

Microsoft Corporation

Azure & Office strength to drive Q2 upside; expect growth acceleration in '24

Reiterate Rating: BUY | PO: 450.00 USD | Price: 389.47 USD

Security and new workloads driving Azure strength

We expect healthy 1% cc upside to our Q2 revenue estimate of \$60.9bn (+17% y/y; +15% y/y cc) from continued Azure and M365 strength, though somewhat offset by weaker CQ4 PC shipments. We expect currency to provide a 2% point tailwind to Q2 growth, versus expectations for a 1% heading into the quarter. We expect 1% upside to our estimate for Azure growth of 26.5% cc., given system integrator partner feedback suggesting 1) healthy continued migration of new workloads and 2) sustaining adoption of the Microsoft security stack, including offerings such as Sentinel, Purview, and Entra.

Expect Office upside to conservative subscriber growth

We expect \$450mn upside to our PBP segment revenue estimate for \$18.6bn (+13% y/y/+12% y/y cc) from better Commercial Office growth (17% cc vs 16%) and FX. Believe 2pts upside to our estimate for 10% subs growth reasonable (versus 10% in Q1 on a 2% easier comp). In the MPC segment, we expect \$50mn upside to our \$16.7bn (+18% y/y; +6% y/y organic) from FX, though somewhat offset by weaker PCs in CQ4. IDC reported preliminary Q4 PC growth of -0% y/y vs +2% y/y when Microsoft guided.

Expect healthy reaccel in core Office and Azure franchises

We reiterate our Buy/top pick rating, given our view that Microsoft represents a solid reacceleration story in 2024. Accelerating ASP growth from M365 Copilot attach is likely to drive Office growth toward 20%. Channel feedback suggests only early interest in M365 Copilot. We are assuming only \$389mn Commercial Office revenue from Copilot in our FY24 base/consensus estimates (assuming 1.5% penetration to eligible installed base by Q4). However, modest penetration upside translates to meaningful incremental ASP growth (each 1% penetration = 2.5% incremental ASP growth – see exhibit 2).

Raising PO to \$450 from \$430

For Azure, growing contribution from AI workloads and an improving macro are likely to drive accelerating new workload and revenue growth from the current 26.5% cc forecast. In summary, we expect total revenue growth to accelerate to solid high teens from current mid-teens level in a reasonable upside case. We fine-tune ests and raise our PO to \$450 (40x C25E FCF) from \$430 (38x) for revenue/FCF upside as we move through the year.

Estimates (Jun) (US\$)	2022A	2023A	2024E	2025E	2026E
EPS	9.21	9.93	11.02	12.94	15.13
GAAP EPS	9.65	9.68	11.02	12.94	15.13
EPS Change (YoY)	15.6%	7.8%	11.0%	17.4%	16.9%
Consensus EPS (Bloomberg)			11.33	12.99	15.41
DPS	2.41	2.65	2.91	2.91	3.16
Valuation (Jun)					
P/E	42.3x	39.2x	35.3x	30.1x	25.7x
GAAP P/E	40.4x	40.2x	35.3x	30.1x	25.7x
Dividend Yield	0.6%	0.7%	0.7%	0.7%	0.8%
EV / EBITDA*	30.5x	29.1x	24.7x	20.7x	17.8x
Free Cash Flow Yield*	2.2%	2.0%	2.3%	2.6%	3.1%

* For full definitions of *IQmethod*SM measures, see page 12.

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Timestamp: 18 January 2024 05:00AM EST

18 January 2024

Equity

Key Changes

(US\$)	Previous	Current
Price Obj.	430.00	450.00
2024E Rev (m)	243,050.2	244,345.4
2025E Rev (m)	278,080.9	279,770.6
2026E Rev (m)	318,165.5	319,990.3
2024E EPS	10.97	11.02
2025E EPS	12.86	12.94
2026E EPS	15.05	15.13

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Stock Data

Price	389.47 USD
Price Objective	450.00 USD
Date Established	18-Jan-2024
Investment Opinion	B-1-7
52-Week Range	230.68 USD - 394.03 USD
Mkt Val (mn) / Shares Out (mn)	3,028,129 USD / 7,775.0
Free Float	99.9%
Average Daily Value (mn)	9707.09 USD
BofA Ticker / Exchange	MSFT / NAS
Bloomberg / Reuters	MSFT US / MSFT.OQ
ROE (2024E)	32.5%
Net Dbt to Eqty (Jun-2023A)	12.2%
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".

