

Illinois Tool Works

High valuation, challenged growth & margins; downgrade to Underperform

Rating Change: UNDERPERFORM | PO: 235.00 USD | Price: 256.41 USD

Downgrade to Underperform on earnings risk in 2024

We downgrade ITW shares to Underperform (from Neutral). We think the company is likely to miss consensus 2024 EPS on lower-than-expected margins (as Welding, the highest margin business, lags and Auto OEM, the largest segment, contributes to headwinds as well). We see risk of multiple de-rating as '24 is likely to be another year of below-average growth for ITW. As a result, we lower our price objective to \$235 (was \$260) on 16x (was 17x) 2025E EV/EBITDA. This compares to the peer average at 15x and high-quality compounders at ~18x. We maintain a slight premium to the industrial group given above-average EBITDA margins.

Margins at risk in ~45% of company on lower volume

We see margin challenges as recovery in the largest segment, Auto OEM, continues to be muted; the most profitable segment, Welding, lags; and Test & Measurement & Electronics (T&M&E) is weaker as well. Together, these businesses represent 45% of the company's operating profit. Auto OEM expands margins on volumes and grows with auto production. We see topline & margin risk to consensus in this segment based on industry forecasts. Global auto production peaked in 2017; the segment has struggled to recover lost margin since volumes have not come back. Welding has high fixed costs. We are concerned it will have margin compression on lower volumes next year. T&M&E is pressured by a cyclical downturn. Its margin expansion story is on integrating the MTS acquisition (closed 12/21). We think benefits will be partly obscured by volume headwinds.

Solid returns, challenged growth

The company has executed well but struggles to grow. Revenue has grown at a +1.3% CAGR from 2013-2023E as organic growth averaged +2.1% y/y over this timeframe. We think the company's focus on SG&A optimization limits its ability to grow. Our 1.0% y/y EPS growth forecast is bottom quartile for our coverage. Our analysis indicates EPS CAGR is the metric most closely tied with stock performance over the past five years.

Lower 2024E/2025E GAAP EPS estimates

We lower our 2024E GAAP EPS to 3% below consensus and 2% on 2025E. Our 1.4% y/y GAAP EPS growth forecast is bottom quartile for our coverage. We expect the company to receive 100bps y/y of expansion from its enterprise initiatives program in 2024. However, the bottoms-up view indicates this will be partially offset by limited leverage.

Estimates (Dec) (US\$)	2021A	2022A	2023E	2024E	2025E
EPS	8.51	9.77	9.73	9.87	10.72
EPS Change (YoY)	28.4%	14.8%	-0.4%	1.4%	8.6%
Consensus EPS (Bloomberg)			9.75	10.20	10.89
DPS	4.72	5.06	5.42	5.79	6.15
Valuation (Dec)					
P/E	30.1x	26.2x	26.4x	26.0x	23.9x
Dividend Yield	1.8%	2.0%	2.1%	2.3%	2.4%
EV/EBITDA*	22.1x	20.4x	19.2x	19.2x	18.0x
Free Cash Flow Yield*	2.9%	2.5%	4.0%	4.1%	4.2%
* For full definitions of <i>IQ</i> method SM measures, see page 1	3.				

Bof A Securities does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 14 to 16. Analyst Certification on page 12. Price Objective Basis/Risk on page 12.

Timestamp: 10 January 2024 06:00AM EST

10 January 2024

Equity

Key Changes		
(US\$)	Previous	Current
Inv. Opinion	B-2-7	B-3-7
Inv. Rating	NEUTRAL	UNDERPERFORM
Price Obj.	260.00	235.00
2023E Rev (m)	16,117.0	16,107.2
2024E Rev (m)	16,282.0	16,295.3
2025E Rev (m)	17,033.4	17,012.9
2023E EPS	9.75	9.73
2024E EPS	10.03	9.87
2025E EPS	10.80	10.72

Andrew Obin Research Analyst BofAS +1 646 855 1817 andrew.obin@bofa.com

David Ridley-Lane, CFA Research Analyst BofAS +1 646 855 2907 david.ridleylane@bofa.com

