

November 29, 2022 05:01 AM GMT

## Microsoft | North America

## Why We Like Microsoft Here

📈 Stock Rating  
Overweight

👁 Industry View  
Attractive

🎯 Price Target  
\$307.00

While investors worry forward numbers have not been de-risked, we see a strong (and durable) demand signal in the commercial businesses, which should lead to improving revenue and EPS growth in 2H23. Trading at ~20x CY24 GAAP earnings, accelerating EPS growth should bring investors back to the name.

**Confidence in Commercial – Microsoft's Unique Positioning as a Consolidator**

**Should Support Demand Better Than Investors Fear.** Near-term investor concerns around Microsoft typically fall into two categories – margins and revenue growth – or more specifically: 1) a larger than expected operating expense guide into Q2, signalling an unwillingness by management to cut expenses and better protect operating margins, and 2) a revenue guidance for durable 20% constant currency (cc) Commercial growth that does not appear de-risked (particularly given Commercial grew 22% cc in Q1). From our perspective, the two investor concerns go hand in hand. The company still sees a strong (and durable) demand signal around these secular growth opportunities, especially within the Commercial business, which requires continued investments to yield. With strong competitive positioning ahead of large secular growth opportunities, the company looks to sustain current investments to capture market share, win a higher portion of IT budgets as companies look to consolidate vendors, and maintain strategic long-term positioning, rather than cut more aggressively to optimize near-term profitability. We largely agree with the strategy here, as the strength of Microsoft's positioning across key secular growth segments remains unchanged. Mix shift toward faster growing Azure and Dynamics 365 and relatively durable Office 365 growth (in constant currency) help support management's goal of 20% constant currency growth across its Commercial businesses.

Digging deeper, there are multiple factors leading us to believe the commercial business should be more durable than feared for Microsoft, despite the near term macro pressures. **1) Demand signals remain positive**, with management conversations, earnings commentary, channel work, and our CIO survey ([Microsoft: 3Q22 CIO Survey Takeaways — Showing Defensive Positioning in a Moderating Software Spending Backdrop \(11 Oct 2022\)](#)) supporting 20% cc Commercial growth. **2) Operating expense should normalize into the back half of FY23.** Although operating expenses continued to rise into 2QFY23, this is largely due to prior hiring, M&A and rising compensation expenses exiting FY22. With a pause in hiring, operating expense growth should moderate significantly in the

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## Microsoft ( MSFT.O, MSFT US )

Software / United States of America

<b>Stock Rating</b>	<b>Overweight</b>			
<b>Industry View</b>	<b>Attractive</b>			
<b>Price target</b>	<b>\$307.00</b>			
Shr price, close (Nov 28, 2022)	\$241.76			
Mkt cap, curr (mm)	\$1,809,574			
52-Week Range	\$344.30-213.43			
<b>Fiscal Year Ending</b>	<b>06/22</b>	<b>06/23e</b>	<b>06/24e</b>	<b>06/25e</b>
<b>ModelWare EPS (\$)</b>	<b>9.21</b>	<b>9.51</b>	<b>11.22</b>	<b>13.30</b>
<b>Prior ModelWare EPS (\$)</b>	-	-	-	-
<b>P/E</b>	<b>27.9</b>	<b>25.4</b>	<b>21.5</b>	<b>18.2</b>
<b>EPS (\$)</b> §	<b>9.29</b>	<b>9.55</b>	<b>11.18</b>	<b>13.22</b>
<b>Div yld (%)</b>	<b>1.0</b>	<b>1.1</b>	<b>1.2</b>	<b>1.4</b>

Unless otherwise noted, all metrics are based on Morgan Stanley ModelWare framework

§ = Consensus data is provided by Refinitiv Estimates

e = Morgan Stanley Research estimates

## QUARTERLY MODELWARE EPS (\$)

Quarter	2022	2023e Prior	2023e Current	2024e Prior	2024e Current
Q1	2.27	-	2.35a	-	2.68
Q2	2.48	-	2.27	-	2.67
Q3	2.22	-	2.38	-	2.87
Q4	2.23	-	2.51	-	3.00

e = Morgan Stanley Research estimates, a = Actual Company reported data

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back half as we anniversary the more aggressive hiring – we model 15% YoY opex growth in 1H FY23 dropping to 8% YoY in 2H FY23. **3) Several revenue tailwinds heading into 2H FY23.** Less onerous incremental fx impacts so far this quarter,

which should fade further into the back half, ramping O365 pricing benefits, as well as, easier compares for Windows OEM, Office Commercial, LinkedIn and Dynamics heading into 2H FY23 should all support more robust topline growth.

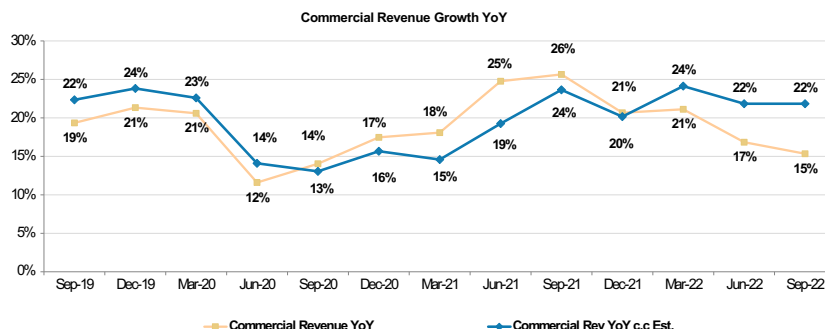
**4) Valuation remains favorable.** At ~20x 2024 EPS, or ~1.2x 2 years PEG, Microsoft trades at a discount to its historical trading range, other large cap software peers, as well as other megacap tech names. We remain confident in Microsoft's durable double-digit constant currency growth profile and expanding margins, supporting an attractive risk/reward profile.

### 1) Demand Signals Remain Positive

We gain confidence in the durability of Commercial business growth, supported by 1) management conversations and earnings commentary and 2) our channel work and CIO Surveys.

- Earnings Commentary:** Despite macro weakness, Microsoft's Commercial businesses' revenue held up fairly well on a constant currency basis. ([Exhibit 1](#)). Solid leading demand signals led the company to strike a more optimistic tone on the earnings call regarding the potential opportunities heading into the remainder of FY23. The company sees strong momentum in machine learning, where Azure ML revenue increased more than 100% for the fourth quarter in a row. GitHub crossed \$1 billion ARR with more than 90 million users. Power Apps, LinkedIn, Teams and other Commercial Segments also saw healthy user increases in the most recent quarter. The strong demand signals and cloud growth trends gave the company the confidence to guide to 20% constant currency growth for the Commercial Segment for the fiscal year. Given management's view its commercial businesses are well positioned to gain share in large markets, the company continues to invest in key categories to drive long term growth while also remaining disciplined in managing costs.

