Morgan Stanley | RESEARCH

IDEA

April 24, 2026 05:00 AM GMT

US Economics Weekly | North America

Productivity: AI is boosting output rather than cutting jobs

The AI wave promises faster productivity but raises concerns about job displacement. We examine industry output/employee. Industries that are highly exposed to AI have led an acceleration in productivity over the past year. The pickup reflects faster output growth rather than labor displacement.

MORGAN STANLEY & CO. LLC

Michael T Gapen

Sam D Coffin

Diego Anzoategui

Arunima Sinha

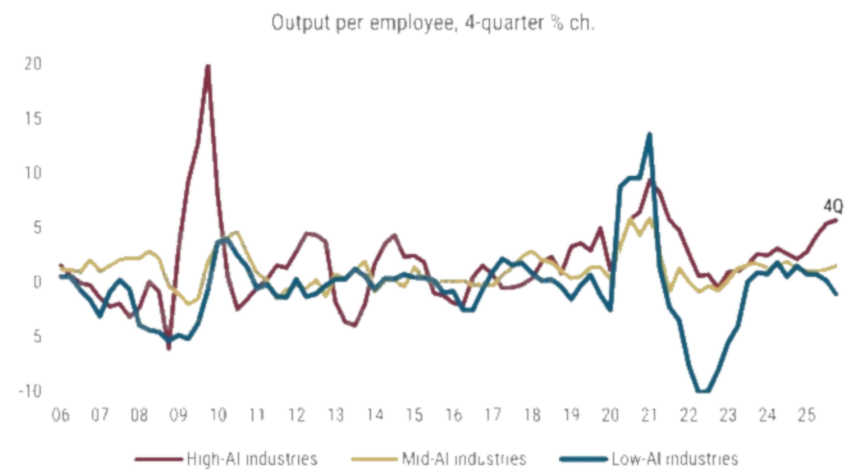
Heather Berger

Lingdi Xu

Key Takeaways

- Productivity, measured as output/employee, is rising faster in industries Morgan Stanley identifies as high-AI exposure than in median- or low-AI industries.
- 2025 productivity also accelerated more in high-AI exposure industries than in other industries.
- The productivity pickup reflects faster output growth rather than labor displacement.
- Output gains were especially clear among AI-related industries, suggesting that capital deepening supported productivity.
- Productivity gains were present elsewhere as well, suggesting that AI was helping other industries' production processes, too.

Exhibit 1: In industries with high AI exposure, output per employee rose faster in 2025, and accelerated more, than in other industries



AI is adding to productivity growth

To better understand AI and the US economic transition, our recent publications examined prior innovation waves: AI, like prior general purpose technologies, can be expected to increase productivity and create temporary labor displacement, among other effects. Another report found that AI adoption is causing minimal labor market disruptions, so far—small upward pressure on the unemployment rate (of about 0.1 pct pt). In another report, we asked whether AI is leading to faster productivity growth, and we summarize that report here. We found evidence that since the start of 2025, industries with greater AI exposure have been leading faster productivity growth (Exhibit 1).

To estimate labor productivity, we constructed industry-level measures of output per employee using the BEA's industry output data and BLS payrolls. We assigned each industry a measure of AI exposure using the criterion in Felten et. al. (2021). From there, we grouped various industries into three categories: top-25% AI exposure, middle-50% AI exposure, and lowest-25% AI exposure.

We find positive correlation between industry-level AI exposure and growth in output per employee. We estimate that industries with high AI exposure contributed 1.7pp of the 2.4pp growth in productivity in the four quarters through 4Q 2025. Furthermore, the contribution was accelerating: it had contributed 0.7pp in 2024.

Among high-AI industries, faster output without labor replacement

Faster productivity growth has been driven by faster output growth, as opposed to labor replacement. Trends in employment growth have been similar across industries with different AI exposure. However, output growth accelerated more rapidly in industries that Morgan Stanley Research has identified as higher AI exposure. The combination of minimal labor market impact and faster output growth suggests faster income growth—greater support for either labor or business income.

Exhibit 2: Overall industry output per employment accelerated in 2025 because of faster output growth

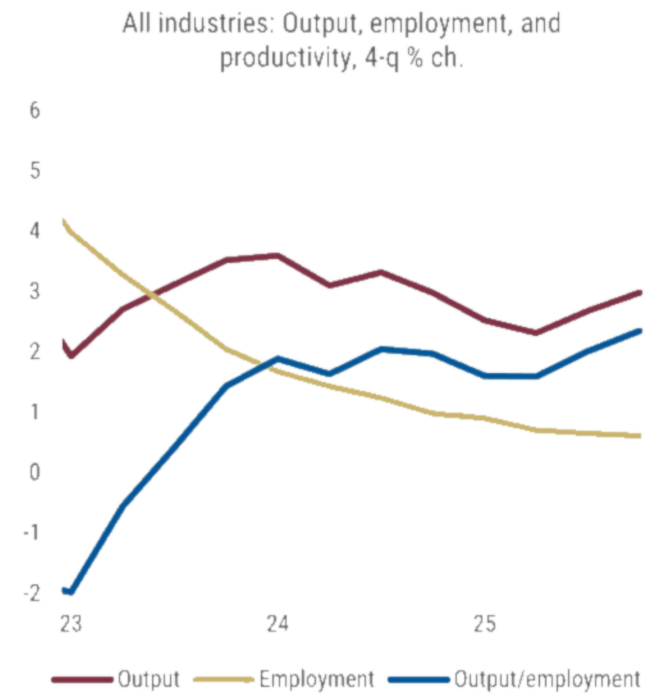


Exhibit 3: High AI industry output and productivity surged, while employment growth stagnated

