BofA SECURITIES

Machinery, E&C and Waste

2023 Year Ahead: As the world turns - Machines likely to ultimately rise

Rating Change

13 January 2023

Equity
Americas
Machinery, E&C and Waste

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Tricky playbook: add some Machinery as the world turns

We recommend leveraging market volatility to add Machinery exposure & trim defensive positioning in our coverage through '23. Is Machinery immune to the weakness observed in other areas of the economy (retail, consumer, tech)? No. Data points likely get worse before getting better (PMIs, ABI, used values, housing) and eventually hit orders. That said, near-term earnings likely hold steady (price vs cost a powerful tailwind) and when backlogs ultimately fall (mid-2023), we see scope for lead indicators to improve.

Do not fight the improving lead indicators in the 2H

We see signs of lead indicators stabilizing and improving through 2023 (see BofA Industrial Momentum Indicator, OECDs, China credit, mortgage rates). As a result, lower backlogs to be viewed as 'soft landing' vs severe downturn. Investor apprehension to underwrite stable Industrial earnings today (i.e., *macro data is weak, recession is in front of us)* likely flips when orders slow (i.e., *indicators improving, recovery is in front of us*). Multiples expand as indicators inflect, commodities go up, and capex revises higher.

China: re-opening provides direct & indirect tailwinds

Machinery is typically viewed as a play on "*emerging markets and China*". While direct exposure is company specific, indirect exposure is larger (i.e., large consumer of metals, fossil fuels, ag). China re-opening is sector positive, particularly for bellwethers CAT, CMI.

Let's talk recession: trough EPS higher vs prior downturns

Our report illustrates how investors are likely to look back at 2023 – a recession year – positively surprised by the higher 'trough EPS'. This is driven by unique macro & end market factors: China re-opening, commodity capex bias to upside post years of underinvestment, shift in construction mix towards heavy/infrastructure vs light non-res.

Let's talk recovery: seeds planted for next multi-year cycle

As macro headwinds ease in 9 months & investors look towards a new cycle, Machinery screens favorable – beneficiary of a world 'short' energy, metals, ag. Capex higher or lower? (BofA - higher). Re-shoring accelerating or decelerating? (BofA - accelerating).

Risks: inventories, supply side, inflation turns to deflation

Machinery benefits from a certain level of 'tightness' in the market. If inventories continue to build, supply outpaces demand, used values drop – tightness unwinds. Inflation easing is positive – to an extent – yet too much deflation is a sector negative.

Stocks: CAT to Buy, J to Neutral; TKR to Buy, CWST to U/P

As we turn more constructive, we update our ratings in large caps (CAT to Buy, J to Neutral) and SMIDs (TKR to Buy, CWST to U/P). We see more value in SMID with less demanding valuation & re-rating catalysts: CNH, GFL, TEX. End market wise, we see less upside in on-highway (U/P PCAR) vs off-highway. Our top U/P is IPGP due to EPS risks. While we are taking a more offensive stance, we still advise selectivity given uncertainty: Aerials (prefer TEX vs OSK), Aggregates (prefer VMC to MLM), Waste (prefer RSG to WM).

Exhibit 1: Summary of Changes

Summary of rating and PO changes

	Rating		PO	
Ticker	New	Prior	New	Prior
TKR	Buy	Neutral	$ 87	$ 71
J	Neutral	Buy	$ 137	$ 137
CWST	U/P	Neutral	$ 81	$ 87
AGCO	Buy	Buy	$ 149	$ 127
ACM	Buy	Buy	$ 95	$ 90
MLM	Neutral	Neutral	$ 360	$ 365
FLR	Neutral	Neutral	$ 36	$ 33
KMT	Neutral	Neutral	$ 29	$ 27
IPG	U/P	U/P	$ 95	$ 85

Source: BofA Global Research

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PMI = Purchasing Manger Index

ABI = Architecture Billings Index

U/P = Underperform; SMIDs = Smid cap

CAT (Caterpillar), TKR (Timken), J (Jacobs), CWST (Casella Waste), CNH (CNH Industrial), TEX (Terex), PCAR (Paccar), IPGP (IPG Photonics), TEX (Terex), OSK (Oshkosh), VMC (Vulcan Materials), MLM (Martin Marietta), RSG (Republic Services), WM (Waste Management, ACM (AECOM), FLR (Fluor), KMT (Kennametal)

Refer to important disclosures on page 45 to 48. Analyst Certification on page 44. Price Objective Basis/Risk on page 36.
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Timestamp: 13 January 2023 06:00AM EST

2023: Machines will ultimately rise

Industrial economy is not immune to recession risks…

Is Machinery immune to the weakness observed in other areas of the economy (retail, consumer, tech)? No. Data points likely get worse before getting better (PMIs, ABI, used equipment values, housing) and eventually hit orders mid-2023. That said, near-term earnings are likely to hold steady given rising price vs cost tailwinds and solid backlogs.

…but when orders fall, lead indicators likely improve in 2H

While we see order rates slowing, lead indicators are likely to improve (see BofA Industrial Momentum Indicator, OECDs, China credit, mortgage rates). As a result, lower backlogs to be viewed as 'soft landing' vs severe downturn. Investor apprehension to underwrite stable Industrial earnings today (i.e., *macro data is weak, recession is in front of us)* could evolve when orders slow (i.e., *indicators improving, recovery is in front of us)*.

A general rule of thumb: Indicators go up, multiples go up

Our report illustrates that Machinery multiples tend to follow PMIs. Investors point out how industrial earnings have not followed the PMIs lower in 2022, so unlikely to respond if PMIs recover in 2023. Our view – if PMIs bottom, inflect, and turn – it is difficult to argue multiples de-rate as the market is likely to find more confidence in 2024 recovery.

China: re-opening provides direct & indirect tailwinds

Machinery is typically viewed as a play on "*emerging markets and China*". While direct exposure is company specific, the indirect exposure is rather large. China is one of the largest consumers of metals, fossil fuels, and ag, driving global equipment demand.

Let's talk recession: trough EPS higher vs prior downturns

Our report illustrates how investors are likely to look back at 2023 – a recession year – positively surprised by the higher 'trough EPS'. This is driven by unique macro & end market factors: China re-opening, commodity capex bias to upside post years of underinvestment, shift in construction mix towards heavy/infrastructure vs light non-res.

Let's talk recovery: seeds planted for next multi-year cycle

As macro headwinds ease in 9 months & investors look towards a new cycle, Machinery screens favorable – beneficiary of a world 'short' energy, metals, ag. Capex higher or lower? (BofA - higher). Re-shoring accelerating or decelerating? (BofA - accelerating).

Construction spotlight: see 'soft patch' vs severe decline

Our bottoms up analysis suggests a more stable outlook due to a shift in spending (heavy/infrastructure vs light): economically sensitive areas (office, retail) still below pre-COVID levels, record mega projects 'broke ground' LTM, infrastructure ramping up 2H.

Risks: inventories, supply side, inflation turns to deflation

Machinery benefits from a certain level of 'tightness' in the market. If inventories continue to build, supply outpaces demand, used values drop – tightness unwinds. Inflation easing is positive – to an extent – yet too much deflation is a sector negative.

Cyclicals vs defensives: rotation likely as the world turns

Defensives (like waste) great place to hide in uncertainty yet we are mindful of valuation. Waste trades at a premium to Machinery, above the historical average (66% vs 35%). As lead indicators turn 'less negative', defensive premium typically starts to narrow.

Stock watch: dislocations emerge – SMID caps room to run

As we turn more constructive, we update ratings in large caps (CAT raised to Buy, Jacobs down to Neutral) and SMID caps (Timken to Buy, CWST to Underperform). We generally see more value in small caps with re-rating catalysts: CNH, GFL, TEX. End market wise, see less upside in on-highway/trucks (U/P PCAR, ALSN). While we are taking a more offensive stance, we advise selectivity: Aerials (prefer TEX vs OSK) Aggregates (prefer VMC to MLM), and large Cap Waste (prefer RSG to WM).

Tricky playbook as the world turns

We recommend leveraging market volatility to add Machinery exposure & trim Defensive positioning in our coverage through '23. Is Machinery immune to the weakness observed in other areas of the economy (retail, consumer, tech)? No. Data points likely get worse before getting better (PMIs, ABI, used values, housing) and eventually hit orders. That said, near-term earnings likely hold steady (price vs cost a powerful tailwind) and when backlogs ultimately fall (mid-2023), we see scope for lead indicators to improve in 2H. Our Year Ahead report comprises of the following takeaways and sections:

1. **Top-down view**: BofA strategists expect long-term rotation post a bear market for 'old economy' vs 'new economy' sectors (page 3).
2. **Lead indicators:** Prepare for the turn (OECDs, BofA Industrial Momentum Indicator recovering). PMIs inflect - multiples expand, industrial positioning rises (page 4).
3. **Don't fight the Fed:** Evaluating Machinery in periods of tightening cycles. 2004-06 period is noteworthy – Machinery earnings were underpinned by a cocktail of China, emerging markets, higher commodity capex. We see similarities (page 9).
4. **China:** Credit metrics starting to inflect from the lows, typically leads China PMI. Re-opening tailwind to drive direct & indirect benefits for Machinery (page 11).
5. **Commodity capex:** BofA analysts see capex increases in 2023e across mining, E&Ps, and MLP (midstream). Customers are generating near record free cash flow (less dividends), ample room to spend with capex 30-50% below peak (page 14).
6. **Construction spotlight:** bottoms up analysis suggests a more stable outlook due to a shift in spending (heavy/infrastructure vs light): economically sensitive areas still below pre-COVID levels, record mega projects 'broke ground' last 12 months, infrastructure ramping up 2H23-2024 (page 14).
7. **Top risks:** Machinery benefits from a certain level of 'tightness' in the market. If inventories continue to build, supply outpaces demand, used equipment values drop – tightness unwinds (page 16).
8. **Hard landing risk:** We run an exercise in evaluating our coverage in a more severe downturn to gauge EPS and valuation scenarios (page 18).
9. **Defense vs cyclicals valuation spread:** The defensive names (waste) are trading at a premium (66%) to the cyclical Machinery stocks, above the historical average (35%). That said, premium tends to narrow as indicators recover (page 20).
10. **Stock watch**: We review our coverage sub-sectors – waste, engineering, rental, aerials, farm, trucks, aggregates – including estimates,, POs and top picks (page 21).

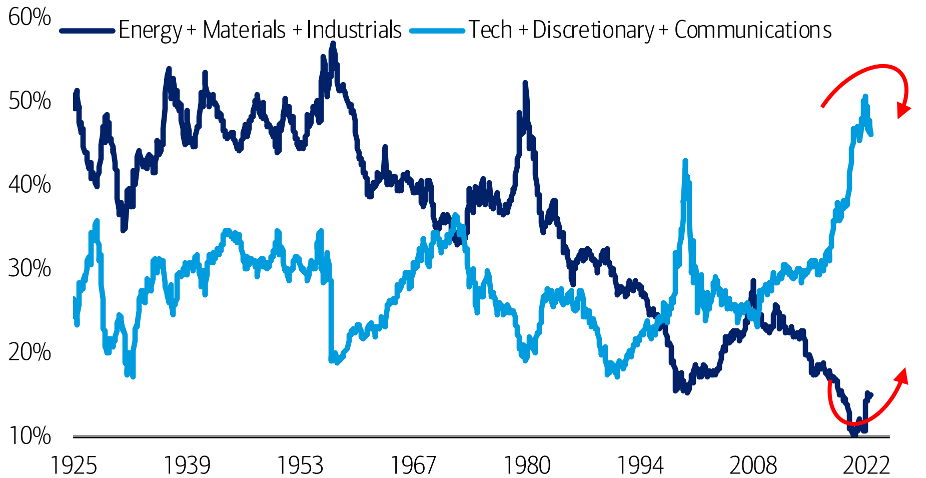
1) Long term rotation post a bear market

Machinery can emerge from bear market (and recession) with some runway

In our view, investors in the industrial space are likely to be weary (rightfully so) on 'secular' themes given the cyclical nature of earnings. We believe the cycle always matters first and foremost. That said, we see some powerful longer-term themes that are beginning to emerge which can support an evolution from '*trade the cycle'* to a longer term thesis in Machinery. BofA Strategist Michael Hartnett argues that market leadership changes after every bear market. The great reset of 2022 is likely to offer a change in the guard. Deflationary winners of yesterday such as credit, private equity, and US tech stocks are likely tomorrow's biggest laggards. Hartnett makes the case for 'real assets' such as real estate, farmland, infrastructure, and commodities in periods of higher-than-normal inflation and lower growth. BofA contends there is likely to be a powerful shift where 'old' economy sectors (energy, materials, industrials) are likely to gain given exposure to 'real assets', inflation protection, underinvestment in certain areas (fossil fuels, metals, equipment, infrastructure) and re-shoring manufacturing.

In our view, macro trends that BofA expects in 2023 are favorable to Machinery – lower USD, higher commodities, China re-opening, re-shoring manufacturing, etc. On a more bottoms-up basis, we see Machinery's customers in the strongest financial position in years (miners, E&Ps – record free cash flow, State DoT budgets – record fiscal stimulus, farmers – near record incomes), capital spending biased to the upside following years of under investment (mining, oil & gas capex still 30-40% below peak), fleet age is extended (drives replacement), and barriers to entry are likely higher than perceived.

Exhibit 2: "Old" economic sectors likely to gain weighting
Sector weighting in the S&P 500



Source: BofA Research Investment Committee, Global Financial Data, Bloomberg

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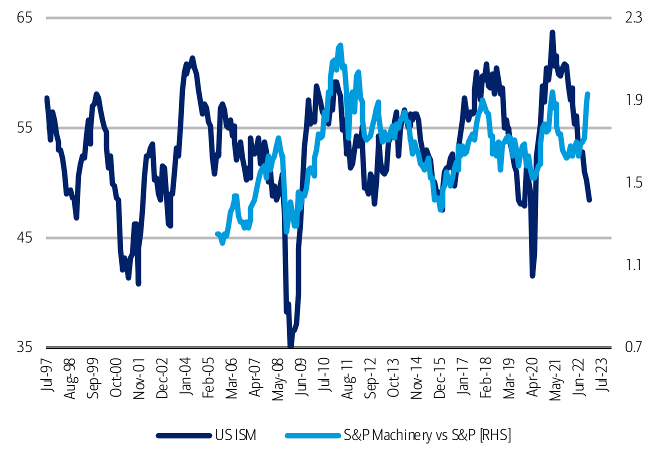
2) Lead indicators: prepare for the turn

In our view, risk-reward on cyclical industrials and Machinery starts to tilt favorably as lead indicators bottom and ultimately rise through 2023. As exhibits 3-4 illustrate, Machinery and Industrials typically perform well relative to the market when the ISM rises from trough/recessionary levels (sub 50 = contraction in manufacturing activity) to peak levels (60). We note there is some disconnect into the end of 2022. While ISM kept sliding lower in Q4, Machinery & Industrials performed well in Q4. This has prompted investors to question the relationship given this disconnect. In our view, if Indicators ultimately start to inflect and rise, we believe the playbook still remains for Machinery (see paragraph below where multiples typically rise in periods that ISM moves higher). Similarly, if PMIs/ISM continue to fall through 2023, this would be a headwind for Machinery.

Exhibit 3: S&P Machinery relative performance vs ISM
Typically, Machinery relative performance follows the ISM



Source: Bloomberg

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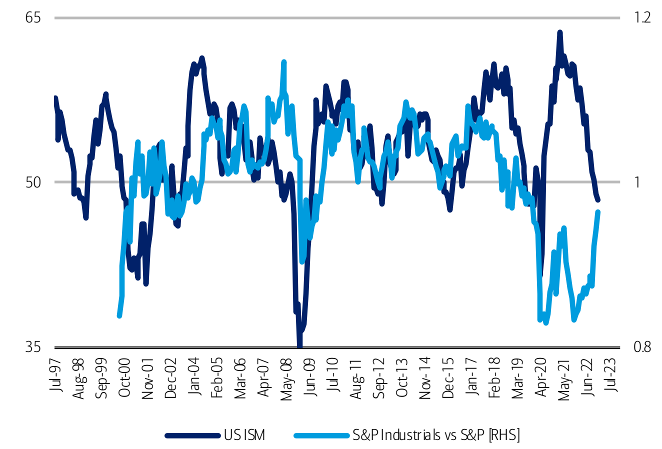
Exhibit 4: S&P Industrial relative performance vs ISM
Typically, Industrials relative performance follows the ISM



Source: Bloomberg

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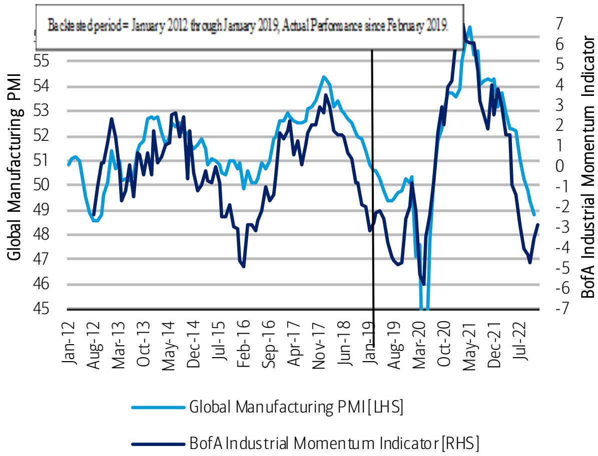
BofA Industrial Momentum Indicator bottomed and starting to turn

Our proprietary flagship indicator, the BofA Global Industrial Momentum indicator, is starting to recover following a downturn through most of 2022. The Indicator peaked in January and fell nearly every month this year, foreshadowing the slowdown in the PMI (Purchasing Manager Index). For example, the Global PMI peaked in February 2022 (53.7) and fell into contraction territory the last three months (i.e., sub 50 = contraction in manufacturing), hitting a low in December (48.6 – lowest since 2020). While we expect PMIs to remain weak in the near-term, the BofA Industrial Momentum Indicator ticking up the last two months is noteworthy. In our view, this likely suggests the downturn in the PMI and revisions are likely to be more mild vs dire expectations. The tick up in the Indicator is a function of an increase in components – rise of copper prices and slight rebound in very weak sentiment inputs (investor positioning, fund manager profit expectations next 12 months). Other key inputs - BofA Truck Shipper Survey data points – remain near lows given the freight recession conditions.

Exhibit 5: Replace BofA Industrial Momentum Indicator vs Global Manufacturing PMI this text

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. The indicator was not created to act as a benchmark

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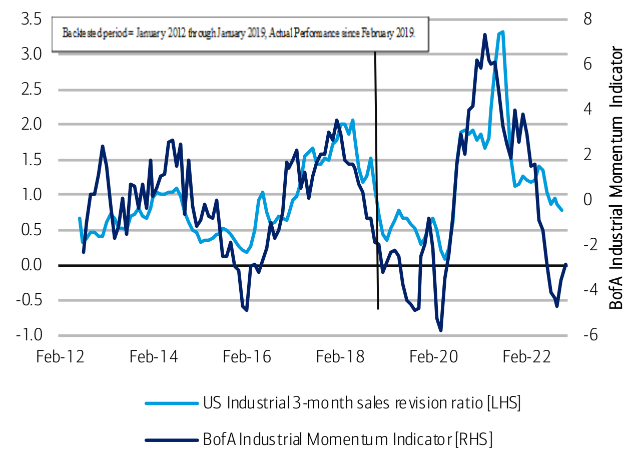
Exhibit 6: BofA Industrial Momentum Indicator versus US Industrials Sales Revision Ratio (3 months)

BofA Industrial Momentum Indicator typically leads US 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. The indicator was not created to act as a benchmark

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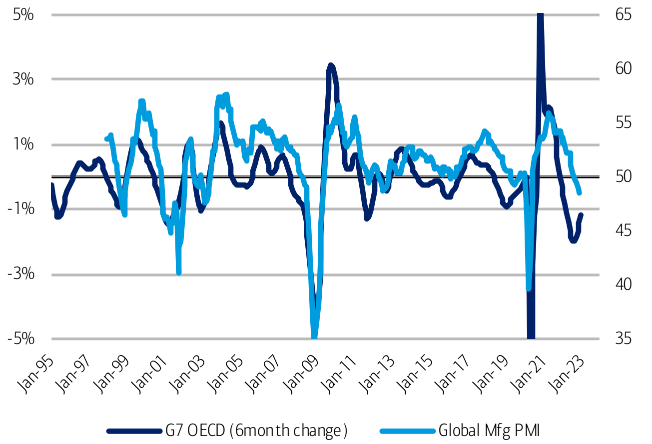
OECD Composite lead Indicators are curling up from the lows

Similarly, the OECD Composite Lead Indicators (on a 6 month change) are starting to turn a corner. As exhibits 7-10 illustrate, there is still some downside left for PMIs to 'catch up' with the lower OECDs. That said, the fact that the OECD rate of change is starting to improve (i.e., 'less negative') provide some encouragement around the depth of the downturn for PMIs. In our view, if OECDs continue to improve, this suggests the downturn in the PMI and revisions likely to be more mild vs dire expectations.