PBP = Productivity and Business Process

MPC = More Personal Computing

iQprofileSM Microsoft Corporation

iQmethodSM – Bus Performance*

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Return on Capital Employed	27.7%	24.7%	20.8%	19.3%	21.3%
Return on Equity	45.0%	39.8%	32.5%	34.1%	40.3%
Operating Margin	42.1%	41.8%	41.8%	42.3%	42.8%
Free Cash Flow	65,149	59,475	68,816	80,039	93,189

iQmethodSM – Quality of Earnings*

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Cash Realization Ratio	1.3x	1.2x	1.3x	1.3x	1.2x
Asset Replacement Ratio	1.7x	2.0x	2.2x	1.7x	1.4x
Tax Rate	13.1%	19.0%	19.2%	19.5%	19.5%
Net Debt-to-Equity Ratio	28.4%	12.2%	-23.0%	-2.3%	-9.5%
Interest Cover	NA	NA	NM	NM	NA

Income Statement Data (Jun)

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Sales	198,270	211,915	244,345	279,771	319,990
% Change	18.0%	6.9%	15.3%	14.5%	14.4%
Gross Profit	135,620	146,052	166,112	190,563	218,760
% Change	17.1%	7.7%	13.7%	14.7%	14.8%
EBITDA	97,843	102,384	120,626	143,847	167,638
% Change	19.9%	4.6%	17.8%	19.3%	16.5%
Net Interest & Other Income	333	788	(661)	(50)	0
Net Income (Adjusted)	69,447	74,219	81,932	95,240	110,267
% Change	14.5%	6.9%	10.4%	16.2%	15.8%

Free Cash Flow Data (Jun)

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Net Income from Cont Operations (GAAP)	72,738	72,361	81,932	95,240	110,267
Depreciation & Amortization	14,460	13,861	18,593	25,487	30,660
Change in Working Capital	(10,201)	(7,923)	17,387	(11,913)	(17,736)
Deferred Taxation Charge	NA	NA	NA	NA	NA
Other Adjustments, Net	12,038	9,283	(7,877)	13,821	14,357
Capital Expenditure	(23,886)	(28,107)	(41,219)	(42,595)	(44,359)
Free Cash Flow	65,149	59,475	68,816	80,039	93,189
% Change	16.1%	-8.7%	15.7%	16.3%	16.4%
Share / Issue Repurchase	(30,855)	(20,379)	(16,584)	(16,000)	(16,000)
Cost of Dividends Paid	(18,135)	(19,800)	(21,661)	(21,413)	(22,991)
Change in Debt	(9,023)	(2,750)	50,920	37,477	40,591

Balance Sheet Data (Jun)

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Cash & Equivalents	13,931	34,704	198,589	201,977	210,007
Trade Receivables	44,261	48,688	29,607	41,958	59,825
Other Current Assets	111,492	100,865	101,308	125,612	118,190
Property, Plant & Equipment	74,398	95,641	120,757	125,432	136,126
Other Non-Current Assets	120,758	132,078	117,062	114,909	113,529
Total Assets	364,840	411,976	567,323	609,888	637,677
Short-Term Debt	2,749	5,247	29,556	29,556	29,556
Other Current Liabilities	92,333	98,902	89,213	100,326	112,924
Long-Term Debt	58,521	54,718	100,495	166,334	153,149
Other Non-Current Liabilities	44,695	46,886	50,235	53,034	55,879
Total Liabilities	198,298	205,753	269,499	349,251	351,508
Total Equity	166,542	206,223	297,824	260,637	286,169
Total Equity & Liabilities	364,840	411,976	567,323	609,888	637,677

* For full definitions of iQmethodSM measures, see page 12.

Company Sector

Server & Enterprise Software

Company Description

Microsoft develops, manufactures, licenses, and supports a wide range of software products. MSFT has transformed its business model from a component driven model (PC, server) to one driven by the need for cloud capacity. Its Azure platform is growing triple digit and is placed second in public cloud. Products incl. O/S, server applns, O365, Xbox, Surface PC etc. The company has three businesses - Productivity and Business Processes (PBP), Intelligent Cloud (IC) and More Personal Computing (MPC).

