

## Microsoft

## Cloud Combustion: Copilots Taking Flight Across Each Layer of Microsoft Stack As Custom Chips Are Added to the Datacenter Fleet

We attended Microsoft's Ignite conference virtually, held November 15-16<sup>th</sup> in Seattle, WA. In our view, the conference further amplified Microsoft's category leadership in Generative AI, with the company releasing a series of product innovations that infuse AI across each layer of the Microsoft stack. As we have highlighted across our recent research work (see NDR takeaways [note](#), partner [survey](#), and series of recent investor calls with [industry experts/Copilot users](#)), we walk away incrementally positive on Microsoft's long-term positioning in the software market and reaffirm our bullish outlier view on the long-term secular tailwinds AI could bring to the business across the infrastructure and application stacks. Of note, *whereas Ignite 2022 included some cautious macro commentary, including "more turbulence on the horizon", Ignite 2023 was much more product-focused around AI, with an absence of meaningful commentary around the macro and demand backdrop*. Across the roughly 100 new announcements made at the conference, ranging from Copilot adoption and productivity gains, to hardware improvements and security advancements, the following are our key takeaways: **1) Shipping New Custom AI-Focused Chips to Add to Datacenter Fleet.** Microsoft announced two new Microsoft-designed chips, building out its fleet of custom silicon as competitors continue to invest in this area of the market. First, *Microsoft Azure Maia* is an AI Accelerator chip designed to run cloud-based training and inferencing for AI workloads, such as OpenAI models, Bing, GitHub Copilot and ChatGPT. Second, *Microsoft Azure Cobalt* is a cloud-native chip based on Arm architecture for general purpose workloads; both chips are scheduled to ship in 2024. Microsoft also announced the GA of Azure Boost, a system intended to make storage and networking faster by moving those processes off host servers. In addition, the company highlighted expanded partnerships with AMD and NVIDIA, including the NVIDIA AI foundry service that supports enterprises and startups in the development, tuning and deployment of their own custom AI models on Microsoft Azure while leveraging NVIDIA's foundational models, NeMo framework, and supercomputing capabilities. *The chip ambitions lend credence to the view that Microsoft is optimizing the entirety of the stack, and we find the vision and pace of development to be deeply impressive.* **2) Copilot Extending its Flight Path Across Microsoft Stack.** Following the launch of M365 Copilot, Microsoft announced several other Copilot offerings, including Microsoft Copilot for Service, Copilot in Microsoft Dynamics 365 Guides, and Copilot for Azure. On Copilot for Service (a contact center product), Microsoft discloses a \$50/user/month list price tag, above the \$30/user/month list price for M365 Copilot. The company also debuted *Microsoft Copilot Studio*, a low-code tool designed to customize Microsoft Copilot for M365 by integrating business data and enabling users to build custom copilots for internal and external use. Microsoft also shares that its Bing Chat and Bing Chat Enterprise products will now simply become 'Copilot', which will become GA Dec 1<sup>st</sup>. As a reminder, earlier this year we raised

Sources for: Style Exposure – J.P. Morgan Quantitative and Derivatives Strategy; all other tables are company data and J.P. Morgan estimates.

## See page 7 for analyst certification and important disclosures, including non-US analyst disclosures.

J.P. Morgan does and seeks to do business with companies 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.



## Overweight

MSFT, MSFT US

Price (16 Nov 23):\$376.17

Price Target (Dec-24):\$385.00

## Software - Large Cap / Mid &amp; Small Cap

Mark R Murphy <sup>AC</sup>

(1-415) 315-6736

mark.r.murphy@jpmchase.com

Bloomberg JPMA MURPHY &lt;GO&gt;

J.P. Morgan Securities LLC

Arti Vula, CFA

(1-415) 315-5919

arti.vula@jpmchase.com

J.P. Morgan Securities LLC

Sonak Kolar

(1-415) 315-5025

sonak.kolar@jpmchase.com

J.P. Morgan Securities LLC

Madhav Maheshwari

(91-22) 6157-4136

madhav.maheshwari@jpmchase.com

J.P. Morgan India Private Limited

## Quarterly Forecasts (FYE Jun)

Adj. EPS (\$)

	2023A	2024E	2025E
Q1	2.35	2.99A	2.98
Q2	2.32	2.73	3.10
Q3	2.45	2.55	3.09
Q4	2.69	2.69	3.27
FY	9.81	10.96	12.44

## Style Exposure

Quant Factors	Current	Hist %Rank (1=Top)			
	%Rank	6M	1Y	3Y	5Y
Value	77	75	67	71	78
Growth	77	72	67	73	82
Momentum	23	37	44	56	17
Quality	3	14	7	7	34
Low Vol	11	12	8	9	8
ESGQ	68	73	17	9	11

## Price Performance



	YTD	1m	3m	12m
Abs	56.9%	13.1%	17.4%	55.6%
Rel	39.5%	10.0%	15.0%	41.7%

## Company Data

Shares O/S (mn)	7,462
52-week range (\$)	376.35-219.35
Market cap (\$ mn)	2,806,981.00
Exchange rate	1.00
Free float(%)	99.9%
3M - Avg daily vol (mn)	22.78
3M - Avg daily val (\$ mn)	7,591.2
Volatility (90 Day)	23
Index	S&P 500
BBG BUY HOLD SELL	59 6 0

## Key Metrics (FYE Jun)

\$ in millions	FY23A	FY24E	FY25E
<b>Financial Estimates</b>			
Revenue	211,915	241,546	271,629
Adj. EBIT	89,694	102,264	115,645
Adj. EBITDA	88,523	102,264	115,645
Adj. net income	73,307	81,866	92,976
Adj. EPS	9.81	10.96	12.44
BBG EPS	9.63	11.31	12.99
Cashflow from operations	87,582	102,002	119,048
FCFF	59,475	61,326	75,854
<b>Margins and Growth</b>			
Revenue growth	6.9%	14.0%	12.5%
EBIT margin	42.3%	42.3%	42.6%
EBIT growth	7.6%	14.0%	13.1%
EBITDA margin	41.8%	42.3%	42.6%
EBITDA growth	6.2%	15.5%	13.1%
Net margin	34.6%	33.9%	34.2%
Adj. EPS growth	6.5%	11.7%	13.5%
<b>Ratios</b>			
Adj. tax rate	18.7%	19.2%	19.5%
Interest cover	-	-	-
Net debt/Equity	NM	-	-
Net debt/EBITDA	NM	0.0	0.0
ROE	39.3%	79.4%	-
<b>Valuation</b>			
FCFF yield	2.1%	2.2%	2.7%
Dividend yield	-	-	-
EV/Revenue	11.3	10.2	9.1
EV/EBITDA	27.1	24.1	21.3
Adj. P/E	38.3	34.3	30.2