Exhibit 7: G7 OECD (6 month change) vs Global PMI
G7 OECD is turning 'less negative' on a 6 month change



Source: Bloomberg

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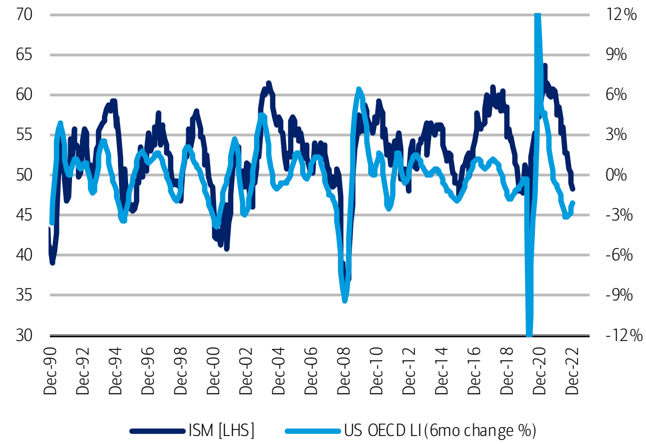
Exhibit 8: US OECD (6 month change) vs ISM
US OECD is turning 'less negative' on a 6 month change



Source: Bloomberg

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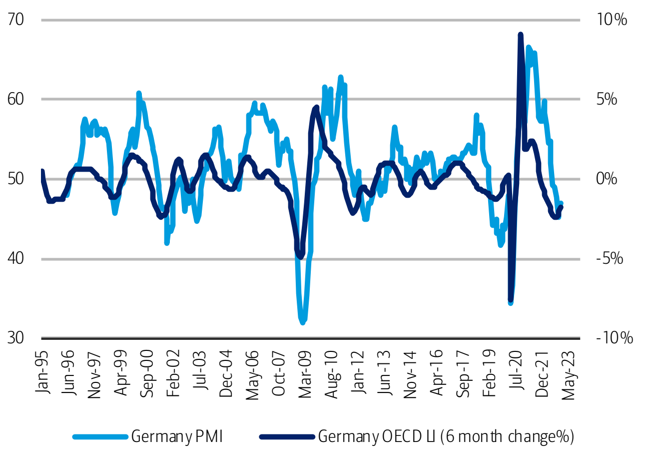
Exhibit 9: Germany OECD (6 month change) vs Germany PMI
Germany OECD is turning 'less negative' on a 6 month change



Source: Bloomberg

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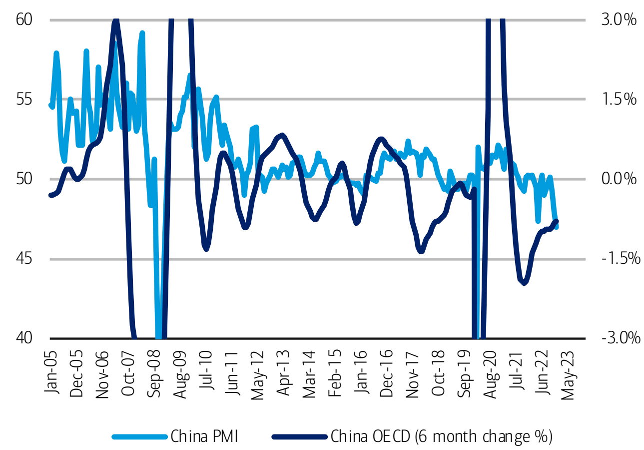
Exhibit 10: China OECD (6 month change) vs China PMI
China OECD is turning 'less negative' on a 6 month change



Source: Bloomberg

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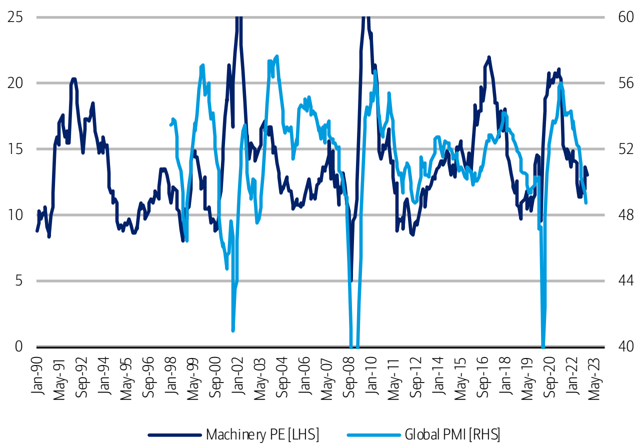
Multiples do not go lower if Indicators start to inflect

PMIs (including ISM) typically lead industrial production, which is why Machinery multiples are sensitive to the PMIs. The Machinery sector 12 month forward multiple de-rated from 14.5x in January to 12.6x in December. Interestingly, the sector multiple troughed at 11x in September and slowly went up through the last few months of the year in spite PMIs rolling over (i.e., decoupling from the typical trend). The sector has already observed some de-coupling, particularly with large caps vs small caps. The large cap bellwethers Caterpillar & Deere multiples held much steadier through 2022 with only slight de-rating from earlier in the year: CAT & Deere traded 17-18x in January vs 15-15.5x in December. Most of the sector de-rating was observed in the small cap Machinery universe (i.e., see exhibit of Timken and AGCO). For example, bearings supplier Timken de-rated from 12.5x in January to 10.4x in December.

Exhibit 11: Machinery Sector PE vs Global PMI
Machinery multiple typically follows the PMIs



Source: DataStream, IBES consensus, Bloomberg

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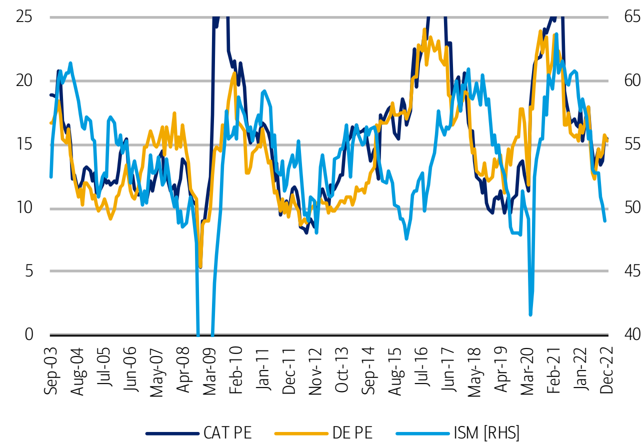
Exhibit 12: Caterpillar & Deere multiples vs ISM
Large cap machinery multiple de-rating has held up much better YTD



Source: DataStream, IBES consensus, Bloomberg

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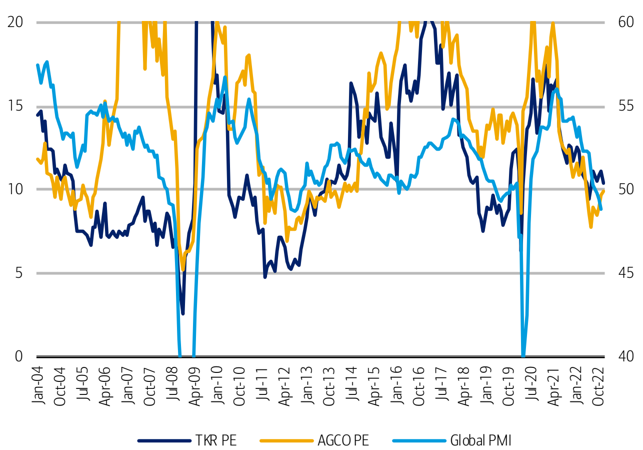
Exhibit 13: SMID cap multiples have de-rated with PMIs
Machinery multiples typically follow PMIs



Source: DataStream, IBES consensus, Bloomberg

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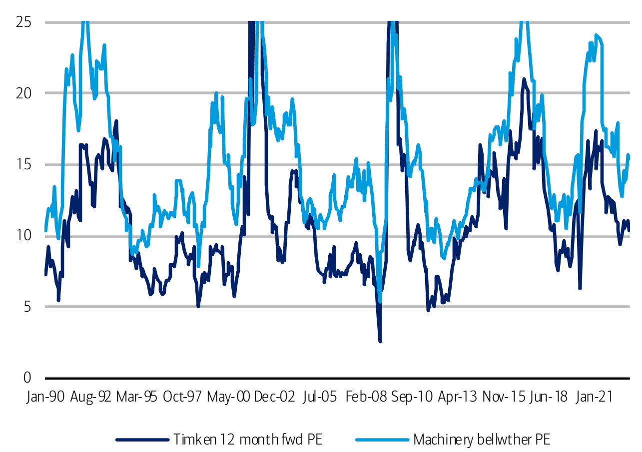
Exhibit 14: Smid cap (Timken) vs Machinery bellwethers (CAT+Deere)
Smid cap trading at over 30% discount to large caps



Source: DataStream, IBES consensus, Bloomberg, Machinery bellwether (CAT+DE average)

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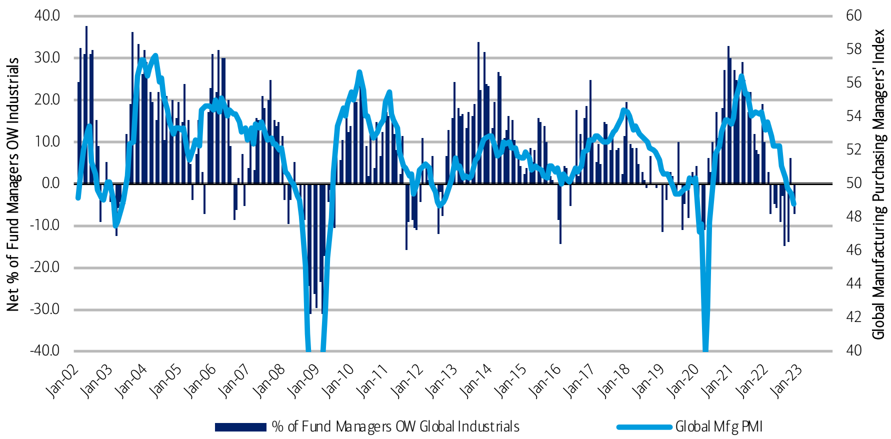
Industrial position: Fund Managers add as PMIs improve

Investors have rotated out of Industrials from the beginning of the year moving from an overweight in January to an underweight in December, according to the Fund Manager Survey. In our view, this follows the sliding PMI moving from expansion to contraction. According to the BofA Fund Manager Survey, the top overweight sectors include Pharma, Staples, Energy, Banks, Insurance, and Materials, followed by underweight sectors Technology, Industrials, Communication Services, Utilities, and Discretionary. Typically, a max underweight occurs when PMIs are sub 50 (i.e., contraction). As exhibit 15 illustrates, investors typically increase positioning in periods when PMIs bottom, stabilize, and recover. In our view, this is a potential event as we move through 2023.

Exhibit 15: Global Fund Managers' Positioning Industrials versus Global PMI
There is a tight relationship between Global PMIs and Fund Manager positioning with Industrials



Source: BofA Global Research, Bloomberg

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3) Don't fight the Fed (with exceptions)

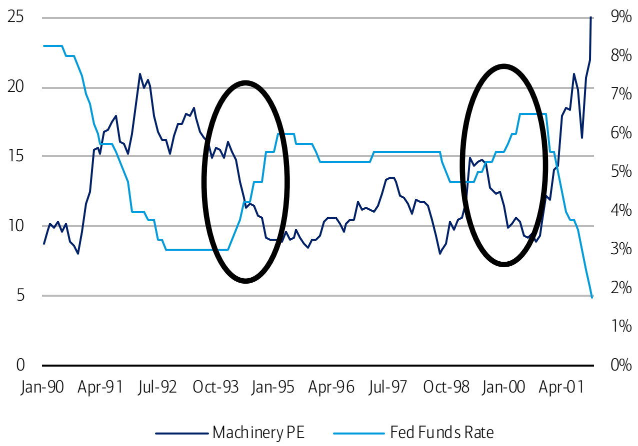
It is not uncommon for the Machinery sector (like most cyclical sectors) to experience some form of multiple compression in a Fed tightening cycle (see: Exhibits 16-18In recent months, CPI YoY growth has been on a downward trend and coming in below expectations, suggesting that we are past peak inflation. However, given that the Fed remains determined on returning inflation to 2.0% (compared to 7.1% currently), BofA economists expect the Fed to retain its hawkish stance. BofA economists believe the emphasis on cooling off the labor market and core services (ex-housing services) will keep the Fed on track to hike rates by 50bps in February 2023 and 25bps in March 2023, resulting in a terminal rate of 5.0-5.25%.

- **Machinery multiples typically de-rate in tightening cycle**: Multiples de-rate in most tightening cycles (see exhibits 11-14). Multiple de-rating occurred in 2022, albeit more in SMID Cap Machinery vs large cap.

- **If Fed eases:** If the Fed eases on its tightening stance, this is likely a positive/relief on multiple compression. That said, if inflation easing morphs into significant deflationary pressure in 2H/2024, we see that as a risk. Some level of inflation is a positive for the Machinery sector that benefits from 'tightness' in the channel.

- **One outlier to monitor is 2004-06 period**: In the 2004-06 tightening cycle, multiples de-rated yet were more than offset by a robust earnings revision cycle. This period was underpinned by a powerful cocktail of China, emerging markets (BRIC boom), and commodity capex boom. We believe some similarities (China, higher commodities) can underpin Machinery in this period.

Exhibit 16: 1990s: Machinery PE vs Fed Fund Rates
Machinery multiples compress in tightening cycles (black circles)



Source: DataStream, IBES Consensus, Machinery PE (average CAT, DE, PCAR, CMI, KMT, TKR, FTT)
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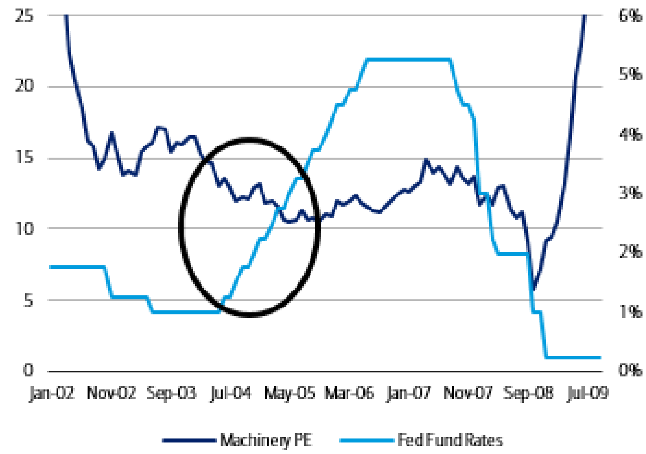
Exhibit 17: 2000s: Machinery PE vs Fed Fund Rates
Machinery multiples compress in tightening cycles (black circles)



Source: DataStream, IBES Consensus, Machinery PE (average CAT, DE, PCAR, CMI, KMT, TKR, FTT)
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Exhibit 18: Machinery bellwether – Caterpillar – performance in tightening cycles: breaking down earnings revisions vs multiple de(re) rating
Caterpillar performance in different tightening cycles and over the last ten years

Prior Tightening Periods	Change in Fed Funds rate rate/year (Bps)	S&P 500	CAT Share Px	CAT EPS Revisions	CAT Multiple
March 1988-May 1989	264	24%	2%	25%	-23%
Feb 1994-Feb 1995	225	4%	-5%	120%	-125%
June 1999-May 2000	175	3%	-36%	-9%	-27%
June 2004-May 2006	425	11%	84%	76%	7%
2003	-25	26%	82%	59%	22%
2004	125	9%	17%	74%	-57%
2005	200	3%	18%	36%	-18%
1H06	100	2%	29%	18%	10%
2011	0	0%	-3%	60%	-63%
2012	0	13%	-1%	0%	-1%
2013	0	30%	1%	-34%	36%
2014	0	11%	1%	21%	-20%
2015	25	-1%	-26%	-46%	20%
2016	25	10%	36%	-10%	46%
2017	75	19%	70%	136%	-66%
2018	100	-6%	-19%	66%	-85%
2019	-75	29%	16%	-15%	31%
2020	-150	16%	23%	-33%	56%
2021	0	27%	14%	66%	-53%
2022	425	-20%	15%	22%	-7%

Source: BofA Global Research, Bloomberg, DataStream, IBES consensus (12 month forward EPS)
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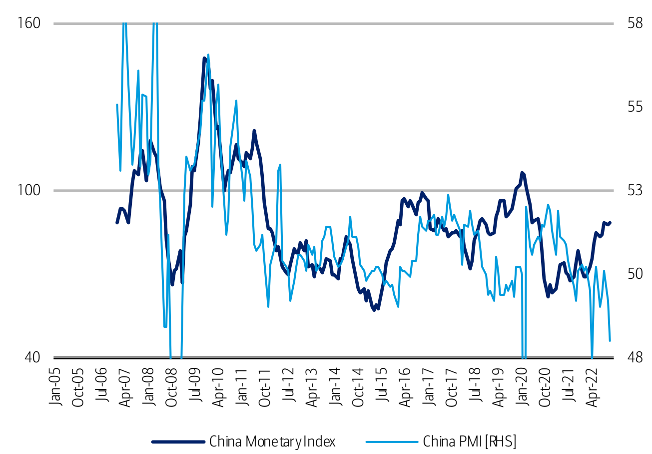
4) China: a tailwind to emerge in 2023

China growth outlook looms large over the Machinery sector. The sector is typically viewed as a play on *"emerging markets, commodities, and global growth"*. Our best estimate is that the direct revenue exposure is rather minimal and company specific – China accounts for 5-7% of Caterpillar revenue and ~10% of Cummins revenue on a consolidated basis. However, the indirect exposure for CAT (and the Sector) is rather large. For example, China is one of the largest consumers of metals (50% of copper). Chinese growth concerns could impact global mine production, weighing on equipment demand in Australia & Chile. The US-China trade war weighed on farmer purchasing decisions given China purchases roughly 20% of US soybean production.

Machinery end markets remain incredibly weak in China for most of 2022: Excavator sales are down 22% in 2022, heavy duty truck sales down 54%, Machine Tool orders declined 13% YoY, China PMI trended mostly below 50 through 2022 implying a contraction in the manufacturing sector. While the Chinese economy has been beset by multiple headwinds in 2022, BofA economists believe that China is expected to grow by 5.5% in 2023 and 6.5% in 2024, boosted by the economy reopening. However, the path to recovery may be bumpy. Given that tight COVID controls are expected to persist through 4Q22-April 2023, BofA Economists believe its impacts will lead to a sizeable dip in growth in 1Q23, before a gradual relief in 2Q23, followed by a sharp rebound in 2H23.

Exhibit 19: China Monetary Index vs China PMI
China Monetary Index recovering, typically occurs before PMIs recover



Source: Bloomberg

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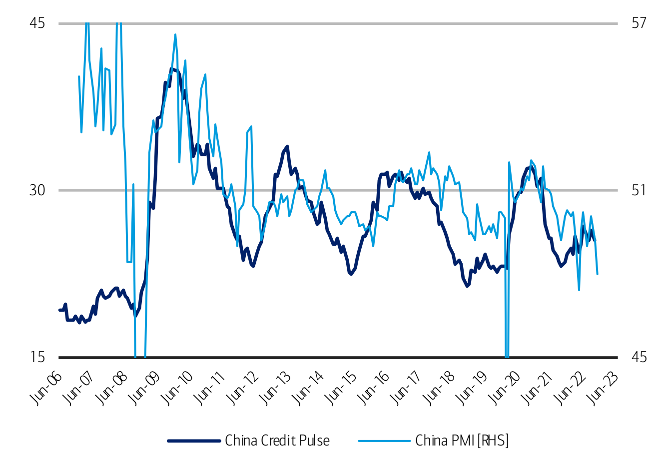
Exhibit 20: China Credit Pulse vs China PMI
China Credit Pulse typically recovers before China PMI



Source: Bloomberg

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5) Commodity capex: next cycle has legs

Capital spending across mining, oil & gas is expected to be up in 2023, according to BofA analysts. In our view, one of the more bullish long-term lessons of 2022 is that the world is effectively 'short' energy, metals, oil, gas, and food. This is clearly observed in higher corn, wheat, oil, copper, gas prices vs pre-pandemic levels. Yes, some of this is a function of supply-side factors (Russia-Ukraine conflict, COVID lockdown) that could ease over time. Yet big picture, we find an overarching factor is the level of underinvestment in some areas over the last decade (fossil fuels, new greenfield mines, etc) following ESG pressure and investor pressure (FCF, shareholder returns vs capex).

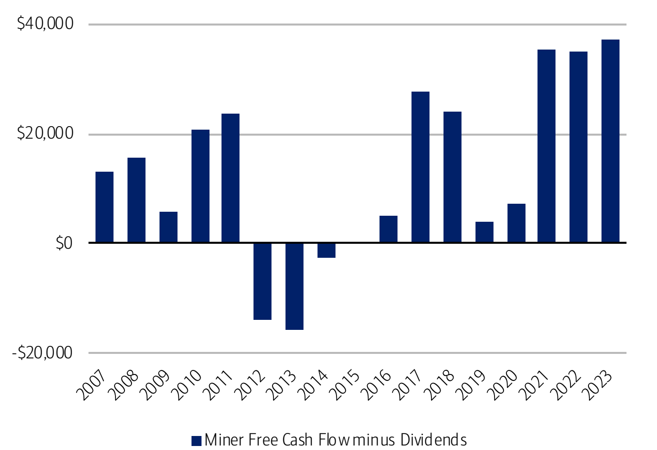
The most severe downturns occurred when capital spending was aggressive, customer cash flows impaired, equipment production was rampant, and there was simply too much inventory in the system. The sector has already digested massive commodity capex 'boom & busts' cycles including ag (peak 2012/3), mining (peak 2012/13), and oil & gas (peak 2015/16). The good news is that all players involved over the last decade – customers, OEMs, dealers – were forced to digest excessive fleet and become more disciplined. While timing is always challenging, we think the answers to the questions below underpin why Machinery could emerge as a long-term winner in the next upcycle.