**Exhibit 1: Commercial Revenue Growth Held-up Well Despite Macro Weakness Thus Far**

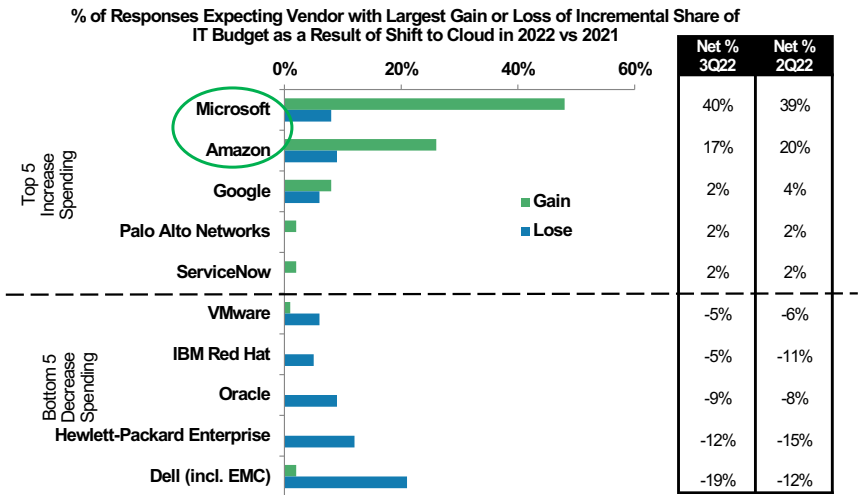


\*Note: constant currency is a MS estimate, not company disclosed. Source: Company data, Morgan Stanley

- CIO Survey:** Our 3QCY22 CIO survey indicated that Microsoft continues to occupy attractive secular segments of the software space, and gain share within those markets, which should support Commercial Segment growth despite the macro downturn. ([Microsoft: 3Q22 CIO Survey Takeaways — Showing Defensive Positioning in a Moderating Software Spending](#))

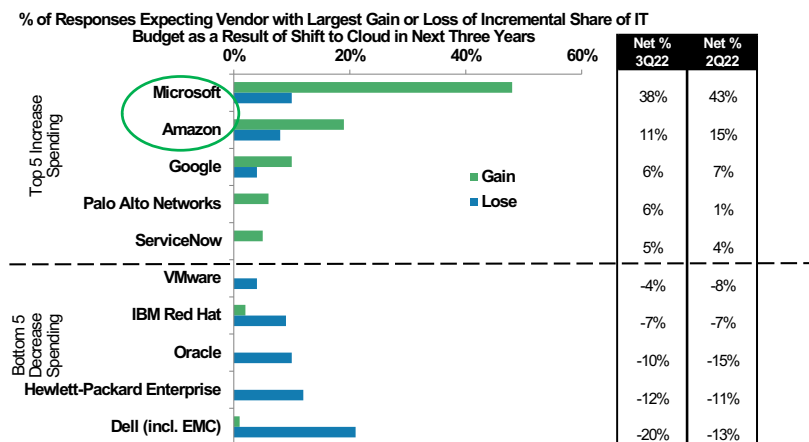
Backdrop (11 Oct 2022)) Several key data points include **1) Microsoft maintains lead as the top IT wallet share gainer.** CIOs continue to expect Microsoft as the top IT budget share gainer in next 12 months (Exhibit 2) and over the next three years. (Exhibit 3) This is largely supported by the shift to cloud. **2) Microsoft is well positioned against CIOs' priority lists.** CIOs continue to prioritize projects around cloud, security, BI/analytics, and digital transformation (Exhibit 4 ). When looking at the most defensive IT projects, Security, Cloud Computing, Digital Transformation, Financial Planning Software, and DW/BI/Analytics are projects least likely to be cut. (Exhibit 5 ) We see Microsoft as well positioned for both growth and defense given the current CIO priorities, especially within the Commercial Segment. **3) Microsoft Office also remains dominant.** 87% of the CIOs surveyed use Microsoft Office (on premise and 365) today, with more CIOs expected to use Microsoft Office 365 in the coming years. (Exhibit 6 ). **4) Microsoft Is Seeing Strong Gains in Identity and Access Management.** Microsoft's identity and access management products such as Azure Active Directory, Microsoft Entra are resonating with customers (Exhibit 7 ).

Exhibit 2: Most Recent CIO Survey in October Continued to Support Microsoft's Position as the Top IT Share Gainer in NTM



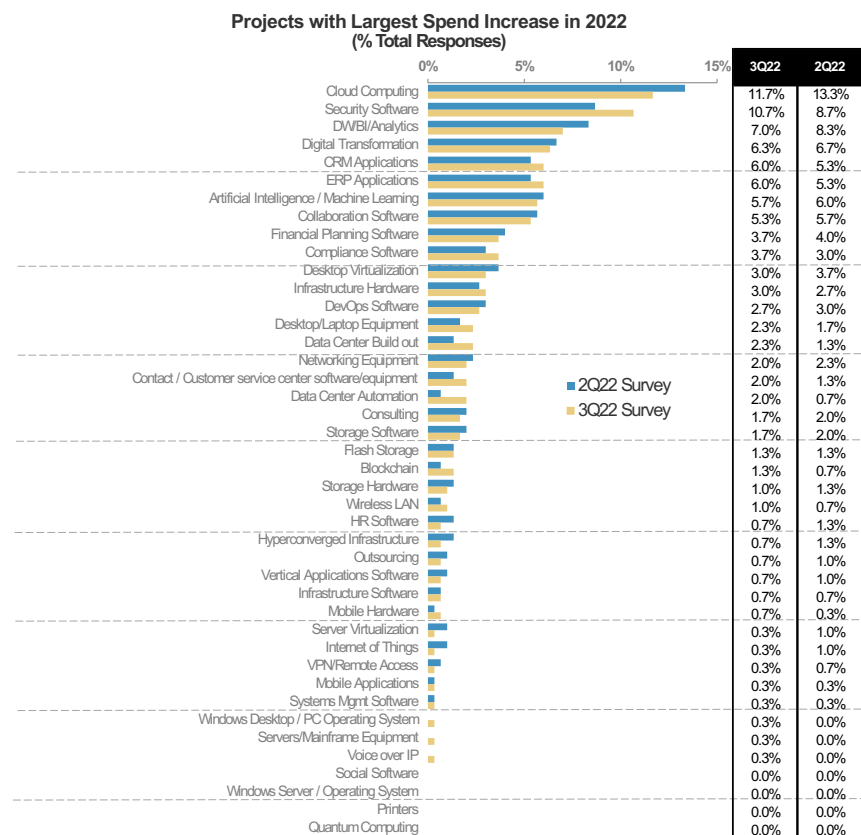
Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

**Exhibit 3:** ...While Microsoft Maintains its Significant Lead on a Three-Year Horizon



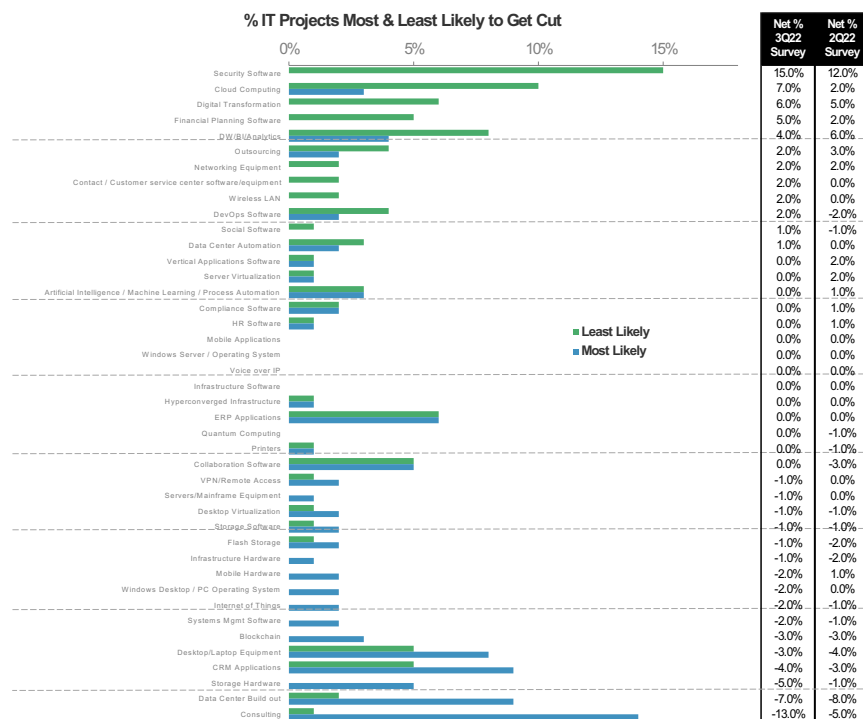
Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

