

Vertiv

Updating industry forecast on more Al; raising PO to \$90

Reiterate Rating: BUY | PO: 90.00 USD | Price: 74.16 USD

Data center market forecast now 14% CAGR through '26E

We last forecast the data center infrastructure market in October (see our <u>report for details</u>). We have re-run our numbers based on BofA's forecast for artificial intelligence (AI) server shipments and Schneider Electric's revised estimates for AI electricity consumption. Our estimate for the incremental AI benefit in 2025E is 15% higher. We now forecast a 14% CAGR (2023-26E) for the market. This includes slower-growth areas such as enterprise data centers, distributed IT (e.g., data closets), and services. We reiterate our Buy rating giving AI-related demand and improving margins.

Stronger for longer, raising our estimates and PO

We raise our revenue growth CAGR (2023-26E) for Vertiv to 12% from 11% previously. This reflects Vertiv's ~75% revenue mix in data centers and ~25% in telecom/industrial. Our Vertiv estimates are also tempered by constrained labor, supply chain, and clients' ability to source electricity for expansions. Our adjusted EPS rises \$0.01 in 2024E to \$2.35, \$0.03 in 2025E to \$3.00, and \$0.09 in 2026E to \$3.60. We now forecast adjusted EPS to grow at a 27% CAGR (2023-26E). We raise our Price Objective by \$10 to \$90 based on 20x (previously 18x) our 2025E adjusted EBITDA. Our target multiple is at a premium to the 17x peer average on 2024E. We argue a higher multiple is warranted given above-peers earnings growth.

Next generation of AI chips could use even more power

Our analysis is based on the current generation of Al chips (e.g., Nvidia's H100 chip which uses 700 watts). Nvidia plans to launch new B100 chips sometime during 2024. According to press reports, these would use 1,000 watts, or 43% more than the current H100 chips. An 11% increase in the average Al chip power usage would double the 2026 Al benefit, increasing our forecast for data center infrastructure market 2023-2026E CAGR by 400bps to 18%. In a sign of just how energy-intensive future data centers may become, Amazon Web Services (AWS) signed an agreement this month to acquire a datacenter next to a nuclear power plant in Pennsylvania. AWS has the option to grow to a dedicated 960 megawatts of power from the plant. Much of Vertiv's content is proportional to power consumption.

Estimates (Dec) (US\$)	2022A	2023A	2024E	2025E	2026E
EPS	0.53	1.77	2.35	3.00	3.60
GAAP EPS	0.20	1.19	1.93	2.61	3.22
EPS Change (YoY)	-30.3%	234.0%	32.8%	27.7%	20.0%
Consensus EPS (Bloomberg)			2.33	2.87	3.41
DPS	0.01	0.02	0.10	0.14	0.18
Valuation (Dec)					
P/E	139.9x	41.9x	31.6x	24.7x	20.6x
GAAP P/E	370.8x	62.3x	38.4x	28.4x	23.0x
Dividend Yield	0%	0%	0.1%	0.2%	0.2%
EV / EBITDA*	58.4x	26.9x	20.9x	17.1x	14.7x
Free Cash Flow Yield*	-0.9%	2.7%	3.0%	3.8%	4.5%
* For full definitions of <i>IQ</i> method SM measures, see page 8.					

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Refer to important disclosures on page 9 to 11. Analyst Certification on page 7. Price Objective Basis/Risk on page 7.

Timestamp: 18 March 2024 01:00AM EDT

18 March 2024

Equity

Key Changes		
(US\$)	Previous	Current
Price Obj.	80.00	90.00
2024E Rev (m)	7,635.2	7,654.9
2025E Rev (m)	8,501.9	8,532.5
2026E Rev (m)	9,425.4	9,516.8
2024E EPS	2.34	2.35
2025E EPS	2.97	3.00
2026E EPS	3.51	3.60

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Stock Data

Price	74.16 USD
Price Objective	90.00 USD
Date Established	18-Mar-2024
Investment Opinion	C-1-7
52-Week Range	11.95 USD - 76.28 USD
Mrkt Val (mn) / Shares Out	28,327 USD / 382.0
(mn)	
Free Float	95.5%
Average Daily Value (mn)	635.04 USD
BofA Ticker / Exchange	VRT / NYS
Bloomberg / Reuters	VRT US / VRT.N
ROE (2024E)	41.1%
Net Dbt to Eqty (Dec-2023A)	107.2%
ESGMeter™	Medium

