

State Street Corporation

Playing catch-up

Reiterate Rating: NEUTRAL | PO: 72.00 USD | Price: 68.10 USD

NII guidance drives stock sell-off

State Street (STT) shares sold-off 12% vs. -2.4% for the bank index after reporting weaker than expected 2Q revenues. The stock sell-off accelerated during the earnings call (started 10am ET) as management outlined expectations for significant negative mix-shift in deposits for 2H23. This is expected to drive a decline in 3Q23 net interest income (NII) of 12-18% QoQ (vs. -7% pre-2Q consensus) and another 2-6% decline in 4Q23. We revise our FY24e EPS to \$7.41 or -13%; estimate revisions drive PO to \$72 (from \$80) or 9.7x 2024 P/E and 1.7x YE23e TBV/share.

Catching-up to higher interest rates

Management noted that it had observed an accelerated pace of repricing in the back book as customers demanded higher rates on deposits. Non-interest bearing (NIB) balances (average) declined 17% (or ~\$7bn) QoQ while cost of interest bearing deposits rose 50bp to 2.75%. Management expects the negative deposit mix-shift to continue with guidance for NIB balances declining an additional \$5bn in 3Q23 and \$3bn in 4Q23. Management expects NII to stabilize (likely 1H24 event) in the \$550-600mn range (vs. \$691mn reported for 2Q23) as the pace of deposit repricing moderates, benefit from higher reinvestment yields on the bond book and growth. We forecast FY23 NII to stay flat YoY.

ROE, asset light model to drive buybacks

Management reiterated its plans for \$4.5bn in share buybacks for FY23. Common equity tier 1 (CET1) capital ratio 11.8% vs. management's 10-11% target (8% regulatory minimum). STT should see capital requirements move higher on the back of Basel reforms, but an asset light business model and a relatively healthy ROTCE should allow the bank to maintain buybacks (albeit at a slower pace) while growing into the new requirements. We forecast share buybacks of \$1.0bn/\$1.2bn for 3Q23/4Q23 and \$1.5bn for FY24.

Stock lacking a catalyst

No change to our stock outlook. Coming into the year we expected trust banks to see a more measured pace of deposit repricing (relative to retail banks) given a sophisticated deposit base that had already begun repricing last year, providing mgmt. with better visibility on customer behavior (= lower risk of negative NII surprise). This has clearly not been the case at State Street. Topline story challenged given the pressure on NII and muted fee growth. Capital return likely to moderate and expense flex unlikely a game changer. Credit defensibility could become a bigger factor if recession risk rises.

Estimates (Dec) (US\$)	2021A	2022A	2023E	2024E	2025E
EPS	7.42	7.29	7.20	7.41	7.58
GAAP EPS	7.18	7.00	7.20	7.41	7.58
EPS Change (YoY)	11.2%	-1.8%	-1.2%	2.9%	2.3%
Consensus EPS (Bloomberg)			7.77	8.55	9.52
DPS	2.18	2.40	2.64	2.74	2.84
Valuation (Dec)					
P/E	9.2x	9.3x	9.5x	9.2x	9.0x
GAAP P/E	9.5x	9.7x	9.5x	9.2x	9.0x
Dividend Yield	3.2%	3.5%	3.9%	4.0%	4.2%

BofA 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 6 to 8. Analyst Certification on page 4. Price
Objective Basis/Risk on page 4.

Timestamp: 14 July 2023 07:34PM EDT

14 July 2023

Equity

Key Changes		
(US\$)	Previous	Current
Price Obj.	80.00	72.00
2023E Rev (m)	12,469.3	12,143.3
2024E Rev (m)	12,638.7	12,177.7
2025E Rev (m)	12,836.6	12,391.2
2023E EPS	8.05	7.20
2024E EPS	8.51	7.41
2025E EPS	8.58	7.58