Sabrina Abrams Research Analyst BofAS +1 646 556 3520 sabrina.abrams@bofa.com

Devin Leonard Research Analyst BofAS

Stock Data

Price Objective 235.00 USD Date Established 10-Jan-2024 Investment Opinion B-3-7 52-Week Range 217.06 USD - 265.00 USD Mrkt Val (mn) / Shares Out (mn) 77,150 USD / 300.9 Free Float 95.4% Average Daily Value (mn) 238.34 USD		
Date Established 10-Jan-2024 Investment Opinion 8-3-7 52-Week Range 217.06 USD - 265.00 USD Mrkt Val (mn) / Shares Out (mn) 77,150 USD / 300.9 Free Float 95.4% Average Daily Value (mn) 238.34 USD BofA Ticker / Exchange ITW / NYS Bloomberg / Reuters ITW US / ITW.N ROE (2023E) 98.7% Net Dbt to Eqty (Dec-2022A) 228.4%	Price	256.41 USD
Investment Opinion B-3-7 52-Week Range 217.06 USD - 265.00 USD Mrkt Val (mn) / Shares Out (mn) Free Float 95.4% Average Daily Value (mn) 238.34 USD BofA Ticker / Exchange ITW / NYS Bloomberg / Reuters ITW US / ITW.N ROE (2023E) 98.7% Net Dbt to Eqty (Dec-2022A) 217.06 USD - 265.00 USD / 300.9 177,150 USD / 300.9 178,150 USD / 300.9 179,150	Price Objective	235.00 USD
52-Week Range 217.06 USD - 265.00 USD Mrkt Val (mn) / Shares Out (mn) 77,150 USD / 300.9 Free Float 95.4% Average Daily Value (mn) 238.34 USD BofA Ticker / Exchange ITW / NYS Bloomberg / Reuters ITW US / ITW.N ROE (2023E) 98.7% Net Dbt to Eqty (Dec-2022A) 228.4%	Date Established	10-Jan-2024
Mrkt Val (mn) / Shares Out (mn) 77,150 USD / 300.9 Free Float 95,4% Average Daily Value (mn) 238.34 USD BofA Ticker / Exchange ITW / NYS Bloomberg / Reuters ITW US / ITW.N ROE (2023E) 98.7% Net Dbt to Eqty (Dec-2022A) 228.4%	Investment Opinion	B-3-7
(mn) 95.4% Free Float 95.4% Average Daily Value (mn) 238.34 USD BofA Ticker / Exchange ITW / NYS Bloomberg / Reuters ITW US / ITW.N ROE (2023E) 98.7% Net Dbt to Eqty (Dec-2022A) 228.4%	52-Week Range	217.06 USD - 265.00 USD
Free Float 95.4% Average Daily Value (mn) 238.34 USD BofA Ticker / Exchange ITW / NYS Bloomberg / Reuters ITW US / ITW.N ROE (2023E) 98.7% Net Dbt to Eqty (Dec-2022A) 228.4%	Mrkt Val (mn) / Shares Out	77,150 USD / 300.9
Average Daily Value (mn) BofA Ticker / Exchange Bloomberg / Reuters ROE (2023E) Net Dbt to Eqty (Dec-2022A) 238.34 USD ITW / NYS ITW US / ITW.N 98.7% 228.4%	(mn)	
BofA Ticker / Exchange ITW / NYS Bloomberg / Reuters ITW US / ITW.N ROE (2023E) 98.7% Net Dbt to Eqty (Dec-2022A) 228.4%	Free Float	95.4%
Bloomberg / Reuters ITW US / ITW.N ROE (2023E) 98.7% Net Dbt to Eqty (Dec-2022A) 228.4%	Average Daily Value (mn)	238.34 USD
ROE (2023E) 98.7% Net Dbt to Eqty (Dec-2022A) 228.4%	BofA Ticker / Exchange	ITW / NYS
Net Dbt to Eqty (Dec-2022A) 228.4%	Bloomberg / Reuters	ITW US / ITW.N
	ROE (2023E)	98.7%
ESGMeter™ High	Net Dbt to Eqty (Dec-2022A)	228.4%
	ESGMeter™	High

ESGMeter is not indicative of a company's future stock price performance and is not an investment recommendation or rating. ESGMeter is independent of BofA Global Research's equity investment rating, volatility risk rating, income rating, and price objective for that company. For full details, refer to "BofA ESGMeter Methodology".

iQprofile[™] Illinois Tool Works

iQmethod [™] – Bus Performance*					
(US\$ Millions)	2021A	2022A	2023E	2024E	20251
Return on Capital Employed	21.1%	23.3%	24.9%	25.0%	27.1%
Return on Equity	79.1%	90.4%	98.7%	106.6%	115.1%
Operating Margin	24.1%	23.8%	25.1%	24.9%	25.5%
Free Cash Flow	2,261	1,936	3,079	3,125	3,243
iQmethod [™] – Quality of Earnings*					
(US\$ Millions)	2021A	2022A	2023E	2024E	2025
Cash Realization Ratio	0.9x	0.8x	1.2x	1.2x	1.1>
Asset Replacement Ratio	0.7x	1.0x	0.8x	0.8x	0.8
Tax Rate	19.0%	21.0%	23.0%	23.5%	24.0%
Net Debt-to-Equity Ratio	169.9%	228.4%	246.0%	276.7%	241.4%
Interest Cover	17.2x	18.7x	15.4x	15.0x	16.8
Income Statement Data (Dec)					
(US\$ Millions)	2021A	2022A	2023E	2024E	2025
Sales	14,455	15,936	16,107	16,295	17,013
% Change	15.0%	10.2%	1.1%	1.2%	4.4%
Gross Profit	5,966	6,507	6,798	6,796	7,095
% Change	14.8%	9.1%	4.5%	0%	4.4%
EBITDA	3,887	4,200	4,461	4,471	4,761
% Change	17.5%	8.1%	6.2%	0.2%	6.5%
Net Interest & Other Income	(151)	52	(213)	(219)	(209
Net Income (Adjusted)	2,694	3,034	2,953	2,932	3,138
% Change	27.7%	12.6%	-2.7%	-0.7%	7.0%
Free Cash Flow Data (Dec)					
(US\$ Millions)	2021A	2022A	2023E	2024E	20251
Net Income from Cont Operations (GAAP)	2,694	3,034	2,953	2,932	3,138
Depreciation & Amortization	410	410	414	418	422
Change in Working Capital	(439)	(818)	(136)	163	40
Deferred Taxation Charge	NA	NA	NA	NA	N/
Other Adjustments, Net	(108)	(278)	170	(63)	(17
Capital Expenditure	(296)	(412)	(322)	(326)	(340
Free Cash Flow	2,261	1,936	3,079	3,125	3,243
% Change	-12.1%	-14.4%	59.0%	1.5%	3.8%
Share / Issue Repurchase	(950)	(1,721)	(1,500)	(1,500)	(1,100)
Cost of Dividends Paid	(1,463)	(1,542)	(1,646)	(1,720)	(1,799
Change in Debt	(141)	276	476	(340)	(
Balance Sheet Data (Dec)					
(US\$ Millions)	2021A	2022A	2023E	2024E	2025
Cash & Equivalents	1,527	708	1,117	682	1,026
Trade Receivables	2,840	3,171	3,249	3,153	3,152
Other Current Assets	2,007	2,391	2,408	2,346	2,408
Property, Plant & Equipment	1,809	1,848	1,891	1,936	1,992
Other Non-Current Assets	7,894	7,304	7,169	7,032	6,894
Total Assets	16,077	15,422	15,834	15,149	15,472
Short-Term Debt	778	1,590	0	0	2 200
Other Current Liabilities	2,692	3,143	3,102	3,107	3,208
Long-Term Debt	6,909	6,173	8,239	7,899	7,899
Other Non-Current Liabilities	2,072	1,427	1,597	1,535	1,517
Total Liabilities	12,451	12,333	12,938	12,541	12,624
Total Equity Total Equity & Liabilities	3,626 16,077	3,089 15,422	2,896 15,834	2,608 15,149	2,847 15,472
	16 11 / /	15/1//	15 X 4/1	15 1/14	15/1/7