- ***Are capital spending budgets higher or lower in a few years?*** We believe higher. BofA oil & gas team forecasts drilling & completion spending to increase 21% YoY in 2023 (US +23%, international +19%) and MLP capex to be up 12% (proxy for midstream activity). Key mining customers – BHP and Newmont – capex is expected to be up over 20% in 2023, according to BofA Metals & Mining team. While capital budgets are likely to never return to peak levels, the years of underinvesting and higher commodity prices suggest bias is to the upside over the next few years.

- ***Are customers financially in a stronger or weaker position to buy equipment?*** Customers that buy heavy equipment – miners, E&Ps, farmers – are in relatively healthy fiscal situations. As exhibits 21-28 illustrate, miner and E&P free cash flow levels (minus dividends) suggest more than ample flexibility for growth after returning cash to shareholders. This was not the case in prior cycles. As a result, there is less leverage in the system. Miners and E&Ps can still prioritize investors (dividends, buybacks) yet gradually increase capital spending levels. Even State and Local agencies that bid out highway and infrastructure projects are in the best fiscal health in decades following record levels of federal funding (i.e., Infrastructure bill).

Exhibit 21: Miner FCF minus dividends

Miners ample flexibility for potential projects with FCF to cover dividends



Source: BofA Metals & Mining team (BHP, Rio, Anglo, Teck, FCX, Vale, Glencore), $bn

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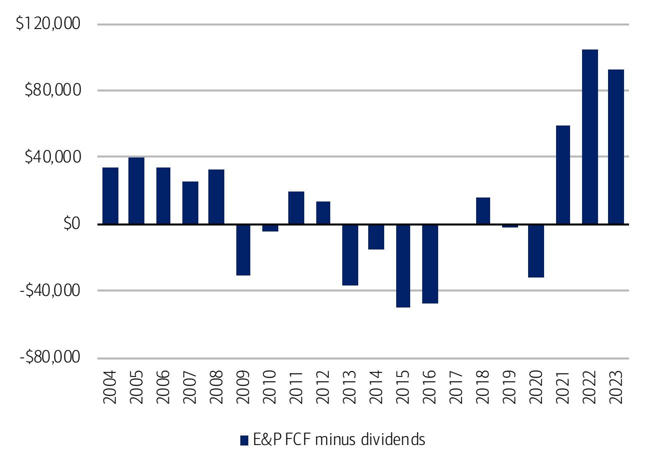
Exhibit 22: E&P FCF minus dividends

E&Ps ample flexibility for potential projects with FCF to cover dividends



Source: BofA Energy team (Exxon, Chevron, Conoco, Shell, BP), $bn

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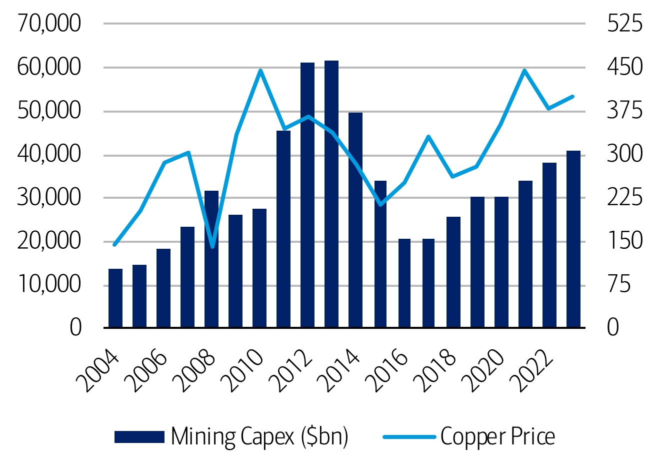
Exhibit 23: Mining Capex vs Copper Prices
Copper price lead mining capex



Source: Bloomberg, BofA Global Research

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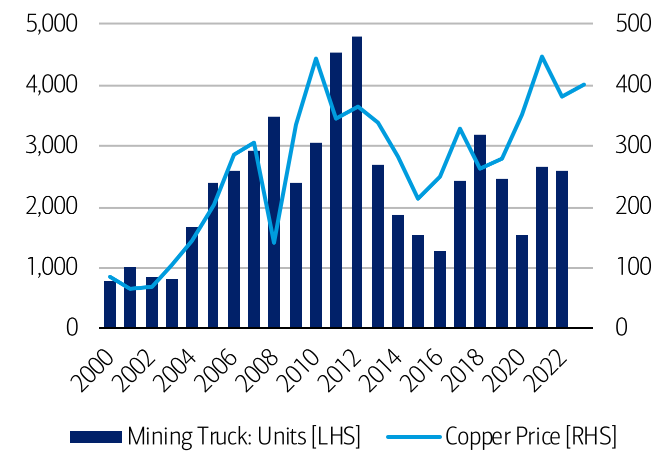
Exhibit 24: Mining Truck Shipments vs Copper Prices
Shipment have begun to increase as units age out of the 2012 super cycle



Source: Parker Bay, Bloomberg

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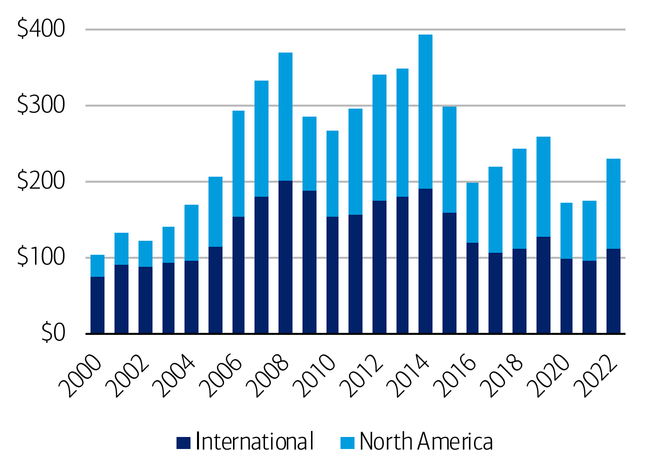
Exhibit 25: Drilling & Completion Spending (proxy for E&P capex)
D&C spending is increasing but remains well below the prior peak



Source: Spears & Associates, BofA Global Research estimates

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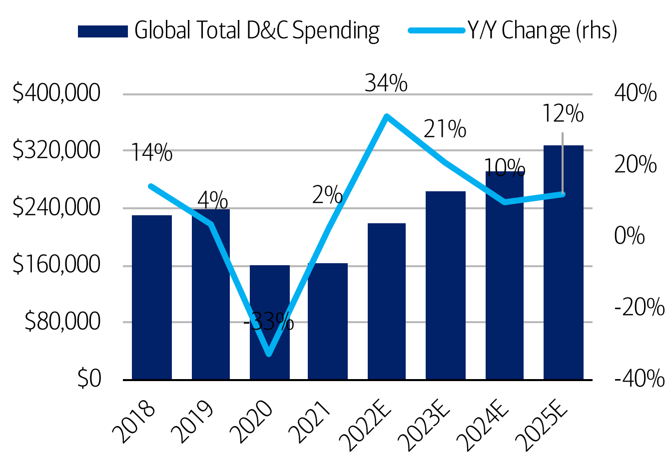
Exhibit 26: Global Drilling and Completion Spending ($mm)
BofA forecast global D&C spending to be up 21%/10% in '23/'24



Source: Spears & Associates, BofA Global Research estimates

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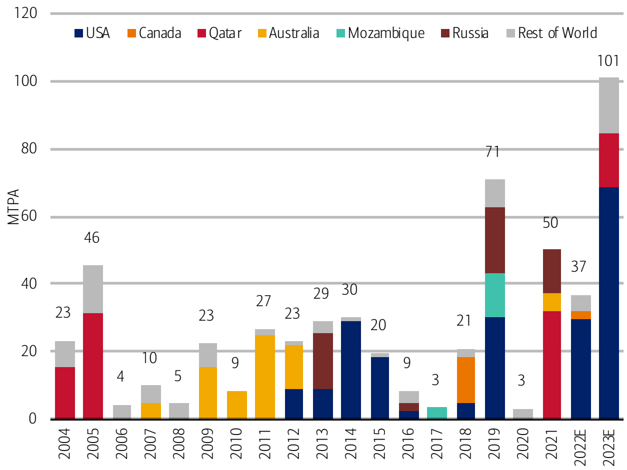
Exhibit 27: Global LNG FIDs from 2004-21 and BofA 2022E-2023E

BofA expects a near record LNG projects – led by USA – in 2023



Source: Wood Mackenzie, Company data, BofA Global Research estimates

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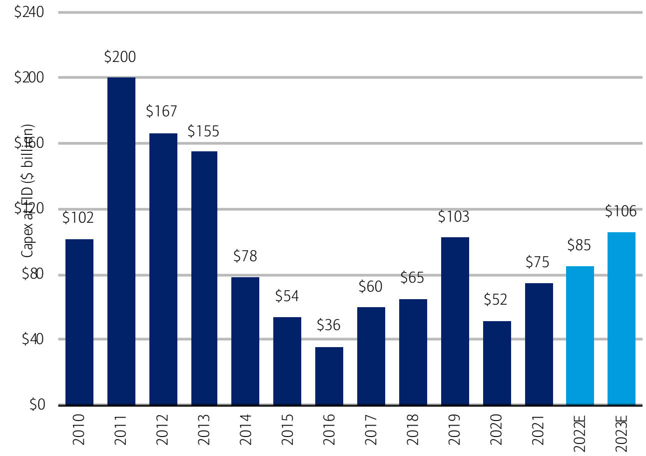
Exhibit 28: Global offshore capex-at-FID by year: 2010A-23E

BofA forecasts acceleration of offshore capex and project approvals



Source: Rystad, Wood Mackenzie, BofA Global Research estimates

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6) Construction: shift in spending is real

Our bottom-up analysis of non-residential construction sub sectors suggests a more stable outlook in spite of the macro headwinds. Construction is a critical end market for our coverage, underpinning demand for aggregates (sand, gravel), engineering work (designing projects, program management), and equipment (dozers, excavators, aerials). The weak outlook for residential construction is clear given the housing downturn in 2022. While residential construction is a smaller contributor of demand (i.e., less equipment and/or aggregates intensity vs non-residential projects), it can be a viewed as a lead indicator to non-residential demand, particularly private verticals (i.e., office, retail, etc). That said, there we see a powerful shift occurring within the non-res market. We are observing more construction spending dollars shifting towards infrastructure and ‘heavy’ segments (i.e., big, flat horizontal type projects - manufacturing, plants, energy) that can offset headwinds in the economically sensitive ‘light’ areas (office, retail, etc). For example, projects over $400mn (i.e., heavy segments) represent an ever increasing proportion of total non-res construction starts (30% today vs 13% in 2000-2009).

We see more of a ‘soft patch’ vs deep downturn in 2023, recovery in 2024

Non-res construction spending is roughly $800-900bn on an annual basis. To be clear, there are risks building in the growth outlook - housing starts are down (residential construction typically leads non-res 12-18 months), Architecture Billings Index is below 50 for two consecutive months, some REITs cited higher financing could defer projects in 2024, some corporates are scaling back given the economic uncertainty (Meta pauses $800mn data center project in Texas). That said, we believe any slowdown in non-res activity is likely to be shallow. As some areas of non-res activity weaken, other areas are likely to be fairly stable (infrastructure, heavy construction). Additionally, we believe many of the investor concerns that are weighing on the construction outlook could actually start to dissipate in the 2H (mortgage rates, homebuilder sentiment, GDP, fed hikes), alleviating concerns that the downside could accelerate and extend into 2024.

If we assume the most economically sensitive areas of non-res construction market decline 10-15%, heavy/energy areas flat to up 5%, and public non-res up 5-10%, the result is overall non-res construction spending dollars likely to be flattish in 2023. In our view, as the economy emerges from a recession towards the end of 2023, housing data points stabilize, and a less aggressive Fed, we believe many of these economically sensitive areas ware likely to stabilize in 2024. The public funding side (highway and street, transportation, water, etc) is likely to accelerate in the 2H23 and 2024, resulting in overall growth the following year. In the sections below, we highlight 3 assumptions to consider on 2023 and one key dynamic that is likely to drive the outlook for 2024.

- **30-40% of non-res never recovered post covid:** Segments the general investment community is most worried about in a recession – hotels, offices, shopping malls, retail outlets – barely recovered from the last recession (2020). For example, construction spending in 'lodging' is 30-40% below pre-pandemic levels. Offices are still 5-10% below pre-pandemic levels. Construction's most economically sensitive areas are not 'overheated' like in 2007/8.

- **Record mega projects 'broke ground' in 2022 provides source of activity:** According to ConstructConnect, non-res starts for 2022 total $503.7bn, up 29% YoY (Jan-Nov 22 vs Jan-Nov 21). 'Starts' compile the total estimated dollar value and square footage of all projects on which ground is broken in any given month. Starts typically leads construction spending by 9-24 months – as construction spending is analogous to 'work-in-progress'. The big driver of the non-res starts is 'industrial' (manufacturing) up +162% YoY, given a record year of 'mega projects' ($1bn+).

- **Public funding is just starting to ramp:** Three landmark legislative acts are likely to underpin a level of demand in the 2H23, 2024, and beyond. I) Infrastructure Investment and Jobs Act: $1.2trn federal spending with net additional funding of $550bn. ii) Inflation Reduction Act: $370bn of the Act invests in and incentivizes clean energy production and manufacturing, iii) The Chips and Science Act: $250bn act boosting semiconductor R&D, manufacturing, and workforce development including $39bn direct funding for US semiconductor manufacturers, $24bn in tax credits for domestic manufacturing facilitates of semiconductors (equivalent to $96bn project cost at 25%), 9 semiconductor facilities in active planning or started in 2022 (average cost of $7.5bn), and all projects must start by 2026 to qualify.

Exhibit 29: Non-residential construction downturn is not likely to be severe, in our view
BofA expects flattish non-res construction spending in 2023 and a recovery in 2024

	2015	2016	2017	2018	2019	2020	2021	2022e	2023e	2024e	2022	2023E	2024E
Nonresidential	701,467	737,706	734,088	769,306	837,597	855,313	823,511	898,444	901,343	946,838	9.1%	0.3%	5.0%
Lodging	22,012	27,077	28,660	31,464	33,461	28,483	18,236	19,125	17,213	17,213	4.9%	-10.0%	0.0%
Office	56,013	67,907	68,685	76,662	88,724	92,831	86,642	87,138	78,424	78,424	0.6%	-10.0%	0.0%
Commercial	66,977	78,696	87,626	86,422	84,345	89,714	94,553	117,411	99,799	99,799	24.2%	-15.0%	0.0%
Health care	39,665	40,574	43,120	43,450	46,263	48,599	48,459	52,410	55,031	57,782	8.2%	5.0%	5.0%
Educational	85,346	91,629	96,685	101,210	108,952	110,692	98,426	98,218	103,129	108,285	-0.2%	5.0%	5.0%
Religious	3,598	3,752	3,586	3,499	3,730	3,472	2,926	2,835	2,835	2,835	-3.1%	0.0%	0.0%
Public safety	8,505	8,177	8,539	9,353	12,012	17,667	12,150	11,736	12,323	12,939	-3.4%	5.0%	5.0%
Amusement and recreation	20,527	23,652	26,569	28,068	30,416	28,288	25,276	28,186	25,367	25,367	11.5%	-10.0%	0.0%
Transportation	45,106	43,339	46,137	53,219	57,448	60,734	56,689	56,597	59,427	63,587	-0.2%	5.0%	7.0%
Communication	21,691	22,179	23,696	24,502	22,184	23,876	24,696	24,849	26,091	27,918	0.6%	5.0%	7.0%
Power	111,495	112,067	95,951	99,569	117,960	118,168	120,834	106,758	112,096	117,701	-11.6%	5.0%	5.0%
Highway and street	91,701	93,187	89,620	91,745	99,402	102,321	100,679	114,273	125,700	138,270	13.5%	10.0%	10.0%
Sewage and waste disposal	24,599	24,151	22,901	23,931	26,119	27,189	27,968	32,706	35,977	39,574	16.9%	10.0%	10.0%
Water supply	13,353	13,940	14,168	15,477	16,397	18,952	19,214	25,470	26,744	29,418	32.6%	5.0%	10.0%
Conservation and development	7,735	7,745	7,464	8,229	9,207	8,903	7,893	9,114	9,570	10,527	15.5%	5.0%	10.0%
Manufacturing	83,143	79,633	70,682	72,508	80,978	75,425	78,872	111,618	111,618	117,199	41.5%	0.0%	5.0%

Source: BofA forecasts, US Census Bureau

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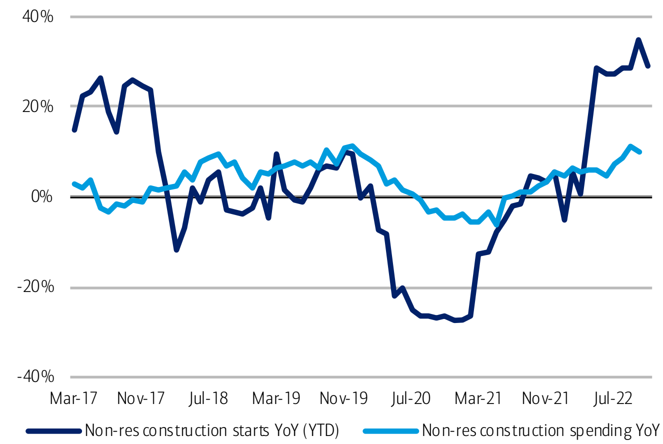
Exhibit 30: Non-res construction building starts (i.e., 'breaking ground' typically leads construction spending (i.e., 'work in progress')
Non-res construction starts surged in 2022



Source: ConstructConnect, US Census Bureau

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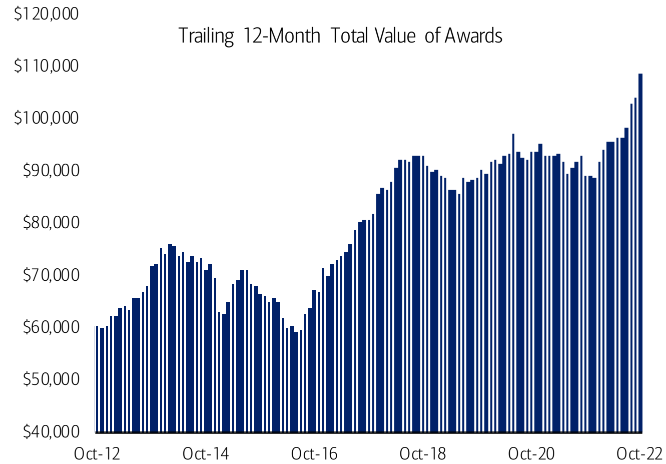
Exhibit 31: construction: highway contract awards are accelerating
We expect 2H of 2023 to see infrastructure construction pick up



Source: ARTBA

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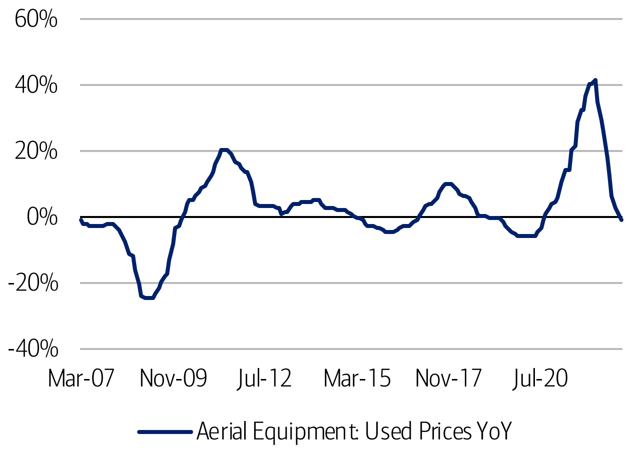
7) Risks: inventories, too much equipment

Easing inflation argument cascades into deflationary pressure

At this point, it is consensus that inflationary pressures have peaked in the economy and are starting to ease through 2023. This is positive – to some extent – as the Fed can eventually turn less hawkish and potentially manage a soft landing scenario. In our view, the risk for Machinery is if easing inflation evolves into deflationary pressure with a lack of pricing power in the system. After all, a tight environment is generally inflationary and favorable for cyclical sectors that can pass along inflation (and then some) to expand margin. In our view, Caterpillar (and the Machinery sector) benefits from a certain level of 'tightness' in the equipment market. Low inventories trying to meet a rising level of demand defines a certain level of 'tightness' in the equipment market that is generally beneficial for OEMs such as Caterpillar. While markets are still historically tight given supply constraints, there are incremental signs that supply-demand dynamics are shifting as we head into 2023 with rising production and slowing demand. As we highlight in the section below, inventories are building and used equipment values have turned slightly negative on a YoY basis. The biggest risk for Machinery is if too much equipment chases contracting demand – resulting in excess slack in the channel – a deflationary event. This risk would likely result in less pricing power in 2024.