Fhrahim H. Poonawala

Research Analyst BofAS +1 646 743 0490 ebrahim.poonawala@bofa.com

Brandon Berman Research Analyst BofAS

+1 646 855 3933 brandon.berman@bofa.com

Isiah Austin Research Analyst BofAS

+1 646 855 0472 isiah.austin@bofa.com

Gabriel Angelini Research Analyst

BofAS +1 646 855 3081 gabriel.angelini@bofa.com

David Kigunda

Research Analyst BofAS

+1 646 743 0179 david.kigunda@bofa.com

Stock Data

Price	68.10 USD
Price Objective	72.00 USD
Date Established	14-Jul-2023
Investment Opinion	B-2-7
52-Week Range	58.62 USD -94.74 USD
Mrkt Val / Shares Out (mn)	22,763 USD / 334.3
Average Daily Value	166.21 USD
BofA Ticker / Exchange	STT / ASE
Bloomberg / Reuters	STT US / STT.N
ROE (2023E)	10.6%
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[™] State Street Corporation

Income Statement Data (Dec)					
(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Net Interest Income	1,903	2,544	2,564	1,987	1,943
% change	-13.5%	33.7%	0.8%	-22.5%	-2.2%
Net Fee Income	10,012	9,606	9,579	10,191	10,448
Securities Gains / (Losses)	110	(2)	0	0	0
Total Operating Income	12,025	12,148	12,143	12,178	12,391
Operating Expenses	(8,745)	(8,801)	(9,022)	(9,181)	(9,517)
% change	1.9%	0.6%	2.5%	1.8%	3.7%
Provisions Expense	33	(20)	(41)	(40)	(40)
% change	-137.5%	NA	105.0%	-2.4%	0%
Operating Pre-Tax Income	3,286	3,394	3,080	2,957	2,834
Operating Net Income to Comm S/Hold.	2,571	2,591	2,339	2,253	2,154
GAAP Net Income	2,571	2,591	2,339	2,253	2,154
Balance Sheet Data (Dec)					
(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Total Assets	314,624	301,450	289,426	288,620	293,806
Average Interest Earning Assets	260,023	247,301	240,345	242,414	244,915
Total Gross Customer Loans	32,532	32,150	34,809	37,594	40,601
% change	16.5%	-1.2%	8.3%	8.0%	8.0%
Total Customer Deposits	255,035	235,464	216,750	217,274	223,388
% change	6.4%	-7.7%	-7.9%	0.2%	2.8%
Tangible Equity	16,445	14,669	12,329	12,329	12,329
Common Shareholders' Equity	25,387	23,215	20,691	20,588	20,386
Key Metrics (Dec)					
(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Net Interest Margin	0.73%	1.03%	1.07%	0.82%	0.79%
Effective Tax Rate	15.4%	17.1%	20.0%	19.8%	19.8%
Loan / Deposit Ratio	12.8%	13.7%	16.1%	17.3%	18.2%
Tangible Common Equity / Assets	5.2%	4.9%	4.3%	4.3%	4.2%
ROA	0.9%	0.9%	0.8%	0.8%	0.7%
ROE	11.1%	11.3%	10.6%	10.9%	10.5%
RoTE	17.1%	17.3%	17.3%	18.3%	17.5%
Dividend Payout Ratio	27.7%	31.4%	33.3%	33.4%	33.7%
Efficiency Ratio (Cost / Income Ratio)	73.4%	72.4%	74.3%	75.4%	76.8%
Quality of Earnings (Dec)					
(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Total Non-Interest Inc / Operating Inc	84.2%	79.1%	78.9%	83.7%	84.3%
NPLs plus Foreclosed Real Estate / Loans	0%	0%	0%	0%	0%
Loan Loss Reserves / NPLs	NA	NA	NA	NA	NA
Loan Loss Reserves / Total Loans	0.27%		0.36%	0.37%	0.37%

Company Sector

Trust Banks

Company Description

State Street is one of the largest trust banks in the US with operations organized into two main business lines: Investment Servicing and Investment Management. Investment Servicing activities include products and services for institutional clients to allow daily execution of financial transactions and facilitate clients' global securities settlement needs. Within Investment Management, STT provides a wide range of investment management strategies and products across multiple asset classes.

Investment Rationale

We view State Street as well positioned given outsized capital buffers relative to peers. and guidance for capital payout to exceed management's strategic target of 80% payout in FY23. We, however, believe these benefits are largely reflected in the stock price.