Investment Rationale

We believe that Microsoft is well positioned to generate sustained low double digit growth in the coming 3-5 years, led by continued adoption of Azure cloud infrastructure platform, cloud based Office 365 productivity suite and more profitable Games and Game Pass revenue in Xbox. While a revenue mix shift toward lower margin Azure and O365 segments is likely to offset scale benefits NT, operating expense scale is likely to drive stable 50bps annual margin expansion over the coming years.

Stock Data

Average Daily Volume 24,923,856

Quarterly Earnings Estimates

	2023	2024
Q1	2.35A	2.99A
Q2	2.32A	2.74E
Q3	2.57A	2.51E
Q4	2.69A	2.77E

Earnings preview summary table

Exhibit 1: Consensus estimates vs. BofA base and upside estimates

We look for upside to \$61.9bn of revenue for Q2

	F2Q24E			F3Q24E		FY2024E	
	Consensus Estimate	BofA (Base) Estimate	BofA (Upside) Estimate	Consensus Estimate	BofA (Base) Estimate	Consensus Estimate	BofA (Base) Estimate
Total revenue	\$61,014	\$60,936	\$61,934	\$60,862	\$62,037	\$242,953	\$244,345
y/y	15.7%	15.5%	17.4%	15.1%	17.4%	14.6%	15.3%
y/y (cc)	15.0%	14.5%	15.4%	15.8%	18.4%	14.7%	15.3%
Gross margin	67.9%	68.0%	68.0%	68.1%	66.0%	68.8%	68.0%
PF operating margin	42.5%	42.5%	42.5%	39.7%	37.9%	42.3%	41.8%
PF EPS	\$2.77	\$2.74	\$2.79	\$2.62	\$2.51	\$11.20	\$11.02
y/y	19.7%	18.0%	20.0%	7.0%	-2.3%	14.6%	11.0%
FCF	\$6,355	\$12,717	\$13,298	\$15,863	\$15,713	\$64,770	\$68,816
y/y	29.7%	159.6%	171.4%	-11.1%	-11.9%	8.9%	15.7%
FCF margin	10.4%	20.9%	21.5%	26.1%	25.3%	26.7%	28.2%
Intelligent Cloud	\$25,302	\$25,248	\$25,746	\$25,302	\$26,124	\$103,594	\$103,844
y/y	17.6%	17.4%	19.7%	17.3%	18.3%	17.8%	18.1%
y/y (cc)	17.2%	16.4%	18.7%	18.1%	18.3%	18.0%	18.1%
Azure growth y/y	27.7%	27.5%	29.5%	26.5%	25.5%	27.4%	26.7%
Azure growth y/y (cc)	26.9%	26.5%	27.5%	27.2%	26.5%	27.2%	27.2%
Productivity and Business Processes	\$19,023	\$18,951	\$19,405	\$19,023	\$19,307	\$77,553	\$77,114
y/y	11.9%	11.5%	14.1%	11.5%	10.2%	12.0%	11.3%
y/y (cc)	11.5%	10.5%	12.1%	11.8%	10.2%	12.0%	11.3%
Office commercial growth (y/y)	16.7%	17.2%	20.2%	12.8%	10.9%	13.5%	11.6%
Office commercial growth y/y (cc)	15.7%	16.2%	18.2%	13.1%	10.9%	13.1%	11.6%
More Personal Computing	\$16,772	\$16,737	\$16,783	\$15,480	\$16,605	\$61,935	\$63,385
y/y	17.8%	17.6%	17.9%	16.7%	25.2%	13.2%	15.9%
y/y (cc)	17.5%	16.6%	15.9%	17.3%	25.2%	13.3%	15.9%