**Exhibit 4:** CIO Priority List Generally Consistent With Last Quarter - With Microsoft Primed To Be a Key Beneficiary



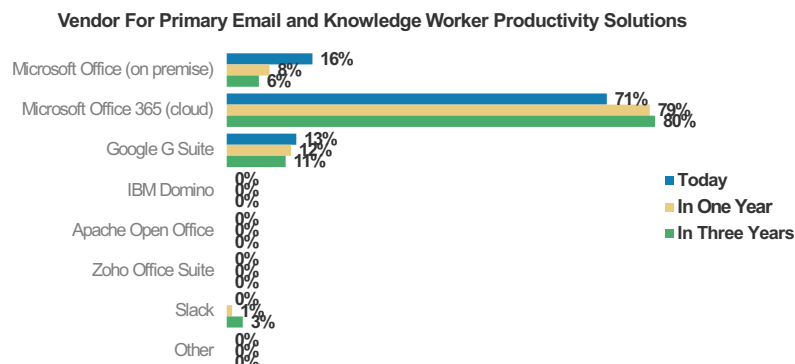
Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

**Exhibit 5:** Key Microsoft Segments Such as Security and Cloud Computing are Most Defensive



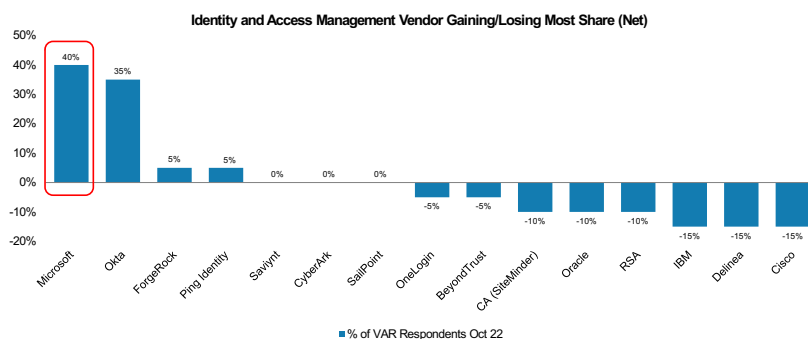
Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

**Exhibit 6:** 71% of CIOs Use Office 365 Today....Expected to Increase to 80% Within 3 Years



Source: AlphaWise, Morgan Stanley Research. n=100 (US and EU data)

**Exhibit 7:** Microsoft Remains Strong in Identity and Access Management

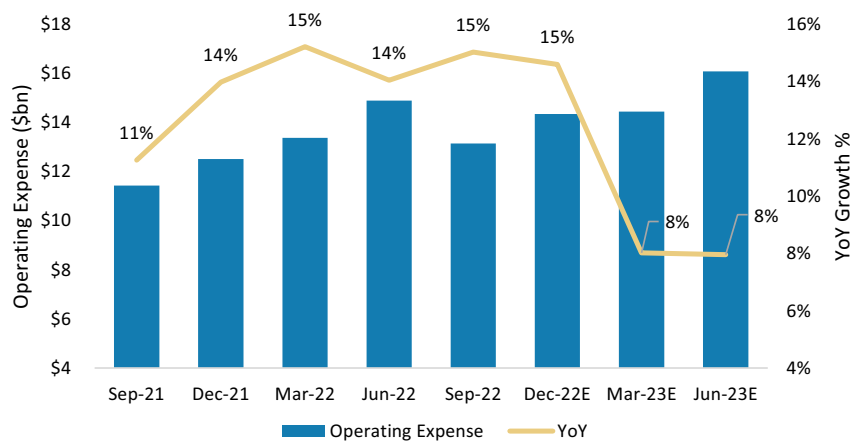


Source: n=100 (US and EU data). Source: AlphaWise, Morgan Stanley Research

## 2) What's Going on With Opex?

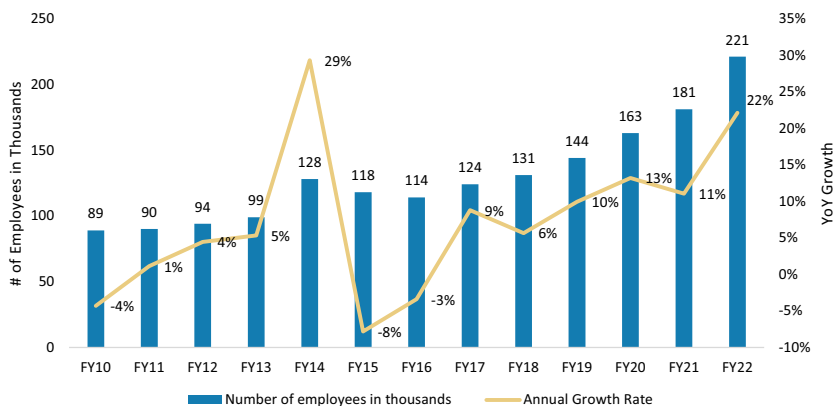
Investors were somewhat surprised to see Q2 operating expense guidance suggested ~\$1.2 billion of incremental spending, which could push operating expense growth to outpace both gross profit dollar growth and revenue growth for FY23 [Exhibit 8](#). Management spoke to some additional hiring in Q1 (which is expected to flatten out into Q2) ([Exhibit 9](#)) and higher compensation expenses (pay changes go into effect September 1st) having a full quarter of impact, as two main contributing factors. From our perspective, with strong competitive positioning ahead of large aforementioned secular growth opportunities, the company looks to sustain current investments to maintain that long-term positioning, rather than cut more aggressively to optimize near-term profitability. Given the company's major hiring initiatives are largely complete ([Exhibit 10](#)), Microsoft should see more leverage as it anniversaries the heavier hiring periods and recent acquisitions. We would also note that last time Microsoft saw significant headcount increases (in FY14, partially due to 25k employees from Nokia acquisition), it was followed by two consecutive years of headcount reductions ([Exhibit 9](#)).