Stock Data	
Average Daily Volume	2,440,640

Quarterly Earnings Estimates

	2022	2023
Q1	1.59A	1.52A
Q2	1.94A	2.17A
Q3	1.82A	1.77E
Q4	1.94A	1.75E

Exhibit 1: STT Variance Table

New vs. old EPS estimates, assumptions

(in millions, except per share amounts)		Actual	Estimate		New	Old		New	Old	
KEY FORECAST VARIABLES:	1Q23	2Q23	2Q23E	Variance	2023E	2023E	Variance	2024E	2024E	Variance
Net Interest Income (FTE)	768.0	691.0	714.2	-3.25%	2,566.3	2,717.4	-5.56%	1,989.1	2,297.9	-13.44%
Loan Loss Provision	44.0	(18.0)	7.5	-	41.0	66.5	-38.35%	40.0	40.0	0.00%
Servicing fees	1,217.0	1,259.0	1,264.0	-0.4%	4,965.2	5,100.4	-2.7%	5,243.3	5,340.8	-1.8%
Management fees	457.0	461.0	461.7	-0.1%	1,877.6	1,933.0	-2.9%	2,149.0	2,217.8	-3.1%
FX Trading	342.0	303.0	349.2	NA	1,328.6	1,374.8	-3.4%	1,381.7	1,429.8	-3.4%
Securities finance	109.0	117.0	109.1	7.2%	441.1	433.2	1.8%	449.9	441.9	1.8%
Processing fees and other	165.0	221.0	195.5	13.0%	793.6	763.5	3.9%	793.6	763.5	3.9%
Tot Revenue	3,101.0	3,110.0	3,141.7	-1.01%	12,143.3	12,469.3	-2.61%	12,177.7	12,638.7	-3.65%
Total Expenses	2,369.0	2,212.0	2,223.1	-0.50%	9,022.4	9,024.5	-0.02%	9,180.9	9,182.8	-0.02%
Pre-Tax Income (FTE)	688.0	916.0	911.1	0.54%	3,079.9	3,378.3	-8.83%	2,956.7	3,415.9	-13.44%
FTE Tax Rate (%)	20%	17%	19%	Орр	20%	19%	Орр	20%	19%	Орр
Taxes	139.0	153.0	173.1	-11.61%	616.7	650.2	-5.15%	584.3	644.7	-9.37%
Net Income	549.0	763.0	738.0	3.39%	2,463.2	2,728.2	-9.71%	2,372.5	2,771.2	-14.39%
Available For Common	525.0	726.0	702.0	24mn	2,342.2	2,609.2	-267mn	2,251.5	2,652.2	-401mn
Op. EARNINGS PER SHARE (F.D.)	\$1.52	\$2.17	\$2.12	2%	\$7.20	\$8.05	-10%	\$7.41	\$8.51	-13%
GAAP EPS (F.D.)	\$1.52	\$2.17	\$2.12	2%	\$7.20	\$8.05	-10%	\$7.41	\$8.51	-13%
Book Value Per Share	\$67.69	\$69.01	\$64.88	\$4.13	\$71.37	68.99	\$2.38	\$76.88	62.66	\$14.22
Tangible Book Value Per Share	\$42.34	\$42.68	\$39.28	\$3.40	\$42.52	33.68	\$8.84	\$45.81	32.25	\$13.55
Dividends Per Share	\$0.63	\$0.63	\$0.63	\$0.00	\$2.64	2.64	\$0.00	\$2.74	2.74	\$0.00
Average Fully-Diluted Shares	345.5	333.5	330.8	3mn	324.8	325.7	-1mn	304.0	311.8	-8mn
CAPITAL RATIOS:										
EOP Common Equity/Assets (%)	7.8%	7.5%	7.5%	0bp	7.1%	7.2%	0bp	7.2%	7.2%	0bp
Tang. Common Equity/Assets (%)	4.9%	4.7%	4.6%	Obp	4.3%	4.2%	Obp	4.3%	4.2%	0bp
Tangible Common Equity/RWA (%)	12.3%	12.1%	11.5%	1bp	11.0%	10.7%	0bp	11.0%	10.7%	0bp
Tier 1 Common/RWA (%)	12.1%	11.8%	11.7%	0bp	10.7%	10.8%	0bp	10.6%	11.3%	-1bp
PROFITABILITY RATIOS:										
Return On Assets (%)	0.8%	1.0%	1.0%	9bp	0.8%	0.9%	-9bp	0.8%	0.9%	-15bp
Return On Common Equity (%)	9.1%	12.9%	12.6%	26bp	10.5%	12.0%	-144bp	10.9%	12.8%	-191bp
Return On Tangible Common Equity (%)	13.2%	18.7%	18.4%	28bp	15.4%	17.7%	-227bp	16.2%	19.0%	-281bp
Operating Expenses/Revenues (%)	76.4%	71.1%	70.8%	36bp	74.3%	72.4%	193bp	75.4%	72.7%	274bp
BALANCE SHEET ITEMS:										
EOP Total Deposits	223,631	222,316	218,068	1.95%	216,750	216,402	0.16%	217,274	218,338	-0.49%
EOP Total Assets	290,816	294,561	285,477	3.18%	289,426	284,321	1.80%	288,620	284,922	1.30%
EOP Equity	24,750	24,204	23,438	3.27%	22,667	22,387	1.25%	22,564	22,932	-1.61%
EOP Preferred Equity	1,976	1,976	1,976	0.00%	1,976	1,976		1,976	1,976	0.00%
EOP Common Equity	22,774	22,228	21,462	3.57%	20,691	20,411	1.37%	20,691	20,411	1.37%