Source: BofA Global Research estimates, company report

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Exhibits

Exhibit 2: Copilot Office Potential Uplift

Each 1% penetration of Copilot creates a 2.4% ASP uplift

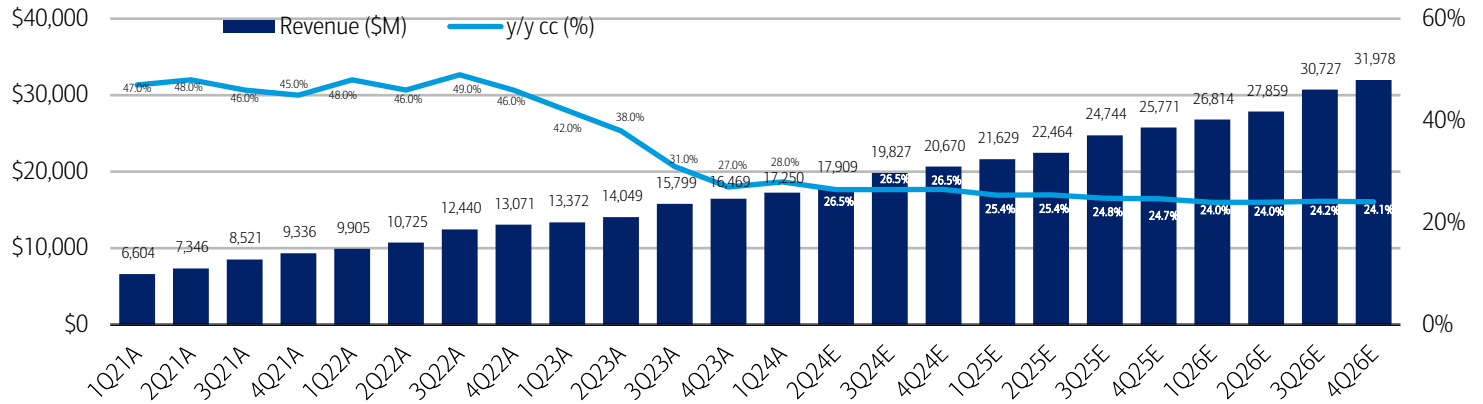
Assumptions	
BofA estimated # of Office subscribers for FY24:	444,494,152
Higher usage subscriber %	36%
Users on E3, E5, Business Standard, Business Premium	160,000,000
Assume 1% penetration against this base	1,600,000
x Copilot Pricing (\$30/user/mo annualized)	\$360
Total Upsell Opportunity per 1% penetration (\$mn):	\$576
FY24 estimate	
# total seats	444,494,152
Base Commercial Office revenue estimate (\$mn)	\$43,992
y/y	15.7%
Annualized ASP estimate	\$392
y/y	6.2%
Monthly ASP estimate	\$32.64
Assuming 1% Copilot penetration against high usage subs	
# Seats	444,494,152
Commercial Office revenue estimate <u>with Copilot</u> (\$mn)	\$44,568
y/y	17.2%
Copilot growth contribution	1.5%
Annualized ASP estimate	\$401
y/y	8.7%
Copilot ASP % growth contribution	2.5%
Monthly ASP estimate	\$33.42
Uplift (versus base)	2.4%

Source: BofA Global Research, company report

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Exhibit 3: Azure revenue estimate and revenue growth