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[™] Vertiv

iQmethod SM – Bus Performance*					
(US\$ Millions)	2022A	2023A	2024E	2025E	2026
Return on Capital Employed	2.2%	11.6%	15.3%	19.7%	22.3%
Return on Equity	14.0%	39.6%	41.1%	41.9%	39.5%
Operating Margin	3.9%	12.7%	15.5%	17.7%	18.99
Free Cash Flow	(264)	766	851	1,077	1,28
iQmethod SM – Quality of Earnings*					
(US\$ Millions)	2022A	2023A	2024E	2025E	2026
Cash Realization Ratio	-0.8x	1.3x	1.1x	1.1x	1.1:
Asset Replacement Ratio	0.4x	0.5x	0.7x	0.7x	0.8
Tax Rate	118.8%	27.3%	28.0%	27.0%	26.09
Net Debt-to-Equity Ratio	203.2%	107.2%	64.5%	27.7%	0.29
Interest Cover	1.5x	4.8x	7.7x	11.2x	15.0
Income Statement Data (Dec)					
(US\$ Millions)	2022A	2023A	2024E	2025E	2026
Sales	5,692	6,863	7,655	8,533	9,517
% Change	13.9%	20.6%	11.5%	11.5%	11.59
Gross Profit	1,616	2,401	2,788	3,184	3,59
% Change	6.1%	48.5%	16.1%	14.2%	12.99
EBITDA	526	1,143	1,470	1,799	2,08
% Change	-11.2%	117.4%	28.6%	22.4%	15.99
Net Interest & Other Income	(147)	(181)	(154)	(135)	(120
Net Income (Adjusted)	200	684	924	1,184	1,42
% Change	-27.9%	241.0%	35.2%	28.2%	20.0%
Free Cash Flow Data (Dec)					
(US\$ Millions)	2022A	2023A	2024E	2025E	2026
Net Income from Cont Operations (GAAP)	(14)	503	741	1,006	1,242
Depreciation & Amortization	302	271	286	286	286
Change in Working Capital	(449)	67	(2)	(32)	(56
Deferred Taxation Charge	NA	NA	NA	NA	N/
Other Adjustments, Net	8	60	26	28	29
Capital Expenditure	(111)	(135)	(201)	(211)	(221
Free Cash Flow	-264	766	851	1,077	1,28
% Change	NM	NM	11.1%	26.5%	19.0%
Share / Issue Repurchase	0	(10)	(256)	(294)	(339
Cost of Dividends Paid	(4)	(10)	(39)	(55)	(71
Change in Debt	219	(262)	(772)	(422)	(422
Balance Sheet Data (Dec)	20224	20224	20245	20255	2026
(US\$ Millions)	2022A	2023A	2024E	2025E	2026
Cash & Equivalents	261	780	564	869	1,318
Trade Receivables	1,889	2,185	2,395	2,647	2,939
Other Current Assets	1,009	1,036	1,092	1,170	1,262
Property, Plant & Equipment Other Non-Current Assets	489	560	665	779	900
	3,448	3,437	3,255	3,082	2,910
Total Assets Short-Term Debt	7,096	7,999	7,971	8,546	9,329
Other Current Liabilities	1,876	2,284	2,522	2,804	
Long-Term Debt	3,169	2,284	2,322	1,747	3,119 1,329
Other Non-Current Liabilities	587	759	793	824	1,325 851
Total Liabilities	5,654	5,984	5,484	5,375	5,297
Total Equity	1,442	2,015	2,487	3,171	4,033
	7,096	7,999	7,971	8,546	9,329
Total Equity & Liabilities					

Company Sector

Industrials/Multi-Industry

Company Description

Vertiv is an electrical product manufacturer focused on data centers (70% of revenue) and telecom (20%) end markets. In 2022, Vertiv generated \$5.7bn in revenue. Key product offerings include power & thermal management, IT management, and related services.

Investment Rationale

We view Vertiv as benefitting near-term from a margin recovery, and improving FCF generation. Artificial intelligence adoption within data centers adds incremental demand for Vertiv's thermal management products. Pricing benefits from capacity constraints for data center infrastructure products.

Stock Data

Average Daily Volume

Quarterly Earnings Estimates

	2023	2024
Q1	0.24A	0.36E
Q2	0.46A	0.58E
Q3	0.52A	0.64E
Q4	0.56A	0.77E



8,563,124

Updating our data center forecasts

We have updated our data center infrastructure market forecasts for updated AI server and electricity usage forecasts and extended to 2026E. We see AI adoption driving a 14% market-wide CAGR over 2023-26E. On a like-for-like basis, our estimate for the incremental AI benefit in 2025E is 15% higher than our prior October 2023.