**Exhibit 8: Operating Expense Growth is Likely to Slowdown in 2HFY23**

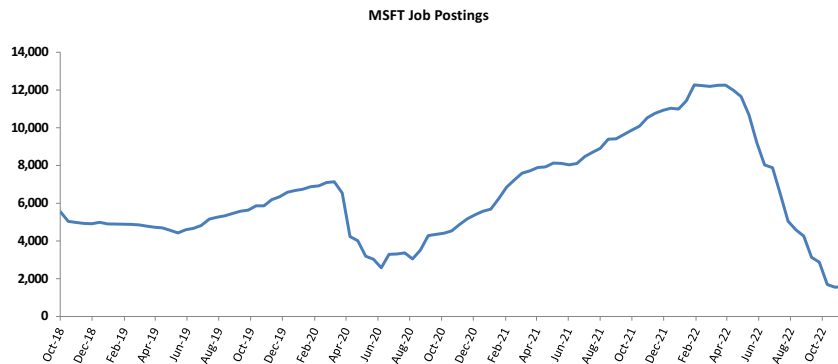


Source: Company data, Morgan Stanley Research

**Exhibit 9: Microsoft's Employee Growth was High in 2022 Relative to Most Historical Years**



Note: FY14 growth partially due to 25k employees transferred from Nokia. Source: Company data, Morgan Stanley Research

**Exhibit 10:** Official Job Openings at Microsoft Declined Below COVID Lows


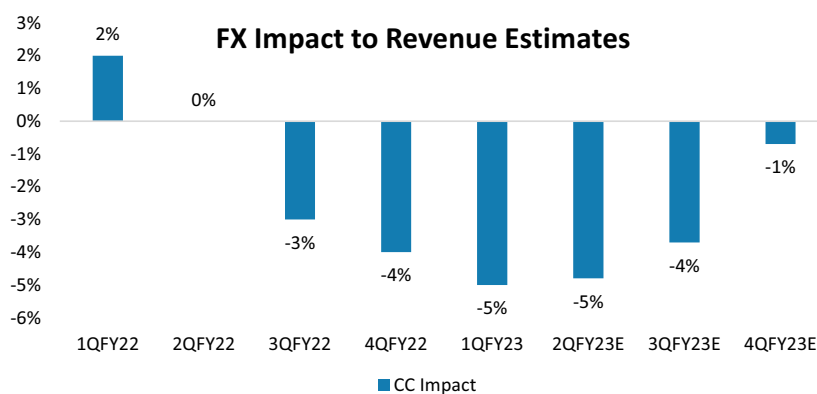
Source: Company data, Morgan Stanley Research

### 3) What Helps in 2HFY23?

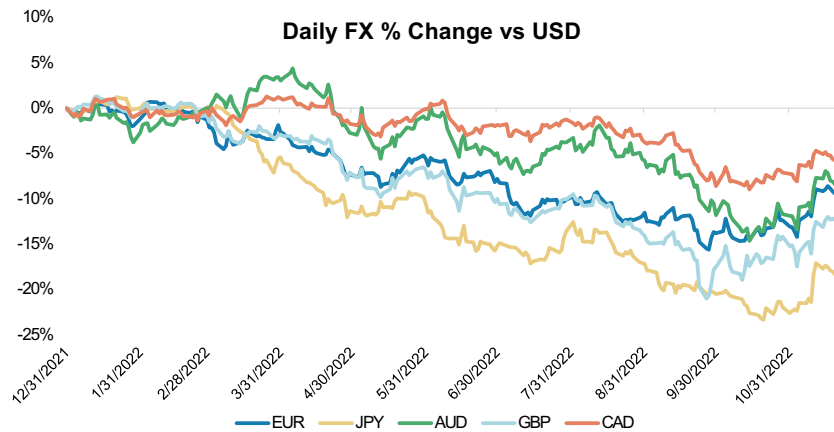
Although the heavier cyclical conditions will likely weigh on the results in FY23, there are some partial offsets that should support earnings heading into 2HFY23.

1) FX headwinds start dissipating, 2) pricing increases from O365 should continue to support O365 revenue growth, and 3) easier comps in 2HFY23.

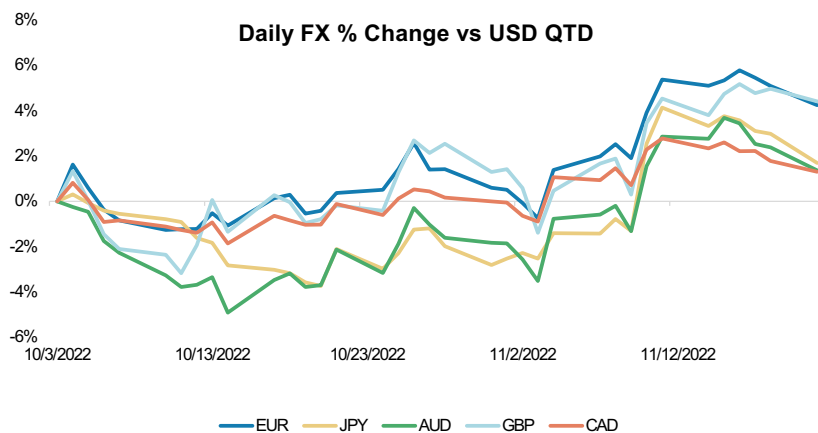
- Less impact from FX headwind.** Over the past 5 reported quarters, Microsoft's FX headwind intensified from 2 points of benefit to growth in 1QFY22 to 5 points of headwind by 1QFY23 ([Exhibit 11](#)). This is due to the major currency deterioration against the USD during the same period ([Exhibit 12](#)). That said, FX looks to be stabilizing so far in 2QFY23, with all five major currencies for Microsoft rising against the USD ([Exhibit 13](#)), the company's guided 5 points of FX revenue headwind in Q2 looks unlikely to see further downside risk given recent moves.

**Exhibit 11:** FX Headwinds Mounted Over the Past 5 Quarters, But Likely Moderate from Here


Source: Company data, Morgan Stanley Research

**Exhibit 12:** Major Foreign Currencies Weakened Against USD YTD....


Source: Refinitiv, Morgan Stanley Research

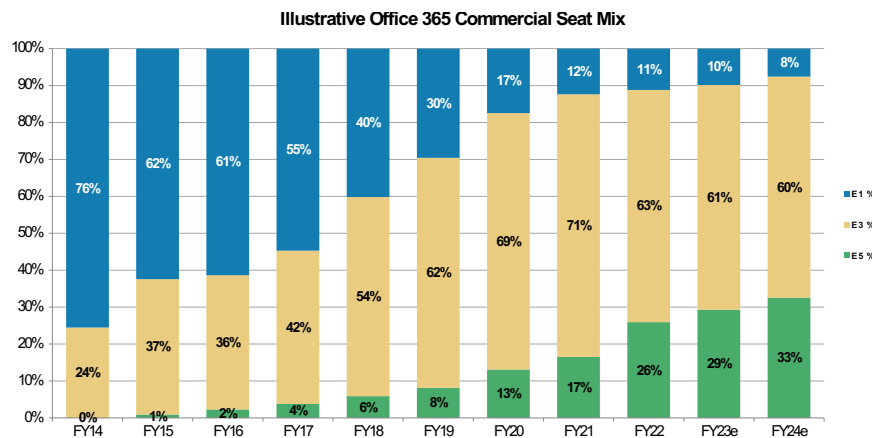
**Exhibit 13:** ...But They Are Stabilizing Thus Far in 4QCY22


Source: Refinitiv, Morgan Stanley Research

- O365 price increases and mix shift continue to support revenue.** Unlike Azure's (largely) consumption business, Office is a seat-based model, which is less sensitive to customers' spending reductions under the current environment. Further expansion of revenue per user (from upgrades and pricing increases, [Exhibit 14](#)) should sustain a low-teens 5-year CAGR. In the near term, the price increases effective from March 1st 2022 continue to have a positive impact on the O365 revenue growth, as contract lengths are typically three years, and price increases will continue to contribute in the coming years as contracts renew at new prices. As such, we expect the impact to 2H FY23 EPS to be ~\$0.07 and \$0.29 in FY24 ([Exhibit 15](#)). This was previously incorporated into our model.