We expect Azure to reach a >\$63bn revenue run rate exiting FQ2

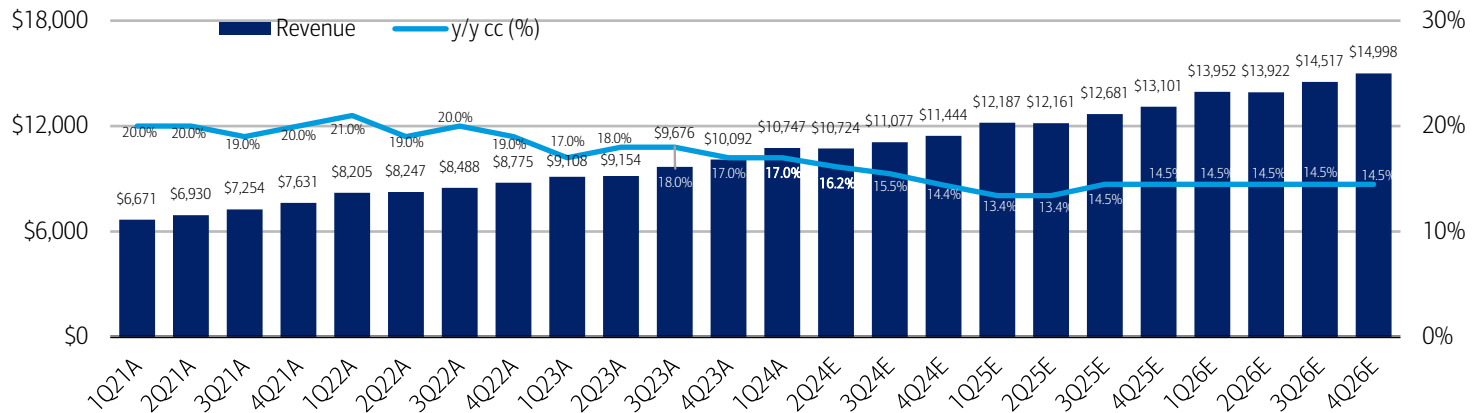


Source: BofA Global Research, company report

BofA GLOBAL RESEARCH

Exhibit 4: Commercial office revenue estimate and revenue growth

We expect Commercial Office to reach a >\$42bn revenue run rate exiting FQ2



Source: BofA Global Research, company report

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Partner Commentary

“Q4 was above our expectations with +70% y/y growth. AI, Windows 11, and Azure Stack are what I would call out. Windows 11 is starting to pick up steam, AI is helping to fuel that as well as the new M365 Copilot interest. Lastly, in the Federal sector, the increasing geo-political tension around the world is driving accelerated interest to move to the cloud or a hybrid cloud estate and layering Zero Trust over it. That is really the only macro factor impacting our business. Microsoft has leapt ahead of a lot of the competition with their massive investments and commitment around Generative AI/Copilot.” – **Top 5 Microsoft OEM Partner**

“Our Q4 was in line with expectations. We did a lot with the Azure and Server products in the quarter. What’s driving the grow in our business is the continued movement of on-premise apps and data to Azure cloud. We are seeing customers continue to fully embrace cloud and on a relative basis there are more and more ‘cloud first’ companies now. Professional services around Azure Stack HCI solutions did particularly well in the quarter. With respect to the macro, we are seeing sustained spend to support remote workers. VDI for example. There is also heightened awareness of AI accelerating some spending to the cloud, but also I am seeing heightened data security motivating the retention of some very mature on-prem applications such as email. We feel good about 2024 and Microsoft’s product roadmap is very strong - they still have a large portion of their traditional on-premise software base to transition to Azure.” – **Top 5 Microsoft OEM Partner**

“We were above expectations in Q4. We grew +50% y/y. Copilot utilization and integrations drove this. We are seeing a lot of AI expansion in operations teams within finance and delivery teams of eCommerce companies. AI, Teams, and M365 are all doing very well as a result of that. Teams Premium was strong this quarter and we saw some buying for Copilot for M365. The purchasing hits home – ‘do more with less’ is driving many decisions, and AI SKUs and Teams fit that perfectly like a hand in glove. Microsoft is really the master at monetizing these tools. I do not think any business model has ever been better. We see good runway for AI adoption in practice.” – **SI Partner, North America**

“We are a cybersecurity consulting firm. Our Q4 was above expectations, where we grew +35% y/y. Q4 2023 was our best quarter on record, and 2023 as a whole was our best year on record. No slowdown whatsoever. The biggest change we are seeing is curiosity in the new Microsoft Copilot, which is a bit out of reach for the small business since it requires a 300 seats minimum purchase. But, Copilot is seemingly a no brainer for mid-sized organizations in my view. This is causing customers to purchase the M365 E5 Compliance SKU so that they can achieve data governance before adopting AI technology. AI is a massive trend we are seeing within our customer base. Microsoft is lightyears ahead of all competitors due to their rapid adoption of AI Copilots into nearly every product going forward. The closest competitor is Google who has done a marginally good job of adopting AI into their products but Google has very low penetration into any of our customers. Customers still want their Microsoft Excel and not Google Sheets. Pipeline for 2024 remains strong.” – **SI Partner, North America**

“Our Q4 was above expectations. We grew +60% y/y in Q4. Azure and Microsoft 365 workloads are where we spend our time, and its 1) Microsoft 365 Copilot, 2) OpenAI foundational workloads, 3) migration to online workloads, and 4) security needs for unified SecOps that are driving the most growth. The biggest one to call out is Foundational Workload Preparation for Generative AI – so getting the data in place and ready. In terms of SKUs, Microsoft 365 E5 and Microsoft Sentinel are the two strongest

I would call out. In terms of macro, Microsoft SaaS Sales have remained strong year over year for us. Microsoft's platform and roadmap continues to mature. We are seeing more SaaS product consolidation from Enterprise Segment Customers." – **Top 10 Microsoft Security Partner**