Exhibit 1: Data center infrastructure market - Al adoption benefit

Forecast a 13% CAGR over 2023-26E

	No	Al adoption	1 scenario		
(\$bn)	2023	2024E	2025E	2026E	'23-26E CAGR
Power management	12.1	13.6	15.2	16.8	11%
Thermal management	4.5	5.1	5.8	6.4	12%
IT & Edge	11.3	12.5	13.6	14.8	9%
Services & software	<u>9.5</u>	<u>9.8</u>	<u>10.1</u>	10.5	3%
Data center physical infrastructure	37.4	41.0	44.7	48.4	9%
y/y % change	13%	10%	9%	8%	
	P	Al adoption s	scenario		
(\$bn)	2023	2024E	2025E	2026E	'23-26E CAGR
Power management	12.1	14.7	17.0	19.5	17%
Thermal management	4.5	6.5	8.1	10.0	30%
IT & Edge	11.3	12.5	13.6	14.8	9%
Services & software	<u>9.5</u>	<u>9.8</u>	<u>10.1</u>	<u>10.5</u>	3%
Data center physical infrastructure	37.4	43.4	48.9	54.8	14%
y/y % change	13%	16%	13%	12%	
Incremental AI benefit	0.0	2.4	4.2	6.3	

Source: BofA Global Research

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BofA versus Vertiv & Eaton forecast

Since we last published our forecasts, both Vertiv and Eaton have presented market outlooks. Both companies see a \$33-34bn data center infrastructure market growing at a 10-11% CAGR over 2023-28.

Exhibit 2: Vertiv's and Eaton's data center infrastructure market projections

Both companies forecast a 10-11% CAGR over 2023-28

(\$bn)	'23	'24E	'25E	'26E	'27E	'28E '	23-'28 CAGR	Range
Vertiv projections								
Cloud & colocation	17.0	20.0	23.3	26.9	30.8	35.0 1	15.5%	14-17%
Enterprise & distributed IT	16.5	17.2	17.9	18.6	19.3	<u>20.1</u> 4	1.0%	3-5%
Data center total	33.5	37.2	41.2	45.5	50.2	55.1 1	10.5%	9-12%
Eaton projections								
Data center	18.0	21.2	24.9	28.8	33.2	37.8	16.0%	~16%
Distributed IT	16.0	16.8	17.5	18.0	18.6	<u>19.0</u>	3.5%	N/A
Data center total	34.0	38.0	42.3	46.9	51.7	56.8	10.8%	~10.8%

Source: Company presentations, BofA Global Research

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Developments we are watching

- Nvidia plans to launch new B100 chips sometime during 2024. According to press reports, these would use 1,000 watts, or 43% more than the current H100 chips. An 11% increase in the average AI chip power usage would double the 2026 AI benefit (i.e., from \$6bn to \$12bn), increasing the 2023-26E CAGR by 400bp to 18%.
- In August 2023, Digital Reality (DLR, covered by our colleague David Barden), a
 colocation firm, announced it is offering 70 kilowatt racks using direct-to-chip liquid
 cooling in 28 markets. In December 2023, peer Equinix (EQIX, also covered by David
 Barden) announced it was offering direct-to-chip liquid cooling racks in 45 markets.
- Hyperscalers are looking into nuclear power. In March, Amazon Web Services (AWS) signed an agreement to acquire a datacenter next to a nuclear power plant in Pennsylvania. AWS has the option to grow to a dedicated 960 megawatts of power

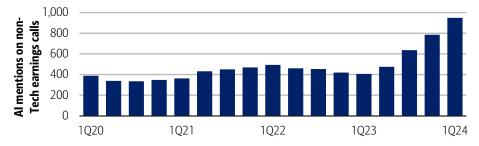


from the plant. Microsoft has hired several people to oversee a nuclear technology program.

 Corporate interest in AI continues to grow. We looked at mentions of AI during earnings calls among non-technology members of the S&P 1500. Surprisingly, industrials earnings calls had the most mentions, followed by consumer discretionary and health care.

