

Green Plains

Ethanol/high pro challenges, but still plenty of reasons to remain Buy-rated

Reiterate Rating: BUY | PO: 30.00 USD | Price: 22.63 USD

Despite challenges we see reasons to stay Buy-rated

The ethanol market has deteriorated more than we expected, with a rapid inventory build in the past few months as producers run at break-neck speed (likely driven by the declining input costs). More concerning is the fact that the shift to high protein meal is moving slower than previously expected. High pro sales in the quarter were just 66kt, and we believe realizations trailed our estimates. That is in part due to lower sales of 60-pro product, which mgmt expected could be 10-20% of Q4 volumes, instead being de minimis in our view. Now GPRE expects to exit 4Q24 with 60 pro sales of 20-30% of total, as negotiations with customers drag on. Despite these challenges, we see several reasons to remain Buy-rated, including the announced strategic review, expectations of multi-year EBITDA growth, benefits from carbon sequestration, and attractive valuation.

Carbon sequestration benefits crystalizing

During the call, GPRE noted that the three Nebraska (NE) plants that are expected to sequester carbon starting in mid-2025 could generate \$100mn in income. Although we have limited information, we believe GPRE can generate substantial FCF from this project. Our key assumptions are that the capital cost to GPRE is \$125mn (not part of the 2024 capex guide) and opex is \$40/mt of carbon; the York plant generates a 45Q credit, while the Wood River and Central City plants would generate 45Z credits, based on a CI score of 35 for the former and 25 for the latter. We estimate gross proceeds in excess of \$100mn/yr and EBITDA of \$73mn. Should all plants claim the 45Q credit, the EBITDA would be halved. We see high double-digit ROIC and IRR from this project.

Lowering our EBITDA estimates and PO

Taking into account a bit softer ethanol fundamentals as well as a slower ramp up in high pro sales, we lower our 2024E EBITDA to \$156mn from \$191mn. A lot of the decline here comes from lower corn oil prices vs a compression in the “core” ethanol margins. Recall that last quarter GPRE noted it could generate \$210-290mn in EBITDA this year, but marked-to-market this forecast would likely be at least \$50-60mn lower today. For 2025-26 we now include the benefits of the NE carbon sequestration initiative and assume they flow through EBITDA, but remove any other carbon sequestration benefits. Our 2025-26 forecasts are \$223mn and \$309mn, respectively. Our DCF-based valuation is lowered to \$30 from \$32.

Estimates (Dec) (US\$)	2022A	2023A	2024E	2025E	2026E
EPS	(2.79)	(1.73)	0.20	0.90	1.70
GAAP EPS	(2.29)	(1.58)	0.20	0.90	1.73
EPS Change (YoY)	-89.8%	38.0%	NM	350.0%	88.9%
Consensus EPS (Bloomberg)			1.31	3.23	4.55
DPS	0	0	0	0	0
Valuation (Dec)					
P/E	NM	NM	113.2x	25.1x	13.3x
GAAP P/E	NM	NM	113.2x	25.1x	13.1x
EV / EBITDA*	NM	36.4x	10.6x	7.4x	5.3x
Free Cash Flow Yield*	-10.5%	-2.9%	-0.8%	2.5%	8.8%

* For full definitions of *IQmethod*SM measures, see page 5.

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Timestamp: 08 February 2024 05:25AM EST

08 February 2024

Equity

Key Changes

(US\$)	Previous	Current
Price Obj.	32.00	30.00
2024E Rev (m)	2,822.8	2,567.8
2025E Rev (m)	2,869.5	2,703.6
2026E Rev (m)	NA	2,736.7
2024E EPS	0.57	0.20
2025E EPS	1.21	0.90
2026E EPS	NA	1.70

Salvator Tiano, CFA

Research Analyst
BofAS
+1 646 855 5904
salvator.tiano@bofa.com

Steve Byrne, CFA

Research Analyst
BofAS
+1 646 855 5746
steve.byrne@bofa.com

Rock Hoffman

Research Analyst
BofAS
+1 917 565 6205
rock.hoffman@bofa.com

Stock Data

Price	22.63 USD
Price Objective	30.00 USD
Date Established	8-Feb-2024
Investment Opinion	C-1-9
52-Week Range	19.44 USD - 37.49 USD
Mkt Val (mn) / Shares Out (mn)	1,356 USD / 59.9
Free Float	97.1%
Average Daily Value (mn)	29.26 USD
BofA Ticker / Exchange	GPRE / NAS
Bloomberg / Reuters	GPRE US / GPRE.OQ
ROE (2024E)	1.4%
Net Dbt to Eqty (Dec-2023A)	25.3%
ESGMeter TM	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"](#).