## Summary Investment Thesis and Valuation

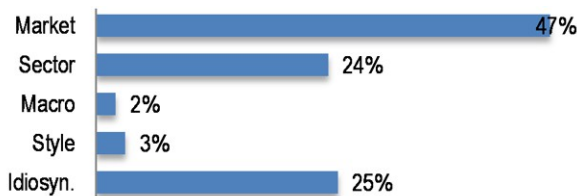
### Investment Thesis

Microsoft enjoys a broad portfolio of strategic products, sits at the intersection of digital transformations and cloud adoption, and CIOs view it as the most critical and indispensable IT mega-vendor. While MSFT shares are valued at a premium on a P/E basis, we believe this premium is warranted based on faster recent organic revenue growth, robust FCF generation, a relatively stronger position within the enterprise, and our belief that Microsoft has pulled ahead of the pack with a state-of-the-art cloud platform.

### Valuation

Our \$385 Dec-24 PT is based on ~34x P/E (CY24E) compared to ~25x on average for comps.

## Performance Drivers



Factors	6M Corr	1Y Corr
<b>Market:</b> MSCI US	0.55	0.65
<b>Sect:</b> Technology	0.61	0.69
<b>Ind:</b> Software & Serv	0.68	0.79
<b>Macro:</b>		
Credit Spread	0.20	0.36
US 10yr Breakeven	-0.09	-0.25
Crude Oil	-0.35	-0.20
<b>Quant Styles:</b>		
Value	-0.26	-0.50
DivYld	-0.28	-0.39
Growth	-0.21	0.28

Source: J.P. Morgan Quantitative and Derivatives Strategy for Performance Drivers; company data, Bloomberg Finance L.P. and J.P. Morgan estimates for all other tables. Note: Price history may not be complete or exact.

the idea of de-emphasizing Bing branding, so we support this decision. **3) Broadening Azure AI Capabilities with Model-as-a-Service, Harnessing OpenAI Innovations.** Aligning with its commitment to open-source models, Microsoft announces *Model-as-a-Service*, a new feature in its model catalog that allows developers to integrate the latest AI models, such as Llama 2, to their applications and customize these models without setting up and managing the GPU infrastructure. The company also releases the preview of Azure AI Studio, a platform to more easily build copilots, train your own or ground other foundational and open models, as well as the GA of Vector Search capabilities in Azure AI Search. Following a series of innovations from OpenAI at its recent DevDay, Microsoft shares that its new GPT-3.5 Turbo model will be GA and GPT-4 Turbo will be in public preview in the Azure OpenAI Service at the end of Nov '23. GPT-4 Turbo with Vision is coming soon to preview as well, while DALL-E 3 is now available in public preview in the Azure OpenAI Service. *We believe this set of launches demonstrates Microsoft Azure's advantage through its OpenAI relationship, while the company also noted some of these services provided within Azure will be offered at token pricing parity with OpenAI pricing.* **4) Adding to its Security Fortress with Unified SecOps Platform.** As we have noted several times prior, we continue to believe that Microsoft's Security portfolio is an underappreciated growth opportunity for the business, with this product category consistently landing toward the top of our partner survey product momentum scoring. At Ignite, the company released a new *Unified Security Operations Platform*, which combines its Microsoft Sentinel and Microsoft Defender XDR capabilities, while it also adds Security Copilot experiences. In addition, the company announced an expansion of Security Copilot, now embedded within Intune, Purview, and Entra to help with identity access, data security alerts, and "what if" governance and compliance analysis. We continue to view the security market as providing sufficient growth vectors for both Microsoft and a broad range of security specialists. **5) Other Highlights Include Microsoft Fabric GA, Teams, Copilot Feedback.** Microsoft also announced the GA of its Fabric product, already adopted by 67% of the Fortune 500, which is an AI-powered platform that unifies data across data estates on a single enterprise-grade data foundation. Regarding Teams, Microsoft again mentions its 320M+ MAUs (disclosed in 1Q24), and announces new features around immersive meetings, as well as no-retention transcription. In terms of early feedback on its M365 Copilot launch, the company shares that based on a survey of users in the M365 Copilot Early Access Program: 70% of users said they were more productive (sufficient but with room for improvement, in our view), users were 29% faster at specific tasks, users caught up on missed meetings ~4x faster, 77% of users said once they use Copilot they don't want to give it up (solid in our view), and on average users have saved >10hrs/month using Copilots (lower than indications we have received from our ecosystem contacts, but very easily justifying the \$30 PUPM price tag, in our view). *Net/net: While MSFT continues to encounter some cloud optimization activity applying drag on Azure growth, we see it planting the longer-term seeds for success across Security, Teams, Power Apps and now the forward-looking OpenAI/ChatGPT investments. In addition, headcount reductions show the commitment to efficiency and alignment of OpEx to the new environment. In summary, we continue to see Microsoft as a structural share gainer, while the fundamental trends of modernization and automation remain intact long-term. Maintain OW, \$385 PT.*

## Investment Thesis, Valuation and Risks

### Microsoft (*Overweight; Price Target: \$385.00*)

#### Investment Thesis

Microsoft enjoys a broad portfolio of strategic products, sits at the intersection of digital transformations and cloud adoption, and CIOs view it as the most critical and indispensable IT mega-vendor. Our positive bias on Microsoft is rooted in three main factors: 1) global movement toward multi-cloud architectures, benefiting Azure; 2) Microsoft's linkage to large Digital Transformation initiatives, based on our interactions with dozens of CIOs; and 3) favorable positioning for Hybrid Cloud architectures via Azure Stack. While MSFT shares are valued at a premium on a P/E basis, we believe this premium is warranted based on faster recent organic revenue growth, robust FCF generation, a relatively stronger position within the enterprise, and our belief that Microsoft has pulled ahead of the pack with a state-of-the-art cloud platform.