Source: BofA Global Research estimates, company filings

BofA GLOBAL RESEARCH



Price objective basis & risk

State Street Corporation (STT)

Our \$72 PO incorporates recession risk. We apply a 50% weighting to our 2023 P/E multiple, with the remaining 50% evenly split between 2024 P/E and 2023 P/TBV multiples. We assign 10.5x/9.0x/2.2x multiples respectively, below peer multiples (11.0x/9.8x/2.1x).

Risks to the upside is stronger equity/bond markets.

Risks to the downside are a severe selloff in equity/bond markets that that could put downward pressure on fee growth and M&A that could temper capital return.

Analyst Certification

I, Ebrahim H. Poonawala, 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.

North America - Banks Coverage Cluster

Investment rating	Company	Bof A Ticker	Bloomberg symbol	Analyst
BUY				
	Citigroup Inc.	С	C US	Ebrahim H. Poonawala
	Cullen/Frost Bankers Inc	CFR	CFR US	Ebrahim H. Poonawala
	East West Bancorp, Incorporated	EWBC	EWBC US	Ebrahim H. Poonawala
	Fifth Third Bank	FITB	FITB US	Ebrahim H. Poonawala
	First Bancorp Puerto Rico	FBP	FBP US	Brandon Berman
	First Horizon Corporation	FHN	FHN US	Ebrahim H. Poonawala
	Goldman Sachs .	GS	GS US	Ebrahim H. Poonawala
	JPMorgan Chase & Co.	JPM	JPM US	Ebrahim H. Poonawala
	KeyCorp	KEY	KEY US	Ebrahim H. Poonawala
	M&T Bank	MTB	MTB US	Ebrahim H. Poonawala
	Morgan Stanley	MS	MS US	Ebrahim H. Poonawala
	New York Community Bancorp	NYCB	NYCB US	Ebrahim H. Poonawala
	Synovus Financial Corp.	SNV	SNV US	Ebrahim H. Poonawala
	The Bank of New York Mellon Corporation	BK	BK US	Ebrahim H. Poonawala
	Toronto-Dominion Bank	TD	TD US	Ebrahim H. Poonawala
	Toronto-Dominion Bank	YTD	TD CN	Ebrahim H. Poonawala
	U.S. Bancorp	USB	USB US	Ebrahim H. Poonawala
	Wells Fargo & Company	WFC	WFC US	Ebrahim H. Poonawala
	Western Alliance Bancorp	WAL	WAL US	Ebrahim H. Poonawala
NEUTRAL				
NEOTRAL	Ally Financial	ALLY	ALLY US	Brandon Berman
	Associated Banc-Corp	ASB	ASB US	Brandon Berman
	Bank of Montreal	YBMO	BMO CN	Ebrahim H. Poonawala
	Bank of Montreal	BMO	BMO US	Ebrahim H. Poonawala
	Bank of Nova Scotia	YBNS	BNS CN	Ebrahim H. Poonawala
	Bank of Nova Scotia	BNS	BNS US	Ebrahim H. Poonawala
	Citizens Financial Group	CFG	CFG US	Ebrahim H. Poonawala
	Comerica Incorporated	CMA	CMA US	Ebrahim H. Poonawala
	Huntington Bancshares Inc.	HBAN	HBAN US	Ebrahim H. Poonawala
	Regions Financial	RF	RF US	Ebrahim H. Poonawala
	Royal Bank of Canada	RY	RY US	Ebrahim H. Poonawala
	Royal Bank of Canada	YRY	RY CN	Fbrahim H. Poonawala
	State Street Corporation	STT	STT US	Ebrahim H. Poonawala
	Truist Financial	TFC	TFC US	Ebrahim H. Poonawala
	Traise Thairea	11 0	11 € 65	Estatiliti II. I soriawala
UNDERPERFORM	D 1 (1) " C	2011	201115	
	Bank of Hawaii Corp.	ВОН	BOHUS	Brandon Berman
	Canadian Imperial Bank of Commerce	YCM	CM CN	Ebrahim H. Poonawala
	Canadian Imperial Bank of Commerce	CM	CM US	Ebrahim H. Poonawala
	First Hawaiian Inc.	FHB	FHB US	Brandon Berman
	Prosperity Bancshares Inc	PB	PB US	Ebrahim H. Poonawala