**Exhibit 14:** Mix Shift Towards Higher O365 Tiers Continue to Support Revenue Growth



Note: excluding non-profit, education and others. Source: Morgan Stanley Research

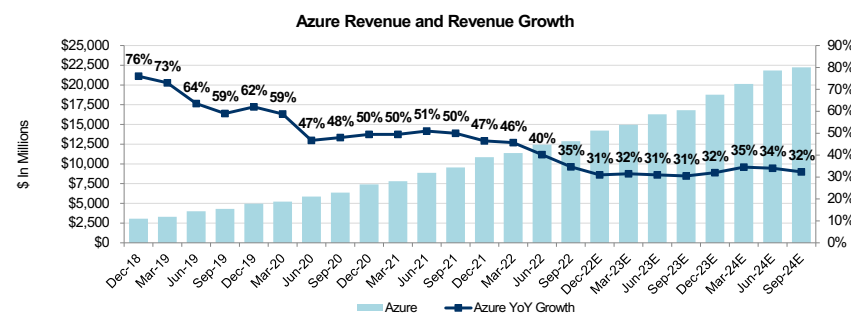
**Exhibit 15:** O365 Pricing Increase Should be Supportive to 2H FY23 and FY24 EPS Growth

Total Rev Impact	2H FY23	FY23	1H FY24	2H FY24	FY24
Total Rev. Increase	\$707	\$1,369	\$1,426	\$1,517	\$2,943
90% Margin	\$636	\$1,232	\$1,284	\$1,365	\$2,648
After Tax	\$515	\$998	\$1,065	\$1,133	\$2,198
Implied EPS Impact	0.07	0.13	0.14	0.15	0.29

Source: Company data, Morgan Stanley Research

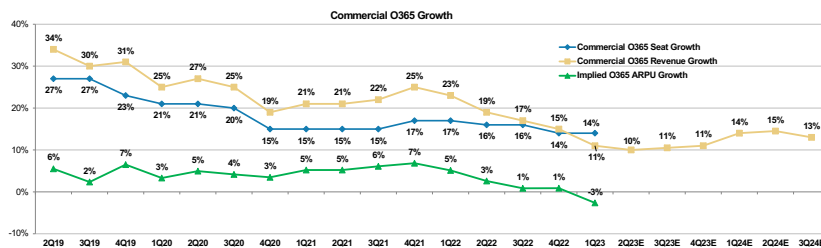
- Easier Comps Going Forward.** Heading into 2H FY23, the company will start facing easier comps, making the growth setup somewhat easier for both Azure and O365. Further, Windows OEM revenue also has been under pressure in the recent quarters due to COVID pull forward, supply chain constraints and other PC headwinds. The demand for Windows OEM is likely to normalize longer term.

**Exhibit 16:** Comps Become Easier in 2H FY23 for Azure



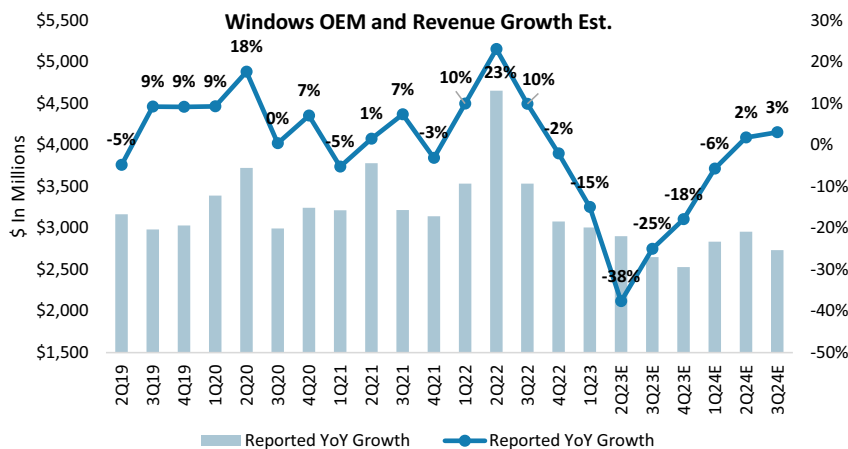
Source: Morgan Stanley Research, Company Data

**Exhibit 17:** O365 Growth Will Also Face Easier Comp for Next 12 Months Relative to History



Source: Morgan Stanley Research, Company Data

**Exhibit 18:** Recent Weakness in Windows OEM Should Rebound is Likely to Normalize Longer Term

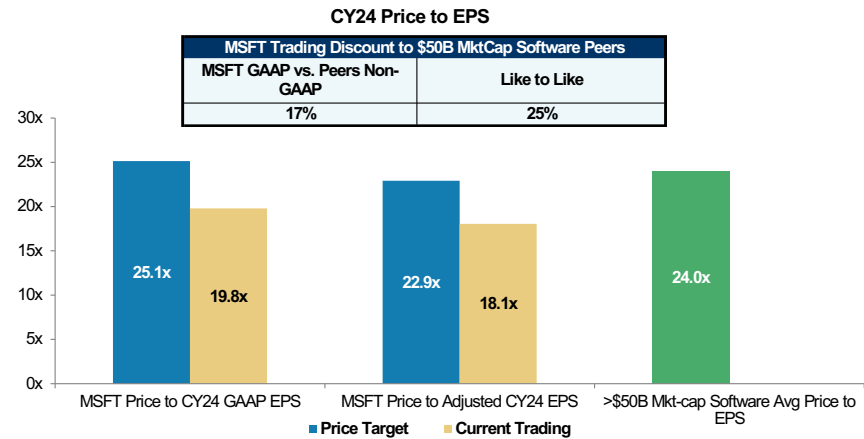


Source: Company data, Morgan Stanley Research

#### 4) Valuation is Still Attractive

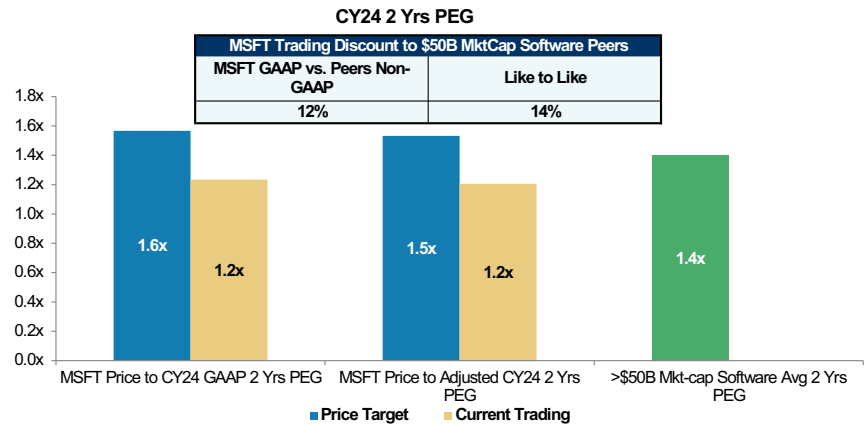
- Although tougher cyclical impacts have weighed on near term estimates, we remain confident in the long-term secular growth story at Microsoft. Further, currently at ~20x Microsoft continues to trade at a discount to large cap software peers' ~24x average (Exhibit 19).
- Microsoft also trades at a discount to most other megacap tech names on a 2024 PE basis (Exhibit 21) and on a 2 years growth adjusted basis (Exhibit 20), leading us to believe that the company is relatively under valued given its positioning.