Exhibit 32: Used Pricing: Aerial Equipment YoY
In December, Aerial values turned negative on a YoY basis



Source: Ritchie Bros
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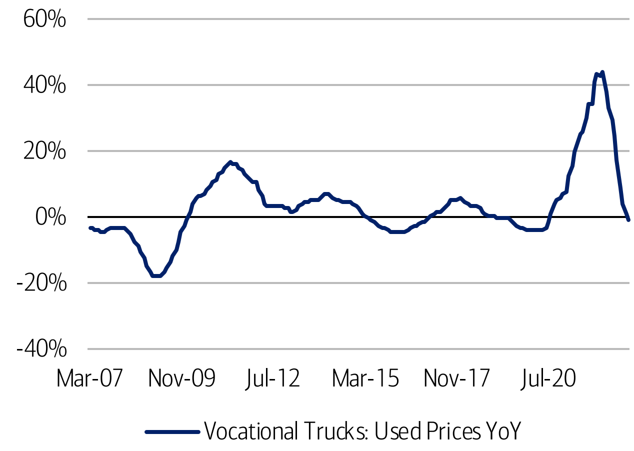
Exhibit 33: Used Pricing: Vocational Trucks YoY
In December, truck values turned negative on a YoY basis



Source: Ritchie Bros
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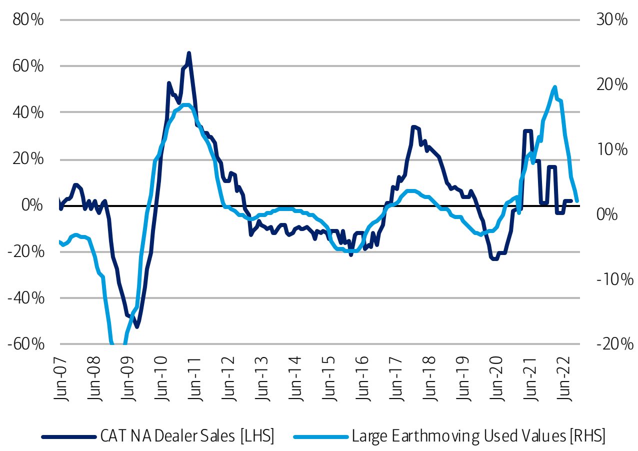
Exhibit 34: Used Pricing: Large Excavators vs CAT Dealer Retail Sales
Large Excavator pricing has declined consistently since peaking in February



Source: CAT Company Filings, RBA Company Filings
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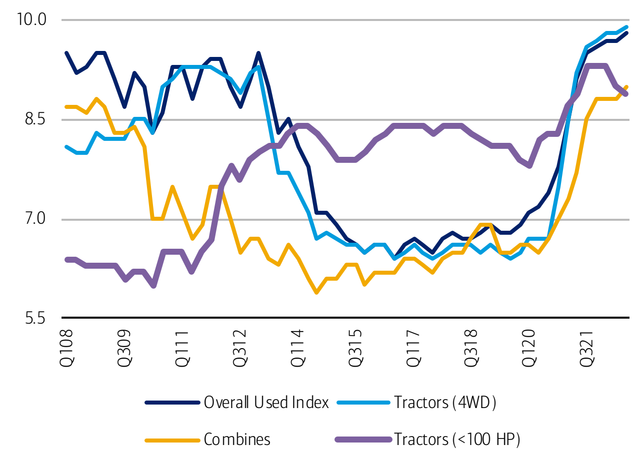
Exhibit 35: Used Pricing: Machinery Pete Used Values Index
Values remain strong for high horsepower equipment, slowing for low HP



Source: Machinery Pete
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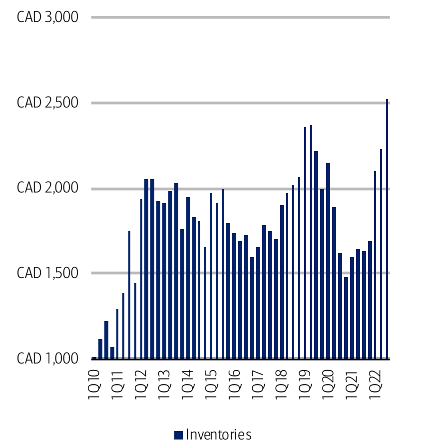
Exhibit 36: CAT dealer: Finning Inventories
Finning (CAT's largest dealer) inventories high



Source: FTT Company Filings

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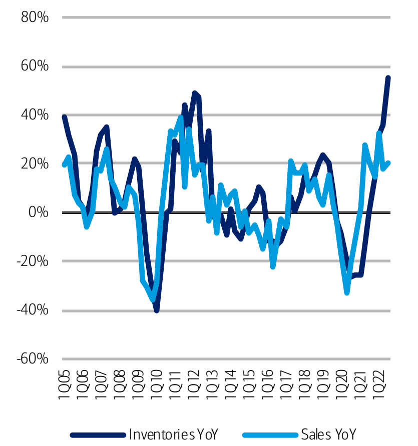
Exhibit 37: FTT inventory YoY vs sales YoY
Inventory growth outpacing sales growth



Source: FTT Company Filings

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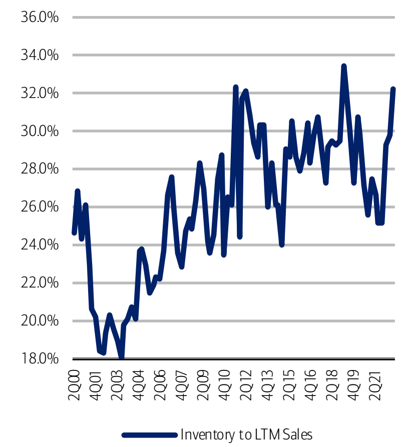
Exhibit 38: FTT inventory to LTM sales
Finning inventory to LTM sales rising



Source: FTT Company Filings

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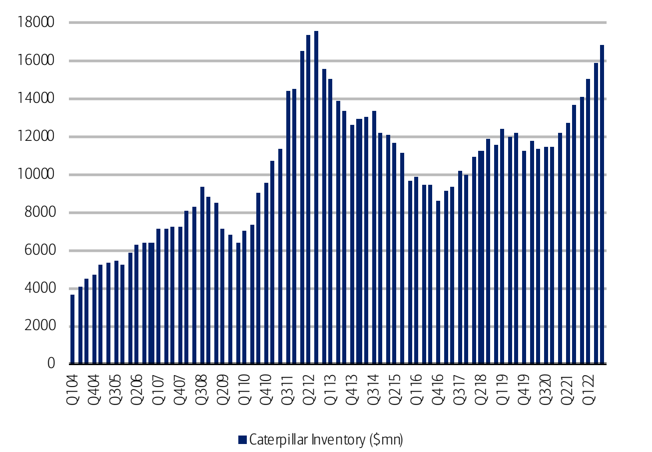
Exhibit 39: OEM: Caterpillar inventory
Caterpillar inventories rising through 2022



Source: CAT Filings

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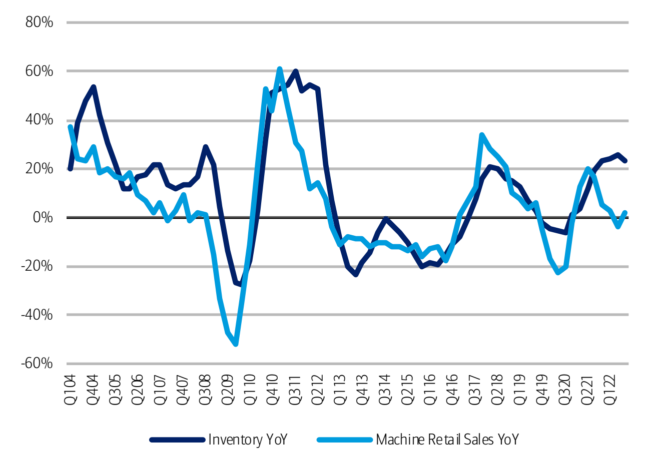
Exhibit 40: CAT inventory vs Retail Sales YoY
Inventory growth outpacing sales growth



Source: CAT Filings

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8) Recession watch: what's priced in?

Generally speaking, our trough EPS scenario incorporates 10-15% revenue declines versus 15-20% in 2020, 30-40% in 2015/16 (oil-led industrial recession) and 30-50% in the Financial Crisis. Time will likely tell if this scenario is too conservative relative to more severe recessions (2009) or too extreme. In our view, it is a helpful exercise in establishing 'worst case' scenarios as recession risks intensify and evolve into a more 'hard landing' scenario. We kept the exercise fairly simple and straightforward – see Exhibits 41-43. In our view, it is important to keep in mind the following:

- Outside of trucks (production of ~300k units is typically viewed as peak), other end markets in our coverage are still below peak levels such as mining equipment, farm equipment (high horsepower), oil & gas equipment. Simply put, it is important to keep in mind that several Machinery end markets have observed downturns in the following years: mining (2013-16), farming (2013-15), oil & gas (2015/16).

- Construction, which is economically sensitive and typically follows housing, is vulnerable to a hard-landing. That said, there are tailwinds around heavy non-residential and public infrastructure given rising public funding next few years.
- We assume more conservative decremental margin /operating leverage in prior cycles. There is not notable 'excess' in the system that could result in prolonged de-stocking, in our view, and pricing remains positive for most companies.

Exhibit 41: Scenarios: Trough EPS and EBITDA assumptions for Machinery, Engineering, and Construction

BofA assumes and EPS and EBITDA declines to be less severe in a hard landing recession scenario

Ticker	Current 2022E	Recession Scenario	% Delta	Key assumptions to hypothetical trough (EPS)
CAT	$14.10	$10.00	-29%	Revenue -15%, decremental margin of 25% vs EPS -46% 2015-16 -40% 2020, -62% 2009
DE	$23.28	$17.50	-25%	Revenue -15% (precision Ag -10%, small Ag -22%, C&F -15%), decremental margin of 25% vs EPS -47% 2013-16, -62% 2009
AGCO	$11.85	$7.25	-39%	Revenue -15%, decremental of 27.5% vs EPS -60% in 2013-16, -62% in 2009
CNHI	$1.50	$0.90	-40%	Revenue -17% (Ag -15%, Construction -25%), decremental of 27.5%
PCAR	$8.35	$5.55	-34%	Revenue -20% (Trucks -25%, Parts -5%), decremental of ~20% vs EPS -46% in 2020, -15% in 2016, -90% in 2009
CMI	$17.08	$12.40	-27%	Revenue -15% (Trucks -25%, Parts -5%), decremental of ~17% vs EPS -20% in 2020, -10% in 2016, -34% in 2009
TKR	$5.90	$4.00	-32%	Revenue -15% (Mobile -20%, Process -10%), decremental of ~30% vs EPS -20% in 2020, -10% in 2016, -34% in 2009
KMT	$1.78	$1.05	-41%	Revenue -15%, decremental of ~30% vs EPS declined 69% in 2020, -56% in 2015/16, -71% in 2009
OSK	$3.50	$3.00	-14%	Revenue -9% (Access -15%, Commercial -10% Defense +5%), decremental 7% vs EPS declined 39% in 2020, -25% in 2015/16
TEX	$4.10	$2.25	-45%	Revenue -14% (Access -15%, MP -10%), decremental 27% vs EPS declined 99% in 2020, -62% in 2015/16
IPGP	$4.80	$3.85	-20%	Revenue -7% (China +5%, US -10%, Europe -15%), decremental 60% vs EPS declined 60% in 2019/20, -85% in 2009

Ticker	Current 2022E	Recession Scenario	% Delta	Key assumptions to hypothetical trough (EBITDA)
URI	$5,550	$4,852	-13%	Revenue -10% (Resi -30%, Non-res -15%, Infra +5%), decremental margin 55%, vs EBITDA -10% 2020, -3% 2016, -41% 2009
VMC	$1,660	$1,420	-14%	Revenue -8% (Resi -20%, Non-res -15%, Infra +5%), decremental margin 40%, vs EBITDA +4% 2020, -64% in 2009
MLM	$1,609	$1,358	-16%	Revenue -8% (Resi -20%, Non-res -15%, Infra +5%), decremental margin 50%, vs EBITDA -11% 2011, -37% in 2009
FLR	$407	$295	-28%	Revenue -8% (Energy -15%, Urban -10%, Mission +5%), decremental 10% vs EBITDA -40% 2015/16, -48% in 2010
ACM	$900	$843	-6%	Revenue -5% (Private -15%, state & local +5%, Federal Govt +5%), decremental margin 15%
J	$1,364	$1,249	-8%	Revenue -5% (Infrastructure +5, defense/space 0%, Cities & Places/Manuf -20%), decremental margin 15%
HRI	$1,235	$1,112	-10%	Revenue -10% (Contractor -17.5%, Industrial -6%, Infrastructure +4%, Other -6%, Service Revenue -6%), decremental margin 50%
HEES	$515	$471	-9%	Revenue -11% (Rental -10%, new equipment -40%, used equipment -10%, Parts 0%, Service Revenue 0%), decremental gross margin 65%
ALSN	$940	$735	-22%	Revenue -13% (NA on Hwy -4%, NA off hwy -41%, Defense 0%, Non-NA on hwy -32%,, Service -12%), decremental margin 57.5%

Source: BofA Global Research, KMT = Kennametal, TEX = Terex, OSK = Oshkosh, MLM = Martin Marietta, VMC = Vulcan Materials, CNHI = CNH Industrial, URI = United Rentals, TKR = Timken, AGCO = AGCO, CAT = Caterpillar, DE = Deere, CMI = Cummins, J = Jacobs, PCAR = PACCAR, WM = Waste Management, RSG = Republic Services, WCN = Waste Connections, FLR = Fluor, ALSN = Allison Transmission, RBA = Ritchie Bros, IPGP = IPG Photonics

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Exhibit 42: Valuation based on hypothetical downside scenario

Valuation on hypothetical recession earnings scenarios ($mn)

Ticker	Recession Scenario EPS	Recession Scenario PE Low	Recession Scenario PE High	Implied Valuation Scenario Low	Implied Valuation Scenario High	Implied Trough Valuation
CAT	$10.00	17	20	$169.93	$199.92	$184.92
DE	$17.50	17	20	$297.56	$350.07	$323.81
AGCO	$7.25	15	17	$108.75	$123.25	$116.00
CNHI	$0.90	15	17	$13.56	$15.37	$14.47
PCAR	$5.55	14	16	$77.64	$88.74	$83.19
CMI	$12.40	14	16	$173.60	$198.40	$186.00
TKR	$4.00	14	16	$55.98	$63.98	$59.98
KMT	$1.05	14	16	$14.70	$16.80	$15.75
OSK	$3.00	15	17	$45.01	$51.01	$48.01
TEX	$2.25	14	16	$31.49	$35.99	$33.74
IPGP	$3.85	17	20	$65.39	$76.93	$71.16

Source: BofA Global Research, KMT = Kennametal, TEX = Terex, OSK = Oshkosh, MLM = Martin Marietta, VMC = Vulcan Materials, CNHI = CNH Industrial, URI = United Rentals, TKR = Timken, AGCO = AGCO, CAT = Caterpillar, DE = Deere, CMI = Cummins, J = Jacobs, PCAR = PACCAR, WM = Waste Management, RSG = Republic Services, WCN = Waste Connections, FLR = Fluor, ALSN = Allison Transmission, RBA = Ritchie Bros, IPGP = IPG Photonics

BofA GLOBAL RESEARCH

Exhibit 43: Valuation based on hypothetical downside scenario
Valuation on hypothetical recession earnings scenarios ($mn)

Ticker	Current 2022E	Recession Scenario	Scenario Multiple	Enterprise Value	2022e Net Debt	Equity Value	Shares	Implied Trough Valuation
URI	$5,550	$4,852	6.5	$31,536	$9,753	$21,783	71	$305.05
VMC	$1,660	$1,420	17	$24,142	$4,039	$20,103	133	$150.92
MLM	$1,609	$1,358	16	$21,734	$4,198	$17,536	63	$280.58
FLR	$407	$295	11	$3,240	-$1,289	$4,529	172	$26.33
ACM	$900	$843	13	$10,953	$1,100	$9,853	141	$69.71
J	$1,364	$1,249	13	$16,231	$2,300	$13,931	129	$108.35
HRI	$1,235	$1,112	5	$5,561	2,348	$3,214	30	$106.26
HEES	$515	$471	5	$2,355	983	$1,372	37	$37.54
ALSN	$940	$735	8	$5,880	2,433	$3,446	97	$35.62

Source: BofA Global Research, KMT = Kennametal, TEX = Terex, OSK = Oshkosh, MLM = Martin Marietta, VMC = Vulcan Materials, CNHI = CNH Industrial, URI = United Rentals, TKR = Timken, AGCO = AGCO, CAT = Caterpillar, DE = Deere, CMI = Cummins, J = Jacobs, PCAR = PACCAR, WM = Waste Management, RSG = Republic Services, WCN = Waste Connections, FLR = Fluor, ALSN = Allison Transmission, RBA = Ritchie Bros, IPGP = IPG Photonics

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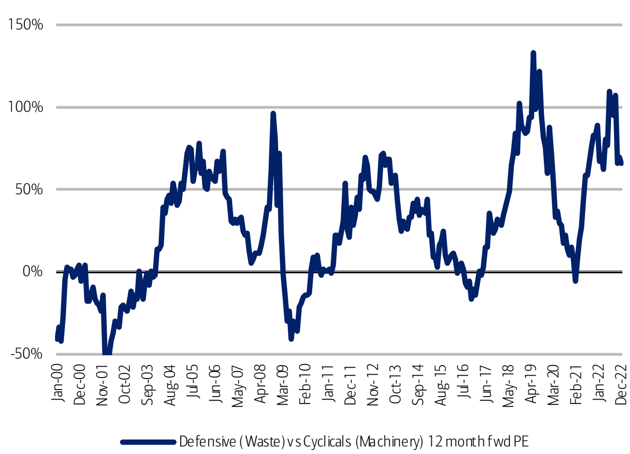
9) Defensive vs cyclicals: watch rotation

Some of the most defensive names in our coverage have been the waste stocks. The defensive names (waste) are trading at a premium (66%) to the cyclical Machinery stocks, above the historical average (35%). That said, this premium can contract and expand through the cycle. In periods of an industrial slowdown, weak emerging markets, and downturn in lead indicators, the defensive premium can expand to 80-100%. Intuitively, this makes sense as defensive names are more 'resilient'. That said, as we enter a recession, investors start to look forward. For example, Exhibit 45 illustrates the valuation spread overlapped with the G7 OECD Composite Lead Indicator – as the G7 OECD turns 'less negative' and improves, the defensive premium starts to narrow. If the G7 OECD turns positive, the premium can narrow significantly. In summary, we believe defensives/waste is a great place for investors to hide during the uncertainty, yet be mindful as indicators bottom and start to improve as it can result in rotations.

Exhibit 44: Defensive (waste) vs cyclicals (Machinery) valuation PE
Defensive premium has come down over last few months



Source: Bloomberg, DataStream, IBES consensus, Waste (WM, RSG), machinery (CAT, DE)

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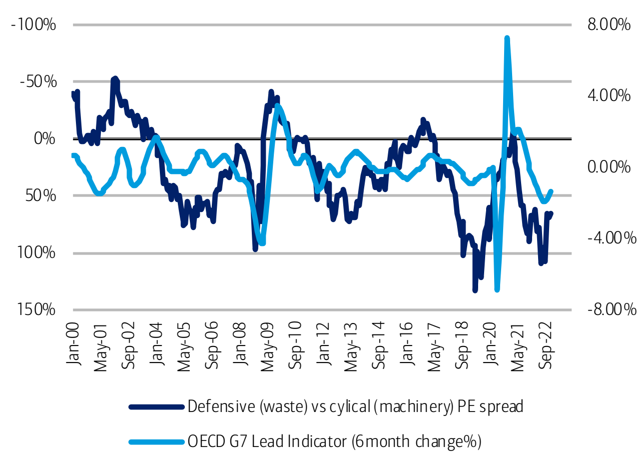
Exhibit 45: Defensive premium (inverse on chart) vs OECDs
Times when G7 OECD (6 month change) 'less bad', premium narrows



Source: Bloomberg, DataStream, IBES consensus, Waste (WM, RSG), machinery (CAT, DE)

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10) Stock watch

Short cycle: dipping our toe (TKR), hedge with KMT, IPGP

Short cycle areas of our coverage – bearings (Timken), machine tools (Kennametal), industrial laser material processing (IPG Photonics) – are most economically sensitive to the general manufacturing economy. These names are considered 'PMI'-plays given the directional relationship of PMIs and industrial production activity. In our view, activity is likely to get weaker before it gets better given the headlines out of China and weaker PMI reading (all sub 50 – contraction). That said, we believe on a 12 month view that investors should start to shift cyclically as the industrial economy goes through this downturn and other lead indicators (BofA Industrial Momentum Indicator, OECDs, China credit metrics) starting to stabilize, providing comfort in a stronger 2024. We upgrade Timken to Buy – in our view, valuation is attractive, pricing power is overlooked, and portfolio is more diversified - yet we keep a less positive view on our other short cycle names under coverage (Kennametal – Neutral, IPG Photonics – Underperform).