CI: Carbon Intensity

CC&S: Carbon Capture & Storage

iQprofileSM Green Plains

iQmethodSM – Bus Performance*

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Return on Capital Employed	-4.6%	-2.9%	2.7%	5.6%	8.8%
Return on Equity	-16.7%	-12.0%	1.4%	6.2%	10.7%
Operating Margin	-2.7%	-2.0%	1.8%	4.0%	6.9%
Free Cash Flow	(143)	(40)	(10)	34	119

iQmethodSM – Quality of Earnings*

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Cash Realization Ratio	NM	NM	9.9x	2.6x	2.1x
Asset Replacement Ratio	2.3x	1.1x	1.4x	1.3x	1.2x
Tax Rate	NM	6.2%	24.5%	24.5%	24.5%
Net Debt-to-Equity Ratio	17.9%	25.3%	27.1%	22.3%	10.0%
Interest Cover	-3.0x	-1.8x	1.2x	3.2x	5.6x

Income Statement Data (Dec)

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Sales	3,663	3,296	2,568	2,704	2,737
% Change	29.6%	-10.0%	-22.1%	5.3%	1.2%
Gross Profit	138	192	296	374	462
% Change	-31.7%	39.2%	54.1%	26.2%	23.6%
EBITDA	(1)	45	156	223	309
% Change	NM	NM	244.6%	42.7%	38.6%
Net Interest & Other Income	(27)	(24)	(25)	(22)	(22)
Net Income (Adjusted)	(155)	(105)	13	64	121
% Change	-111.7%	32.0%	NM	387.6%	88.9%

Free Cash Flow Data (Dec)

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Net Income from Cont Operations (GAAP)	(155)	(102)	12	62	123
Depreciation & Amortization	93	98	99	104	108
Change in Working Capital	50	45	0	(19)	0
Deferred Taxation Charge	5	0	0	0	0
Other Adjustments, Net	77	27	18	18	18
Capital Expenditure	(212)	(108)	(140)	(130)	(130)
Free Cash Flow	-143	-40	-10	34	119
% Change	22.0%	72.3%	73.8%	NM	251.7%
Share / Issue Repurchase	0	0	0	0	0
Cost of Dividends Paid	0	0	0	0	0
Change in Debt	8	(38)	(100)	0	0

Balance Sheet Data (Dec)

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Cash & Equivalents	445	350	227	261	381
Trade Receivables	109	94	92	98	99
Other Current Assets	375	289	216	235	231
Property, Plant & Equipment	1,029	1,022	1,063	1,089	1,111
Other Non-Current Assets	165	185	194	179	164
Total Assets	2,123	1,939	1,792	1,861	1,985
Short-Term Debt	140	108	8	8	8
Other Current Liabilities	347	277	203	207	204
Long-Term Debt	495	492	492	492	492
Other Non-Current Liabilities	24	19	19	19	19
Total Liabilities	1,062	949	775	779	776
Total Equity	1,061	990	1,005	1,070	1,196
Total Equity & Liabilities	2,123	1,939	1,780	1,849	1,972

* For full definitions of iQmethodSM measures, see page 5.

Company Sector

Chemicals-Major

Company Description

Green Plains (GPPE) is one of the largest corn processors in the US capable of processing 354 million bushels of corn per year and producing about 1 billion gallons of ethanol, 2.5 million tons of distillers grains and 276 million pounds of industrial grade corn oil. The company operates 11 ethanol dry mills in six US states. The company is currently rolling out MSC technology to its plants that will convert some of its DDGS production into a high protein feed and increase corn oil yields.

Investment Rationale

GPPE is in the midst of a significant transformation program by deploying its MSC technology across most of its ethanol plants. This should deliver substantially higher earnings over the next couple of years as it boosts sales of valuable co-products such as high-protein meal, corn oil, and dextrose. Additionally, the outlook for ethanol margins has improved, with better ethanol supply/demand driving price and lower corn prices offering significant cost relief. As such, we rate the shares Buy.