**Exhibit 19:** MSFT Trades at a Discount to >\$50 Billion Peers, Even More So on Non-GAAP, Like-for-Like Basis



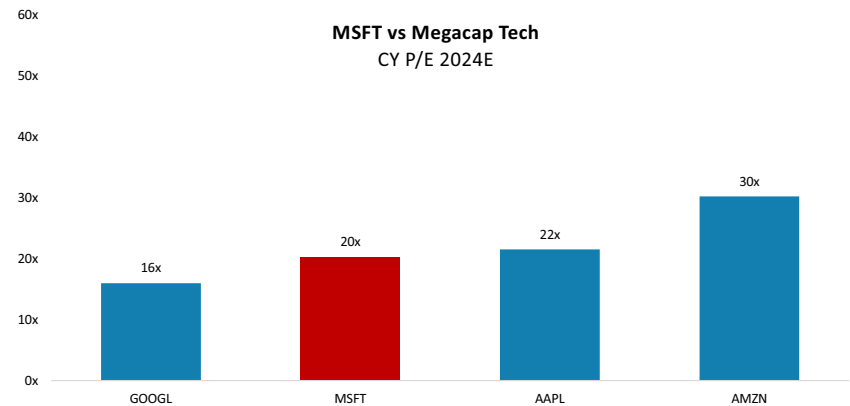
Source: Company Data, Refinitiv, Morgan Stanley Research\*>\$50B Peers Include ADBE,, INTU, ORCL, PANW, CRM, SAPG, NOW, SNOW

**Exhibit 20:** On a 2 Yrs PEG Basis, Microsoft Also Trades at a Discount to >\$50 Billion Peers



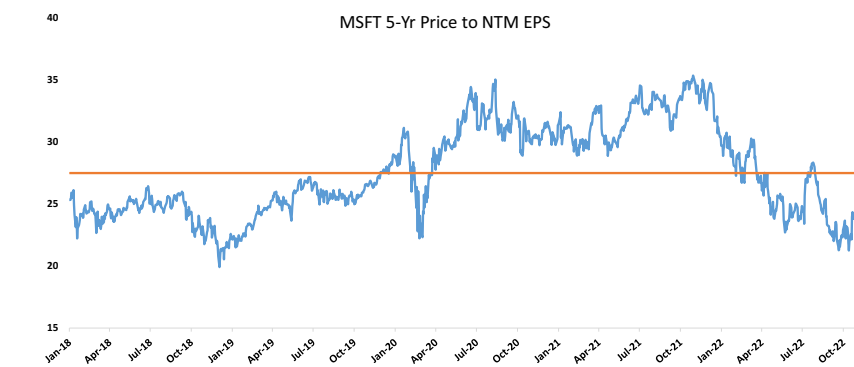
Source: Company Data, Refinitiv, Morgan Stanley Research\*>\$50B Peers Include ADBE,, INTU, ORCL, PANW, CRM, SAPG, NOW, SNOW

**Exhibit 21:** Microsoft Also Trade Below Megacap Peers

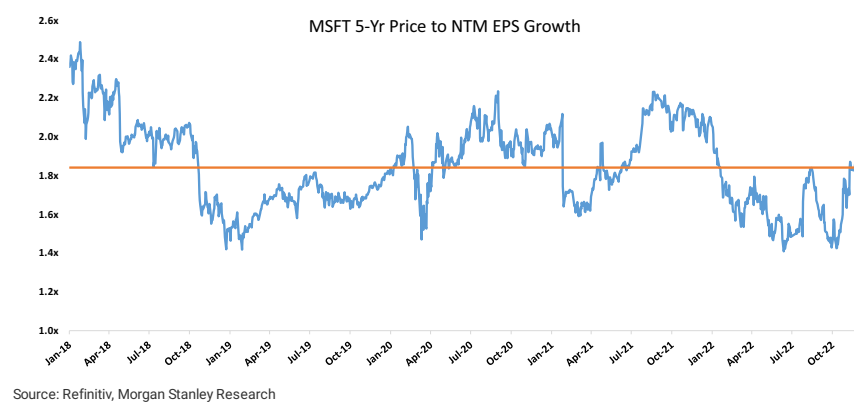


Source: Refinitiv, Morgan Stanley Research

**Exhibit 22:** On a PE Basis, Microsoft Trades at a Discount to 5 Years Historical



**Exhibit 23:** NTM PEG Ratio for Microsoft



## Risk Reward – Microsoft (MSFT.O)

Navigating Through Choppy Seas, Great Long Term Story

## PRICE TARGET \$307.00

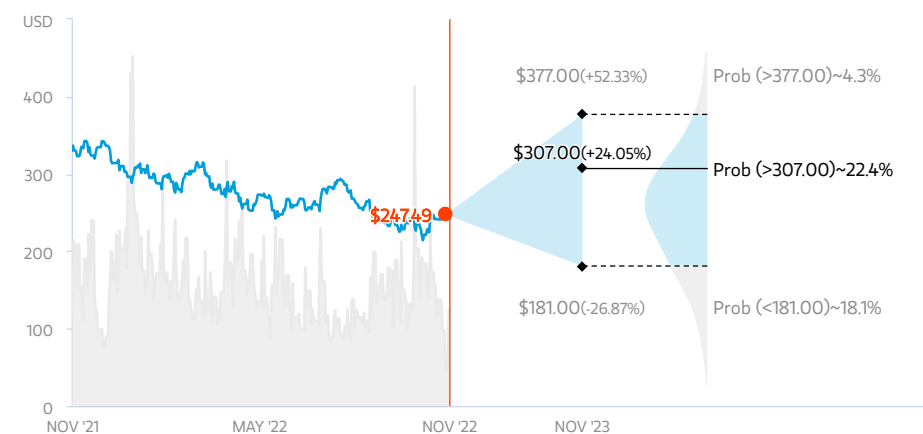
~25x Base Case CY24e GAAP EPS of \$12.21; Trading at ~20x EPS, MSFT trades at a discount to >\$50 billion market-cap software peers growing EPS double-digits.

## Consensus Price Target Distribution

\$234.00 ◆ MS PT ◆ Mean ◆ Morgan Stanley Estimates \$411.00

Source: Refinitiv, Morgan Stanley Research

## RISK REWARD CHART AND OPTIONS IMPLIED PROBABILITIES (12M)



Source: Refinitiv, Morgan Stanley Research, Morgan Stanley Institutional Equities Division. The probabilities of our Bull, Base, and Bear case scenarios playing out were estimated with implied volatility data from the options market as of 25 Nov, 2022. All figures are approximate risk-neutral probabilities of the stock reaching beyond the scenario price in either three-months' or one-years' time. View explanation of Options Probabilities methodology [here](#)

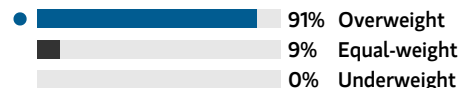
Source: Refinitiv, Morgan Stanley Research, Morgan Stanley Institutional Equities Division. The probabilities of our Bull, Base, and Bear case scenarios playing out were estimated with implied volatility data from the options market as of 25 Nov, 2022. All figures are approximate risk-neutral probabilities of the stock reaching beyond the scenario price in either three-months' or one-years' time. View explanation of Options Probabilities methodology [here](#)

## OVERWEIGHT THESIS

■ Strong positioning for public cloud adoption, large distribution channels and installed customer base, and improving margins support growth. Although heavier cyclical environment is weighing on the NT results, the long term path remain durable. This is supported by Azure , data center (share gains and positive pricing trends), O365 and LinkedIn. GM % improvement, opex discipline and strong capital return lead to durable teens total return profile long term .

■ At ~20x CY24e GAAP EPS, MSFT trades at a discount to the large cap peers, unwarranted due to MSFT's premium return profile. Multiple expansion will likely come from more comfort in durability of commercial business gross profit dollars.