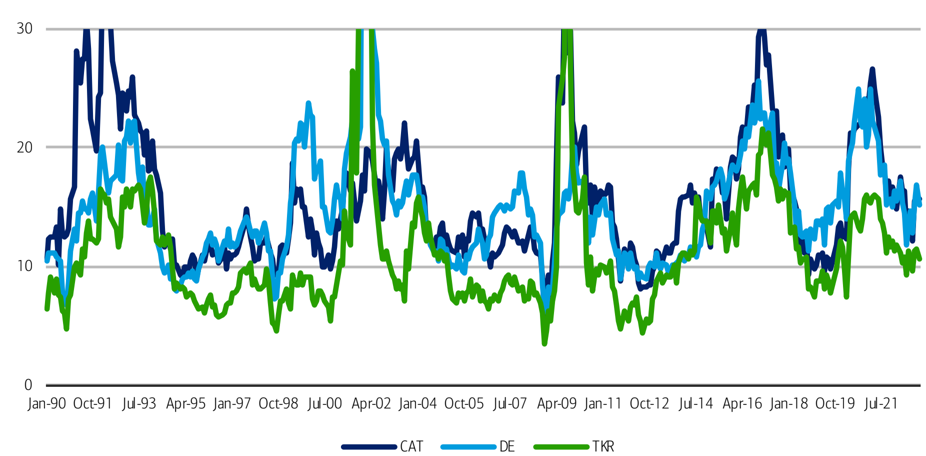
Timken: upgrade to Buy – more than meets the eye

We upgrade Timken to Buy given i) market already discounting recessionary conditions in current valuation, ii) pricing power is underappreciated, iii) some newer verticals beyond the 'PMI-play' (renewables, automation), and iv) we believe lead indicators and China (15% of sales) could be improving in the 2H of this year. We raise our 2023 estimates 3% to $6.65 ($6.45) to incorporate the GGB acquisition and slightly better growth. We raise our PO to $87 ($71) based on 8x 2023 EV/EBITDA (vs 7x), as we see a slightly higher multiple warranted given higher multiples for customers (CAT, Deere near mid-cycle) and recent transactions in the industrial motion space highlight value.

Value is starting to emerge – see dislocation with large Machinery customers

TKR shares are currently trading 12.5x 2023 EPS of $6.65, near the low end of the historical range (8-20x) and closer to a 'trough multiple'. Simply put, the market is valuing Timken's earnings as 'peak' given concerns of a global slowdown and the multiple is discounting significant recession concerns. Yet, Timken's largest customers – Caterpillar and Deere – are trading closer to 'mid-cycle' territory (15-17x EPS). In our view, if investors are discounting Caterpillar and Deere's ability to grow earnings in spite of the economic slowdown in 2023, this likely bodes favorably for a key supplier, Timken. In fact, TKR's multiple de-rated notably in 2022 to 10.6x in December from 12x in February, while CAT and Deere's multiple has remains stable to slightly higher in that period (exhibit 46). We believe this suggests a 'catch up' in Timken's multiple if investors feel more confidence in Timken's outlook and lead indicators start to bottom and rise.

Exhibit 46: Timken's multiple de-rated through 2022 yet customers – Caterpillar & Deere mid cycle
Valuation dislocation with market discounting recession fears in Timken yet not its customers



Source: DataStream, IBES consensus

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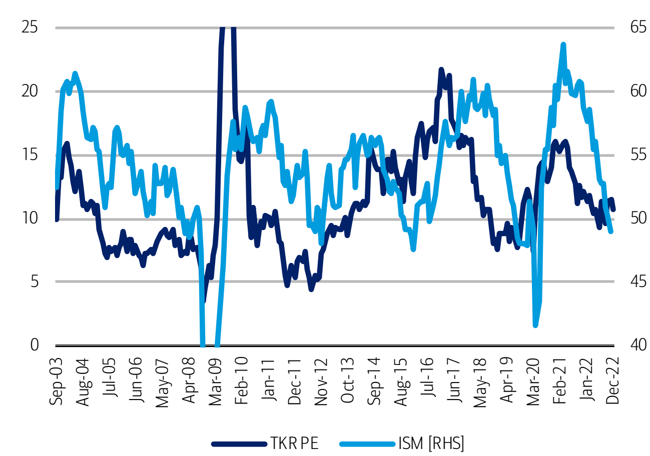
Regal Rexnord acquisition of Altra Industrial highlights value in the space

On October 27th, 2022 Regal Rexnord (RRX) announced its intention to acquire Altra Industrial Motion (AIMC) for $4.95bn ($62/share in cash and $860mn in assumed debt). Regal Rexnord is paying 13.6x LTM adj EBITDA (9.5x with cost synergies). BofA does not cover RRX or AIMC. We find this acquisition (and the multiple) interesting given TKR's presence in the Industrial motion space. AIMC provides portions of the motor, control, linear, gearing, clutch, brake, coupling, belted drive, and on-industrial bearing segments, enhancing RRX's powertrain offerings. Over the past 7 years, Timken expanded its Industrial Motions product line (drive systems, linear motion, lubrication systems, belts & chains, clutches & breaks, couplings) to nearly $1.3bn of revenue business.

Lead indicators matter – yet more than meets the eye with Timken

Timken, a leading manufacturer of bearings and power transmission components, is viewed as a 'PMI' play. In our view, this is somewhat fair given TKR's typical relationship with PMIs – see exhibit 47 TKR multiple follows the ISM. That said, we believe Timken offers more than just a PMI derivative: i) Pricing power: Timken's EBITDA margin expanded the last two quarters as positive price mix outpaced cost headwinds – this cannot be said or other short cycle, PMI names in our coverage, ii) TKR's earnings declined 11% in 2020, the last recession, fairly resilient relative to short-cycle peers, iii) renewables (12%) and automation (8%) are some of the largest verticals in the portfolio that are less cyclical and were not as prevalent in prior cycles. We do not want to dismiss the recession and cyclical risks. After all, ISM is likely to go down before it goes back up. Yet we are encouraged to see OECD Composite Lead indicator inflect. Additionally, China reopening (15% of sales) is a potential tailwind through 2023.

Exhibit 47: Timken 12 month forward PE vs ISM
Timken multiple typically follows the ISM



Source: DataStream, IBES consensus, Bloomberg
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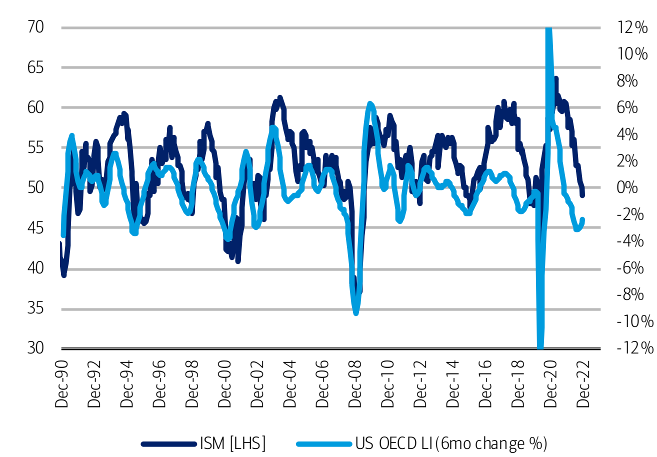
Exhibit 48: US OECD Lead indicator inflected upward vs ISM
ISM likely to fall for a few months yet encouraged to see OECD improve



Source: DataStream, IBES consensus, Bloomberg
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What we like to see change? Less M&A, more buyback can help

Timken has been a fairly acquisitive company over the last few years ($1.5bn the last five years). This has allowed it to expand its reach and added scale in drive systems, linear motions, lubrication systems, belts & chains, and couplings. That said, TKR's multiple does not reflect the growth and portfolio as observed by the valuation disparity with other short cycle peers and transactions in the space. In our view, a pivot to a more aggressive share repurchase to close the valuation discount is a more efficient route. At the recent investor day, TKR highlighted to the market its better performance vs peers in terms of EBITDA and EPS growth. In our view, TKR allocating more capital to repurchase shares it views as at a discount can provide more conviction in the market.

Kennametal: maintain Neutral – like to see more pricing power, less inventories

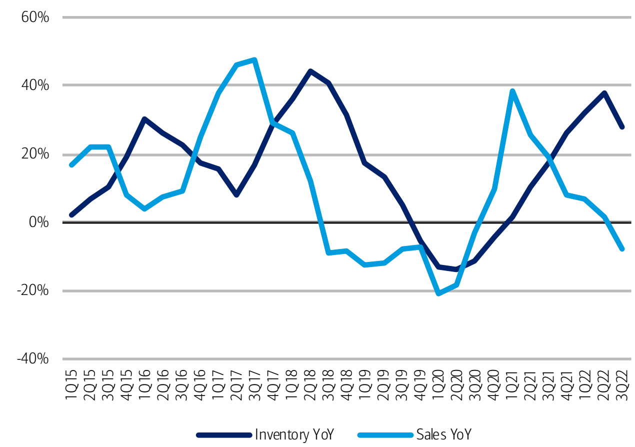
We reduce our KMT 2023 EPS estimates by 5% to $1.60 to incorporate lower pension income. We raise our PO to $29 ($27) keeping our valuation methodology in line with peers (8x 2023 EV/EBITDA vs 7.5x prior). We apply a similar multiple target to short cycle peer, Timken. While KMT offers some attractive end market exposure (energy, mining, infrastructure), the lack of pricing power and operating leverage leaves us concerned. While it is understandable that production challenges and inflationary pressures remain, other OEMs and suppliers are starting to report an inflection in price vs cost. Additionally, we are concerned about elevated inventories - overall inventories up 17% YoY in FQ1 (outpacing 9% organic growth) and inventory to LTM (last 12 months) sales up 80bps QoQ.

IPG Photonics: maintain Underperform – too many tail risks to ignore

We reduce our 2023/24 EPS estimates 5-6% to $4.55 ($$4.85) and $5.15 ($5.50) on weaker growth assumptions (particularly 1H23) and lower operating leverage. Our updated estimates leave us 8% below consensus (source: Bloomberg) for 2023. We believe 2023 could be a down year for earnings given a weaker 1H and transition from low cost manufacturing region (Russia) to a higher cost manufacturing region (Germany, US). We raise our PO to $95 ($85) based on 9.5x 2023 EV/EBITDA, a slightly higher multiple as we could be through the latter innings on the downward earnings revision process and China re-opening tailwind (vs 8x prior). While IPGP shares and valuation reflect uncertainty, we remain cautious given the wide tail risks given its geographical exposure (~25% of sales to Europe), shifting manufacturing footprint, record levels of inventories, and ability to recover the value of working cap & long-lived assets located in Russia.

In our view, there are some bright spots for IPGP story that is offset by a wide range of uncertainty and tail risks. China cutting – a competitive market with pricing pressure – is becoming a smaller portion of the business (less than 30% of China revenue or less than 10% total sales). The EV battery investment is starting to diversify to other regions (North America, Europe) and IPGP's welding applications are likely to benefit. EV is likely approaching 20% of total sales and likely to climb as battery capacity expands. At some point, China re-opening and PMIs bottoming, stabilizing, and inflecting is ultimately positive for IPGP earnings into 2024. Ultimately, we like to see if the shift in the portfolio (less China cutting, more EV welding) improves growth and returns for the overall company's earnings profile. In the last five years, revenues are lower (2022e $1.42bn 2018 $1.46bn) and gross margin lower (2022e 44.6% vs 2018 54.8%).

Exhibit 49: IPGP inventory growth YoY vs sales growth YoY
Inventory growth has outpaced sales growth the last few quarters



Source: BofA Global Research, company filings
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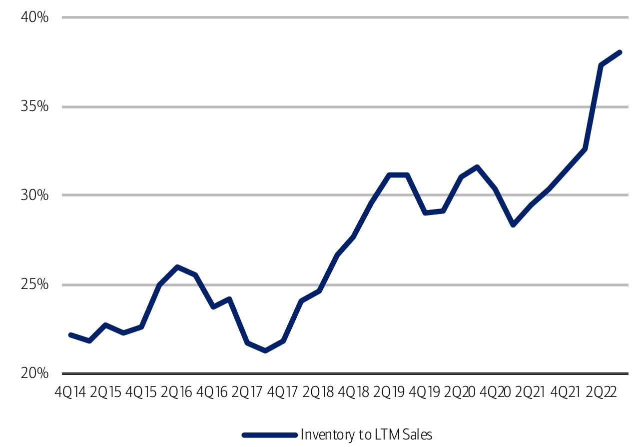
Exhibit 50: IPGP Inventory to LTM sales hits new highs
BofA is concerned if demand weakens with too much inventory



Source: BofA Global Research, company filings, LTM = last twelve months
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Waste: great place to hide yet be mindful of rotation

We adopt a more selective view on waste – mindful of valuation, RINs, pricing

Nuances are likely to come into focus for the waste sector opposed to 'rising tide lifts all boats'. We see some operators reporting accelerating price while others could plateau, falling RINs credit value is a differentiator, and multiples are more into focus. Casella Waste (CWST) is the fifth large public waste operator with the highest valuation multiples, a premium to sector. We downgrade CWST to Underperform from Neutral as we see less upside relative to other names in the waste space due to valuation. Our top waste pick is Buy-rated GFL – the least demanding valuation in the group with catalysts to re-rate (de-leveraging the balance sheet is a start). In the large caps, we prefer Buy-rated Republic Services (RSG) to Neutral-rated Waste Management (WM) – lower multiple, higher free cash flow growth, less vulnerable to RINs/OCC pullback.

The key positive theme for waste in 2023 is the ability to compound price (i.e., contracts linked to CPI reset higher, open market contracts continue to go up) at a time when inflationary costs moderate. In general, the waste sub-sector of our coverage universe offers investors a resilient earnings stream in the face of economic uncertainty – diverse customers, annuity-like contracts, pricing power, no tail risk exposure to China or Europe, strong management teams, and shareholder friendly capital allocation policies. Pricing continues to accelerate as smaller haulers struggle with costs and capacity (i.e., supportive of price increases). Recession sensitivity is fairly constrained for the sub-sector. In a mild recession, overall volumes down low single digits (construction volumes ~10% total - most cyclical), waste pricing stays positive, and costs pressures ease considerably (park trucks, less overtime). As a result, the relief on the collection service cost line helps offset the volume, implying flattish to slightly down earnings, in our view.

As recessionary risks rise, we start to become increasingly mindful of valuation in waste. We realize this sounds counterintuitive given waste is a defensive sub-sector in industrial world rife with cyclical earnings. Yet the market is typically forward looking and can respond quickly when there is light at the other end of the tunnel in terms of recessionary headwinds easing. As a result, the valuation premium investors pay for waste's resilient earnings starts to be less valuable as lead indicators bottom, stabilize, and gradually improve – the market conviction that pressures are easing starts to rise. Are we there yet? No. Economic data is likely to get worse before it gets better, the fed is still tightening, and the earnings outlook is rather uncertain. That said, we believe the backdrop is likely to shift on a 12 month view – fed is less hawkish, recession is more clear, and lead indicators are recovering from low levels. In this gradually improving backdrop, investors are not likely to pay such a high premium for 'earnings resiliency'.

Casella (CWST): Move to Underperform – lack of upside on valuation

We lower our rating on Casella Waste (CWST) to Underperform from Neutral as we see less upside relative to other names in the waste space due to valuation. We lower our PO to $81 ($87) based on 17.5x 2023 EV/EBITDA (vs prior EV/growth ratio of 1.8x) to bring our valuation methodology more in line with the peers (i.e, EV/EBITDA). To be clear, Casella is a high quality operator with a positive outlook driven by pricing power, M&A runway, stability of solid waste, restructured recycling program, and an attractive landfill footprint across the Northeast. While we do not see any absolute downside to the shares at these levels, we struggle to see significant upside as our forecasts are in line with consensus and our target multiple already reflects a premium to the sector.

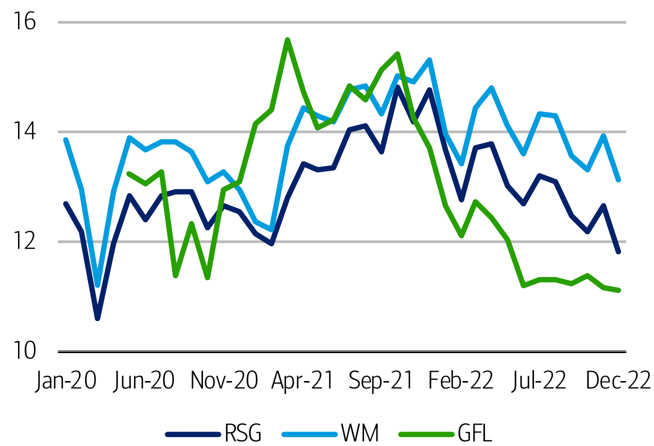
Our target multiple of 17.5x for CWST is higher than the large cap peers (WM, RSG 13-14x) to reflect CWST's double digit FCF growth profile and M&A runway that is superior than the large cap names. The 17.5x multiple is slightly above best-in-class Waste Connections (16x) – WCN is likely to generate double digit FCF growth in 2023, possesses M&A runway ($4-4.5bn opportunity), and returns cash to shareholders (growing dividend at a double digit rate). While we recognize there is a premium to 'scarcity value' in the waste sector that is likely applied to CWST, we believe that is reflected in shares. CWST's FCF yield of 2.6% is below peers and CWST does not pay a dividend, at a time when the 10-year treasury yield is now at 3.5%.

What would make us turn incrementally positive? Valuation becomes more appealing, pricing re-accelerates above expectations (recall, Q3 solid waste pricing +6.6% YoY vs Q2 +6.9% YoY), growth starts to notably outpace its peers and the company starts to convert more free cash flow to the bottom line (we believe 2023 could be a higher capex year as CWST builds out McKean). The long-term outlook is positive for CWST – particularly due to its attractive landfill assets that cannot be replicated - yet higher level of investments (i.e., capex intensity) is likely necessary in the near-term.

Top waste pick: GFL

A consistent theme in our year-ahead is to prefer 'value', which is emerging in the smid-caps. That is no different than in the waste sector. GFL, the 4th largest operator, is trading at a notable discount to the large cap waste peers. GFL was the worst performer in the sector in 2022 (GFL -23% vs WM/RSG/CWST -5-7% vs WCN -2%). In our view, many of the concerns weighing on GFL's multiple (leverage) are likely to improve over the next 12 months. We believe GFL is a '*good house on a great block*' – disciplined industry, pricing power, positive FCF, ability to grind out EBITDA growth in an uncertain macro –can narrow the valuation discount over time. Additionally, a backdrop that gradually shifts to more cyclical given less hawkish Fed could help GFL as leverage concerns ease.

Exhibit 51: GFL 12 month fwd EV/EBITDA vs large cap waste peers
GFL traded at a premium to in line in 2020-2021, yet der-rated in 2022



Source: DataStream, IBES consensus
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Exhibit 52: GFL valuation premium now a discount through 2022
In our view, higher rates and GFL leverage drove multiple de-rating

Source: DataStream, IBES consensus
BofA GLOBAL RESEARCH

Large cap waste: prefer Buy-rated RSG to Neutral-rated WM

The two national waste operators are Waste Management (WM) and Republic Services (RSG). Both companies provide defensive exposure given no tail risk to Europe and China, annuity-like revenue, pricing discipline, and friendly capital return to shareholders. We prefer RSG as the company is trading at a slightly lower multiple (12x vs 13x) and is likely to grow FCF in 2023 at a high single digit rate, opposed to WM that is likely to see FCF decline for the second consecutive year given elevated capital spending on new projects (albeit, these projects are likely to generate incremental FCF in outer years). While some investors are likely to exclude the 'growth capex' to assess the underlying FCF generation, we think this is a bit of a challenge in a backdrop where the 10-year yield is elevated. Additionally, these projects are likely to generate a high return yet the volatility in RINs (renewable information number) could weigh on sentiment near-term.

Waste Connections remains in a league of its own

We hosted investor meetings with Worthing Jackman (CEO) and Mary Anne Whitney (CFO) in early December. In our view, quality rises to the top in periods of adversity. WCN has more of a handle on managing the 'unknown variables' (labor, inflation, fuel, recycling) heading into 2023 relative to the last few years and can flex accordingly. We continue to advise investors to prefer names that can compound price as inflationary costs moderate – and WCN is a prime example. Pricing is likely to accelerate in (Q123 vs Q4 22 vs Q3) as a majority of price increases are implemented in January. M&A rollover alone from 2022 is likely to drive 'north' of 5% top line growth for 2023. We maintain our Buy rating given high visibility into a double-digit EPS/FCF growth. See takeaways note – *Garbage man with the winning plan* (December 7 2022).

Engineers: Positive outlook, taking a winner off the table

We maintain a positive outlook on the Engineering space. On a macro level, these industrial service-related names have no manufacturing, mostly domestic-oriented, and levered to rising public investments (infrastructure, transportation, environmental) that is more resilient in a recession. As we discuss in the construction section in this report, we see rising levels of investments and funding in key areas (infrastructure, re-shoring, environmental, transportation). On a micro level, we appreciate i) inflation protection: contract structure (cost reimbursable, fee multipliers) & leveraging offshore capabilities support margins, ii) stricter regulatory framework is a multi-year headwind (assessment, testing, remediation in areas like hazardous chemicals) and iii) FCF: capital light business models support positive FCF to repurchase shares in market dislocations.

That said, we are a bit more selective given some risks to monitor: i) Selection of House Speaker McCarthy came with talks of a potential $75bn defense spending cut for FY24, which would be consistent with FY22 levels. While this is highly unlikely (based on BofA defense team), Continuing Resolution for FY24 creates a level of uncertainty on public programs and ii) defensive attributes of the engineering space are attractive in a slowdown/economic recession. Yet as investors look to a new economic cycle, positive earnings revisions could be higher in more cyclical sub-sectors.