Company Sector

Industrials/Multi-Industry

Company Description

ITW is a highly diversified industrial conglomerate that designs and manufactures fasteners, components, equipment, consumables, and a variety of specialty products and equipment for a broad array of industries. Across its seven segments, Auto OE accounts for 20% of sales, Food Equipment 16%, Test & Measurement 17%, Welding 12%, Polymers & Fluids 11%, Construction Products 12%, and Specialty Products 10%. By region, North America accounts for about 52% of sales, EMEA 27%, APAC 19%, and SA 2%.

Investment Rationale

ITW is a large cap industrial conglomerate that has best in class margins and returns. The company has executed well but struggles to grow. Organic growth has been lackluster and we see margin challenges in 50% of the company in 2024. We see risk of multiple de-rating as '24 is likely to be another year of below-average growth for ITW.

Stock Data	
Average Daily Volume	929,517

Quarterly Earnings Estimates

	2022	2023
Q1	2.11A	2.33A
Q2	2.37A	2.48A
Q3	2.35A	2.55A
Q4	2.95A	2.37E



Lower 2024E/2025E below consensus

We lower our 2024E GAAP EPS estimate 3% below consensus and 2% on 2025E. The key to the stock working has historically been margin expansion rather than organic growth. We are lowering our operating margin estimate to 60bp below consensus at 24.9%, which reflects 20bp y/y compression and 10bp y/y expansion excluding Unallocated. We think that the stock will not work in a period of declining margins. While we expect the company to expand margins with its enterprise initiatives program by 100bps next year, the bottoms-up view indicates this will be more than offset by lower volumes and narrowing price/cost spread.

Exhibit 1: BofA 2024E/2025E estimates vs. consensus

We lower our 2024 estimate 3% below consensus and 2% on 2025E

		2024				2025	
		BofA			BofA		
	Old	New	Cons	ensus Old	New	Conse	ensus
Organic Sales Growth		2.1%	2.1%	2.7%	4.4%	4.2%	3.8%
FX		-0.9%	-0.8%	-0.2%	0.2%	0.0%	0.0%
M&A		-0.1%	-0.1%	0.2%	0.0%	0.0%	0.0%
Total Sales Growth		1.0%	1.2%	2.7%	4.6%	4.4%	3.8%
Sales		\$16.3bn	\$16.3bn	\$16.5bn	\$17.0bn	\$17.0bn	\$17.1bn
Segment Operating Margin		25.1%	24.9%	25.5%		25.5%	25.9%
Tax Rate		23.0%	23.5%	23.8%	23.0%	24.0%	23.53%
GAAP EPS		\$10.03	\$9.87	\$10.20	\$10.80	\$10.72	\$10.89
FCF Conversion		107%	107%		103%	103%	

Source: BofA Global Research, Visible Alpha

BofA GLOBAL RESEARCH

We see margin challenges in the company's most profitable segment (**Welding**); the biggest potential source of upside (**Automotive OEM**); and cyclically-challenged **Test & Measurement & Electronics.** At the same time, we are raising our Food Equipment estimate to reflect a less cyclical, institutional-exposed profile.

Exhibit 2: BofA organic growth & margin segment estimates vs. consensus

We forecast Food Equipment to be the fastest growing segment in 2024E and Welding in 2025E

		2024			2025	
Segment Drivers	BofA			BofA		
Organic Growth	Old	New	Consensus	Old	New	Consensus
Automotive OEM	4.1%	3.0%	4.7%	7.0%	6.0%	4.9%
Food Equipment	3.2%	5.0%	2.9%	3.0%	3.0%	3.2%
Test & Measurement & Electronics	1.0%	1.0%	2.6%	5.0%	5.0%	4.2%
Welding	3.5%	1.8%	1.7%	6.1%	6.1%	3.9%
Polymers & Fluids	2.0%	1.5%	2.4%	3.0%	3.0%	3.3%
Construction Products	0.2%	0.2%	1.6%	3.0%	3.0%	3.1%
Specialty Products	-0.5%	1.0%	1.7%	2.0%	2.0%	2.8%
Operating Margin						
Automotive OEM	18.9%	18.6%	18.7%	20.9%	20.7%	19.9%
Food Equipment	28.4%	28.0%	27.8%	28.3%	27.9%	28.1%
Test & Measurement & Electronics	24.1%	24.7%	25.4%	24.7%	25.3%	25.7%
Welding	31.8%	31.1%	32.3%	32.0%	31.3%	32.4%
Polymers & Fluids	27.7%	26.6%	26.9%	27.7%	26.6%	27.1%
Construction Products	28.4%	27.4%	28.9%	27.6%	27.9%	28.9%
Specialty Products	25.8%	25.8%	25.5%	26.1%	26.1%	26.9%

Source: BofA Global Research, company files, Visible Alpha, Bloomberg

BofA GLOBAL RESEARCH



Downside risk: Auto, Welding, T&M&E

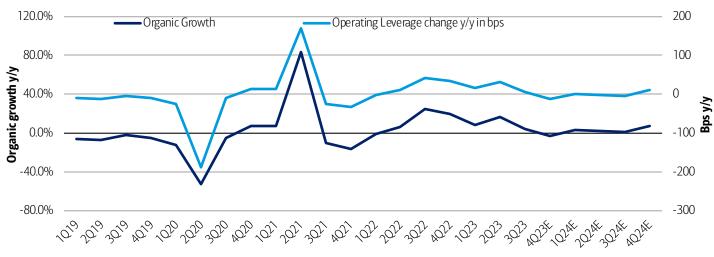
Auto OEM (20% of 2024E sales, 15% operating income)

Margins at the Automotive OEM segment have lagged the rest of ITW in recent years after global auto production volumes peaked in 2018. Other segment margins have steadily expanded in the same timeframe. In 2024E, we model the segment as 19% of ITW's revenue but only 13% of segment EBIT.