## Consensus Rating Distribution



## MS Rating

Source: Refinitiv, Morgan Stanley Research

## Risk Reward Themes

Secular Growth: Positive

New Data Era: Positive

View descriptions of Risk Rewards Themes [here](#)

## BULL CASE

\$377.00

~32x Bull Case CY24e EPS: \$14.06

## Azure and O365 Drive Top-Line Growth.

Intelligent Cloud, driven by rapid Azure adoption and sustained legacy and hybrid Server growth, supports near-term rev growth in the mid to high-teens %. Adoption of higher priced O365 Commercial SKUs and LinkedIn further drive PBP revenues. Operating margins expand to ~43% and CY2re EPS is \$14.06. ~27x PE is at a premium to large cap software peers.

## BASE CASE

\$307.00

~25x Base Case CY24e EPS of \$12.21

## Durability of Growth — Continuing the Momentum:

Top line drivers include Azure (winning in public cloud), O365, Dynamic 365, and LinkedIn. Op margins expand to ~41.9% in CY25. Double-digit CY23-CY25 EPS growth and a ~1.2% div yld drive a mid to high-teens total return profile and CY24e EPS of \$12.21. Trading at ~23x EPS, MSFT trades at a discount to >\$50B market-cap software peers growing EPS double digits.

## BEAR CASE

\$181.00

~17x Bear Case CY24e EPS: \$10.88

## Commercial Cloud Growth Decelerates Significantly.

Slower cloud growth drags on PBP and IC segment growth; MPC declines from current levels. Total revenue grows in the high single digits over the near-term. Operating margins reach ~39% in CY24e yielding CY24e EPS of \$10.88. ~17x multiple is at a discount to large cap software peers.

## Risk Reward – Microsoft (MSFT.O)

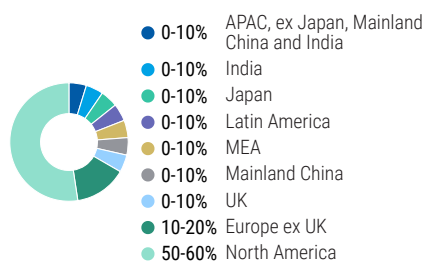
## KEY EARNINGS INPUTS

Drivers	2022	2023e	2024e	2025e
Azure Revenue Growth (%)	45.2	31.9	32.9	31.6
Server Products On-Prem Growth (%)	4.3	(0.9)	1.7	1.8
Gross Margins (%)	68.4	68.4	69.1	69.5
Operating Margins (%)	42.1	41.1	41.1	41.6
GAAP EPS Growth (%)	14.4	3.3	18.0	18.6

## INVESTMENT DRIVERS

- Sustainability of commercial growth, cloud momentum, improving cloud margins
- Improving PC data points

## GLOBAL REVENUE EXPOSURE



Source: Morgan Stanley Research Estimate  
View explanation of regional hierarchies [here](#)

## MS ALPHA MODELS

3/5 BEST	24 Month Horizon	2/5 MOST	3 Month Horizon
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Source: Refinitiv, FactSet, Morgan Stanley Research; 1 is the highest favored Quintile and 5 is the least favored Quintile

## SUSTAINABILITY &amp; ESG

Indicator of Change	-0.38	+1.0	-1.0
Disclosure Rate	64%		

## RISKS TO PT/RATING

## RISKS TO UPSIDE

- Operational efficiencies leading to greater than anticipated economies of scale
- Cloud adoption accelerates, with Azure as convincing winner
- Activision Blizzard acquisition results strong earnings accretion from the very beginning

## RISKS TO DOWNSIDE

- Weak macro impacting global PC sales
- On-premises cannibalization by Cloud
- Increased investments hurt margin expansion
- Activision Blizzard acquisition fails to be accretive

## OWNERSHIP POSITIONING

Inst. Owners, % Active	59.1%	
HF Sector Long/Short Ratio	2.2x	
HF Sector Net Exposure	30.7%	

Refinitiv; MSPB Content. Includes certain hedge fund exposures held with MSPB. Information may be inconsistent with or may not reflect broader market trends. Long/Short Ratio = Long Exposure / Short exposure. Sector % of Total Net Exposure = (For a particular sector: Long Exposure - Short Exposure) / (Across all sectors: Long Exposure - Short Exposure).

## MS ESTIMATES VS. CONSENSUS

FY Jun 2023e

Sales / Revenue (\$, mm)	205,383	212,987	212,460	222,045
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EBITDA (\$, mm)	91,728	100,557	101,278	109,286
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Net income (\$, mm)	69,050	71,123	71,236	75,058
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EPS (\$)	9.26	9.51	9.55	10.01
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◆ Mean ◆ Morgan Stanley Estimates

Source: Refinitiv, Morgan Stanley Research

## Disclosure Section

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(as of October 31, 2022)

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STOCK RATING CATEGORY	COVERAGE UNIVERSE		INVESTMENT BANKING CLIENTS (IBC)			OTHER MATERIAL INVESTMENT SERVICES CLIENTS (MISC)	
	COUNT	% OF TOTAL	COUNT	% OF TOTAL IBC	% OF RATING CATEGORY	COUNT	% OF TOTAL OTHER MISC
<b>Overweight/Buy</b>	<b>1353</b>	<b>38%</b>	<b>288</b>	<b>41%</b>	<b>21%</b>	<b>597</b>	<b>39%</b>
<b>Equal-weight/Hold</b>	<b>1599</b>	<b>45%</b>	<b>326</b>	<b>47%</b>	<b>20%</b>	<b>709</b>	<b>46%</b>
<b>Not-Rated/Hold</b>	<b>1</b>	<b>0%</b>	<b>0</b>	<b>0%</b>	<b>0%</b>	<b>0</b>	<b>0%</b>
<b>Underweight/Sell</b>	<b>624</b>	<b>17%</b>	<b>80</b>	<b>12%</b>	<b>13%</b>	<b>220</b>	<b>14%</b>
<b>TOTAL</b>	<b>3,577</b>		<b>694</b>			<b>1526</b>	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

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## Stock Price, Price Target and Rating History (See Rating Definitions)

Microsoft (MSFT.O) - As of 11/28/22 in USD  
Industry : Software

Stock Rating History: 11/1/17 : O/A; 7/27/20 : O/I; 3/8/21 : O/A

Price Target History: 10/27/17 : 88; 1/17/18 : 100; 2/1/18 : 110; 3/26/18 : 130; 1/15/19 : 140; 4/25/19 : 145; 7/19/19 : 155;  
 10/24/19 : 157; 1/8/20 : 189; 1/30/20 : 200; 3/25/20 : 180; 4/30/20 : 198; 7/9/20 : 230; 9/9/20 : 245; 10/28/20 : 249;  
 12/18/20 : 260; 1/27/21 : 285; 3/5/21 : 290; 4/28/21 : 300; 7/28/21 : 305; 9/14/21 : 331; 10/27/21 : 364; 1/26/22 : 372;  
 7/12/22 : 354; 10/14/22 : 325; 10/26/22 : 307

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target --- No Price Target Assigned (NA)  
 Stock Price (Not Covered by Current Analyst) — Stock Price (Covered by Current Analyst) —  
 Stock and Industry Ratings (abbreviations below) appear as ♦ Stock Rating/Industry View  
 Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)  
 Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

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#### INDUSTRY COVERAGE: Software