Stock Data

Average Daily Volume 1,292,838

Quarterly Earnings Estimates

	2023	2024
Q1	-1.20A	-0.17E
Q2	-0.89A	0.12E
Q3	0.20A	0.14E
Q4	0.13A	0.10E

Exhibit 1: GPRE Income Statement Summary

We see significant growth beyond 2023

	2022	1Q23	2Q23	3Q23	4Q23	2023	1Q24E	2Q24E	3Q24E	4Q24E	2024E	2025E	2026E
Revenues	3,663	833	858	893	712	3,296	605	659	664	640	2,568	2,704	2,737
(-) Cost of Products Sold (exclusive of D&A)	3,525	825	835	811	632	3,104	553	579	580	560	2,272	2,330	2,275
Gross Profit	138	8	23	81	80	192	53	79	84	79	296	374	462
(-) Operations and maintenance	25	7	7	7	6	27	7	7	7	6	26	27	27
(-) SG&A	119	32	33	35	33	133	29	31	33	32	125	135	137
(-) Depreciation and amortization	93	25	25	24	24	98	25	25	25	25	99	104	108
Operating Profit	(99)	(56)	(42)	16	17	(67)	(7)	17	19	16	45	108	189
(+) Interest Income	5	3	3	2	3	12	3	3	3	3	12	12	12
(+) Interest Expense	(33)	(10)	(10)	(10)	(9)	(38)	(9)	(9)	(9)	(10)	(37)	(34)	(34)
(+) Other, net	(0)	0	(0)	1	1	2	0	0	0	0	0	0	0
Earnings before Income Taxes	(126)	(63)	(50)	9	12	(91)	(13)	11	13	9	20	86	167
(+) Income Taxes	(5)	(3)	1	8	0	6	3	(3)	(3)	(2)	(5)	(21)	(41)
Tax Rate	-3.8%	-5.5%	2.1%	-83.2%	-2.2%	6.2%	24.5%	24.5%	24.5%	24.5%	24.5%	24.5%	24.5%
(+) EBITDA adjustments related to discontinued operations	0	0	0	0	0	0	0	0	0	0	0	0	0
(+) Income from equity method investees, net of income taxes	0	0	0	0	(0)	0	0	0	0	0	0	0	0
Net income from continuing operations incl. noncontrolling	(131)	(66)	(48)	17	12	(85)	(10)	8	10	7	15	65	126
(+) Net income from discontinued operations, net of tax	0	0	0	0	0	0	0	0	0	0	0	0	0
(-) Non-controlling interests	24	4	4	4	5	17	1	1	1	1	3	3	3
Adjusted Net Income	(155)	(70)	(53)	13	8	(102)	(11)	8	9	6	12	62	123
(+) Adjustments	(28)	0	0	(9)	0	(9)	0	0	0	0	0	0	0
GAAP Net Income	(127)	(70)	(53)	22	7	(93)	(11)	8	9	6	12	62	123
Diluted Shares Outstanding	56	59	59	67	59	61	63	64	71	64	66	71	71
Basic Shares Outstanding	56	59	59	60	59	59	63	64	64	64	64	64	64
Diluted - Adjusted EPS	(\$2.79)	(\$1.20)	(\$0.89)	\$0.20	\$0.13	(\$1.73)	(\$0.17)	\$0.12	\$0.14	\$0.10	\$0.20	\$0.90	\$1.70
Diluted - GAAP EPS	(\$2.29)	(\$1.20)	(\$0.89)	\$0.35	\$0.12	(\$1.58)	(\$0.17)	\$0.12	\$0.15	\$0.10	\$0.20	\$0.90	\$1.70
Basic - GAAP EPS	(\$2.29)	(\$1.20)	(\$0.89)	\$0.38	\$0.12	(\$1.58)	(\$0.17)	\$0.12	\$0.15	\$0.10	\$0.20	\$0.97	\$1.93
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Margin Analysis													
Gross Margin	3.8%	1.0%	2.6%	9.1%	11.2%	5.8%	8.7%	12.1%	12.7%	12.4%	11.5%	13.8%	16.9%
Operations and maintenance	0.7%	0.9%	0.8%	0.8%	0.9%	0.8%	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
SG&A/sales	3.2%	3.8%	3.9%	4.0%	4.6%	4.0%	4.8%	4.7%	5.0%	5.0%	4.9%	5.0%	5.0%
EBITDA Margin	0.0%	-3.3%	-1.7%	4.8%	6.3%	1.4%	3.3%	6.8%	7.1%	6.9%	6.1%	8.3%	11.3%
Operating Profit Margin	-2.7%	-6.8%	-4.9%	1.7%	2.3%	-2.0%	-1.2%	2.6%	2.9%	2.5%	1.8%	4.0%	6.9%
Pretax Profit Margin	-3.4%	-7.5%	-5.8%	1.0%	1.7%	-2.8%	-2.2%	1.7%	2.0%	1.4%	0.8%	3.2%	6.1%
Net Profit Margin	-4.2%	-8.4%	-6.1%	1.5%	1.1%	-3.1%	-1.8%	1.1%	1.4%	1.0%	0.5%	2.3%	4.5%
GAAP net income incl. noncontrolling to adj. EBITDA													
Net loss from continuing ops incl. noncontrolling	(103.4)	(66.2)	(48.3)	26.3	12.0	(76.4)	(10.0)	8.2	10.1	7.0	15.3	64.6	126.2
(+) Interest Expense	32.6	9.7	9.7	9.6	8.7	37.7	9.0	9.0	9.0	10.0	37.0	34.0	34.0
(+) Income tax expense, net of equity method income tax expense	4.7	3.4	(1.0)	(7.8)	(0.3)	(5.6)	(3.3)	2.7	3.3	2.3	5.0	20.9	41.0
(+) Depreciation and amortization	92.7	25.4	24.6	23.9	24.3	98.2	24.5	25.0	25.0	24.8	99.3	103.8	108.2
(+) Proportional share of EBITDA adj. of equity method investees	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) EBITDA adjustments related to discontinued operations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Noncash goodwill impairment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Loss (gain) on sale of assets, net	0.0	0.0	0.0	(5.7)	0.4	(5.3)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adjusted EBITDA	(0.8)	(27.7)	(14.9)	42.9	45.2	45.4	20.2	44.9	47.4	44.1	156.5	223.3	309.4