We estimate that the company has very little pricing in its Auto OEM segment given industry structure and large exposure to the Big 3 (we estimate ~30% of the segment). As a result, the segment has very little variation in topline vs. operating leverage, and the two move in a tight band.

Exhibit 3: Automotive OEM organic growth vs. operating leverage y/y

There is a 97% correlation between organic growth and operating leverage



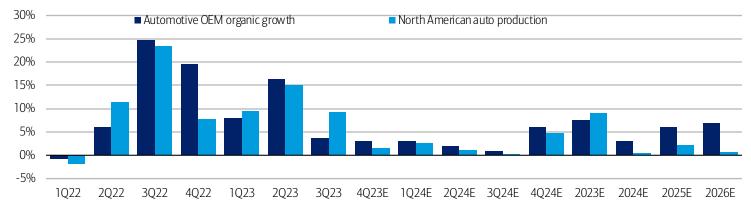
Source: BofA Global Research estimates

BofA GLOBAL RESEARCH

Auto OEM topline is correlated tightly with auto production volumes (96% correlation to global, 89% correlation to US). We forecast +7.6% organic growth in 2023E with 140bp of a strike drag in 4Q23E. Given decelerating 2024E auto production volumes, we forecast decelerating organic growth in 2024E and decelerating leverage benefit.

Exhibit 4: Automotive OEM topline is correlated with Global auto production volumes

We forecast +3.0% organic growth in 2024, which compares to the IHS forecast for +0.5% y/y growth in North America and (0.5)% globally



Source: BofA Automotive Research, BofA Global Research estimates

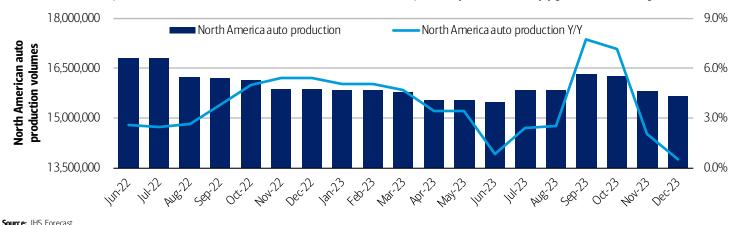
BofA GLOBAL RESEARCH

We see further downside risk to the Automotive OEM topline (and as a result, the operating leverage and margin profile of the segment). This is due to downward revisions in 2024 North American production volumes since September 2023. The estimate for y/y production growth is (7)% below its July 2022 peak of 16.8mn vehicles.



Exhibit 5: North America IHS Auto production revisions, y/y

The IHS forecast for auto production volumes in 2024 have been revised down from a 16.8mn peak in July 2022 and +0.5% y/y growth is the lowest growth rate

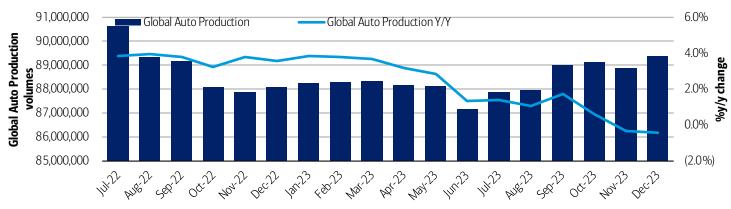


BofA GLOBAL RESEARCH

Global auto production volumes have had less pronounced revisions due to positive China revisions and South Asia revisions. However, the IHS still is forecasting (0.5)% y/y declines in global auto production.

Exhibit 6: North America IHS Auto production revisions, y/y

South Asia (which is not a key market for ITW Autos) has driven most of the positive revisions



BofA GLOBAL RESEARCH

The company typically guides Auto OEM topline in line with IHS forecasts for global and North American auto production. IHS is forecasting +0.5% y/y production growth in North America and (0.5)% y/y declines for global. While sometimes the company has guided above or below one metric and not the other, it has never guided above both North America and Global auto volumes. With the exception of 2021, ITW Auto OEM guide has consistently bracketed one of the two forecasts.

Exhibit 7: ITW initial guidance for Auto OEM topline versus IHS Forecast

We think Auto OEM topline may disappoint consensus

	2019	2020	2021	2022	2023E	2024E
Initial Guide	(4)-0%	(5)%	14-18%	6-10%	5-7%	
Forecast (North America)	-1.0%	1.1%	24.4%	16.6%	5.4%	0.5%
Forecast (Global)	0.4%	-1.9%	13.4%	9.1%	3.3%	(0.4%)
Actual	-5.4%	-16.0%	5.8%	11.7%	7.1%	
Source: BofA Global Research						

BofA GLOBAL RESEARCH

We think ITW will ultimately outperform auto builds (it has over time), but the company tends to be conservative in its guidance and we think it could disappoint. +0.5% organic growth and the related lack of leverage would result in a \$0.10 downside to our already lowered forecast.