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Amplitude Inc. (AMPL.O)	E (10/25/2021)	\$14.20
Freshworks Inc (FRSH.O)	E (10/18/2021)	\$14.28
GoDaddy Inc (GDDY.N)	E (07/19/2021)	\$75.34
LegalZoom.com Inc (LZ.O)	U (07/28/2022)	\$8.77
Liveramp Holdings Inc (RAMP.N)	O (07/15/2019)	\$21.37
Matterport Inc (MITR.O)	E (04/19/2022)	\$3.11
Semrush Holdings Inc -A (SEMR.N)	E (06/06/2022)	\$9.15
Sprinklr Inc (CXMN)	E (07/19/2021)	\$8.41
Sprout Social Inc (SPT.O)	E (11/17/2020)	\$57.86
UserTesting Inc. (USER.N)	++	\$7.41
Wix.Com Ltd (WIXO)	E (05/19/2022)	\$84.08
Zeta Global Holdings Corp (ZETAN)	E (07/06/2021)	\$8.47
ZoomInfo Technologies Inc (ZIO)	O (11/18/2020)	\$27.23
<b>Hamza Fodderwala</b>		
Check Point Software Technologies Ltd. (CHKP.O)	U (01/13/2020)	\$130.85
CrowdStrike Holdings Inc (CRWD.O)	O (06/06/2022)	\$139.45
CyberArk Software Ltd (CYBR.O)	O (10/01/2020)	\$150.49
ForgeRock Inc (FORG.N)	E (10/11/2021)	\$21.68
Fortinet Inc. (FTNT.O)	O (10/07/2022)	\$52.08
Gen Digital Inc. (GEN.O)	E (03/29/2022)	\$23.03
KnowBe4 (KNBE.O)	++	\$24.69
Okta, Inc. (OKTA.O)	E (09/01/2022)	\$50.20
Palo Alto Networks Inc (PANW.O)	O (10/10/2017)	\$171.39
Qualys Inc (QLYS.O)	U (02/09/2021)	\$123.17
Rapid7 Inc (RPD.O)	E (08/11/2015)	\$27.78
Secureworks Corp (SCWX.O)	E (09/09/2020)	\$7.29
SentinelOne, Inc. (S.N)	O (07/25/2021)	\$16.06
Tenable Holdings Inc (TENB.O)	O (01/15/2019)	\$37.40
Varonis Systems, Inc. (VRNS.O)	E (06/27/2022)	\$21.10
Zscaler Inc (ZS.O)	O (01/18/2022)	\$136.72
<b>Josh Baer, CFA</b>		
2u Inc (TWOU.O)	E (11/24/2020)	\$7.57
Asana Inc (ASAN.N)	E (10/26/2020)	\$17.82
Box Inc (BOXN)	O (10/03/2022)	\$27.67
Chegg Inc (CHGG.N)	E (11/02/2021)	\$28.41
Coursera, Inc. (COUR.N)	O (04/26/2021)	\$13.43
Cvent (CVT.O)	E (06/17/2022)	\$5.28
DigitalOcean Holdings Inc (DOCN.N)	U (07/11/2022)	\$27.75
Docebo Inc. (DCBO.O)	E (04/26/2022)	\$30.25
DocuSign Inc (DOCU.O)	U (10/03/2022)	\$45.79
Instructure Holdings Inc (INST.N)	O (12/09/2021)	\$24.42
Lightspeed POS Inc. (LSPD.N)	E (02/18/2021)	\$15.01
Sabre Corp (SABR.O)	E (03/16/2021)	\$5.43
Smartsheet Inc (SMAR.N)	O (05/22/2018)	\$28.56
Toast, Inc. (TOST.N)	O (12/16/2021)	\$18.00
Udemy Inc (UDMY.O)	E (11/23/2021)	\$15.45
WalkMe Ltd (WKME.O)	E (06/07/2022)	\$8.21
<b>Keith Weiss, CFA</b>		

Adobe Inc. (ADBE.O)	E (06/21/2022)	\$328.97
Akamai Technologies, Inc. (AKAM.O)	E (04/29/2020)	\$91.55
Atlassian Corporation PLC (TEAM.O)	O (01/13/2020)	\$126.45
Autodesk (ADSK.O)	E (08/19/2021)	\$195.35
BigCommerce Holdings, Inc. (BIGC.O)	E (05/11/2021)	\$7.89
Bill.com Holdings (BILL.N)	O (09/12/2022)	\$115.61
Cloudflare Inc (NET.N)	E (06/18/2020)	\$45.56
Coupa Software Inc (COUP.O)	O (04/14/2020)	\$61.31
HubSpot, Inc. (HUBS.N)	O (03/25/2020)	\$288.72
Intuit (INTU.O)	O (10/05/2020)	\$385.64
Microsoft (MSFT.O)	O (01/13/2016)	\$241.76
Oracle Corporation (ORCL.N)	E (01/15/2019)	\$81.39
Palantir Technologies Inc. (PLTR.N)	E (03/07/2022)	\$7.16
Qualtrics (XMO)	O (12/16/2021)	\$9.77
Salesforce.com (CRM.N)	O (05/19/2021)	\$153.69
Samsara Inc (IOT.N)	O (01/10/2022)	\$9.56
ServiceNow Inc (NOW.N)	O (11/12/2020)	\$401.93
Shopify Inc (SHOP.N)	E (06/24/2022)	\$38.03
Snowflake Inc. (SNOW.N)	O (02/07/2022)	\$141.07
Splunk Inc (SPLK.O)	E (04/27/2021)	\$76.48
UiPath Inc (PATH.N)	E (09/07/2022)	\$12.08
Veeva Systems Inc (VEEV.N)	E (12/16/2021)	\$186.67
Vertex Inc. (VERX.O)	U (04/07/2021)	\$15.78
VMware Inc (VMW.N)	++	\$117.52
Workday Inc (WDAY.O)	O (04/14/2020)	\$145.25

**Meta A Marshall**

8x8 Inc (EGHT.O)	E (01/13/2020)	\$4.08
Five9 Inc (FIVN.O)	E (10/10/2022)	\$60.82
NICE Ltd. (NICE.O)	E (12/16/2021)	\$188.62
RingCentral Inc (RNG.N)	E (12/16/2021)	\$34.82
Twilio Inc (TWLO.N)	O (09/19/2019)	\$46.77
Zoom Video Communications Inc (ZM.O)	E (10/11/2022)	\$71.59

**Roy D Campbell**

Karooooo Ltd (KARO.O)	O (04/27/2021)	\$23.30
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**Sanjit K Singh**

Alteryx Inc (AYX.N)	E (04/01/2021)	\$43.46
Appian Corp (APPN.O)	E (12/03/2021)	\$37.50
C3.ai (AI.N)	U (01/04/2021)	\$12.38
Confluent, Inc. (CFLT.O)	E (07/19/2021)	\$21.99
Couchbase, Inc. (BASE.O)	E (08/16/2021)	\$12.76
Datadog, Inc. (DDOG.O)	O (05/21/2021)	\$73.47
Domo Inc (DOMO.O)	O (12/17/2020)	\$13.29
Fastly Inc. (FSLY.N)	U (07/11/2022)	\$8.72
HashiCorp (HCP.O)	E (01/03/2022)	\$26.83
IFrog Ltd. (FROG.O)	E (10/12/2020)	\$21.57
MongoDB Inc (MDB.O)	E (11/21/2022)	\$143.50
New Relic Inc (NEWR.N)	E (07/11/2022)	\$52.65
PagerDuty, Inc. (PD.N)	E (05/06/2019)	\$21.32
Solarwinds Corp (SWI.N)	E (11/13/2018)	\$8.62
Sumo Logic Inc (SUMO.O)	E (10/12/2020)	\$7.36

Stock Ratings are subject to change. Please see latest research for each company.

\* Historical prices are not split adjusted.