"We work with the complete Microsoft Security cloud technology stack. Q4 was above expectations, growing +25% y/y. This was above our expectations. We are seeing increasing customer confidence, which is leading to more adoption. A more mature security footprint also helps to bring costs down as well. Microsoft Security adoption is the biggest trend we're seeing in our customer base. From 2020 to 2021, Microsoft Identity and Azure Security were the two hottest products, but now it is Azure Security and Microsoft Threat Protection, which includes SIEM and Information Protection. Demand continues to grow for the Microsoft Threat Protection Suite. People really like the rich integrations and interoperability within the same cloud stack. Microsoft is really growing market leadership in security. They are making excellent AI augmentations and capabilities through Security Copilot as well. We think 2024 will be strong once again. Cyber security continues to grow as a priority for many and Microsoft makes getting a security footprint online as seamless as possible. Demand for Security did not change much from any macroeconomic issues either. It is a necessity and you can not cheap out on it." – **Top 10 Microsoft Security Partner, APAC**

"We predominantly serve financial services firms with their Microsoft needs. We had an above expectations quarter, with +40% y/y growth. This was driven by cyber security, generative AI, and legacy code migration. The corresponding products that drove this are Microsoft Purview, Sentinel, M365 Copilot, GitHub, and Dynamics 365. We are seeing some spending slowdown on new projects but expansion remains strong with customers opting for upgrade paths as well. Microsoft's perception is the best it has ever been in cyber security and continues to improve. Needless to say they are top of mind in the Gen AI space as well." – **SI Partner, North America**

"We were ahead of our Q4 expectations, growing +25% y/y. Azure continues to grow well. There is a lot of existing data migrations and workload migration to cloud. I think many companies have turned away from trying to do lift and shift because it does not necessarily give cost savings. They are still there but when people talk about optimization that is one thing we saw less of. Within Azure, Sentinel, Azure Cosmos DB, and Azure Active Directory which is now renamed to Entra ID. We are not seeing too much data lake recently, maybe because it is costly and there is still some cost sensitivity in mind. The number of projects we are working on continues to increase and we expect this to continue into the rest of 2024. We also work with many developers and think GitHub Copilot is winning mindshare. The code complete and unit test automation is very good." – **SI Partner, APAC**

"Our Q4 was in line with expectations, growing +50% y/y. M365, Azure, Business Central, and SharePoint are our key focus areas. What continues to drive the growth of our business is the continued move to the cloud and security. As you would expect, M365 and Azure are the two products that are doing the best. We are seeing interest in AI, including various Copilots. We are not getting any sense of macro slowing down demand. Interest in AI and cybersecurity is strong. Microsoft's product roadmap can be a bit confusing and conflicting but customers place limited reliance on published dates. Microsoft's competitive position has improved due to AI interest and security concerns in our view." – **SI Partner, North America**

"Q4 tracked in line with our expectations, growing +100% y/y. We are focused on D365 CRM and the Power Platform. AI and Sales Copilot have been strong drivers of that growth – they are selling well and we are seeing adoption. Application consolidation and rationalization is something that comes up in both discussion and practice, a lot, especially with efforts to focus on productivity and controlling costs. I think Microsoft is foundationally secure as a leader with its position in Dynamics, Low-Code/No Code, and AI." – **SI Partner, North America**



“We were below expectations in the quarter, with +69% y/y growth. Security, Azure, and M365 are our primary focus areas. Security drove the bulk of that growth. Security demand is really materializing and we are booking business there. We are certainly getting a lot of questions and see AI as a big trend of course but nothing is booked there yet. Customers are becoming a little more cost conscious and asking about different license SKUs and how they can bundle them together to save money. I’d be curious to know how much Azure consumption is driven by increasing security use cases and workloads.” – **Microsoft Gold Cloud Solutions Partner**

“Our Q4 was below expectations, growing +15% y/y. This was mostly from customers holding back and cooling off on expansion plans. We focus on Azure cloud. Sentinel and related security services are the strongest products in the quarter. Competitively though, I feel very positive about where Microsoft is headed, especially with AI. Customers looking to capitalize on AI.” – **SI Partner, North America**



Price objective basis & risk

Microsoft Corporation (MSFT)

Our PO of \$450 is based on an EV/FCF multiple of 40x our C25E free cash flow estimate. The growth-adjusted multiple trades at a premium to the large cap GARP group, which we view as warranted given our view of Microsoft as a leading AI play in software.