Jacobs: shares closing in our PO post outperformance – move to Neutral

Jacob shares outperformed the S&P in 2022 (-13% vs SPX -18%) and off to a strong start in 2023 (YTD: +7% vs SPX +3%). J shares have only modest upside to our PO. As a result, we lower our rating to Neutral from Buy as we maintain our PO of $137. To be clear, J has a positive outlook over the next few years given rising public funding is key end markets (infrastructure, environmental, transportation) and re-shoring beneficiary (high market share with semiconductors, life sciences). That said, we view Jacobs as more 'defensive' in nature – similar to our waste coverage – with less scope for positive earnings revision relative to cyclicals out of a recession. Additionally, BofA Defense analyst, Ron Epstein, highlights potential headline risk around Continuing Resolution for FY24 - a risk to defense spending. Ron ultimately believes the DoD (Department of Defense) budget continues to grow (with expectation to exceed $1trn by 2026) yet there is room for increased uncertainty. While a Continuing Resolution could put risk to other public funding areas, Jacob's exposure to Defense and DoD could be an overhang.

Fluor: raising PO – staying on the sidelines waiting for cash return story

Fluor's management team is executing a challenging turnaround for the business model and finding success – FLR booked an impressive $9.7bn of new awards in Q3 to underpin a strong backlog ($25.4bn), awards are cost-reimbursable vs fixed price (i.e., likely to provide more stable earnings profile as projects are recognized), sizeable cash balance ($2.6bn with 23% domestically available), and intriguing levers to pull (i.e., monetize NuScale holdings). We raise our PO to $36 ($33) based on 9.5x 2023 EV/EBITDA as we believe a higher multiple is warranted as FLR continues to execute its transformation and higher commodity prices could drive awards (vs 8.5x prior). That said, we like to see more inherent (and consistent) cash generation of the business following the downtrend in recent years due to legacy projects impacted by supply constraints, higher costs and inflationary pressures. Fluor's cash from operations has declined in recent years: 2019: +$219mn, 2020: +$185mn, 2021: +$25mn, YTD: -$15mn. We like to see the inherent business generate more cash flow to be returned to shareholders.

AECOM: our top pick in the Engineering space

We maintain our Buy rating on AECOM as we see the case of a 'higher quality' firm bearing fruit that is still not reflected by the market's valuation and lower risk to DoD/defense headlines (not a key driver to ACM earnings). Transactions in the engineering space are occurring at elevated multiples (see WSP Global, Tetra Tech) that underscore the value in the sector. In 2022 – a year filled with supply chain constraints, geopolitical conflict, currency, and inflation, ACM still delivered on all areas of its FY22 guidance, implemented its first ever dividend, and raised it 20%. We believe 2023 is likely to be another year of ACM's new management team building a track record. On a macro level, we still see tailwinds from rising public infrastructure providing stability for growth over the coming years and ACM returning the dash flow to shareholders (via dividend and repurchases). We raise our PO to $95 ($90) based on 14x 2023 EV/EBITDA, as we believe a slightly higher multiple is warranted given our more positive outlook on the non-residential construction outlook, particularly infrastructure (vs 13.7x prior).

Caterpillar: top large cap pick in Machinery

Today, we upgraded Caterpillar to Buy from Neutral. We believe there is an underappreciated roadmap that could bring the CAT story to the forefront and drive outperformance: i) near-term: low risk of notable EPS miss Q4/Q1 given price vs cost tailwind, ii) medium term: Backlog falls yet lead indicators improve 2H, iii) 2023: trough EPS in a recession year higher vs expectations, iv) 2024+: as investors look to a 'new economic cycle', CAT's EPS power looks attractive, and v) 2022 events underscore secular pressure is abating. As macro headwinds ease in 6-9 months and investors start to look towards a new cycle, CAT's multi-year growth prospects screen positive: capex is likely higher in a world that is effectively 'short' copper, oil & gas (BofA forecasts D&C spending up 21% in 2023e), higher copper price incentives investments, runway of construction projects following legislative tailwinds. We note that CAT's earnings typically more than double from prior trough (i.e. recession) to the next peak. Our PO of $295 is based on 18.5x 2023E EPS and implies 16x 2024 EPS, in line with Caterpillar's historical valuation average. Please see our in-depth report today, *This CAT still has some tricks in its bag – upgrade to Buy*.

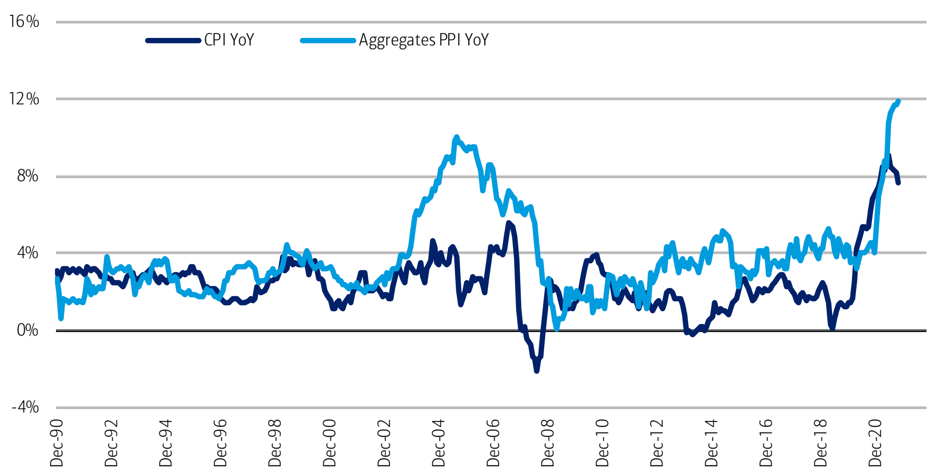
Aggregates: prefer Buy-rated VMC to Neutral-rated MLM

The two largest national aggregate suppliers are Vulcan Materials (VMC) and Martin Marietta (MLM). Poor weather in Q4 and early Q1 is likely a notable overhang on earnings season. One dynamic that is positive for aggregates is the fact that pricing is likely to compound in 2023 at a time when inflationary costs (diesel, nat gas, energy, labor) are likely to moderate. As we highlight in the construction section, we see a 'soft patch' opposed to a severe downturn in the non-res market, supported by mega projects and infrastructure offsetting weaker residential and light non-res construction. As a result, we believe the demand backdrop is likely to be more stable than investors fear.

We maintain a relative preference for Vulcan Materials (Buy-rated) to Martin Marietta (Neutral-rated) - VMC has a higher mix of aggregate exposure, no Cement (potentially more cyclical vs aggregates), and is executing on price vs cost. In this report, we lower our MLM estimates 3-4% as we expect a weaker FQ4 and less margin expansion than expected as diesel costs remain high and weather is a likely headwind. We lower our PO to $360 ($365) keeping our valuation methodology intact (14x 2023 EV/EBITDA).

Exhibit 53: Aggregates PPI vs headline CPI

Aggregates (sand, gravel, and crushed stone) PPI YoY has been notably outpacing CPI



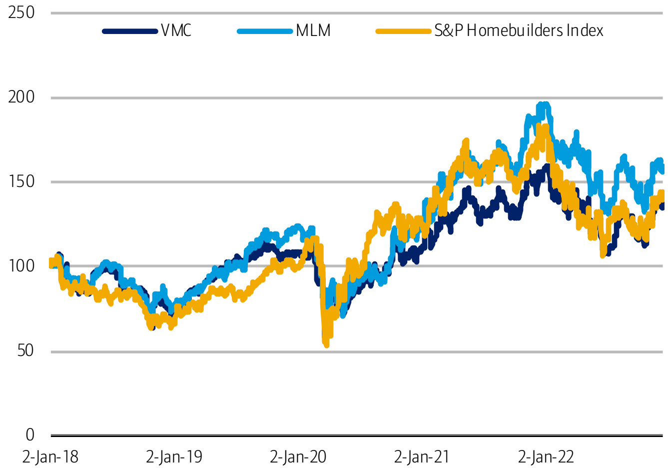
Source: Bloomberg

BofA GLOBAL RESEARCH

Aggregates: look to 2005-07 playbook

Since 2018, the Aggregates vs SPX Homebuilders chart has effectively been the same chart (exhibit 7). Yet that is not always the case – see 2005-07 (exhibit 8). Shipments contracted during the 2005-2007 period, yet strong pricing carried overall earnings. Once the dust settles, we believe a similar dynamic can play out through 2022-2024, with housing down yet strong pricing, infrastructure momentum, and energy headwinds moderating providing a positive set up despite an uncertain macro backdrop.

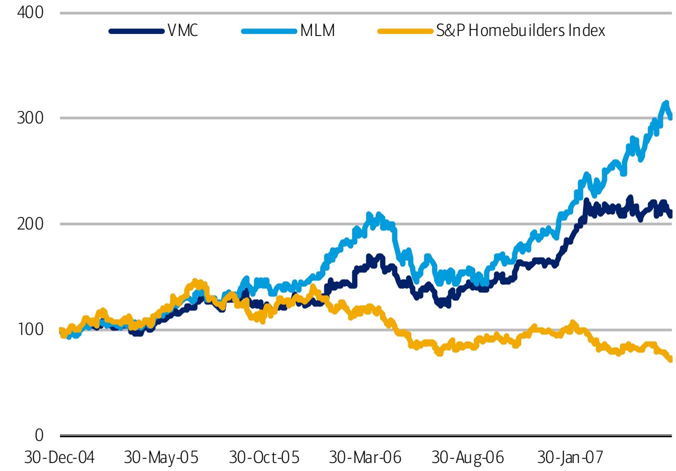
Exhibit 54: Aggregates vs S&P Homebuilders Index (2018-present)
Aggregates following the same path as Homebuilders Index in recent years



Source: Bloomberg

BofA GLOBAL RESEARCH

Exhibit 55: Aggregates vs S&P Homebuilders Index (2005-2007)
Aggregates shares diverged from Homebuilders Index in 2005-2007



Source: Bloomberg

BofA GLOBAL RESEARCH

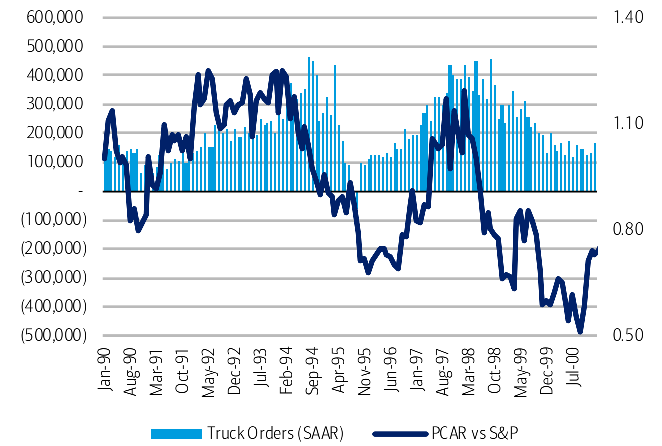
Caution on our truck-related coverage

Cautious on the cycle, yet long-term secular risks likely easing to a degree

In our coverage universe, we hold a more cautious view on our truck-related coverage. We see truck production likely peaking this year following robust order rates and OEMs ramping production. That said, financial conditions are starting to deteriorate within the customer base (spot rates falling, contract rates to reset lower), used values are trending lower, and our BofA transport analyst, Ken Hoexter, is citing freight recession conditions. We are concerned that inventory build and stress in the retail space can ripple through the transportation economy, particularly the heavy duty side. We express our cautious view with Underperform ratings on PACCAR and supplier Allison Transmission. Within e-mobility, we expect firms face ongoing production headwinds, with ramps in production limited by the ability to secure supplies and driving downward estimate revisions. We maintain our Underperform ratings on Lightning e-Motors, XOS Inc., and Proterra.

An interesting dynamic on a longer-term basis is the secular risk that has faced the incumbent OEMs and suppliers. Simply put, the secular risk in autos (i.e., transition to electrification) weighs on the traditional truck OEMs and suppliers as well. That said, we believe some of this risk is easing and in fact, traditional players are likely to emerge stronger – not weaker. In 2022, several high profile electrification players have struggled, including our coverage on e-mobility SPACs impacted by production woes, delivery misses, and deteriorating fundamentals. In December, we hosted CEO of Waste Connections who cited disappointment in EV refuse trucks. This sticks out to us given the idea that refuse trucks were viewed as 'low hanging fruit' by the investment community just a few years ago as one of the earlier truck categories to be displaced. We believe the view of a 'disruptor' in terms of a supplier and manufacturer is losing steam. Incumbents are likely to maintain strong market positions.

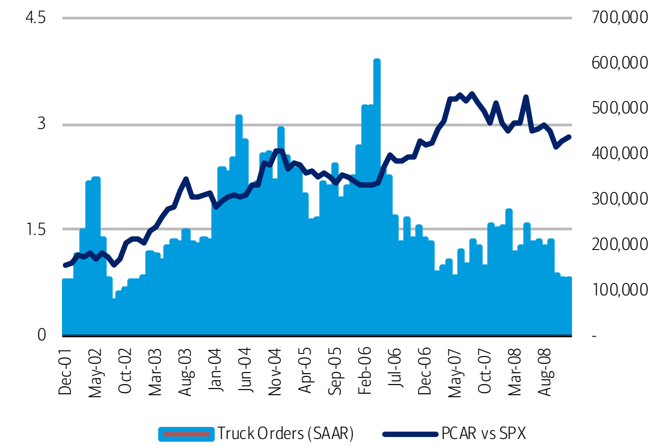
Exhibit 56: 1990-2000: Truck orders vs PCAR (relative S&P 500)
Typically, PCAR shares perform well when truck orders go from trough to peak



Source: Bloomberg, ACT

BofA GLOBAL RESEARCH

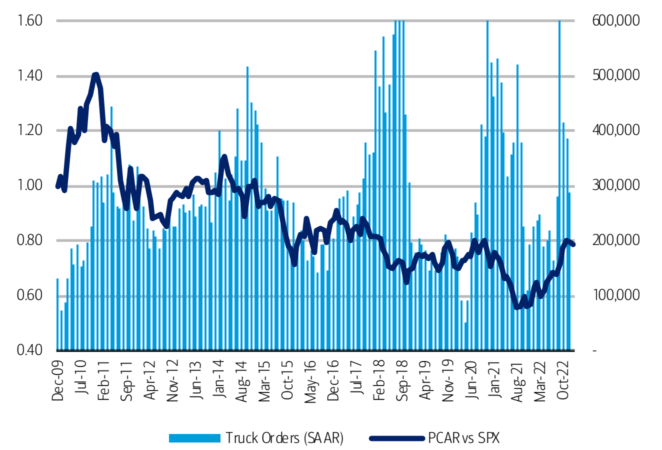
Exhibit 57: 2000-2010: Truck orders vs PCAR (relative S&P 500)
Typically PCAR shares perform well when orders go from trough to peak yet not always the case (2006)



Source: Bloomberg, ACT

BofA GLOBAL RESEARCH

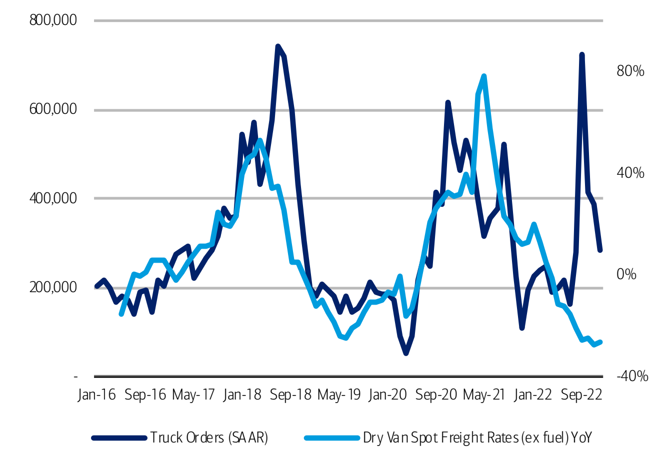
Exhibit 58: 2010-present: PCAR vs SPX vs truck orders (SAAR)
Typically, PCAR shares perform well when truck orders go trough to peak



Source: Bloomberg, ACT

BofA GLOBAL RESEARCH

Exhibit 59: Truck orders (SAAR) vs spot freight rates YoY
Truck orders follow spot freight rates YoY



Source: Bloomberg, ACT

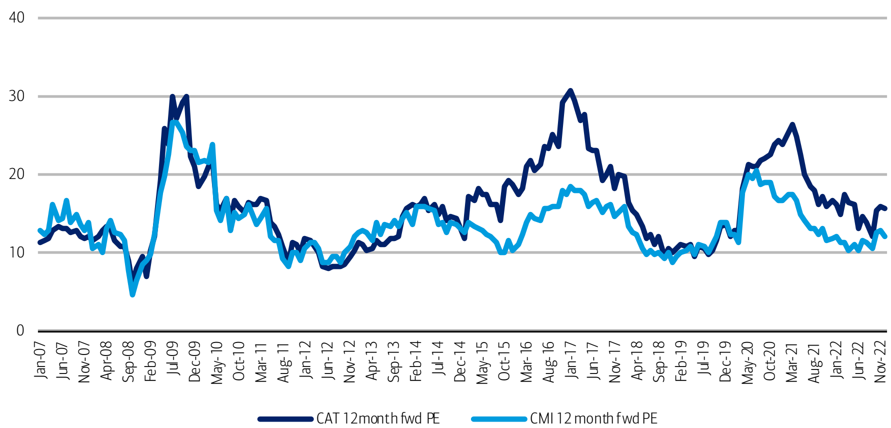
BofA GLOBAL RESEARCH

Cummins: only Buy-rated truck name given off-highway, China, limited EU

CMI is a leading global manufacturer of engines & components for on-highway (trucks), off-highway (mining, construction), energy and power generation markets. While CMI valuation is likely to be constrained by our concerns that the truck production is likely to peak in 2023, we believe this is somewhat reflected in the valuation (~12x 2023 EPS) and consensus (source: Bloomberg forecasts no EPS growth in 2024). That said, we see CMI outlook offers more growth drivers outside of heavy trucks than meets the eye: i) off-highway: end markets such as oil & gas ($300mn), mining ($1.5bn), and rental (construction), ii) China: 20% of EBITDA is likely 40% off of pre-pandemic levels and a potential tailwind in the 2H, iii) lack of Europe: 10% of revenue exposed to Europe is on the low side of the our coverage (vs Paccar, Caterpillar closer to 20-25% of sales).

In our view, the fact that CAT is trading near mid-cycle territory and Cummins is closer to recessionary territory, reflects a degree of dislocation. After all, both Machinery peers have similar end market (off-highway) and direct/indirect China exposure. One fact that weighs on CMI valuation (and discount) is the secular risk of electrification, hydrogen and displacing its high market share of diesel engines. CMI has been upfront about the secular risks to its diesel engine business and investing aggressively (i.e., New Power segment that is loss making next few years to diversify portfolio). While we do not dismiss this risk, the fact that CMI is investing in alternative platforms (EV, hydrogen) and emerging suppliers in the truck space have struggled mightily makes us wonder if CMI is more likely to gain a foothold than perceived. Our recent meeting with Waste Connections, the #3 largest waste operator, highlighted continued disappointment around EV refuse truck deliveries. In our view, this was a sub segment of the truck market that felt ripe for adoption a few years ago yet continues to be pushed out.

Exhibit 60: Cummins vs Caterpillar 12 month forward PE
Cummins valuation is at a 25% discount to Caterpillar, more than average (~10%)



Source: Bloomberg, DataStream, IBES consensus

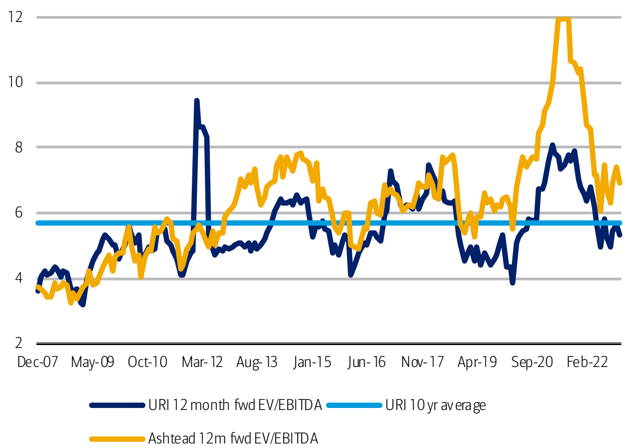
BofA GLOBAL RESEARCH

United Rentals: dividend initiation is a potential catalyst

We continue to like Buy-rated United Rentals (URI) and see 2023 as a critical year to prove the operators ability to i) navigate uncertainty, ii) generate positive free cash flow, iii) exposed to new earnings streams than in the past, and iv) a valuation that underappreciates these strengths. Additionally, we believe URI can initiate its first ever dividend – a potential catalyst. URI leverage is in the low end of its range (2-3x) and a dividend can underscore to the investment community the cycle over cycle improvement. For example, 2022 is set to be URI's 2nd highest FCF year behind 2020 – highlighting the ability to generate strong FCF in the best of times (2022) and recession (2020). In our waste coverage, the valuation re-rated as the market appreciated the higher level of baseline FCF generated by the operations. In our view, a similar dynamic can be observed with URI and we believe a dividend initiation is the best way to underpin that argument. We see 2023 as a critical year where the operator can demonstrate its ability (flexibility) to navigate a slowdown given exposure to growth areas (cyclical and secular).