#### Valuation

Our \$385 Dec-24 PT is based on a ~34x P/E (CY24E) multiple for Microsoft, which is at a premium to its peer comps, which trade at ~25x on average. Tech comps include CRM, AMZN, ADBE, INTU, AAPL, META, and GOOG. The multiple is at a premium to comps to account for relatively stickier / more recurring enterprise software revenue streams as well as long-term upside revenue potential being unlocked by AI capabilities; lower SBC expense yielding purer FCF than peers; and materially less exposure to advertising, e-Commerce, devices, etc., compared to the peer group. Microsoft enjoys a large mix of renewable revenue, which typically earns a company a premium relative to companies with a higher mix of transactional revenue, such as Apple. Our valuation is based on our relative value analysis of mature software companies and our expectation that MSFT can monetize its recently developed AI capabilities to sustain durable topline growth, helping offset incremental CapEx investments to build out its cloud and AI footprint, which may weigh on near-term free cash flow generation.

#### Risks to Rating and Price Target

##### Risks to the Downside

##### Heavy Competition in Both Consumer and Enterprise Markets

Microsoft's participation in a diverse array of markets exposes it to broad competitive pressures. With the exception of Xbox, and to some extent Surface, Microsoft has struggled to find substantial traction in the Consumer device markets to date, and its stronghold within the Enterprise continues to be threatened by competition in the public cloud, open source, operating systems, and server product arenas. While we believe Microsoft is winning the majority of its competitive battles, technology markets and competitor tactics are likely to evolve.

##### Investments in Growth Products May Not Result in Profitability

Microsoft continues to invest in its core (e.g., Windows, Office) and emerging categories (e.g., Azure, O365, Surface), and while a few of these have reached commercial success, financial success and profitability may not materialize to a satisfactory degree.

##### Slower-than-Expected Leverage Could Result in EPS Downside

Microsoft's margin profile could proceed slower-than-anticipated and result in EPS downside that could dampen investor sentiment. This could come from slower-than-anticipated revenue growth driven by worsening FX environment or slower adoption of new offerings. A slower-than-anticipated margin improvement for the hardware business could also drive potential downside. Additionally, a slower pace of share repurchases could limit EPS upside and drive the stock below our price target.

#### Azure Growth Could Decelerate Faster than Expected

Growth in Microsoft Azure has been high-double digits for two years. Our CIO survey work suggests that enterprise IT usage of Azure is likely to gain share vs. Amazon AWS. Our recent field work highlights the view that Azure is as competitive with Amazon AWS as it's ever been; however, AWS remains the top player in the space, which could slow share shifting. Should this occur, there could be downside to our estimates and the stock could react negatively.



## Microsoft: Summary of Financials

Income Statement - Annual						Income Statement - Quarterly				
	FY22A	FY23A	FY24E	FY25E	FY26E		1Q24A	2Q24E	3Q24E	4Q24E
Revenue	198,270	211,915	241,546	271,629	-	Revenue	56,517A	60,900	60,554	63,576
COGS	(62,650)	(65,711)	(75,845)	(86,106)	-	COGS	(16,302)A	(19,518)	(19,680)	(20,344)
Gross profit	135,620	146,204	165,702	185,523	-	Gross profit	40,215A	41,381	40,874	43,231
SG&A	(27,725)	(30,334)	(33,703)	(37,789)	-	SG&A	(6,661)A	(8,323)	(9,032)	(9,687)
Adj. EBITDA	83,383	88,523	102,264	115,645	-	Adj. EBITDA	26,895A	25,833	24,147	25,388
D&A	-	-	-	-	-	D&A	-	-	-	-
Adj. EBIT	83,383	89,694	102,264	115,645	-	Adj. EBIT	26,895A	25,833	24,147	25,388
Net Interest	-	-	-	-	-	Net Interest	-	-	-	-
Adj. PBT	83,716	90,482	101,290	115,498	-	Adj. PBT	27,284A	25,329	23,683	24,994
Tax	(10,978)	(16,950)	(19,424)	(22,522)	-	Tax	(4,993)A	(4,939)	(4,618)	(4,874)
Minority Interest	-	-	-	-	-	Minority Interest	-	-	-	-
Adj. Net Income	69,447	73,307	81,866	92,976	-	Adj. Net Income	22,291A	20,390	19,065	20,120
Reported EPS	9.65	9.68	10.96	12.44	-	Reported EPS	2.99A	2.73	2.55	2.69
Adj. EPS	9.21	9.81	10.96	12.44	-	Adj. EPS	2.99A	2.73	2.55	2.69
DPS	-	-	-	-	-	DPS	-	-	-	-
Payout ratio	-	-	-	-	-	Payout ratio	-	-	-	-
Shares outstanding	7,541	7,472	7,468	7,474	-	Shares outstanding	7,462A	7,464	7,470	7,474
Balance Sheet & Cash Flow Statement						Ratio Analysis				
	FY22A	FY23A	FY24E	FY25E	FY26E		FY22A	FY23A	FY24E	FY25E
Cash and cash equivalents	13,931	34,704	0	0	-	Gross margin	68.4%	69.0%	68.6%	68.3%
Accounts receivable	44,261	48,688	0	0	-	EBITDA margin	42.1%	41.8%	42.3%	42.6%
Inventories	3,742	2,500	0	0	-	EBIT margin	42.1%	42.3%	42.3%	42.6%
Other current assets	107,750	98,365	0	0	-	Net profit margin	35.0%	34.6%	33.9%	34.2%
Current assets	169,684	184,257	0	0	-	ROE	45.0%	39.3%	79.4%	-
PP&E	74,398	95,641	0	0	-	ROA	19.9%	18.9%	39.7%	-
LT investments	6,891	9,879	0	0	-	ROCE	34.8%	31.0%	65.2%	-
Other non current assets	113,867	122,199	0	0	-	SG&A/Sales	14.0%	14.3%	14.0%	13.9%
Total assets	364,840	411,976	0	0	-	Net debt/equity	NM	NM	-	-
Short term borrowings	2,749	5,247	0	0	-	P/E (x)	40.8	38.3	34.3	30.2
Payables	19,000	18,095	0	0	-	P/BV (x)	-	-	-	-
Other short term liabilities	73,333	80,807	0	0	-	EV/EBITDA (x)	28.9	27.1	24.1	21.3
Current liabilities	95,082	104,149	0	0	-	Dividend Yield	-	-	-	-
Long-term debt	47,032	41,990	-	-	-	Sales/Assets (x)	0.6	0.5	1.2	-
Other long term liabilities	56,184	59,614	0	0	-	Interest cover (x)	-	-	-	-
Total liabilities	198,298	205,753	0	0	-	Operating leverage	107.3%	110.0%	100.2%	105.1%
Shareholders' equity	166,542	206,223	0	0	-	Revenue y/y Growth	18.0%	6.9%	14.0%	12.5%
Minority interests	-	-	-	-	-	EBITDA y/y Growth	19.3%	6.2%	15.5%	13.1%
Total liabilities & equity	364,840	411,976	0	0	-	Tax rate	13.1%	18.7%	19.2%	19.5%
BVPS	-	-	-	-	-	Adj. Net Income y/y Growth	14.5%	5.6%	11.7%	13.6%
y/y Growth	-	-	-	-	-	EPS y/y Growth	15.5%	6.5%	11.7%	13.5%
Net debt/(cash)	(54,976)	(64,025)	0	0	-	DPS y/y Growth	-	-	-	-
Cash flow from operating activities	89,035	87,582	102,002	119,048	-					
o/w Depreciation & amortization	14,460	13,861	15,621	19,780	-					
o/w Changes in working capital	446	(2,388)	(3,733)	(6,046)	-					
Cash flow from investing activities	(23,886)	(28,107)	(40,676)	(43,194)	-					
o/w Capital expenditure	(23,886)	(28,107)	(40,676)	(43,194)	-					
as % of sales	12.0%	13.3%	16.8%	15.9%	-					
Cash flow from financing activities	-	-	-	-	-					
o/w Dividends paid	-	-	-	-	-					
o/w Net debt issued/(repaid)	-	-	-	-	-					
Net change in cash	65,149	59,475	61,326	75,854	-					
Adj. Free cash flow to firm	65,149	59,475	61,326	75,854	-					
y/y Growth	16.1%	(8.7%)	3.1%	23.7%	-					