Downside risks to our price objective: 1) Microsoft could see some near term gross margin pressure as the Azure business grows as a percentage of overall revenue. While Microsoft's on premise offerings offer a high margin profile, growth in these lines of business is decelerating. 2) Enterprise application spending has proven to be highly cyclical, given the more discretionary nature of applications projects. During an economic slowdown, when firms are faced with shrinking IT budgets, projects involving application upgrades, migrations or new installations are often deferred. This could present a higher degree of risk for a bookings deceleration for Microsoft and other application vendors, in the event of an economic slowdown.

Analyst Certification

I, Brad Sills, 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 - Enterprise Software Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	8x8	EGHT	EGHT US	Michael J. Funk
	Adobe	ADBE	ADBE US	Brad Sills
	Alarm.com	ALRM	ALRM US	Michael J. Funk
	Amplitude, Inc.	AMPL	AMPL US	Koji Ikeda, CFA
	BILL	BILL	BILL US	Brad Sills
	CCC Intelligent Solutions	CCCS	CCCS US	Michael J. Funk
	Dropbox	DBX	DBX US	Michael J. Funk
	Dynatrace	DT	DT US	Koji Ikeda, CFA
	Elastic NV	ESTC	ESTC US	Koji Ikeda, CFA
	GitLab Inc.	GTLB	GTLB US	Koji Ikeda, CFA
	Global-e Online Ltd.	GLBE	GLBE US	Koji Ikeda, CFA
	HubSpot	HUBS	HUBS US	Brad Sills
	Informatica Inc.	INFA	INFA US	Koji Ikeda, CFA
	Intapp Inc.	INTA	INTA US	Koji Ikeda, CFA
	Intuit	INTU	INTU US	Brad Sills
	JFrog Ltd	FROG	FROG US	Koji Ikeda, CFA
	MeridianLink, Inc.	MLNK	MLNK US	Koji Ikeda, CFA
	Microsoft Corporation	MSFT	MSFT US	Brad Sills
	MongoDB Inc.	MDB	MDB US	Brad Sills
	nCino, Inc.	NCNO	NCNO US	Adam Bergere
	NICE Ltd.	NICE	NICE US	Michael J. Funk
	NICE Ltd.	NCSYF	NICE IT	Michael J. Funk
	PagerDuty	PD	PD US	Koji Ikeda, CFA
	PowerSchool Holdings, Inc.	PWSC	PWSC US	Koji Ikeda, CFA
	RingCentral	RNG	RNG US	Michael J. Funk
	Salesforce.com	CRM	CRM US	Brad Sills
	ServiceNow	NOW	NOW US	Brad Sills
	UiPath	PATH	PATH US	Brad Sills
	Unity	U	U US	Michael J. Funk
	Weave	WEAV	WEAV US	Michael J. Funk
	Workday Inc.	WDAY	WDAY US	Brad Sills
	Zeta Global	ZETA	ZETA US	Koji Ikeda, CFA



US - Enterprise Software Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
NEUTRAL				
	Autodesk	ADSK	ADSK US	Michael J. Funk
	Bentley Systems	BSY	BSY US	Michael J. Funk
	BigCommerce Holdings, Inc.	BIGC	BIGC US	Koji Ikeda, CFA
	Coveo	YCVO	CVO CN	Koji Ikeda, CFA
	Datadog Inc	DDOG	DDOG US	Koji Ikeda, CFA
	DocuSign	DOCU	DOCU US	Brad Sills
	Freshworks, Inc.	FRSH	FRSH US	Adam Bergere
	HashiCorp	HCP	HCP US	Brad Sills
	Jamf	JAMF	JAMF US	Koji Ikeda, CFA
	Lightspeed Commerce Inc.	LSPD	LSPD US	Koji Ikeda, CFA
	Lightspeed Commerce Inc.	YLSPD	LSPD CN	Koji Ikeda, CFA
	Oracle Corporation	ORCL	ORCL US	Brad Sills
	Paycom	PAYC	PAYC US	Adam Bergere
	Paylocity	PCTY	PCTY US	Adam Bergere
	Shopify, Inc.	SHOP	SHOP US	Brad Sills
	Snowflake	SNOW	SNOW US	Brad Sills
	Veeva Systems, Inc.	VEEV	VEEV US	Brad Sills
	Zoom Video Communications	ZM	ZM US	Michael J. Funk
	ZoomInfo	ZI	ZI US	Koji Ikeda, CFA
UNDERPERFORM				
	AvidXchange, Inc.	AVDX	AVDX US	Brad Sills
	Blackbaud, Inc.	BLKB	BLKB US	Koji Ikeda, CFA
	BlackLine, Inc.	BL	BL US	Koji Ikeda, CFA
	C3.ai	AI	AI US	Brad Sills
	Confluent	CFLT	CFLT US	Brad Sills
	CS Disco, Inc.	LAW	LAW US	Koji Ikeda, CFA
	Enfusion, Inc.	ENFN	ENFN US	Koji Ikeda, CFA
	Everbridge	EVBG	EVBG US	Koji Ikeda, CFA
	Five9	FIVN	FIVN US	Michael J. Funk
	Guidewire Software, Inc.	GWRE	GWRE US	Michael J. Funk
	Twilio	TWLO	TWLO US	Michael J. Funk
	Vertex, Inc.	VERX	VERX US	Brad Sills
RSTR				
	Splunk	SPLK	SPLK US	Brad Sills