Source: Company data, BofA Global Research estimates

BofA GLOBAL RESEARCH



Price objective basis & risk

Green Plains (GPRE)

Our \$30 PO is based on a discounted cash flow (DCF) analysis using a 9.5% weighted-average cost of capital (WACC) and 1% terminal growth rate and includes probability-weighted earnings for carbon sequestration and incremental clear sugar capacity. Our DCF assumes continued uplift from the MSC technology beyond 2025 as the company sells higher protein products, extracts more corn oil, and could generate licensing revenues.

Downside risks to our PO are that ethanol margins could deteriorate due to demand pressure from EVs and reduced gasoline consumption more broadly, MSC conversions could take longer than expected and fail to deliver the expected financial results, corn prices could rise more, and adverse policies for carbon sequestration and RFS mandates are possible.

Analyst Certification

I, Salvator Tiano, CFA, 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.

Special Disclosures

BofA Securities is currently acting as Financial Advisor to Green Plains Inc in connection with its proposed acquisition all of the publicly held common units of Green Plains Holdings LLC, the general partner of Green Plains Partners LP, not already owned by Green Plains Inc in a stock-for-unit exchange, which was announced on May 4, 2023. The proposed transaction was approved by shareholders of Green Plains Partners LP on September 18, 2023. This research report is not intended to provide voting advice, serve as an endorsement of the proposed transaction, or result in the procurement, withholding or revocation of a proxy.

US - Chemicals Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	Axalta Coating Systems	AXTA	AXTA US	Steve Byrne, CFA
	Bunge Limited	BG	BG US	Salvator Tiano, CFA
	CF Industries	CF	CF US	Steve Byrne, CFA
	Dow Inc	DOW	DOW US	Steve Byrne, CFA
	Eastman Chemical Co	EMN	EMN US	Salvator Tiano, CFA
	Element Solutions Inc.	ESI	ESI US	Steve Byrne, CFA
	Green Plains	GPRE	GPRE US	Salvator Tiano, CFA
	Huntsman Corp	HUN	HUN US	Salvator Tiano, CFA
	Linde	LIN	LIN US	Steve Byrne, CFA
	Linde	LINGY	LIN GY	Steve Byrne, CFA
	Nutrien	NTR	NTR US	Steve Byrne, CFA
	Olin Corp	OLN	OLN US	Steve Byrne, CFA
	PPG Industries Inc.	PPG	PPG US	Steve Byrne, CFA
	Sigma Lithium	SGML	SGML US	Steve Byrne, CFA
	The Mosaic Company	MOS	MOS US	Steve Byrne, CFA
NEUTRAL				
	Air Products	APD	APD US	Steve Byrne, CFA
	Albemarle	ALB	ALB US	Steve Byrne, CFA
	Archer-Daniels-Midland Company	ADM	ADM US	Salvator Tiano, CFA
	Corteva	CTVA	CTVA US	Steve Byrne, CFA
	Ecolab Inc	ECL	ECL US	Steve Byrne, CFA
	International Flavors & Fragrances	IFF	IFF US	Salvator Tiano, CFA
	LyondellBasell Industries	LYB	LYB US	Steve Byrne, CFA