Exhibit 3: Al-related mentions during non-technology earnings calls

Al interest among non-technology appears to be steadily rising



Source: Bloomberg, BofA Global Research

Note: "Al & Machine Learning" topic for S&P 1500 index members' earnings calls on trailing

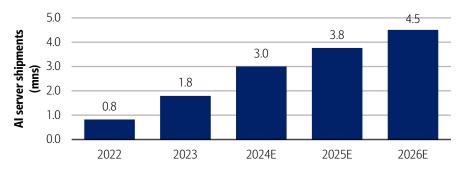
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What AI server shipments imply

BofA's US Semiconductors & Semiconductor Capital Equipment analyst, Vivek Arya, forecasts Al server shipments to grow from 1.8mn in 2023 to 4.5mn in 2026, or a 36% CAGR.

Exhibit 4: Al server shipments

36% CAGR between 2023-26E



Source: BofA Global Research

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Translating from AI servers to incremental demand

The chart below takes BofA's AI server shipment forecasts and translates those into AI racks. We assume 12 servers/rack then apply the incremental costs per rack of \$10,000 for electrical and \$20,000 for thermal. This yields a ~\$7bn uplift over 2023-26E. On a like-for-like basis, our 2025E estimate is 36% higher versus our October 2023 estimates.

Exhibit 5: Incremental AI opportunity

~\$7bn of incremental opportunity over 2023-26

2023E	2024E	2025E	2026E
1,794	3,004	3,763	4,505
12.0	12.0	12.0	12.0
150	250	314	375
10,000	10,000	10,000	10,000
20,000	20,000	20,000	20,000
1.5	2.5	3.1	3.8
<u>3.0</u>	<u>5.0</u>	<u>6.3</u>	<u>7.5</u>
4.5	7.5	9.4	11.3
-	3.0	4.9	6.8
	1,794 12.0 150 10,000 20,000 1.5 <u>3.0</u>	1,794 3,004 12.0 12.0 150 250 10,000 10,000 20,000 20,000 1.5 2.5 3.0 5.0 4.5 7.5	1,794 3,004 3,763 12.0 12.0 12.0 150 250 314 10,000 10,000 10,000 20,000 20,000 20,000 1.5 2.5 3.1 3.0 5.0 6.3 4.5 7.5 9.4

Source: BofA Global Research

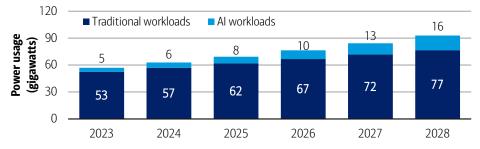
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What electricity forecasts imply

Schneider Electric's Energy Management Research Center forecasts that artificial intelligence (AI) applications will use ~4.5 gigawatts (GW) of electricity in 2023, or 8% of total data center electricity usage. They expect this to grow to 14-19GW by 2028.

Exhibit 6: Global data center power usage by application

Al workloads' power usage expected to grow at a 25-33% CAGR over 2023-28



Source: Schneider Electric The Al Disruption: Challenges and Guidance for Data Center Design

BofA GLOBAL RESEARCH



Translating from electricity forecasts to incremental demand

For Al gigawatts, we assume an incremental \$1.0mn/MW for thermal content and \$0.5mn/MW for electrical content (relative to traditional workloads). This approach implies a ~\$5bn uplift in the market over 2023E-26E.

Exhibit 7: Data center physical infrastructure market (2023-26E)

~\$5bn of incremental opportunity over 2023-26

	No Al adoption scenario				
(\$bn)	2023	2024E	2025E	2026E	'23-'26E CAGR
Electrical	12.1	13.5	15.1	16.8	12%
Thermal	<u>4.5</u>	<u>5.1</u>	<u>5.7</u>	<u>6.3</u>	12%
Total cost	16.6	18.6	20.8	23.1	12%
		Al adoption	scenario		
Electrical	12.1	15.1	17.3	19.9	18%
Thermal	<u>4.5</u>	<u>5.8</u>	<u>7.0</u>	<u>8.5</u>	23%
Total cost	16.6	20.9	24.3	28.4	19%
Incremental AI benefit	0.0	2.3	3.5	5.3	

Source: BofA Global Research

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Valuation

We base our \$90 Price Objective on an 20x EV/EBITDA of our 2025 estimates. Our target multiple is at a premium to the 17x peer average on 2024E. We argue the higher multiple is warranted given above-peers earnings growth.