Exhibit 61: United Rentals 12 month forward EV/EBITDA

URI is trading below its 10-year average in spite operational improvements

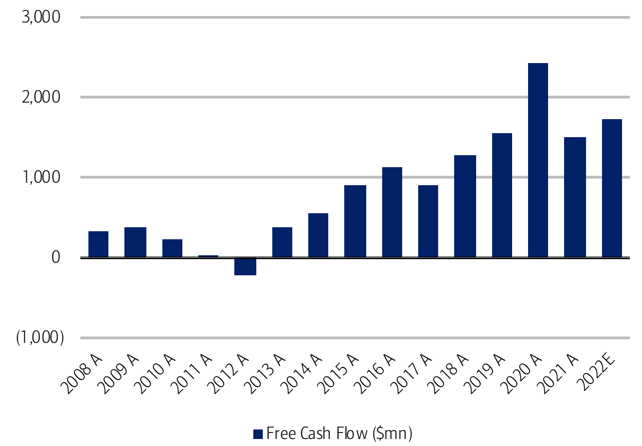


Source: Bloomberg, DataStream, IBES consensus

BofA GLOBAL RESEARCH

Exhibit 62: United Rentals free cash flow ($mn)

URI generated record FCF in recession (2020) and strong growth (2022e)



Source: URI Company Filings

BofA GLOBAL RESEARCH

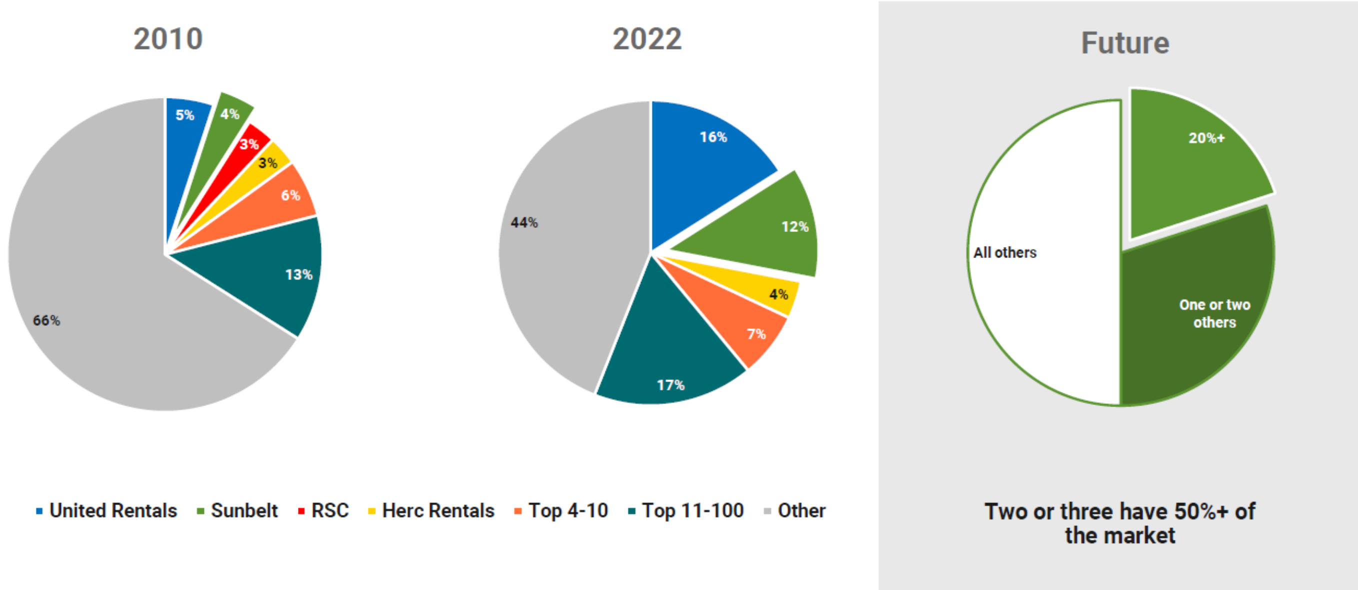
Incorporating Ahern into estimates – valuation is slightly below 10-year average

We incorporated Ahern acquisition (closed end of Q422) into our model. We raise our 2023-24 EBITDA estimates 5-6% to $6250mn ($5950mn) and $6500mn ($6125mn), respectively. We are forecasting top line growth of 7% (organic) in 2023 and layering on Ahern's fleet of ~$1.85bn (nearly $900mn of annual revenue). We (as well as Bloomberg consensus) incorporates very little operating leverage with EBITDA growing in line with revenue. This is likely a conservative approach given i) Ahern has lower margin, and ii) top line growth is likely to come more from fleet expansion vs price growth and utilization. That said, small cap rental operators HRI and HEES are still highlighting mid-single digit rental rate growth in 2023, suggesting some upside to our forecasts.

We keep our PO of $415 based on a slightly lower multiple (5.7x 2023 EBITDA vs 6x prior) as lower used equipment values warrant a slightly lower multiple. Our target multiple on URI is in line with its 10-year average (4.5-7.5x EBITDA) and EV/fleet on OEC multiple (~1.7x). As a result, URI is no longer 'deep value' as it was six months ago, yet valuation is not overly demanding, in our view. This is especially the case when one considers the operational improvement over the last 10 years, including higher free cash flow generation through the cycle. In our view, the market could re-rate URI's valuation if the operator credibly proves its ability to manage the economic uncertainty with a flexible capital spending program, diverse (fungible) fleet, and exposure to 'sticky', long-term customer projects (infrastructure, manufacturing, EVs, etc). Additionally, there is a 'growth angle' beyond the cycle as large operators like URI continue to gain more share.

What is the big risk? URI multiple de-rates to the low end as the decline in used equipment values signals a much deeper downturn than we expected. The higher fleet growth by peers and lower demand profile *'upsets the apple cart'* as supply of equipment overwhelms demand, resulting in rental rates (i.e., pricing power) no longer positive.

Exhibit 63: The national rental operators continue to gain share, even as more verticals open up (power, pumping, tools, lighting, etc)
Ashtead (#2 operator with Sunbelt) sees two or three operators gaining more share over time



Source: Ashtead Company Filings

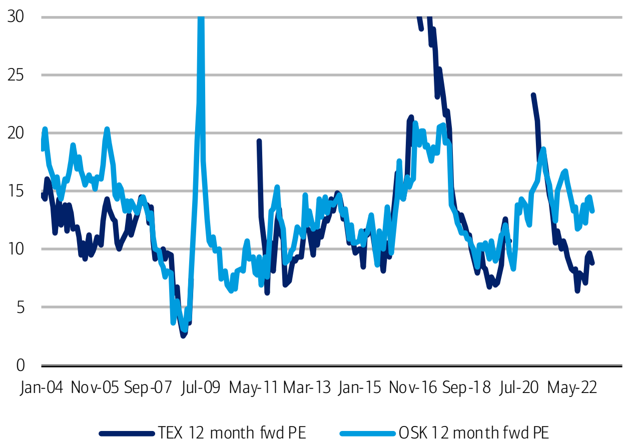
BofA GLOBAL RESEARCH

Aerials: See more value in Terex vs Oshkosh

Terex (Genie brands) and Oshkosh (JLG brands) are the two largest manufacturers of access equipment, including telehandlers, boom and scissor lifts. Over 90% of sales goes through the gen rental channel and customers. The set up in the medium term remains rather positive – backlogs are elevated, rental capex is rising (see Herc), fleet age is extended and our bottoms up suggests more of a 'soft patch' vs 'hard landing' in non-res construction spending. That said, Aerial used values have turned slightly negative on a YoY basis for the first time in two years (warning sign) and big rental operators can exert flexibility on purchasing plans if demand cools, leaving suppliers in a tight spot.

We have a preference of Terex (Buy) vs Oshkosh (Underperform) given there is lower expectations and less demanding valuation for Terex. In our view, the bar is much lower for TEX (consensus forecasts 2023/24 EPS growth of +14%/+7% vs OSK +87%/+16%) and we see more valuation upside given Terex is trading at a notable discount to Oshkosh (exhibit 64). TEX is executing well and we believe its non-Aerials business - Materials Processing (40% of sales) - is overlooked by investors, supported by higher investments in recycling, quarry, and aggregates. OSK is a quality company with a favorable outlook – yet Defense inflection is more 2H23/24 story, JLTV recompete risk creates some uncertainty, and execution track record last twelve months is more mixed.

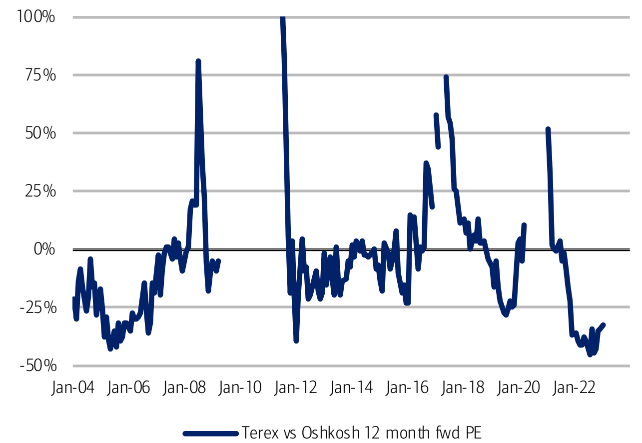
Exhibit 64: Terex 12 month forward PE vs Oshkosh
Terex and Oshkosh 12 month forward PE similar trajectory through cycle



Source: Bloomberg, DataStream, IBES consensus

BofA GLOBAL RESEARCH

Exhibit 65: Terex trading at one of its steepest discounts to Oshkosh
Terex trading nearly over 30% discount to OSK on a 12 month forward PE



Source: Bloomberg, DataStream, IBES consensus

BofA GLOBAL RESEARCH

Farm equipment: CNH is our top pick

We see a fairly positive outlook for the farm equipment space in 2023 – production is still trying to catch up with retail demand (i.e, no inventory build at dealer level until 2024), farmer income remains healthy given elevated commodity prices, and high horsepower units are still below prior peaks. For example, Deere expects large ag units up 5-10% in 2023. We note this is a 40-50% increase from 2020 and 25-30% above the trailing seven year average. That said, the last 7 years was a depressed period of farmers reinvesting in fleet. Deere notes that 2023 volumes are likely to still be 20-25% lower than 2010-14 period, the last big replacement cycle. While we have a positive outlook for farm equipment demand, we are mindful of valuation and risk of an unwind in the commodity complex (i.e., Europe-Ukraine, black sea exports, big planting season).

Deere, the leading manufacturer of farm equipment, shares are trading near all-time highs and the market is valuing shares closer to mid-cycle (~15x 2023 EPS) opposed to a recessionary valuation (10-12x). While we agree that the farm equipment cycle is not near peak (and can grow beyond 2023), this is reflective in DE's valuation. As a result we are Neutral. We see more risk/reward upside in CNHI, the #2 manufacturer of farm equipment, that is trading at a more recessionary multiple (10x 2023e EPS) and has lower earnings expectations (2023 EPS growth of 9% vs Deere +20%). While we see value in AGCO (~10x 2023e EPS), we maintain Neutral as shares outperformed in 2022 (+25% vs SPX -18%) and see some uncertainty with Europe (~50% of operating profit).

AGCO: raising estimates and PO

We raise our 2023/24 EPS forecasts 5-6% driven by better than expected demand and pricing power. AGCO expects retail units of tractor in 2023 to be ~flat in NA, flat to up 5% in SA, and flat in Europe, yet targeting 4-5% outgrowth (FENDT strategy, precision ag, parts & service). Our updated 2023 EPS of $13.50 is in line with the company's guidance. On the positive side, we do not see a significant risk to the earnings outlook as the company is effectively delivering ~$3-4.00 of quarterly EPS. We raise our PO to $149 ($127) on 11x 2023e EPS as we believe a higher multiple is warranted given the strength in ag commodities and farmer income (vs prior 10x). We see a more balanced risk/reward given the significant exposure to Europe (~50% of operating profit).

Exhibit 66: Companies mentioned
Companies mentioned in this report

BofA Ticker	Bloomberg ticker	Company name	Price	Rating
ACM	ACM US	AECOM	US$ 85.87	B-1-7
AGCO	AGCO US	AGCO Corp	US$ 141.11	B-2-7
ALSN	ALSN US	Allison Trans.	US$ 43.2	B-3-7
CWST	CWST US	Casella	US$ 79	B-3-9
CAT	CAT US	Caterpillar Inc	US$ 255.07	B-1-7
CNHI	CNHI US	CNH Industrial NV	US$ 17.23	B-1-7
ROAD	ROAD US	Construction Partner	US$ 29.03	B-1-9
CMI	CMI US	Cummins Inc	US$ 250.11	B-1-7
DE	DE US	Deere & Co	US$ 436.09	B-2-7
FLR	FLR US	Fluor	US$ 35.32	C-2-9
GFL	GFL US	GFL Environmental	US$ 29.84	B-1-7
IPGP	IPGP US	IPG Photonics	US$ 107.94	B-3-9
J	J US	Jacobs Eng.	US$ 127.82	B-2-7
KMT	KMT US	Kennametal Inc.	US$ 26.85	B-2-7
ZEV	ZEV US	Lightning e-Motors	US$ 0.6	C-3-9
MLM	MLM US	Martin Marietta Mate	US$ 351.58	B-2-7
NVEE	NVEE US	NV5 Global Inc.	US$ 137.42	C-2-9
OSK	OSK US	Oshkosh	US$ 95.33	B-3-7
PCAR	PCAR US	PACCAR Inc	US$ 101.39	B-3-7
PTRA	PTRA US	Proterra Inc.	US$ 4.7	C-3-9
RSG	RSG US	Republic Services	US$ 123.27	A-1-7
TEX	TEX US	Terex Corp.	US$ 46.72	B-1-7
TKR	TKR US	Timken Company	US$ 75.47	B-1-7
URI	URI US	United Rentals	US$ 391.77	B-1-9
VMC	VMC US	Vulcan Materials	US$ 180.81	B-1-7
WCN	WCN US	Waste Connections	US$ 127.99	A-1-7
WM	WM US	Waste Management	US$ 152.68	A-2-7
WSC	WSC US	WillScot	US$ 45.97	B-1-9
XOS	XOS US	XOS	US$ 1.08	C-3-9

Source: BofA Global Research

BofA GLOBAL RESEARCH

Investment Rationale

Casella

We have a positive outlook for Casella Waste driven by pricing power, M&A, stability of solid waste, and an attractive landfill footprint across the Northeast. That said, we believe this is fully reflected in valuation, which remains a notable premium to the waste sector. While we do not see much downside to Casella Waste on an absolute basis, we see less relative upside given the elevated valuation and market rotation to more cyclical sectors.

Jacobs Eng.

The Jacobs of today is very different from the Jacobs of last cycle, having undergone strategic changes under the helm of new management: Operational improvements, acquisitions (CH2M, KeyW), and the divestment of ECR (Energy, Chemicals, and Resources). These changes have created a less cyclical, higher return portfolio along with a strong balance sheet. That said, we see risk of less valuation upside as the market rotates to more cyclical sectors.

Timken Company

Timken has a robust competitive position in high end industrial bearings and power transmission products with stronger than appreciated barriers to entry. We expect a growing presence in Process Industries and recent M&A to drive stronger margins and returns over the next cycle. We believe Timken's pricing power is under appreciated, China re-opening is a tailwind, and newer verticals (renewables, automation) help diversify the portfolio away from the pure industrial production cycle.

Price objective basis & risk

AECOM (ACM)

Our $95 PO is based on 14x our 2023E EBITDA. This multiple is moving more in line with professional services/design peers and defensive/infrastructure related peers given AECOM's improving balance sheet (net leverage of 1.1x, net debt free in 18 months) and portfolio transformation into a professional services firm. We believe the growth outlook is recovering given potential for infrastructure, transportation, and environmental spending initiatives.

Downside risks to our PO are 1) weaker-than-expected global construction growth, particularly public spending in the US, 2) higher-than-expected headwind from COVID-19, 3) shortfall in execution around CS divestiture or hitting FCF conversion target. Upside risks to our PO are 1) stronger-than-expected infrastructure spending by local, state, and federal agencies, 2) higher-than-forecast cost savings from the restructuring program, 3) better-than-expected free cash flow generation.

AGCO Corp (AGCO)

Our PO of $149 is based on 11x 2023E EPS, near the low end of the historical range (8-17x) given rising rate environment, high exposure to Europe, and macro economic concerns.

Downside risks to our price objective are 1) grain prices rollover due to a bumper crop this Spring or renewed trade tension with China, 2) improved margins in the Americas prove unsustainable, 3) renewed slowdown in demand for grain storage products and erosion of overseas demand, 4) large cutback in European farm subsidies, 5) sudden strengthening of the USD, 5) short term earnings disappointment.

Upside risks are 1) substantially improved profitability in the Americas, 2) grain prices continue to rise further, 3) sustainable growth returns to the EMEA farm equipment market at a faster and more robust clip that we currently assume, 4) increased shareholder activism.

Allison Transmission Holdings Inc. (ALSN)

Our PO of $37 is based on 5.4x 2023E EV/EBITDA . Our multiple sits below the low end of its historical valuation range (8-12x dating back to 2012) as the company faces the secular overhang of electrification, and a potential truck market peak in 2023.

Upside (downside) risks to our price objective are: 1) a quicker (slower) recovery from the economic recession than we currently envision, 2) faster (slower) than expected electric vehicle adoption in some of ALSN's core markets outside of transit bus, 3) the effect of government regulation on the company's tax assets, 4) quicker (slower) than expected recovery in the energy industry, 5) weaker (stronger) competition from truck OEMs and transmission manufacturers, or 6) ALSN seeks privatization.

Casella (CWST)

Our 12-month price objective on Casella Waste is $81 per share. This is based on 17.5x 2023 EV/EBITDA, in the middle of the average range the last five years (11-25x). Our target multiple is a premium to our valuation framework in the waste sector given Casella's growth prospects are higher than the industry. We note CWST has lower liquidity and does not pay a dividend. On our $81 PO, CWST would trade on a 2.6% FCF yield (vs sector 2.5-4%) although we expect the company to deliver over double digit FCF growth rate over the next few years.

Upside risks:
i) Stronger than expected price gains across collection and disposal business lines.
ii) Higher than expected M&A activity.

iii) Expanding EBITDA margin and FCF conversion above expectations.

Downside risks:
i) Elevated costs and capex required to sustain growth.
ii) Labor, inflationary costs impact solid waste margin more than anticipated.
iii) Competitive pricing dynamics emerge in the Northeast disposal market.

Caterpillar Inc (CAT)
Our $295 PO on CAT is based on 19x 2023E EPS which is above the long term historical range of 16-17x given rising price vs cost tailwind, China re-opening, and CAT's valuation expands in a recession. Our PO implies 16x 2024e EPS, more in line with CAT's historical valuation average. In our view, unique macro and business cycle factors are underpinning stronger earnings: China re-opening, commodity capex bias to upside post years of underinvestment, and powerful shift in construction spending mix towards heavy/infrastructure projects vs light non-residential construction.

Downside risks to our PO: 1) widening global coronavirus pandemic that tilts global economy into recession, 2) a greater-than-expected reduction or delay in capital spending among large mining, and oil and gas customers, 3) intensifying pricing pressure in the construction and mining equipment industries, 4) legal risks tied to current regulatory probes, 6) ongoing deterioration in dealer sales growth.

Upside risks: 1) a faster recovery in the global economy, 2) firming earthmoving construction equipment market, 3) stronger than expected fleet replacement, 4) continuing recovery in commodity prices, 5) stronger-than-expected demand trends in gas compression, 6) quicker than expected resolution to the pandemic.

CNH Industrial NV (CNHI)
Our 12-month price objective for CNH Industrial is $19.25. Our PO is based on comparative valuations for its two main agricultural equipment peers, based on 12x 2023E EPS and near the low end of the historical range given high exposure to Europe, rising rate environment, and macro economic concerns, partially offset by stronger growth in the farm equipment space.

Upside risks to our PO could come from higher than expected earnings resulting from a stronger than expected grain market, further rerating than anticipated as CNH proves out its precision ag strategy and shares new financial targets, upside to Raven synergies, and accretive acquisitions.

Downside risks to our PO are a sudden reversal of soft commodity price momentum, a triggering of a renewed global downturn in farm equipment demand, demand declines and supply chain disruption caused by another wave of COVID-19, and/or renewed concerns of global recession.

Construction Partners Inc. (ROAD)
Our $31 PO is based on 13x 2023E EV/EBITDA, the midpoint of its historical range. In our view, the improving multi-year outlook and growth prospects from Infrastructure are somewhat offset by inflationary pressure. Our target multiple puts ROAD at a slight discount to Aggregates that share similar business models and exposure to public infrastructure markets.

Risks to our PO are: 1) Labor and supply chain issues constrain project timing. 2) Weaker than expected infrastructure spending. 30% of revenue is tied to private construction which can be cyclical. 3) Vertical integration risks: operating a liquid asphalt terminal and wide network of hot mixed asphalt plants can bring a different level of complexity, 4) Pricing struggles to offset rising costs (labor, liquid asphalt, transportation).

Cummins Inc (CMI)

Our 12-month price objective of $273 is based on 12.5x 2023E EPS for legacy Cummins and 5.0x 2023E revenue for the New Power segment, as we expect Cummins to meet half of its $400mn electrolyzer revenue target in 2023. The New Power valuation places it in line with the peer group consisting of NEL ASA, Plug Power, and Ballard Power. Historically, Cummins has traded at a low to mid-teens PE through the cycle.

Downside risks to our PO are a disorderly spike in interest rates leading to aggressive Fed tightening, a hard landing for the China or North American heavy duty truck market, faster than expected BEV penetration without a commensurate number of offsetting wins from Cummins, failure of the hydrogen story to ever truly materialize.