Source: IHS Forecast

Exhibit 8: Auto Production y/y vs. Auto OEM organic growth

96% correlation, 2014-2022

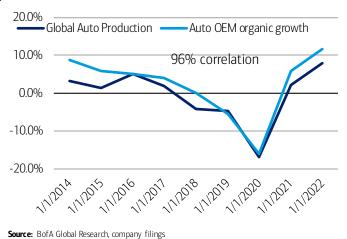
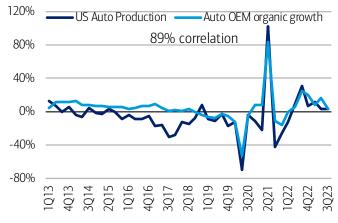


Exhibit 9: US Auto Production vs. Auto OEM organic growth

89% correlation, 1Q14-3Q23



Source: BofA Global Research, company filings

BofA GLOBAL RESEARCH

A note on the UAW strike: keeping our estimate unchanged

Back in October, we modeled that the United Auto Workers strike ended in mid-November. This translated to ~\$(32)mn of lost revenue and (28)bp of incremental margin pressure. Given the strike ended in mid-November and based on management commentary, we view our estimate as in line with how the strike played out.

BofA GLOBAL RESEARCH

Welding (12% of 2024E sales, 15% operating income)

Welding has been a surprising source of upside in 2023, with record-high margins. ITW's margins are well above peers (ESAB, Lincoln Electric) due to a higher mix of equipment than consumables. The segment has benefitted materially from ITW's 80/20 philosophy on restructuring & enterprise initiatives, with 160bps/yearly margin expansion since 2020.

However, we see reasons to be cautious on 2024E margins. We estimate this is a business that has high fixed costs and there could be volume underabsorption in 2024. We note that the company does not disclose price vs. volume and we are estimating based on ESAB disclosures. Our sense is that ITW pricing is structurally better than ESAB, given a higher mix of equipment vs. consumables. Our work likely overstates price and understates volumes.

High fixed cost explanation: On our estimates, the company has ~35% volume leverage (e.g., adjusted for price, it costs \$0.65 for every \$1 of revenue the company adds). In periods where volume has declined, the company has been able to reduce ~13% of the costs associated with volumes.

The upside risk here is that the narrative from ESAB, covered by our colleague Sherif El-Sabbahy, has been constructive on the pricing environment in 2024 to benefit margins. We think ITW has likely outperformed ESAB on pricing and that ESAB has more innovation and pricing to catch up on (e.g., more low-hanging fruit to expand margins).

ITW also has ~32% operating margins in its Welding business versus ESAB's adjusted EBITA of 16.4%. gOur estimates incorporate ~4% y/y price.

Test & Measurement & Electronics (17% of sales, 17% operating income)

The T&M&E segment has a believable path back to its ~27% margin profile in 2021. The company acquired MTS Simulation from Amphenol in 2021. ITW's goal is to increase MTS margins from 7% to segment average. Long-term, we believe this is achievable.

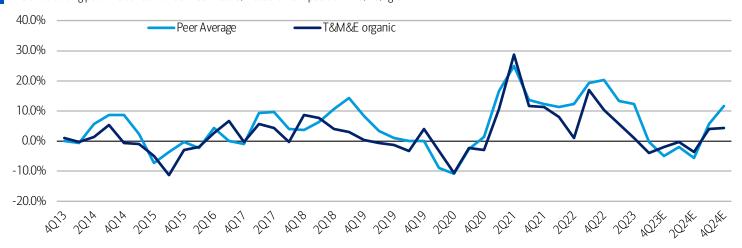
However, near-term, we see continuing cyclical pressures, particularly in 1H24. Test & Measurement sells into R&D budgets at corporations. Other test & measurement peers (we use Fortive Precision Tech, Keysight EIS, and National Instruments, which was



recently acquired by Emerson) have a strong topline relationship with ITW's T&M&E business. The narrative from peers have been that we should see a positive inflection in the market sometime in 2H24.

Exhibit 10: Peer average, 4Q13-4Q24E vs. T&M&E organic growth

There is a strong positive correlation between Test & Measurement peers and T&M&E growth



Source: BofA Global Research

We use a simple average of KEYS EIS topline, NATI revenue y/y, and FTV Precision Tech y/y. KEYS organic growth is 1 month behind peers

BofA GLOBAL RESEARCH

We note that the comps in semis (\sim 18% of T&M&E revenue) will get much easier in 2Q/3Q24 given this market was declining 20-25% y/y. A 2H recovery in the \sim \$500mn semis business and a (1)% decline elsewhere drives our +1.0% y/y estimate in 2024E. While we model overhead y/y benefit to margin on the back of MTS integration, we forecast volume deleveraging in 1H24.



Europe 32%

Sources of upside: Food Equipment, capital allocation

Food Equipment (18% of sales, 19% of operating income)

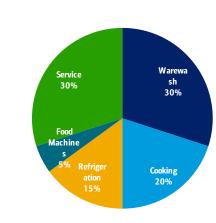
We are raising our Food Equipment topline estimate to +5.0% y/y from +3.1% prior (vs. +3.2% consensus). We believe the Street over-indexes the fast-casual part of the business (30% of sales), but that topline will be more driven by the acyclical institutional vertical (35% of sales). Management is confident that the robust growth in Food Equipment will continue in 2024, despite moderating off several years of difficult comps.

Exhibit 11: Food Equipment geographic breakdown

North America (61%) is the largest geography

Exhibit 12: Food Equipment product breakdown

Warewashing (30%) is the largest product



BofA Global Research, company files

BofA Global Research, company files

BofA Global Research, company files

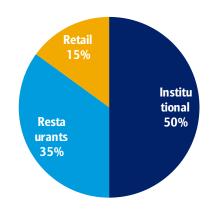
Americ

61%

BofA GLOBAL RESEARCH

Exhibit 13: Food Equipment end market breakdown

Institutional (50%) is the largest end market



BofA Global Research, company files

BofA GLOBAL RESEARCH

Cash-generative business model allows the company to step up buybacks

While the company signaled more willingness to do M&A over share buybacks at its 2023 investor day, we would expect it to step up share buybacks in a weaker earnings year. The company has a cash generative business model that allows it to return cash to shareholders & fund internal investments, with a median of 104% free cash flow conversion over the past decade (2013-2023E).