Source: Company reports and J.P. Morgan estimates.

Note: \$ in millions (except per-share data). Fiscal year ends Jun. o/w - out of which

**Analyst Certification:** The Research Analyst(s) denoted by an “AC” on the cover of this report certifies (or, where multiple Research Analysts are primarily responsible for this report, the Research Analyst denoted by an “AC” on the cover or within the document individually certifies, with respect to each security or issuer that the Research Analyst covers in this research) that: (1) all of the views expressed in this report accurately reflect the Research Analyst’s personal views about any and all of the subject securities or issuers; and (2) no part of any of the Research Analyst’s compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed by the Research Analyst(s) in this report. For all Korea-based Research Analysts listed on the front cover, if applicable, they also certify, as per KOFIA requirements, that the Research Analyst’s analysis was made in good faith and that the views reflect the Research Analyst’s own opinion, without undue influence or intervention.

All authors named within this report are Research Analysts who produce independent research unless otherwise specified. In Europe, Sector Specialists (Sales and Trading) may be shown on this report as contacts but are not authors of the report or part of the Research Department.

## Important Disclosures

- **Market Maker:** J.P. Morgan Securities LLC makes a market in the securities of Microsoft.
- **Market Maker/ Liquidity Provider:** J.P. Morgan is a market maker and/or liquidity provider in the financial instruments of/related to Microsoft.
- **Analyst Position:** An analyst on the Equity or Credit coverage team, non-fundamental analyst who may produce trade recommendations, or a member of their respective household(s) has a financial interest in the debt or equity securities of Microsoft.
- **Client:** J.P. Morgan currently has, or had within the past 12 months, the following entity(ies) as clients: Microsoft.
- **Client/Non-Investment Banking, Securities-Related:** J.P. Morgan currently has, or had within the past 12 months, the following entity(ies) as clients, and the services provided were non-investment-banking, securities-related: Microsoft.
- **Client/Non-Securities-Related:** J.P. Morgan currently has, or had within the past 12 months, the following entity(ies) as clients, and the services provided were non-securities-related: Microsoft.
- **Potential Investment Banking Compensation:** J.P. Morgan expects to receive, or intends to seek, compensation for investment banking services in the next three months from Microsoft.
- **Non-Investment Banking Compensation Received:** J.P. Morgan has received compensation in the past 12 months for products or services other than investment banking from Microsoft.
- **Debt Position:** J.P. Morgan may hold a position in the debt securities of Microsoft, if any.

**Company-Specific Disclosures:** Important disclosures, including price charts and credit opinion history tables, are available for compendium reports and all J.P. Morgan–covered companies, and certain non-covered companies, by visiting <https://www.jpmm.com/research/disclosures>, calling 1-800-477-0406, or e-mailing [research.disclosure.inquiries@jpmorgan.com](mailto:research.disclosure.inquiries@jpmorgan.com) with your request.

Microsoft (MSFT, MSFT US) Price Chart



Date	Rating	Price (\$)	Price Target (\$)
27-Jan-21	OW	232.33	245
28-Apr-21	OW	261.97	270
23-Jul-21	OW	286.14	300
27-Jul-21	OW	289.05	310
27-Oct-21	OW	310.11	320
27-Jul-22	OW	251.90	305
26-Oct-22	OW	250.66	275
25-Jan-23	OW	242.04	265
07-Feb-23	OW	256.77	305
26-Apr-23	OW	275.42	315
15-Jun-23	OW	337.34	350
19-Jul-23	OW	359.49	385

Source: Bloomberg Finance L.P. and J.P. Morgan; price data adjusted for stock splits and dividends.  
Initiated coverage Apr 22, 1998. All share prices are as of market close on the previous business day.