Upside risks are a sustained recovery in the NA heavy duty truck cycle, positive developments in the Cummins hydrogen story, stronger-than-expected resilience in China truck, democratic government drive for renewables driving impetus for new emission regulation and/or a large, accretive acquisition.

Deere & Co (DE)

Our $478 PO is based on 17x our FY23 EPS forecast. Our target 17x PE multiple is broadly in line the range of the long term averages of 15-17x given the rising rate environment and macro concerns, yet is above the peak multiple framework of 12x. Our target multiple is above other Machinery peer multiples. We believe this is justifiable as we see a strong argument for Deere to re-rate permanently higher given improved cycle to cycle profitability underscored by the recent raising of its long-term mid cycle segment margin targets from 15% to 20%.

Risks to our PO: 1) slowdown in the farm economy due to better expected yields later this year, 2) disappointment in construction equipment, 3) peak in the the used equipment market, 4) extended improvement in commodity prices reverses, 5) ongoing supply chain disruption leads to earnings misses.

Fluor (FLR)

Our $36 PO is based on approximately 9.5x EV/EBITDA 2023e, the low to mid end of the historical range. While the outlook is improving in some areas of the portfolio (infrastructure, mining, energy), the lack of earnings & FCF visibility, suspension of the dividend, capital budgets shifting to 'clean energy', and backlog tied to lump sum contracts warrant a more conservative approach to valuation.

Downside risks to our PO are
1) Slower-than-expected project capex recovery in Oil & Gas and Mining,
2) Project execution risk associated with fixed-price EPC contracts,
3) Rising competitive pressures on project margins,
4) Department of Justice subpoena, ongoing Securities and Exchange Commission investigation.

Upside risks are
1) Stronger-than-expected free cash flow generation,
2) Higher capital spending in the energy and mining industries,
3) More consistent track record around project execution.

GFL Environmental Inc (GFL)

Our 12-month price objective of C$41 (USD $32.50) is based on a target 2023E EV/EBITDA multiple of 11.5x, a discount with the public national waste operators due to higher leverage. We believe EV/EBITDA is the most comparable metric due to high debt levels. We rely on comparable company analysis with a group of publicly traded nonhazardous waste operators, all of which are larger and more liquid than GFL. While GFL's growth profile is significantly higher than the national players, the higher leverage ratio and M&A integration are risks.

Upside risks: 1) driving stronger top line growth than the national players over the next 2-3 years, 2) expanding EBITDA margins (ie, driving profitable growth), 3) organically de-leveraging its balance sheet over the cycle via free cash flow generation, 4) higher than expected synergies from acquisitions.

Downside risks: 1) More cyclical waste stream tied to construction, Industrial activity, new project development impact earnings more than expected, 2) struggle to generate free cash flow, limiting ability to de-lever balance sheet organically, 3) struggle to price the business above rising costs, 4) challenges with integrating acquisitions.

IPG Photonics (IPGP)

We value IPGP at $95 per share, based on 2023E EV/EBITDA of 9.5x, near the low end of the historical range (7-25x). In our view, the uncertainty around China (38% of last 12 months sales), rising rate environment and escalating geopolitical risks are likely to constrain the multiple near-term. That said, the long-term secular shift in on-shoring manufacturing processes and multi-year investments to build out EV battery manufacturing provide valuation support.

Upside risks: 1) US-China trade tensions dissipate, 2) Stronger top-line growth over the next 2-3 years driven by higher conversion to laser technologies, 3) Better than expected execution on operating leverage, and 4) Quicker than expected adoption of fiber laser technology outside of industrial markets.

Downside risks: 1) Greenfield projects and capital investments continue to be pushed out to the right, 2) A bigger than expected downturn in automotive capex, 3) Intense pricing pressure from smaller competitors, and 4) Customers develop internal fiber laser technology quicker than expected.

Jacobs Eng. (J)

Our $137 PO is based on 13.5x 2023E EV/EBITDA. This is near the mid to high end of JEC's historical range of 9-16x, although we believe this is justified given the company's improved cost structure, less cyclical portfolio, and reduced exposure to riskier contracts. Additionally, we see evidence of momentum in certain areas of its portfolio including infrastructure, transportation, environmental services, and re-shoring. The valuation is more in line with other Government Services/IT players. Over time, we believe Jacobs' valuation discussion will likely shift away from E&Cs and more to steady compounders within industrials ranging from government services providers, business services, consulting IT, and waste.

Downside risks to our PO are: 1) Weaker-than-expected public spending outlook due to DoTs, state, local budgets 2) Lack of organic FCF generation and integration risks following notable acquisitions 3) Overhang from ongoing dispute related to power project in Australia Upside risks to our PO are: 1) Bigger than expected infrastructure bill at the state and federal level 2) A more favorable outlook for Department of Defense and Energy 3) Higher than expected synergies following acquisitions and technology investments

Kennametal Inc. (KMT)

Our $29 PO is based on 8x FY2023E EBITDA. The historical multiple over the last two decades is about 8.8x (ranging from 7.1x to 10.6x) and we expect it to remain roughly within this range despite KMT's restructuring and modernization efforts as the company remains highly cyclical and may continue to have larger than expected reinvestment needs to remain competitive.

Upside risks to our PO: 1) a faster and stronger than expected recovery in global economy, 2) limited oil and gas contagion risk into general engineering, 3) larger-than-expected savings from capacity closures/restructuring initiatives, 4) significant recovery in commodity prices, and 5) an earlier than expected inflection in free cash flow generation.

Downside risks to our PO: 1) restructuring savings are not fully realized, 2) more capital spending is required to automate facilities and be competitive with peers, and 3) bigger than expected downturn in aerospace.

Lightning e-Motors (ZEV)

Our PO of $0.60 is based on a 0.9x 2023E EV/Revenue multiple. We place our PO is at a discount to the broader emerging EV group given the near term execution risks, potential for further dilution, as well as aggressive out year consensus estimates.

Upside risks to our PO: 1) Faster than expected easing of supply chain constraints 2) expanded partnerships in electrification, 3) quicker than expected pace of sales and production capacity expansion, 4) higher than perceived profitability, and 5) a faster than expected rate of product adoption.

Downside risks to our PO: 1) disruptive supply chain constrain or supply shortages 2) an inability to meet production capacity projections, 3) quicker entrance of competitors in Lightning's markets and 4) customers shifting low emissions priorities.

Martin Marietta Materials (MLM)

Our $360/share PO uses 14x 2023E EV/EBITDA, at the midpoint of the historical range (10-17x). Several factors underpin MLM's valuation: i) infrastructure stimulus provides funding visibility over the next few years, 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 and Materials (China, supply chains, capacity constraints). That said, we see some risks i) integrating a large transaction in a new territory (i.e, out West), ii) cement exposure: more cyclical operations and now exposure extends out West (cement peers trade at lower valuation ranges) and iii) rates: a faster than expected tightening cycle could weigh on housing and constrain high valuation multiples.

Downside risks are: 1) aggregates prices and volumes fail to rise or fall as we forecast, 2) demand for residential and non-residential construction stalls with rising rates, 3) integration challenges with Lehigh Hanson acquisition, 4) price-cost challenges with rising input costs 5) weather or transportation-related operating disruptions.

Upside risks are: 1) aggregates prices and volumes above forecasts, 2) better demand for residential and non-residential construction than we expect, 3) Infrastructure bill drives higher multiplier effect than previously expected, 4) energy and equipment costs falling, and 5) greater return of cash to shareholders.

NV5 Global Inc. (NVEE)

Our PO of $145 is based on applying a 13.5x EV/EBITDA multiple to '23 forecast, which is slightly above the higher end of the historical range (8-13x). While the multi-year outlook is improving across infrastructure, utilities, and buildings, the M&A outlook is more uncertain given rising competition for assets. We are encouraged to see NV5's strong operating execution and cash generation capabilities amidst the pandemic following a rather bumpy 2019.

Downside risks to our PO are:

1) M&A is an inherently risky strategy reliant on acquisition target availability and successful integration. Closed its largest acquisition to date in December 2019.

2) Elevated leverage amidst COV-19 uncertainty and funding risks to state budgets
3) Low stock liquidity with high insider ownership creates volatility

Upside risks to our PO are:

1) Infrastructure Stimulus
2) More resilient customer spending outlook across public and private clients
3) Better than expected synergies with recent acquisitions (Quantum Spatial)

Oshkosh Corp. (OSK)
Our PO of $75 is based on 11.5x 2023E EPS. The historical multiple ranges from 7-19x. We believe a lower multiple is warranted as we are further through the cycle and the Fed is raising rates. While we see some support to valuation (rental market remains tight, infrastructure spending, USPS deal, potential victory for the JLTV re-compete in late 2022), the company still needs to execute on a challenging 2022 that is 2H weighted.

Upside risks are 1) stronger-than-expected Defense wins over the next 1-2 years including international sales, 2) stronger than expected resurgence in non-residential construction activity, 3) a material pick-up in capex spending by independent rental companies, 4) federal infrastructure stimulus under a Biden administration, 5) upside to our margin assumptions for the USPS next generation vehicle contract that OSK was just awarded.

Downside risks to our PO are 1) challenging price-cost in an inflationary environment, 2) acute supply chain constraints, 3) slowdown in residential and non- 4) lower-than-expected margins for recent Defense contract wins, and 5) re-compete risk on the JLTV contract.

PACCAR Inc (PCAR)
Our $92 price objective is based on 11x 2023E EPS. Our $8.35 EPS estimate assumes a 2023 peak class 8 SAAR of 300k. PACCAR valuation range is typically 10-20x earnings over the cycle, with the lower end of the range (10-12x) typically applied to peak. We think the lower end (11.0x) is warranted given our view that 2023 truck production is likely to peak in 2023, rising concerns on the truck cycle, and higher rate environment.

Upside risks to our price objective are 1) faster than expected recovery in used truck pricing, 2) better than expected incremental margins, 3) sector M&A, 4) more robust scenario in Europe than we are forecasting.

Downside risks to our price objective are: 1) Continued COVID-19 driven demand declines including the potential for another wave, 2) steeper than expected decline in Class 8 orders, 3) European truck registrations decelerate at a faster than expected pace, 4) renewed pressure in used truck prices.

Proterra Inc. (PTRA)
We value Proterra at $5.00 a share, on 1.5x 2023E Revenue. Our valuation places Proterra at approximately a 3x turn discount to the CleanTech names. Our valuation places Proterra at a quarter turn premium to the wider group of emerging EV names (1.2x 2023E) given the advantages the firm hold over other newer entrants to the market. We expect Proterra to remain somewhat range bound given sales outlook, and the ongoing ramp of the Powered1 facility.

Upside risks to our PO: 1) incremental demand for Commercial EVs 2) expanded partnerships in electrification, 3) larger-than-expected improvement in operations, 4) higher than expected transit demand and 5) an quicker than expected rate of adoption of their battery pack products.

Downside risks to our PO: 1) Significant competition from new or existing market participants 2) customer adopting competitor technologies, 3) competition eroding margin potential, 4) slower adoption of products than expected, and 5) issues related to composite bodies causing disruption to transit sales.

Republic Services (RSG)
Our $158 price objective is based on 13.5x EV/EBITDA for 2023E, 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 2022-23, 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.

Terex Corp. (TEX)
Our PO of $51 is based on 7x 2023E EV/EBITDA, which is near the low end of the historic range as we are one more year into the cycle and the Fed is raising interest rates. Terex's earnings are vulnerable to macro uncertainty and supply chain disruptions weigh on production. That said, Terex continues to improve its cost structure, cash flow generation, and balance sheet. We believe fundamentals around its Materials Processing unit are underappreciated.

Upside risks are 1) faster-than-expected recovery in Aerial Work Platforms brought on by a stronger-than-expected rental market, 2) stronger and longer than expected cycle in Material Processing, 3) dramatically improved FCF generation, 4) closing the margin gap with peers. Downside risks are 1) more intense supply chain disruptions, 2) rising rates impact residential and non-residential construction recovery 3) inability to price for higher inputs, 4) renewed execution mistakes of the past.

Timken Company (TKR)
Our $87 PO is based on 8x 2023E EV/EBITDA, which is near the middle of the historical range (5-12x). We do not view the very low end of the range as appropriate given Timken is demonstrating cycle to cycle margin improvement with an improved business mix over the last decade and growing exposure to higher multiple renewables markets.

Upside risks to our PO: 1) a faster and stronger than expected recovery in the global economy, 2) China re-opening tailwind is stronger than expected, and 3) better than expected price vs cost performance 4) shaper drive towards renewables driven by government policy.

Downside risks to our PO: 1) integration issues on recent acquisitions, 2) deterioration in the pricing environment, 3) weaker than expected growth in renewables.

United Rentals Inc (URI)
Our PO of $415 is based on 6x 2023E EV/EBITDA multiple, inside the historical range (4.5-7.5x). While rising rate backdrop and macro economic concerns are headwinds, URI has managed downturns extremely well and the balance sheet leverage is the lowest in a decade (2.0x vs 2-3x range). Our PO also implies an EV/fleet on OEC multiple of 1.8x, above the 10-year average of 1.5x, and in line with prior highs established in 2014.

Upside risks to our price objective are better-than-expected rental pricing, stronger-than-expected FCF, a better-than-expected resurgence in non-residential construction, and overall cost cutting effort. Downside risks to our price objective are a more hawkish Federal Reserve Board trying to keep a lid on inflation, increased volatility in the high yield credit markets, renewed weakness in energy markets, or a slower than expected recovery in rental rates in the event that the rental sector accumulates too much fleet in the next 12-18 months.

Vulcan Materials (VMC)

Our $210/share price objective is based on 16x 2023E 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.

Waste Connections Inc (WCN)

Our $152 price objective values WCN on 28.5x Price to FCF in 2023e, near the higher end of the historical range (20-32x), justified by Connection's sector leading profitability and FCF conversion, in our view. Our PO implies nearly a 0.8% dividend yield, in line with its current valuation over the last 12 months. Relative to history, our higher valuation stems from an improving pricing backdrop for the waste industry, more active M&A environment, and ability to improve margins and FCF generation (double digit growth) through the cycle.

Upside risks to our PO are: 1) stronger-than-expected housing data, 2) higher-than expected CPI trends, 3) more aggressive cash return to shareholders than we currently envision, and 4) stronger-than-expected recovery in Exploration and Production (oil and gas) activity.

Downside risks to our PO are: 1) lower-than-expected CPI, 2) environmental liabilities, 3) higher than expected inflationary costs, and 4) execution risk around acquisitions.

Waste Management (WM)

Our $168 price objective is based on 14x EV/EBITDA for 2023E, at the high end of the company's historical range (8-14x). We believe the high end of the range is appropriate given 2022/23 growth is expected to be near the high end of WM's long-term targets, waste offers more visibility than other sectors, more pricing discipline and higher FCF conversion vs prior cycles. That said, we do not go to above the range as WM is executing $1.6bn growth capex spending initiative (landfill to RNG plants, recycling) and contending with higher than expected inflationary costs.

Upside risks to our PO are 1) higher-than-expected contribution from renewable natural gas, 2) faster-than-expected volume and price recovery, 3) more aggressive cash return to shareholders than we currently envision. Downside risks to our PO are 1) Higher than expected labor costs, 2) execution issues on growth capex initiatives, 3) lower than expected pricing in the open market.

WillScot Mobile Mini (WSC)

Our PO on WillScot Mobile Mini is at $55 per share on 13.5x 2023E EV/EBITDA. While WillScot standalone did not have a long trading history, Mobile Mini's historical multiples was roughly 12x going back over a decade. We are now valuing WillScot at the mid-point of traditional equipment rental firms and commercial industrial service businesses.

Risks are: 1) deterioration in rental rate environment for core mobile office business, 2) weaker than expected deleveraging effort, 3) botched integration, 4) tightening of the credit markets 5) slowing demand for social distancing space as Pandemic abates.

XOS Inc. (XOS)

Our PO of $0.60 is based on a 0.9x 2023E EV/Revenue multiple. We place our PO at a discount to the broader emerging EV group at 1.4x given the ongoing shift in strategy, and potential impact on future product development. long term we expect aggressive consensus estimates to continue to drive downward revisions. Near term Xos faces significant headwinds as it refocuses the product and service portfolio, cuts costs, and faces a challenging production ramp while retaining core staff.

Upside risks to our PO: 1) Faster than expected easing of supply chain constraints 2) expanded partnerships in electrification, 3) quicker than expected pace of sales and production capacity expansion, 4) higher than expected profitability, 5) a quicker than expected rate of product adoption, 6) securing supplier agreements for battery cells, and 7) lower than expected cash burn.

Downside risks to our PO: 1) continued disruptive supply chain constrain or supply shortages 2) an inability to meet production capacity projections, 3) quicker pace of market share gains by competitors 4) slow expansion of customer demand for products 5) slowdown/underperformance with recently developed battery packs, and 6) weaker competitive position from limited product portfolio.

Analyst Certification

We, Michael Feniger and Sherif El-Sabbahy, 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 - Machinery Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	AECOM	ACM	ACM US	Michael Feniger
	Caterpillar Inc	CAT	CAT US	Michael Feniger
	CNH Industrial NV	CNHI	CNHI US	Michael Feniger
	Construction Partners Inc.	ROAD	ROAD US	Michael Feniger
	Cummins Inc	CMI	CMI US	Michael Feniger
	Finning International Inc.	YFTT	FTT CN	Sherif El-Sabbahy
	GFL Environmental Inc	GFL	GFL US	Michael Feniger
	GFL Environmental Inc	YGFL	GFL CN	Michael Feniger
	H&E Equipment Services Inc	HEES	HEES US	Sherif El-Sabbahy
	Herc Holdings Inc	HRI	HRI US	Sherif El-Sabbahy
	Republic Services	RSG	RSG US	Michael Feniger
	Terex Corp.	TEX	TEX US	Michael Feniger
	Timken Company	TKR	TKR 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
	WillScot Mobile Mini	WSC	WSC US	Sherif El-Sabbahy
NEUTRAL				
	AGCO Corp	AGCO	AGCO US	Michael Feniger
	Deere & Co	DE	DE US	Michael Feniger
	Fluor	FLR	FLR US	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
	Ritchie Bros	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
	Charah Solutions, Inc	CHRA	CHRA US	Sherif El-Sabbahy
	IPG Photonics	IPGP	IPGP US	Michael Feniger
	Lightning e-Motors	ZEV	ZEV US	Sherif El-Sabbahy
	Oshkosh Corp.	OSK	OSK US	Michael Feniger
	PACCAR Inc	PCAR	PCAR US	Michael Feniger
	Proterra Inc.	PTRA	PTRA US	Sherif El-Sabbahy
	XOS Inc.	XOS	XOS US	Sherif El-Sabbahy

Disclosures

Important Disclosures

Equity Investment Rating Distribution: Autos Group (as of 31 Dec 2022)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	57	51.82%	Buy	32	56.14%
Hold	27	24.55%	Hold	18	66.67%
Sell	26	23.64%	Sell	10	38.46%

Equity Investment Rating Distribution: Engineering & Construction Group (as of 31 Dec 2022)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	8	42.11%	Buy	6	75.00%
Hold	7	36.84%	Hold	4	57.14%
Sell	4	21.05%	Sell	3	75.00%

Equity Investment Rating Distribution: Industrials/Multi-Industry Group (as of 31 Dec 2022)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	50	56.82%	Buy	28	56.00%
Hold	20	22.73%	Hold	15	75.00%
Sell	18	20.45%	Sell	10	55.56%

Equity Investment Rating Distribution: Machinery/Diversified Manufacturing Group (as of 31 Dec 2022)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	27	40.30%	Buy	10	37.04%
Hold	23	34.33%	Hold	12	52.17%
Sell	17	25.37%	Sell	5	29.41%

Equity Investment Rating Distribution: Global Group (as of 31 Dec 2022)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	1853	52.58%	Buy	1040	56.13%
Hold	840	23.84%	Hold	493	58.69%
Sell	831	23.58%	Sell	404	48.62%

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.

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. *VOLATILITY RISK RATINGS*, indicators of potential price fluctuation, are: A - Low, B - Medium and C - High. *INVESTMENT RATINGS* reflect the analyst's assessment of both a stock's: absolute total return potential as well as its attractiveness for investment relative to other stocks within its *Coverage Cluster* (defined below). There are three investment ratings: 1 - Buy stocks are expected to have a total return of at least 10% and are the most attractive stocks in the coverage cluster; 2 - Neutral stocks are expected to remain flat or increase in value and are less attractive than Buy rated stocks and 3 - Underperform stocks are the least attractive stocks in a coverage cluster. Analysts assign investment ratings considering, among other things, the 0-12 month total return expectation for a stock and the firm's guidelines for ratings dispersions (shown in the table below). The current price objective for a stock should be referenced to better understand the total return expectation at any given time. The price objective reflects the analyst's view of the potential price appreciation (depreciation).

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.

INCOME RATINGS, indicators of potential cash dividends, are: 7 - same/higher (dividend considered to be secure), 8 - same/lower (dividend not considered to be secure) and 9 - pays no cash dividend. *Coverage Cluster* is comprised of stocks covered by a single analyst or two or more analysts sharing a common industry, sector, region or other classification(s). A stock's coverage cluster is included in the most recent BofA Global Research report referencing the stock.

Price Charts for the securities referenced in this research report are available on the Price Charts website, or call 1-800-MERRILL to have them mailed.
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