The company has been willing to lever up for share buybacks. Share buybacks as a function of free cash flow generation has averaged 88% from 2005-2022. Management is guiding for \$1.5bn in share buybacks this year; we raise our 2024E forecast to \$1.5bn as well (vs. ~\$1bn prior).

Another upside risk to numbers: Unallocated & Other Income

The "Unallocated" above-the-line item includes expenses not charged to specific segments (e.g., corporate health insurance; central transaction costs). This segment is prone to fluctuations and has driven upside in the past (e.g., in 3Q23 as a one-time insurance recovery that added \$0.07 to EPS).

ITW's "Other Income" is a below-the-line item that flows through to GAAP EPS. This includes investment income, periodic benefit income, and gain on sale of operations. In the event the company is active on the divestiture front, we could see material upside to EPS in a given quarter. An incremental \$10mn in other income would contribute to \$0.03 in EPS.

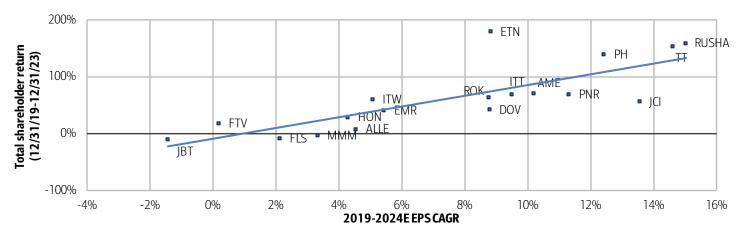
Multi-industrials paid for EPS growth

<u>In our recent weekly (see here)</u>, we looked at fundamental metrics for our coverage over 2019-2024E to judge relative performance. We find that adjusted EPS growth has been the single best explanatory factor for stock performance. However, gross margin expansion was the best explanatory factor for changes in relative P/E multiples.

ITW EPS growth versus 2019 falls towards the middle, with a 5% CAGR (versus a 6% average, excluding meaningful divestitures at GE). Total shareholder return of 60% over the past five years also scores in the middle of the pack (63% average excluding GE). We exclude GE from the below charts.

Exhibit 14: Growth in EPS was closely tied with stock performance

ITW had below-average EPS CAGR and below-average TSR over the last 5 years



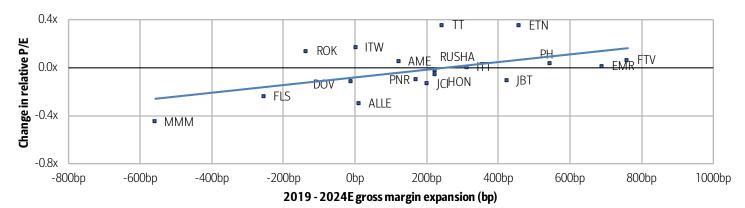
Source: BofA Global Research estimates, Bloomberg

BofA GLOBAL RESEARCH

ITW screens as one of the bottom 5 in our coverage in terms of gross margin expansion, with BofAe for (27)bp of gross margin contraction vs. 2019. Our coverage had an average of 225bp expansion. Relative to the average, ITW has seen outsized relative P/E expansion relative to its gross margin performance. We exclude GE from the below charts.

Exhibit 15: Gross margin expansion drove changes in relative P/E

PH, EMR, and FTV had largest gross margin expansion



Source: BofA Global Research estimates, Bloomberg

Note: PH and HON reclassified certain costs to SG&A from COGS. We have estimated 2019 gross margins based on the relative impact in 2023.

BofA GLOBAL RESEARCH

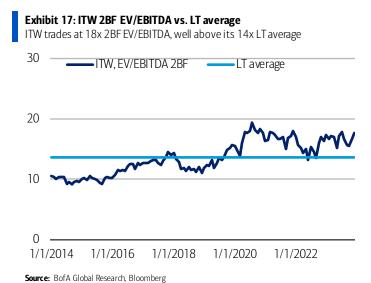
From 2019-2023E, ITW's SG&A as a % of revenue has come down 80bps. Over the same period of time, gross margin has expanded 23bps. We forecast the company to give some price/cost benefit to gross margins back in 2024 as inflation normalizes. We forecast an incremental 10bps of SG&A leverage.



Valuation

ITW is currently trading at a 30% premium to its long-term average on both a next-twelve months (1BF) and next-24 months (2BF) basis. We recognize that some of this premium reflects a stronger track record delivering on the Enterprise Strategy, which relaunched in 2012.





On a relative basis to the S&P, ITW is trading in line its historical premium on a 1BF basis but at a larger spread on a 2BF basis. We believe this reflects more muted expectations for EPS growth.

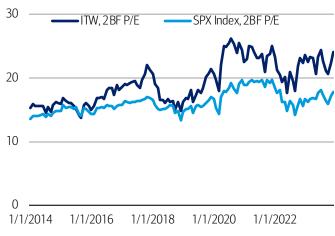
Exhibit 18: ITW 1BF P/E vs. SPX Index 1BF P/E

ITW currently trades at a 107% premium to the SPX, in line with its LT average



Exhibit 19: ITW 1BF P/E vs. SPX Index 2BF P/E

ITW currently trades at a 136% premium to the SPX, above its LT average



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

BofA GLOBAL RESEARCH

Comparable company analysis

We base our \$235 price objective on 16x 2025E EV/EBITDA. This compares to the peer average at 15x and high-quality compounders at ~18x. Shares currently trade at 18.5x 2024E; we think de-rating from here is likely given a lack of earnings growth. We maintain a slight premium to the industrial group given above-average EBITDA margins.