The chart(s) show J.P. Morgan's continuing coverage of the stocks; the current analysts may or may not have covered it over the entire period.  
J.P. Morgan ratings or designations: OW = Overweight, N= Neutral, UW = Underweight, NR = Not Rated

#### Explanation of Equity Research Ratings, Designations and Analyst(s) Coverage Universe:

J.P. Morgan uses the following rating system: Overweight [Over the next six to twelve months, we expect this stock will outperform the average total return of the stocks in the analyst's (or the analyst's team's) coverage universe.] Neutral [Over the next six to twelve months, we expect this stock will perform in line with the average total return of the stocks in the analyst's (or the analyst's team's) coverage universe.] Underweight [Over the next six to twelve months, we expect this stock will underperform the average total return of the stocks in the analyst's (or the analyst's team's) coverage universe.] Not Rated (NR): J.P. Morgan has removed the rating and, if applicable, the price target, for this stock because of either a lack of a sufficient fundamental basis or for legal, regulatory or policy reasons. The previous rating and, if applicable, the price target, no longer should be relied upon. An NR designation is not a recommendation or a rating. In our Asia (ex-Australia and ex-India) and U.K. small- and mid-cap equity research, each stock's expected total return is compared to the expected total return of a benchmark country market index, not to those analysts' coverage universe. If it does not appear in the Important Disclosures section of this report, the certifying analyst's coverage universe can be found on J.P. Morgan's research website, <https://www.jpmorganmarkets.com>.

**Coverage Universe: Murphy, Mark R:** Adobe Inc (ADBE), Akamai Technologies, Inc. (AKAM), BigCommerce (BIGC), Ceridian (CDAY), Cloudflare (NET), Datadog (DDOG), DocuSign (DOCU), DoubleVerify (DV), Dropbox (DBX), HashiCorp (HCP), HubSpot (HUBS), Intuit (INTU), Microsoft (MSFT), Oracle (ORCL), Paycom (PAYC), Paycor (PYCR), Salesforce Inc (CRM), Semrush (SEMR), ServiceNow (NOW), Snowflake (SNOW), Twilio (TWLO), UiPath (PATH), VMware (VMW), Workday (WDAY), Zoom Video (ZM), ZoomInfo (ZI)

#### J.P. Morgan Equity Research Ratings Distribution, as of October 07, 2023

	Overweight (buy)	Neutral (hold)	Underweight (sell)
J.P. Morgan Global Equity Research Coverage*	47%	39%	14%
IB clients**	47%	45%	33%
JPMS Equity Research Coverage*	46%	41%	13%
IB clients**	65%	64%	51%

\*Please note that the percentages may not add to 100% because of rounding.

\*\*Percentage of subject companies within each of the "buy," "hold" and "sell" categories for which J.P. Morgan has provided investment banking services within the previous 12 months.

For purposes of FINRA ratings distribution rules only, our Overweight rating falls into a buy rating category; our Neutral rating falls into a hold rating category; and our Underweight rating falls into a sell rating category. Please note that stocks with an NR designation are not included in the table above. This information is current as of the end of the most recent calendar quarter.

**Equity Valuation and Risks:** For valuation methodology and risks associated with covered companies or price targets for covered companies, please see the most recent company-specific research report at <http://www.jpmorganmarkets.com>, contact the primary analyst or your J.P. Morgan representative, or email [research.disclosure.inquiries@jpmorgan.com](mailto:research.disclosure.inquiries@jpmorgan.com). For material information about the proprietary models used, please see the Summary of Financials in company-specific research reports and the Company Tearsheets, which are available to download on the company pages of our client website, <http://www.jpmorganmarkets.com>. This report also sets out within it the material underlying assumptions used.

A history of J.P. Morgan investment recommendations disseminated during the preceding 12 months can be accessed on the Research & Commentary page of <http://www.jpmorganmarkets.com> where you can also search by analyst name, sector or financial instrument.

**Analysts' Compensation:** The research analysts responsible for the preparation of this report receive compensation based upon various factors, including the quality and accuracy of research, client feedback, competitive factors, and overall firm revenues.

**Registration of non-US Analysts:** Unless otherwise noted, the non-US analysts listed on the front of this report are employees of non-US affiliates of J.P. Morgan Securities LLC, may not be registered as research analysts under FINRA rules, may not be associated persons of J.P. Morgan Securities LLC, and may not be subject to FINRA Rule 2241 or 2242 restrictions on communications with covered companies, public appearances, and trading securities held by a research analyst account.

#### Other Disclosures

J.P. Morgan is a marketing name for investment banking businesses of JPMorgan Chase & Co. and its subsidiaries and affiliates worldwide.

**UK MIFID FICC research unbundling exemption:** UK clients should refer to [UK MIFID Research Unbundling exemption](#) for details of JPMorgan's implementation of the FICC research exemption and guidance on relevant FICC research categorisation.

All research material made available to clients are simultaneously available on our client website, J.P. Morgan Markets, unless specifically permitted by relevant laws. Not all research content is redistributed, e-mailed or made available to third-party aggregators. For all research material available on a particular stock, please contact your sales representative.

Any long form nomenclature for references to China; Hong Kong; Taiwan; and Macau within this research material are Mainland China; Hong Kong SAR (China); Taiwan (China); and Macau SAR (China).



J.P. Morgan Research may, from time to time, write on issuers or securities targeted by economic or financial sanctions imposed or administered by the governmental authorities of the U.S., EU, UK or other relevant jurisdictions (Sanctioned Securities). Nothing in this report is intended to be read or construed as encouraging, facilitating, promoting or otherwise approving investment or dealing in such Sanctioned Securities. Clients should be aware of their own legal and compliance obligations when making investment decisions.

Any digital or crypto assets discussed in this research report are subject to a rapidly changing regulatory landscape. For relevant regulatory advisories on crypto assets, including bitcoin and ether, please see <https://www.jpmorgan.com/disclosures/cryptoasset-disclosure>.

The author(s) of this research report 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.

**Exchange-Traded Funds (ETFs):** J.P. Morgan Securities LLC ("JPMS") acts as authorized participant for substantially all U.S.-listed ETFs. To the extent that any ETFs are mentioned in this report, JPMS may earn commissions and transaction-based compensation in connection with the distribution of those ETF shares and may earn fees for performing other trade-related services, such as securities lending to short sellers of the ETF shares. JPMS may also perform services for the ETFs themselves, including acting as a broker or dealer to the ETFs. In addition, affiliates of JPMS may perform services for the ETFs, including trust, custodial, administration, lending, index calculation and/or maintenance and other services.

**Options and Futures related research:** If the information contained herein regards options- or futures-related research, such information is available only to persons who have received the proper options or futures risk disclosure documents. Please contact your J.P. Morgan Representative or visit <https://www.theocc.com/components/docs/riskstoc.pdf> for a copy of the Option Clearing Corporation's Characteristics and Risks of Standardized Options or [http://www.finra.org/sites/default/files/Security\\_Futures\\_Risk\\_Disclosure\\_Statement\\_2018.pdf](http://www.finra.org/sites/default/files/Security_Futures_Risk_Disclosure_Statement_2018.pdf) for a copy of the Security Futures Risk Disclosure Statement.