North America - Banks Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	Texas Capital Bancshares Inc.	TCBI	TCBI US	Brandon Berman
	The PNC Financial Services Group, Inc.	PNC	PNC US	Ebrahim H. Poonawala
	Zions Bancorp	ZION	ZION US	Ebrahim H. Poonawala

Qmethod [™] 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	
EV / EBITDA	Enterprise Value	Basic EBIT + Depreciation + Amortization

**Memethod SM 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.

Matabase 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.

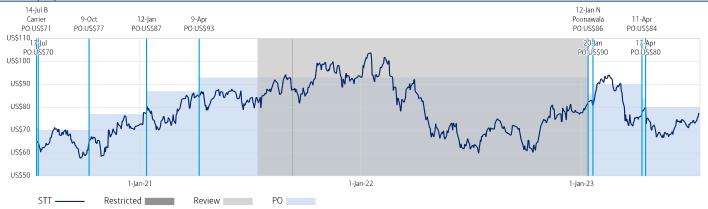
*IQ*profile^{5M}, *IQ*method ^{5M} are service marks of Bank of America Corporation. *IQ*database[®] is a registered service mark of Bank of America Corporation.



Disclosures

Important Disclosures

State Street (STT) 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: Banks Group (as of 30 Jun 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	98	50.52%	Buy	81	82.65%
Hold	45	23.20%	Hold	33	73.33%
Sell	51	26.29%	Sell	37	72.55%

Equity Investment Rating Distribution: Global Group (as of 30 Jun 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	1877	53.28%	Buy	1040	55.41%
Hold	815	23.13%	Hold	464	56.93%
Sell	831	23.59%	Sell	385	46.33%

RI 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%	≤ 70%
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: State Street.

BofAS or an affiliate was a manager of a public offering of securities of this issuer within the last 12 months: State Street.

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

BofAS or an affiliate has received compensation from the issuer for non-investment banking services or products within the past 12 months: State Street.

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: State Street.

BofAS or an affiliate has received compensation for investment banking services from this issuer within the past 12 months: State Street.

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: State Street. 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-State Street

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: State Street.

The issuer is or was, within the last 12 months, a securities business client (non-investment banking) of BofAS and/or one or more of its affiliates: State Street. 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 (Mexico): Merrill Lynch (Mexico): Merrill Lynch (Mexico) SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria 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 Limited, regulated by Israel Securities Authority; Merrill Lynch (DIFC): 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 prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the **Electronic Communications Disclaimers** for further information.

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 2023 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 information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Securities in connection with the legal proceedings or matters relevant to such proceedings.

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



8