Exhibit 21: Comparable company analysis

ITW trades at 18x 2024E EV/EBITDA vs. peers at 15x

		Stock Price	P	/E	EV/EI	BITDA	EBITDA	Margin	EPS G	rowth	P/F	CF
Company	Ticker	1/9/2024	2024E	2025E	2024E	2025E	2024E	2025E	2024E	2025E	2024E	2025E
Ametek	AME	\$163.00	23.9 x	22.0 x	17.8 x	16.9 x	30.4%	30.7%	7.7%	8.5%	25.0 x	23.2 x
Dover	DOV	\$147.58	16.3 x	14.7 x	12.5 x	11.5 x	21.6%	22.1%	2.8%	10.7%	16.0 x	14.5 x
Emerson	EMR	\$94.62	17.7 x	16.2 x	12.9 x	12.0 x	28.8%	27.4%	15.5%	8.7%	20.2 x	18.2 x
Eaton	ETN	\$239.48	24.1 x	22.6 x	18.8 x	17.6 x	22.4%	22.5%	10.3%	6.4%	28.2 x	25.8 x
Fortive	FTV	\$71.87	20.4 x	19.0 x	17.0 x	16.0 x	27.2%	27.6%	4.1%	7.7%	19.7 x	18.3 x
Honeywell	HON	\$201.63	20.0 x	18.0 x	13.6 x	12.7 x	26.6%	27.1%	9.7%	11.4%	126.2 x	19.5 x
ldex	IEX	\$209.98	25.5 x	23.5 x	18.3 x	17.6 x	26.5%	25.6%	1.2%	8.2%	24.5 x	22.5 x
ITT	ITT	\$116.11	19.2 x	17.2 x	12.3 x	11.2 x	21.5%	22.3%	16.3%	11.4%	19.4 x	16.6 x
Johnson Controls	JCI	\$57.66	14.7 x	12.6 x	10.3 x	9.3 x	15.3%	16.5%	10.3%	16.5%	18.4 x	14.0 x
3M	MMM	\$109.10	10.4 x	9.8 x	7.9 x	7.5 x	27.7%	28.1%	14.4%	6.0%	18.4 x	11.6 x
Rockwell	ROK	\$302.97	21.6 x	19.0 x	18.4 x	15.5 x	21.3%	23.2%	12.8%	13.9%	22.4 x	20.1 x
Trane Technologies	TT	\$244.49	25.4 x	23.8 x	<u>17.6 x</u>	16.6 x	18.0%	18.2%	7.0%	6.6%	25.4 x	24.1 x
Average			19.9 x	18.2 x	14.8 x	13.7 x	23.9%	24.3%	9.4%	9.7%	30.3 x	19.0 x
ILLINOIS TOOL WORKS		\$256.41	26.0 x	23.9 x	18.4 x	17.3 x	27.4%	28.0%	1.4%	8.7%	24.4 x	23.1 x
ILLINOIS TOOL WORKS at PO	•	\$235.00	23.8 x	21.9 x	17.0 x	16.0 x	27.4%	28.0%	1.4%	8.7%	22.3 x	21.2 x

Source: BofA Global Research, company files

BofA GLOBAL RESEARCH



Price objective basis & risk

Illinois Tool Works (ITW)

We base our \$235 price objective on 16x 2025E EV/EBITDA. This compares to the peer average at 15x and high-quality compounders at 18x. We maintain a slight premium to the industrial group given above-average EBITDA margins.

Upside risks to our PO are 1) Auto production volumes revised upward, driving better near-term margin expansion and topline, 2) Welding price/cost and volumes better than expected, and 3) T&M&E recovers from cyclical downturn faster than forecasted. More margin expansion vs. our forecast would alleviate pressure on the multiple and drive positive earnings revisions. Downside risks are: 1) Auto volumes remain depressed, limiting near-term margin expansion, 2) investor sentiment pressured more than expected on lackluster earnings growth.

Analyst Certification

I, Andrew Obin, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

US - Multi-Industrials/Engineering and Construction Coverage Cluster

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



Qmethod ^{su} Measures Definitions

Business Performance	Numerator	Denominator
Return On Capital Employed	NOPAT = (EBIT + Interest Income) × (1 – Tax Rate) + Goodwill Amortization	Total Assets – Current Liabilities + ST Debt + Accumulated Goodwill Amortization
Return On Equity	Net Income	Shareholders' Equity
Operating Margin	Operating Profit	Sales
Earnings Growth	Expected 5 Year CAGR From Latest Actual	N/A
Free Cash Flow	Cash Flow From Operations — Total Capex	N/A
Quality of Earnings	Numerator	Denominator
Cash Realization Ratio	Cash Flow From Operations	Net Income
Asset Replacement Ratio	Capex	Depreciation
Tax Rate	Tax Charge	Pre-Tax Income
Net Debt-To-Equity Ratio	Net Debt = Total Debt - Cash & Equivalents	Total Equity
Interest Cover	EBIT	Interest Expense
Valuation Toolkit	Numerator	Denominator
Price / Earnings Ratio	Current Share Price	Diluted Earnings Per Share (Basis As Specified)
Price / Book Value	Current Share Price	Shareholders' Equity / Current Basic Shares
Dividend Yield	Annualised Declared Cash Dividend	Current Share Price
Free Cash Flow Yield	Cash Flow From Operations – Total Capex	Market Cap = Current Share Price × Current Basic Shares
Enterprise Value / Sales	EV = Current Share Price × Current Shares + Minority Equity + Net Debt + Other LT Liabilities	Sales

EV/EBITDA Enterprise Value Basic EBIT + Depreciation + Amortization

Monethod Suis the set of BofA Global Research standard measures that serve to maintain global consistency under three broad headings: Business Performance, Quality of Earnings, and validations. The key features of iQmethod are: A consistently structured, detailed, and transparent methodology. Guidelines to maximize the effectiveness of the comparative valuation process, and to identify some common pitfalls.

Redatabase is our real-time global research database that is sourced directly from our equity analysts' earnings models and includes forecasted as well as historical data for income statements, balance sheets, and cash flow statements for companies covered by BofA Global Research.