Exhibit 3: Selected valuation metrics for Vertiv and peers

We base our \$90 price objective on 20x our 2025E adjusted EBITDA

		Stock Price	P.	/E	EV/E	BITDA	EBITDA	Margin	EBITDA	Growth	Net deb	t/EBITDA
Company	Ticker	3/15/2024	2024E	2025E	2024E	2025E	2024E	2025E	2024E	2025E	2024E	2025E
Legrand	LGRVF	\$97.74	23 x	21 x	15 x	14 x	22.1%	23.1%	-6%	7%	0.7x	0.3x
Schneider	SBGSF	\$236.00	32 x	29 x	19 x	17 x	19.9%	20.3%	5%	9%	0.9x	0.5x
Hubbell*	HUBB	\$395.15	24 x	23 x	17 x	16 x	22.5%	22.8%	10%	7%	1.0x	0.6x
Eaton	ETN	\$297.90	29 x	27 x	23 x	21 x	22.1%	22.2%	12%	8%	1.6x	1.3x
nVent*	NVT	\$69.96	22 x	20 x	15 x	14 x	24.4%	24.6%	14%	6%	1.4x	1.0x
TE Connectivity	TEL	\$97.74	<u>13 x</u>	<u>12 x</u>	<u>9 x</u>	<u>8 x</u>	23.1%	22.5%	<u>6%</u>	<u>3%</u>	<u>0.6x</u>	<u>0.4x</u>
AVERAGE			24 x	22 x	17 x	15 x	22.4%	22.6%	7%	7%	1.0x	0.7x
Vertiv	VRT	\$74.16	32 x	25 x	21 x	16 x	19.2%	21.1%	28%	22%	1.1x	0.5x
Vertiv @ PO	VRT	\$90.00	38 x	30 x	25 x	20 x						

Source: BofA Global Research, Bloomberg. Note: * indicates Bloomberg consensus.

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Price objective basis & risk

Vertiv (VRT)

We base our \$90 price objective on an 20x EV/EBITDA of our 2025 estimates. Our target multiple is at a premium to the 17x peer average on 2024E. We argue the slightly higher multiple is warranted given above-peers earnings growth.

Downside risks to our price objective are 1) declines in company-owned data centers, 2) inability to execute on cost savings plans, 3) pricing deterioration due to competition, and 4) disruptions due to supply chain or manufacturing execution.

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	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	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
	Honeywell International Inc.	HON	HON US	Andrew Obin
	ITT Inc.	ITT	ITT US	Andrew Obin
	Montrose Environmental Group, Inc.	MEG	MEG US	Andrew Obin
	Parker Hannifin Corporation	PH	PH US	Andrew Obin
	PTC Inc.	PTC	PTC US	Andrew Obin
	Rush	RUSHA	RUSHA US	Andrew Obin
	Vertiv	VRT	VRT US	Andrew Obin
	Vontier	VNT	VNT US	Andrew Obin
NEUTRAL				
	3M Company	MMM	MMM US	Andrew Obin
	AMETEK Inc	AME	AME US	Andrew Obin
	Fortive Corporation	FTV	FTV US	Andrew Obin
	Johnson Controls International PLC	JCI	JCI US	Andrew Obin
	Pentair plc	PNR	PNR US	Andrew Obin
	Rockwell	ROK	ROK US	Andrew Obin
	Trane Technologies PLC	TT	TT US	Andrew Obin
UNDERPERFORM				
	Allegion	ALLE	ALLE US	Andrew Obin
	Carrier Global Corp.	CARR	CARR US	Andrew Obin
	Core & Main	CNM	CNM US	Andrew Obin
	Illinois Tool Works	ITW	ITW US	Andrew Obin
	John Bean Technologies	JBT	JBT US	Andrew Obin
	Keysight	KEYS	KEYS US	David Ridley-Lane, CFA



EV / EBITDA

*IQ*method[™] Measures Definitions

Business Performance	Numerator	Denominator
Return On Capital Employed	NOPAT = (EBIT + Interest Income) \times (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 +	Sales
	Other LT Liabilities	

Basic EBIT + Depreciation + Amortization Manethod 34 is 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.

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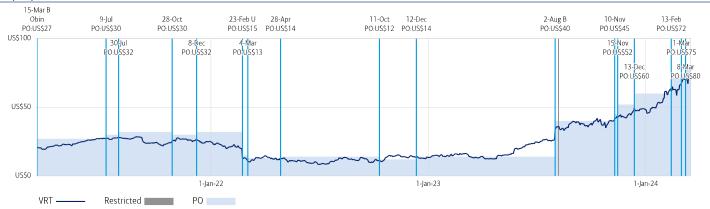
Enterprise Value



Disclosures

Important Disclosures

Vertiv (VRT) 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%

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Investment rating Total return expectation (within 12-month period of date of initial rating) Ratings dispersion guidelines for coverage cluster^{R2}

Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

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