**Changes to Interbank Offered Rates (IBORs) and other benchmark rates:** Certain interest rate benchmarks are, or may in the future become, subject to ongoing international, national and other regulatory guidance, reform and proposals for reform. For more information, please consult: [https://www.jpmorgan.com/global/disclosures/interbank\\_offered\\_rates](https://www.jpmorgan.com/global/disclosures/interbank_offered_rates)

**Private Bank Clients:** Where you are receiving research as a client of the private banking businesses offered by JPMorgan Chase & Co. and its subsidiaries ("J.P. Morgan Private Bank"), research is provided to you by J.P. Morgan Private Bank and not by any other division of J.P. Morgan, including, but not limited to, the J.P. Morgan Corporate and Investment Bank and its Global Research division.

**Legal entity responsible for the production and distribution of research:** The legal entity identified below the name of the Reg AC Research Analyst who authored this material is the legal entity responsible for the production of this research. Where multiple Reg AC Research Analysts authored this material with different legal entities identified below their names, these legal entities are jointly responsible for the production of this research. Research Analysts from various J.P. Morgan affiliates may have contributed to the production of this material but may not be licensed to carry out regulated activities in your jurisdiction (and do not hold themselves out as being able to do so). Unless otherwise stated below, this material has been distributed by the legal entity responsible for production. If you have any queries, please contact the relevant Research Analyst in your jurisdiction or the entity in your jurisdiction that has distributed this research material.

#### Legal Entities Disclosures and Country-/Region-Specific Disclosures:

**Argentina:** JPMorgan Chase Bank N.A Sucursal Buenos Aires is regulated by Banco Central de la República Argentina ("BCRA" - Central Bank of Argentina) and Comisión Nacional de Valores ("CNV" - Argentinian Securities Commission" - ALYC y AN Integral N°51). **Australia:** J.P. Morgan Securities Australia Limited ("JPMSAL") (ABN 61 003 245 234/AFS Licence No: 238066) is regulated by the Australian Securities and Investments Commission and is a Market, Clearing and Settlement Participant of ASX Limited and CHI-X. This material is issued and distributed in Australia by or on behalf of JPMSAL only to "wholesale clients" (as defined in section 761G of the Corporations Act 2001). A list of all financial products covered can be found by visiting <https://www.jpmm.com/research/disclosures>. J.P. Morgan seeks to cover companies of relevance to the domestic and international investor base across all Global Industry Classification Standard (GICS) sectors, as well as across a range of market capitalisation sizes. If applicable, in the course of conducting public side due diligence on the subject company(ies), the Research Analyst team may at times perform such diligence through corporate engagements such as site visits, discussions with company representatives, management presentations, etc. Research issued by JPMSAL has been prepared in accordance with J.P. Morgan Australia's Research Independence Policy which can be found at the following link: [J.P. Morgan Australia - Research Independence Policy](#). **Brazil:** Banco J.P. Morgan S.A. is regulated by the Comissão de Valores Mobiliários (CVM) and by the Central Bank of Brazil. Ombudsman J.P. Morgan: 0800-7700847 / [ouvidoria.jp.morgan@jpmorgan.com](mailto:ouvidoria.jp.morgan@jpmorgan.com). **Canada:** J.P. Morgan Securities Canada Inc. is a registered investment dealer, regulated by the Canadian Investment Regulatory Organization and the Ontario Securities Commission and is the participating member on Canadian exchanges. This material is distributed in Canada by or on behalf of J.P.Morgan Securities Canada Inc. **Chile:** Inversiones J.P. Morgan Limitada is an unregulated entity incorporated in Chile. **China:** J.P. Morgan Securities (China) Company Limited has been approved by CSRC to conduct the securities investment consultancy business. **Dubai International Financial Centre (DIFC):** JPMorgan Chase Bank, N.A., Dubai Branch is regulated by the Dubai Financial Services Authority (DFSA) and its registered address is Dubai International Financial Centre - The Gate, West Wing, Level 3 and 9 PO Box 506551, Dubai, UAE. This material has been distributed by JP Morgan Chase Bank, N.A., Dubai Branch to persons regarded as professional clients or market counterparties as defined under the DFSA rules. **European Economic Area (EEA):** Unless specified to the contrary, research is distributed in the EEA by J.P. Morgan SE ("JPM SE"), which is subject to prudential supervision by the European Central Bank ("ECB") in cooperation with BaFin and Deutsche Bundesbank in Germany. JPM SE is a company headquartered in Frankfurt with registered address at TaunusTurm, Taunustor 1, Frankfurt am Main, 60310, Germany. The material has been distributed in the EEA to persons regarded as professional investors (or equivalent) pursuant to Art. 4 para. 1 no. 10 and Annex II of MiFID II and its respective

implementation in their home jurisdictions (“EEA professional investors”). This material must not be acted on or relied on by persons who are not EEA professional investors. Any investment or investment activity to which this material relates is only available to EEA relevant persons and will be engaged in only with EEA relevant persons. **Hong Kong:** J.P. Morgan Securities (Asia Pacific) Limited (CE number AAJ321) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission in Hong Kong, and J.P. Morgan Broking (Hong Kong) Limited (CE number AAB027) is regulated by the Securities and Futures Commission in Hong Kong. JP Morgan Chase Bank, N.A., Hong Kong Branch (CE Number AAL996) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission, is organized under the laws of the United States with limited liability. Where the distribution of this material is a regulated activity in Hong Kong, the material is distributed in Hong Kong by or through J.P. Morgan Securities (Asia Pacific) Limited and/or J.P. Morgan Broking (Hong Kong) Limited. **India:** J.P. Morgan India Private Limited (Corporate Identity Number - U67120MH1992FTC068724), having its registered office at J.P. Morgan Tower, Off. C.S.T. Road, Kalina, Santacruz - East, Mumbai – 400098, is registered with the Securities and Exchange Board of India (SEBI) as a ‘Research Analyst’ having registration number INH000001873. J.P. Morgan India Private Limited is also registered with SEBI as a member of the National Stock Exchange of India Limited and the Bombay Stock Exchange Limited (SEBI Registration Number – INZ000239730) and as a Merchant Banker (SEBI Registration Number - MB/INM000002970). Telephone: 91-22-6157 3000, Facsimile: 91-22-6157 3990 and Website: <http://www.jpimipl.com>. JPMorgan Chase Bank, N.A. - Mumbai Branch is licensed by the Reserve Bank of India (RBI) (Licence No. 53/ Licence No. BY.4/94; SEBI - IN/CUS/014/ CDSL : IN-DP-CDSL-444-2008/ IN-DP-NSDL-285-2008/ INBI00000984/ INE231311239) as a Scheduled Commercial Bank in India, which is its primary license allowing it to carry on Banking business in India and other activities, which a Bank branch in India are permitted to undertake. For non-local research material, this material is not distributed in India by J.P. Morgan India Private Limited. Compliance Officer: Spurthi Gadamsetty; [spurthi.gadamsetty@jpmchase.com](mailto:spurthi.gadamsetty@jpmchase.com); +912261573225. Grievance Officer: Ramprasadh K, [jpimipl.research.feedback@jpmorgan.com](mailto:jpimipl.research.feedback@jpmorgan.com); +912261573000.