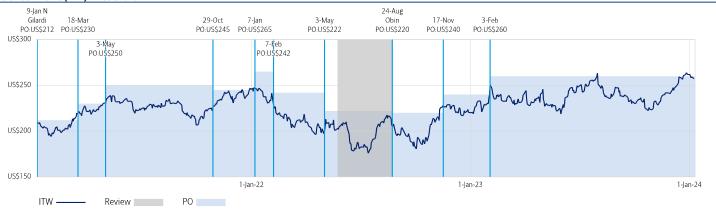
IQprofile M, IQmethod M are service marks of Bank of America Corporation. IQdatabase is a registered service mark of Bank of America Corporation.



Disclosures

Important Disclosures

Illinois Tool Works (ITW) Price Chart



B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

The Investment Opinion System is contained at the end of the report under the heading "Fundamental Equity Opinion Key". Dark grey shading indicates the security is restricted with the opinion suspended. Medium grey shading indicates the security is under review with the opinion withdrawn. Light grey shading indicates the security is not covered. Chart is current as of a date no more than one trading day prior to the date of the report.

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

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	45	50.56%	Buy	25	55.56%
Hold	26	29.21%	Hold	13	50.00%
Sell	18	20.22%	Sell	7	38 89%

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

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

Issuers that were investment banking dients 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). Our investment ratings are: 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. An investment rating of 6 (No Rating) indicates that a stock is no longer trading on the basis of fundamentals. 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%	≤ /0%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

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.

BofAS or one of its affiliates acts as a market maker for the equity securities recommended in the report: Illinois Tool Works.

The issuer is or was, within the last 12 months, an investment banking client of BofAS and/or one or more of its affiliates: Illinois Tool Works.

The issuer is or was, within the last 12 months, a non-securities business client of BofAS and/or one or more of its affiliates: Illinois Tool Works.

BofAS or an affiliate expects to receive or intends to seek compensation for investment banking services from this issuer or an affiliate of the issuer within the next three months: Illinois Tool Works

BofAS together with its affiliates beneficially owns one percent or more of the common stock of this issuer. If this report was issued on or after the 9th day of the month, it reflects the ownership position on the last day of the previous month. Reports issued before the 9th day of a month reflect the ownership position at the end of the second month preceding the date of the report. Illinois Tool Works

BofAS or one of its affiliates is willing to sell to, or buy from, clients the common equity of the issuer on a principal basis: Illinois Tool Works.



BofA Global Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Global Research policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits.

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for any recommendation in relation to an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report and in relation to a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including BofA Securities trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

Refer to BofA Global Research policies relating to conflicts of interest.

"BofA Securities" includes BofA Securities, Inc. (*BofAS*) and its affiliates. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. 'BofA Securities' is a global brand for BofA Global Research.

Information relating to Non-US affiliates of BofA Securities and Distribution of Affiliate Research Reports:

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudential et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofaml.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI; BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch (Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSFC); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch (Canada): Merrill Lynch (Canada): Merrill Lynch (Mexico): Merrill Ly de Bolsa, regulated by the Comisión Nacional Bancaría y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; BofAS Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofAS India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch (Israel): Merrill Lynch (Israel): Merrill Lynch (International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Brazil): Merrill Lynch S.A. Corretora de Títulos e Valores Mobiliários, regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BofAS Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSFC; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information in Germany and is regulated by Merrill Lynch (DIFC) is done so in accor

This information has been prepared and issued by BofAS and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. BofAS and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to BofAS and/or MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through BofAS and/or MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information. For clients that are not accredited investors, expert investors or institutional investors Merrill Lynch (Singapore) Pte Ltd accepts full responsibility for the contents of this information distributed to such clients in Singapore.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities. This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Securities, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including,



among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. Digital assets are extremely speculative, volatile and are largely unregulated. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

This report may contain a short-term trading idea or recommendation, which highlights a specific near-term catalyst or event impacting the issuer or the market that is anticipated to have a short-term price impact on the equity securities of the issuer. Short-term trading ideas and recommendations are different from and do not affect a stock's fundamental equity rating, which reflects both a longer term total return expectation and attractiveness for investment relative to other stocks within its Coverage Cluster. Short-term trading ideas and recommendations may be more or less positive than a stock's fundamental equity rating.

BofA Securities is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned herein. Investors in such securities and instruments, including ADRs, effectively assume currency risk.

BofAS or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofAS or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information. In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

BofA ESGMeter Methodology:

ESGMeter is a proprietary metric based on quantitative analysis and fundamental analyst inputs that reflects our assessment of a company's Environmental, Social and Governance-related attributes. The ESGMeter is intended to indicate a company's likelihood of experiencing stronger financial stability (higher return on equity and lower earnings and price volatility) over the next three years relative to peer group. There are three ESGMeter levels - Low, Medium, and High - which indicate whether a company has attributes most likely to translate into superior financial stability (in the case of a High level) or weaker financial stability (in the case of a Low level) over the next three years relative to its peer group. A Medium level suggests that a company exhibits ESG characteristics that are likely associated with financial stability results in line with its peer group over the next three years. Full details of our methodology, financial stability definition and disclaimers are available at BofA ESGMeter methodology. ESGMeter is not indicative of a company's future stock price performance and is not an investment recommendation or rating. ESGMeter is independent of the BofA Global Research fundamental equity analyst's investment rating, volatility risk rating, income rating or price objective for that company.

Copyright and General Information:

Copyright 2024 Bank of America Corporation. All rights reserved. iQdatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities. Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public inform

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Securities and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Securities is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Securities. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Securities is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Securities is under no obligation to update this information and BofA Securities ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Securities will not update any fact, circumstance or opinion contained herein.

Subject to the quiet period applicable under laws of the various jurisdictions in which we distribute research reports and other legal and BofA Securities policy-related restrictions on the publication of research reports, fundamental equity reports are produced on a regular basis as necessary to keep the investment recommendation current.

Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies. Neither BofA Securities nor any officer or employee of BofA Securities accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information