US - Chemicals Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	Origin Materials	ORGN	ORGN US	Steve Byrne, CFA
UNDERPERFORM				
	Celanese Corporation	CE	CE US	Salvator Tiano, CFA
	DuPont	DD	DD US	Steve Byrne, CFA
	FMC Corporation	FMC	FMC US	Steve Byrne, CFA
	RPM International Inc	RPM	RPM US	Steve Byrne, CFA
	Sherwin-Williams Company	SHW	SHW US	Steve Byrne, CFA
	Westlake Chemical Partners, LP	WLKP	WLKP US	Steve Byrne, CFA
	Westlake Corp	WLK	WLK US	Steve Byrne, CFA

iQmethodSM Measures Definitions**Business Performance**

Return On Capital Employed

Return On Equity

Operating Margin

Earnings Growth

Free Cash Flow

Numerator

NOPAT = (EBIT + Interest Income) × (1 – Tax Rate) + Goodwill Amortization

Net Income

Operating Profit

Expected 5 Year CAGR From Latest Actual

Cash Flow From Operations – Total Capex

Denominator

Total Assets – Current Liabilities + ST Debt + Accumulated Goodwill Amortization

Shareholders' Equity

Sales

N/A

N/A

Quality of Earnings

Cash Realization Ratio

Asset Replacement Ratio

Tax Rate

Net Debt-To-Equity Ratio

Interest Cover

Numerator

Cash Flow From Operations

Capex

Tax Charge

Net Debt = Total Debt – Cash & Equivalents

EBIT

Denominator

Net Income

Depreciation

Pre-Tax Income

Total Equity

Interest Expense

Valuation Toolkit

Price / Earnings Ratio

Price / Book Value

Dividend Yield

Free Cash Flow Yield

Enterprise Value / Sales

Numerator

Current Share Price

Current Share Price

Annualised Declared Cash Dividend

Cash Flow From Operations – Total Capex

EV = Current Share Price × Current Shares + Minority Equity + Net Debt +

Other LT Liabilities

Enterprise Value

Denominator

Diluted Earnings Per Share (Basis As Specified)

Shareholders' Equity / Current Basic Shares

Current Share Price

Market Cap = Current Share Price × Current Basic Shares

Sales

Basic EBIT + Depreciation + Amortization

iQmethodSM 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.

iQdatabase[®] 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.

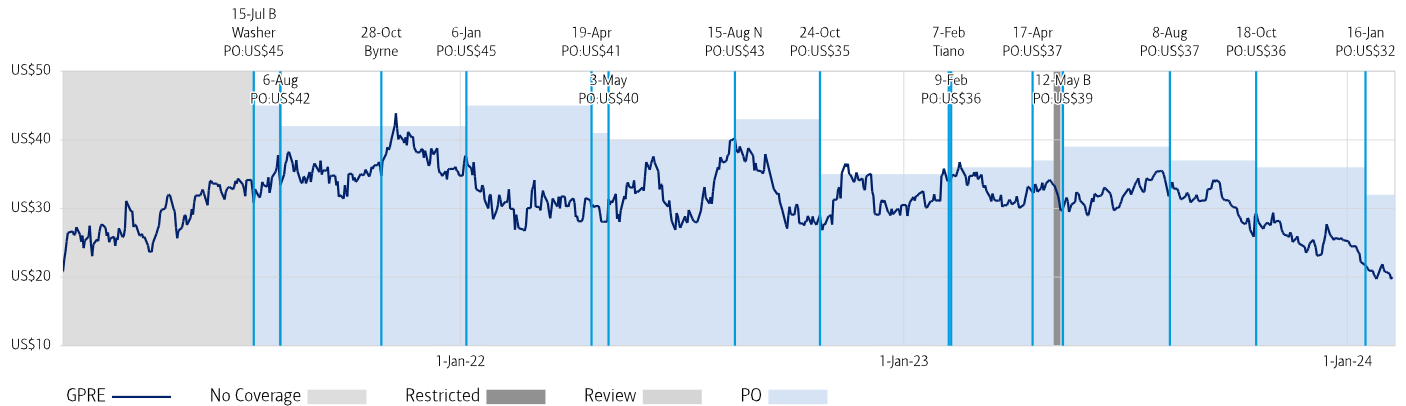
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Disclosures

Important Disclosures

Green Plains (GPRE) 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: Chemicals Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	66	47.83%	Buy	33	50.00%
Hold	33	23.91%	Hold	16	48.48%
Sell	39	28.26%	Sell	20	51.28%

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

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

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

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

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

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