Investment in securities market are subject to market risks. Read all the related documents carefully before investing. Registration granted by SEBI and certification from NISM in no way guarantee performance of the intermediary or provide any assurance of returns to investors.

**Indonesia:** PT J.P. Morgan Sekuritas Indonesia is a member of the Indonesia Stock Exchange and is registered and supervised by the Otoritas Jasa Keuangan (OJK). **Korea:** J.P. Morgan Securities (Far East) Limited, Seoul Branch, is a member of the Korea Exchange (KRX). JPMorgan Chase Bank, N.A., Seoul Branch, is licensed as a branch office of foreign bank (JPMorgan Chase Bank, N.A.) in Korea. Both entities are regulated by the Financial Services Commission (FSC) and the Financial Supervisory Service (FSS). For non-macro research material, the material is distributed in Korea by or through J.P. Morgan Securities (Far East) Limited, Seoul Branch. **Japan:** JPMorgan Securities Japan Co., Ltd. and JPMorgan Chase Bank, N.A., Tokyo Branch are regulated by the Financial Services Agency in Japan. **Malaysia:** This material is issued and distributed in Malaysia by JPMorgan Securities (Malaysia) Sdn Bhd (18146-X), which is a Participating Organization of Bursa Malaysia Berhad and holds a Capital Markets Services License issued by the Securities Commission in Malaysia. **Mexico:** J.P. Morgan Casa de Bolsa, S.A. de C.V. and J.P. Morgan Grupo Financiero are members of the Mexican Stock Exchange and are authorized to act as a broker dealer by the National Banking and Securities Exchange Commission. **New Zealand:** This material is issued and distributed by JPMSAL in New Zealand only to “wholesale clients” (as defined in the Financial Markets Conduct Act 2013). JPMSAL is registered as a Financial Service Provider under the Financial Service providers (Registration and Dispute Resolution) Act of 2008. **Pakistan:** J. P. Morgan Pakistan Broking (Pvt.) Ltd is a member of the Karachi Stock Exchange and regulated by the Securities and Exchange Commission of Pakistan. **Philippines:** J.P. Morgan Securities Philippines Inc. is a Trading Participant of the Philippine Stock Exchange and a member of the Securities Clearing Corporation of the Philippines and the Securities Investor Protection Fund. It is regulated by the Securities and Exchange Commission. **Russia:** CB J.P. Morgan Bank International LLC is regulated by the Central Bank of Russia. **Singapore:** This material is issued and distributed in Singapore by or through J.P. Morgan Securities Singapore Private Limited (JPMSS) [MCI (P) 030/08/2023 and Co. Reg. No.: 199405335R], which is a member of the Singapore Exchange Securities Trading Limited, and/or JPMorgan Chase Bank, N.A., Singapore branch (JPMCB Singapore), both of which are regulated by the Monetary Authority of Singapore. This material is issued and distributed in Singapore only to accredited investors, expert investors and institutional investors, as defined in Section 4A of the Securities and Futures Act, Cap. 289 (SFA). This material is not intended to be issued or distributed to any retail investors or any other investors that do not fall into the classes of “accredited investors,” “expert investors” or “institutional investors,” as defined under Section 4A of the SFA. Recipients of this material in Singapore are to contact JPMSS or JPMCB Singapore in respect of any matters arising from, or in connection with, the material. As at the date of this material, JPMSS is a designated market maker for certain structured warrants listed on the Singapore Exchange where the underlying securities may be the securities discussed in this material. Arising from its role as a designated market maker for such structured warrants, JPMSS may conduct hedging activities in respect of such underlying securities and hold or have an interest in such underlying securities as a result. The updated list of structured warrants for which JPMSS acts as designated market maker may be found on the website of the Singapore Exchange Limited: <http://www.sgx.com>. **South Africa:** J.P. Morgan Equities South Africa Proprietary Limited and JPMorgan Chase Bank, N.A., Johannesburg Branch are members of the Johannesburg Securities Exchange and are regulated by the Financial Services Board. **Taiwan:** J.P. Morgan Securities (Taiwan) Limited is a participant of the Taiwan Stock Exchange (company-type) and regulated by the Taiwan Securities and Futures Bureau. Material relating to equity securities is issued and distributed in Taiwan by J.P. Morgan Securities (Taiwan) Limited, subject to the license scope and the applicable laws and the regulations in Taiwan. According to Paragraph 2, Article 7-1 of Operational Regulations Governing Securities Firms Recommending Trades in Securities to Customers (as amended or supplemented) and/or other applicable laws or regulations, please note that the recipient of this material is not permitted to engage in any activities in connection with the material that may give rise to conflicts of interests, unless otherwise disclosed in the “Important Disclosures” in this material. **Thailand:** This material is issued and distributed in Thailand by JPMorgan Securities (Thailand) Ltd., which is a member of the Stock Exchange of Thailand and is regulated by the Ministry of Finance and the Securities and Exchange Commission, and its registered address is 3rd Floor, 20 North Sathorn Road, Silom, Bangrak, Bangkok 10500. **UK:** Unless specified to the contrary, research is distributed in the UK by J.P. Morgan Securities plc (“JPMS plc”) which is a member of the London Stock Exchange and is authorised by the Prudential Regulation Authority and regulated by the Financial

