingalls Industries	HII	HII US	Ronald J. Epstein
	Mercury Systems	MRCY	MRCY US	Ronald J. Epstein
	Spirit AeroSys-A	SPR	SPR US	Ronald J. Epstein

US - Machinery Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	AECOM	ACM	ACM US	Michael Feniger
	Blue Bird Corp	BLBD	BLBD US	Sherif El-Sabbahy
	Caterpillar Inc	CAT	CAT US	Michael Feniger
	CNH Industrial NV	CNHI	CNHI US	Michael Feniger
	Construction Partners Inc.	ROAD	ROAD US	Michael Feniger
	ESAB Corp	ESAB	ESAB US	Sherif El-Sabbahy
	Finning International Inc.	YFTT	FTT CN	Sherif El-Sabbahy
	H&E Equipment Services Inc	HEES	HEES US	Sherif El-Sabbahy
	Knife River Corp	KNF	KNF US	Sherif El-Sabbahy
	Republic Services	RSG	RSG US	Michael Feniger
	Techtronic Industries Co Ltd	TTNDF	669 HK	Michael Feniger
	Techtronic Industries Co Ltd	TTNDY	TTNDY US	Michael Feniger
	United Rentals Inc	URI	URI US	Michael Feniger
	Vulcan Materials	VMC	VMC US	Michael Feniger
	Waste Connections Inc	WCN	WCN US	Michael Feniger

US - Machinery Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
NEUTRAL				
	AGCO Corp	AGCO	AGCO US	Michael Feniger
	Deere & Co	DE	DE US	Michael Feniger
	Fluor	FLR	FLR US	Michael Feniger
	GFL Environmental Inc	GFL	GFL US	Michael Feniger
	GFL Environmental Inc	YGFL	GFL CN	Michael Feniger
	Jacobs Eng.	J	J US	Michael Feniger
	Kennametal Inc.	KMT	KMT US	Michael Feniger
	Martin Marietta Materials	MLM	MLM US	Michael Feniger
	NV5 Global Inc.	NVEE	NVEE US	Michael Feniger
	PACCAR Inc	PCAR	PCAR US	Michael Feniger
	RB Global, Inc	RBA	RBA US	Michael Feniger
	Waste Management	WM	WM US	Michael Feniger
UNDERPERFORM				
	Allison Transmission Holdings Inc.	ALSN	ALSN US	Sherif El-Sabbahy
	Casella	CWST	CWST US	Michael Feniger
	Cummins Inc	CMI	CMI US	Michael Feniger
	Herc Holdings Inc	HRI	HRI US	Sherif El-Sabbahy
	IPG Photonics	IPGP	IPGP US	Michael Feniger
	Oshkosh Corp.	OSK	OSK US	Michael Feniger
	Terex Corp.	TEX	TEX US	Michael Feniger
	Timken Company	TKR	TKR US	Michael Feniger
RSTR				
	WillScot Mobile Mini	WSC	WSC US	Sherif El-Sabbahy

US - Multi-Industrials/Engineering and Construction Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	APi Group	APG	APG US	Andrew Obin
	AspenTech	AZPN	AZPN US	Andrew Obin
	Atmus Filtration	ATMU	ATMU US	Andrew Obin
	Dover Corp	DOV	DOV US	Andrew Obin
	Eaton Corp PLC	ETN	ETN US	Andrew Obin
	Emerson Electric Co	EMR	EMR US	Andrew Obin
	Flowserve	FLS	FLS US	Andrew Obin
	General Electric Company	GE	GE US	Andrew Obin
	Honeywell International Inc.	HON	HON US	Andrew Obin
	ITT Inc.	ITT	ITT US	Andrew Obin
	Montrose Environmental Group, Inc.	MEG	MEG US	Andrew Obin
	Parker Hannifin Corporation	PH	PH US	Andrew Obin
	PTC Inc.	PTC	PTC US	Andrew Obin
	Rush	RUSHA	RUSHA US	Andrew Obin
	Vertiv	VRT	VRT US	Andrew Obin
	Vontier	VNT	VNT US	Andrew Obin
NEUTRAL				
	3M Company	MMM	MMM US	Andrew Obin
	AMETEK Inc	AME	AME US	Andrew Obin
	Fortive Corporation	FTV	FTV US	Andrew Obin
	Johnson Controls International PLC	JCI	JCI US	Andrew Obin
	Pentair plc	PNR	PNR US	Andrew Obin
	Rockwell	ROK	ROK US	Andrew Obin
	Trane Technologies PLC	TT	TT US	Andrew Obin
UNDERPERFORM				
	Allegion	ALLE	ALLE US	Andrew Obin
	Carrier Global Corp.	CARR	CARR US	Andrew Obin
	Core & Main	CNM	CNM US	Andrew Obin
	Illinois Tool Works	ITW	ITW US	Andrew Obin
	John Bean Technologies	JBT	JBT US	Andrew Obin
	Keysight	KEYS	KEYS US	David Ridley-Lane, CFA