IQmethodSM Measures Definitions**Business Performance**

Return On Capital Employed

Return On Equity

Operating Margin

Earnings Growth

Free Cash Flow

Quality of Earnings

Cash Realization Ratio

Asset Replacement Ratio

Tax Rate

Net Debt-To-Equity Ratio

Interest Cover

Valuation Toolkit

Price / Earnings Ratio

Price / Book Value

Dividend Yield

Free Cash Flow Yield

Enterprise Value / Sales

EV / EBITDA

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

Numerator

Cash Flow From Operations

Capex

Tax Charge

Net Debt = Total Debt – Cash & Equivalents

EBIT

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

Total Assets – Current Liabilities + ST Debt + Accumulated Goodwill

Amortization

Shareholders' Equity

Sales

N/A

N/A

Denominator

Net Income

Depreciation

Pre-Tax Income

Total Equity

Interest Expense

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

Valuation Toolkit

Numerator

Denominator

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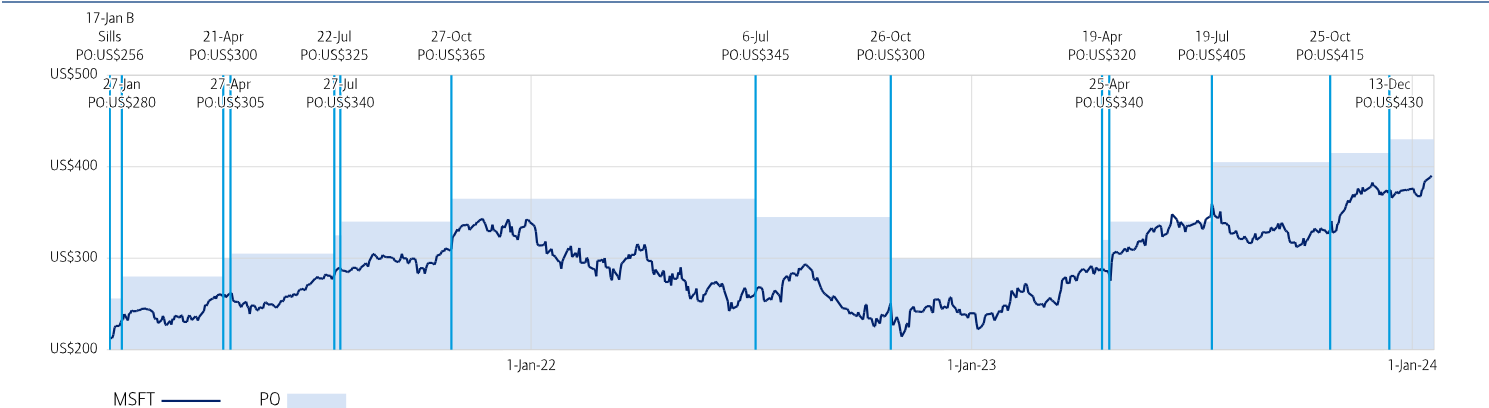
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B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

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

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	215	53.09%	Buy	111	51.63%
Hold	97	23.95%	Hold	45	46.39%
Sell	93	22.96%	Sell	24	25.81%

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.

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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}
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Underperform	N/A	≥ 20%

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