Conduct Authority and the Prudential Regulation Authority. JPMS plc is registered in England & Wales No. 2711006, Registered Office 25 Bank Street, London, E14 5JP. This material is directed in the UK only to: (a) persons having professional experience in matters relating to investments falling within article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) (Order) 2005 ("the FPO"); (b) persons outlined in article 49 of the FPO (high net worth companies, unincorporated associations or partnerships, the trustees of high value trusts, etc.); or (c) any persons to whom this communication may otherwise lawfully be made; all such persons being referred to as "UK relevant persons". This material must not be acted on or relied on by persons who are not UK relevant persons. Any investment or investment activity to which this material relates is only available to UK relevant persons and will be engaged in only with UK relevant persons. Research issued by JPMS plc has been prepared in accordance with JPMS plc's policy for prevention and avoidance of conflicts of interest related to the production of Research which can be found at the following link: [J.P. Morgan EMEA - Research Independence Policy](#). U.S.: J.P. Morgan Securities LLC ("JPMS") is a member of the NYSE, FINRA, SIPC, and the NFA. JPMorgan Chase Bank, N.A. is a member of the FDIC. Material published by non-U.S. affiliates is distributed in the U.S. by JPMS who accepts responsibility for its content.

**General:** Additional information is available upon request. The information in this material has been obtained from sources believed to be reliable. While all reasonable care has been taken to ensure that the facts stated in this material are accurate and that the forecasts, opinions and expectations contained herein are fair and reasonable, JPMorgan Chase & Co. or its affiliates and/or subsidiaries (collectively J.P. Morgan) make no representations or warranties whatsoever to the completeness or accuracy of the material provided, except with respect to any disclosures relative to J.P. Morgan and the Research Analyst's involvement with the issuer that is the subject of the material. Accordingly, no reliance should be placed on the accuracy, fairness or completeness of the information contained in this material. There may be certain discrepancies with data and/or limited content in this material as a result of calculations, adjustments, translations to different languages, and/or local regulatory restrictions, as applicable. These discrepancies should not impact the overall investment analysis, views and/or recommendations of the subject company(ies) that may be discussed in the material. J.P. Morgan accepts no liability whatsoever for any loss arising from any use of this material or its contents, and neither J.P. Morgan nor any of its respective directors, officers or employees, shall be in any way responsible for the contents hereof, apart from the liabilities and responsibilities that may be imposed on them by the relevant regulatory authority in the jurisdiction in question, or the regulatory regime thereunder. Opinions, forecasts or projections contained in this material represent J.P. Morgan's current opinions or judgment as of the date of the material only and are therefore subject to change without notice. Periodic updates may be provided on companies/industries based on company-specific developments or announcements, market conditions or any other publicly available information. There can be no assurance that future results or events will be consistent with any such opinions, forecasts or projections, which represent only one possible outcome. Furthermore, such opinions, forecasts or projections are subject to certain risks, uncertainties and assumptions that have not been verified, and future actual results or events could differ materially. The value of, or income from, any investments referred to in this material may fluctuate and/or be affected by changes in exchange rates. All pricing is indicative as of the close of market for the securities discussed, unless otherwise stated. Past performance is not indicative of future results. Accordingly, investors may receive back less than originally invested. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients. This material may include views on structured securities, options, futures and other derivatives. These are complex instruments, may involve a high degree of risk and may be appropriate investments only for sophisticated investors who are capable of understanding and assuming the risks involved. The recipients of this material must make their own independent decisions regarding any securities or financial instruments mentioned herein and should seek advice from such independent financial, legal, tax or other adviser as they deem necessary. J.P. Morgan may trade as a principal on the basis of the Research Analysts' views and research, and it may also engage in transactions for its own account or for its clients' accounts in a manner inconsistent with the views taken in this material, and J.P. Morgan is under no obligation to ensure that such other communication is brought to the attention of any recipient of this material. Others within J.P. Morgan, including Strategists, Sales staff and other Research Analysts, may take views that are inconsistent with those taken in this material. Employees of J.P. Morgan not involved in the preparation of this material may have investments in the securities (or derivatives of such securities) mentioned in this material and may trade them in ways different from those discussed in this material. This material is not an advertisement for or marketing of any issuer, its products or services, or its securities in any jurisdiction.

**Confidentiality and Security Notice:** This transmission may contain information that is privileged, confidential, legally privileged, and/or exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution, or use of the information contained herein (including any reliance thereon) is STRICTLY PROHIBITED. Although this transmission and any attachments are believed to be free of any virus or other defect that might affect any computer system into which it is received and opened, it is the responsibility of the recipient to ensure that it is virus free and no responsibility is accepted by JPMorgan Chase & Co., its subsidiaries and affiliates, as applicable, for any loss or damage arising in any way from its use. If you received this transmission in error, please immediately contact the sender and destroy the material in its entirety, whether in electronic or hard copy format. This message is subject to electronic monitoring: <https://www.jpmorgan.com/disclosures/email>

**MSCI:** Certain information herein ("Information") is reproduced by permission of MSCI Inc., its affiliates and information providers ("MSCI") ©2023. No reproduction or dissemination of the Information is permitted without an appropriate license. MSCI MAKES NO EXPRESS OR IMPLIED WARRANTIES (INCLUDING MERCHANTABILITY OR FITNESS) AS TO THE INFORMATION AND DISCLAIMS ALL LIABILITY TO THE EXTENT PERMITTED BY LAW. No Information constitutes investment advice, except for any applicable Information from MSCI ESG Research. Subject also to [msci.com/disclaimer](https://www.msci.com/disclaimer)

"Other Disclosures" last revised October 21, 2023.

Copyright 2023 JPMorgan Chase & Co. All rights reserved. This material or any portion hereof may not be reprinted, sold or

redistributed without the written consent of J.P. Morgan. It is strictly prohibited to use or share without prior written consent from J.P. Morgan any research material received from J.P. Morgan or an authorized third-party ("J.P. Morgan Data") in any third-party artificial intelligence ("AI") systems or models when such J.P. Morgan Data is accessible by a third-party. It is permissible to use J.P. Morgan Data for internal business purposes only in an AI system or model that protects the confidentiality of J.P. Morgan Data so as to prevent any and all access to or use of such J.P. Morgan Data by any third-party.

Completed 17 Nov 2023 01:39 AM EST

Disseminated 17 Nov 2023 01:39 AM EST