US - Multi-Industrials/Engineering and Construction Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst

US - Transportation Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	Canadian Pacific Kansas City Ltd	CP	CP US	Ken Hoexter
	CSX Corporation	CSX	CSX US	Ken Hoexter
	FedEx Corp.	FDX	FDX US	Ken Hoexter
	J.B. Hunt Transport Services	JBHT	JBHT US	Ken Hoexter
	Kirby Corp	KEX	KEX US	Ken Hoexter
	Knight-Swift Transportation Holdings Inc	KNX	KNX US	Ken Hoexter
	Norfolk Southern	NSC	NSC US	Ken Hoexter
	Old Dominion Freight Line	ODFL	ODFL US	Ken Hoexter
	RXO, Inc.	RXO	RXO US	Ken Hoexter
	Saia Inc.	SAIA	SAIA US	Ken Hoexter
	Teekay Tankers Limited	TNK	TNK US	Ken Hoexter
	Union Pacific	UNP	UNP US	Ken Hoexter
	Wabtec Corp.	WAB	WAB US	Ken Hoexter
	XPO, Inc.	XPO	XPO US	Ken Hoexter

NEUTRAL				
	Canadian National	CNI	CNI US	Ken Hoexter
	Schneider National	SNDR	SNDR US	Ken Hoexter
	Scorpio Tankers Inc.	STNG	STNG US	Ken Hoexter
	TFI International	TFII	TFII US	Ken Hoexter
	TFI International	YTFII	TFII CN	Ken Hoexter
	UPS	UPS	UPS US	Ken Hoexter

UNDERPERFORM				
	ArcBest Corporation	ARCB	ARCB US	Ken Hoexter
	C.H. Robinson	CHRW	CHRW US	Ken Hoexter
	The Greenbrier Companies	GBX	GBX US	Ken Hoexter
	Werner Enterprises	WERN	WERN US	Ken Hoexter
	World Kinect	WKC	WKC US	Ken Hoexter

Disclosures

Important Disclosures

Equity Investment Rating Distribution: Aerospace/Defense Electronics Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	31	62.00%	Buy	23	74.19%
Hold	11	22.00%	Hold	9	81.82%
Sell	8	16.00%	Sell	6	75.00%

Equity Investment Rating Distribution: Engineering Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	5	45.45%	Buy	1	20.00%
Hold	1	9.09%	Hold	1	100.00%
Sell	5	45.45%	Sell	1	20.00%

Equity Investment Rating Distribution: Engineering & Construction Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	9	42.86%	Buy	5	55.56%
Hold	7	33.33%	Hold	3	42.86%
Sell	5	23.81%	Sell	3	60.00%

Equity Investment Rating Distribution: Industrials/Multi-Industry Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	45	50.56%	Buy	25	55.56%
Hold	26	29.21%	Hold	13	50.00%
Sell	18	20.22%	Sell	7	38.89%

Equity Investment Rating Distribution: Machinery/Diversified Manufacturing Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	27	42.19%	Buy	8	29.63%
Hold	17	26.56%	Hold	8	47.06%
Sell	20	31.25%	Sell	8	40.00%

Equity Investment Rating Distribution: Transport/Infrastructure Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	67	50.38%	Buy	44	65.67%
Hold	31	23.31%	Hold	13	41.94%
Sell	35	26.32%	Sell	17	48.57%

Equity Investment Rating Distribution: Global Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	1895	53.62%	Buy	1083	57.15%
Hold	832	23.54%	Hold	454	54.57%
Sell	807	22.84%	Sell	383	47.46%

^{R1} Issuers that were investment banking clients of BofA Securities or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only stocks. A stock rated Neutral is included as a Hold, and a stock rated Underperform is included as a Sell.

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Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster ^{R2}
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

^{R2} Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

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