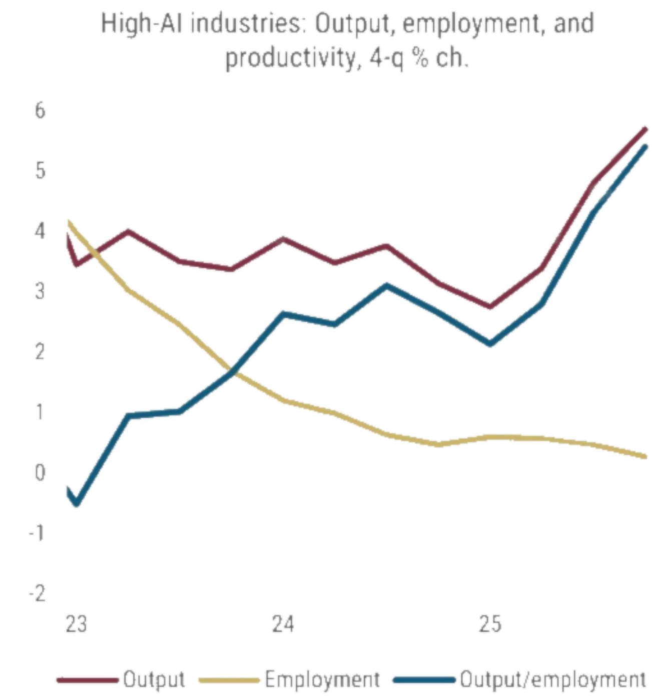


Exhibit 4: M d-AI output and employment growth slowed slightly, with productivity growth little changed

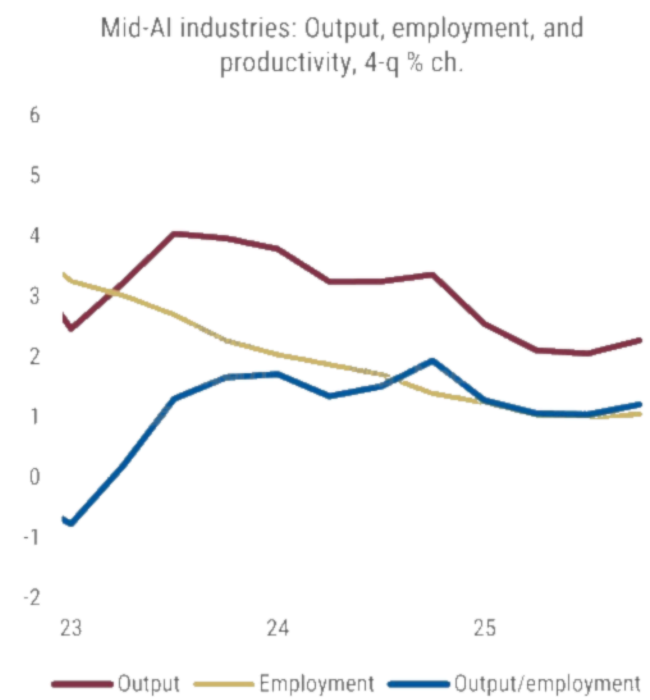
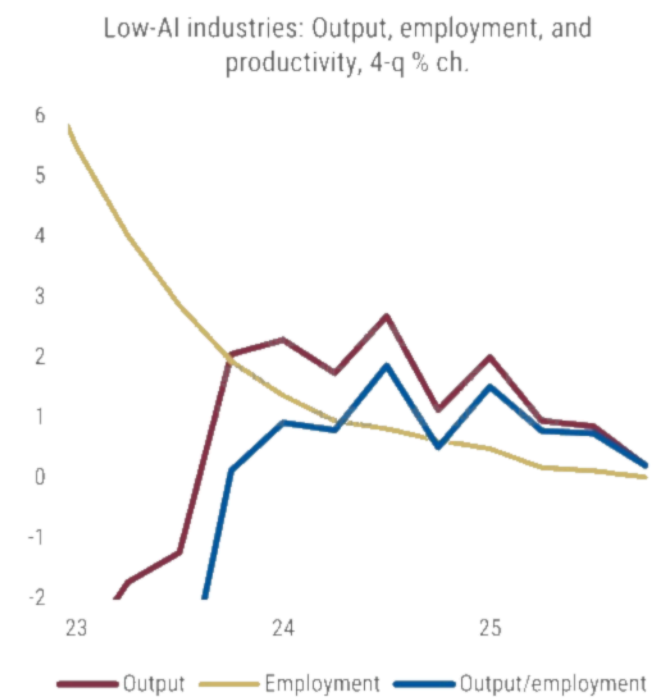


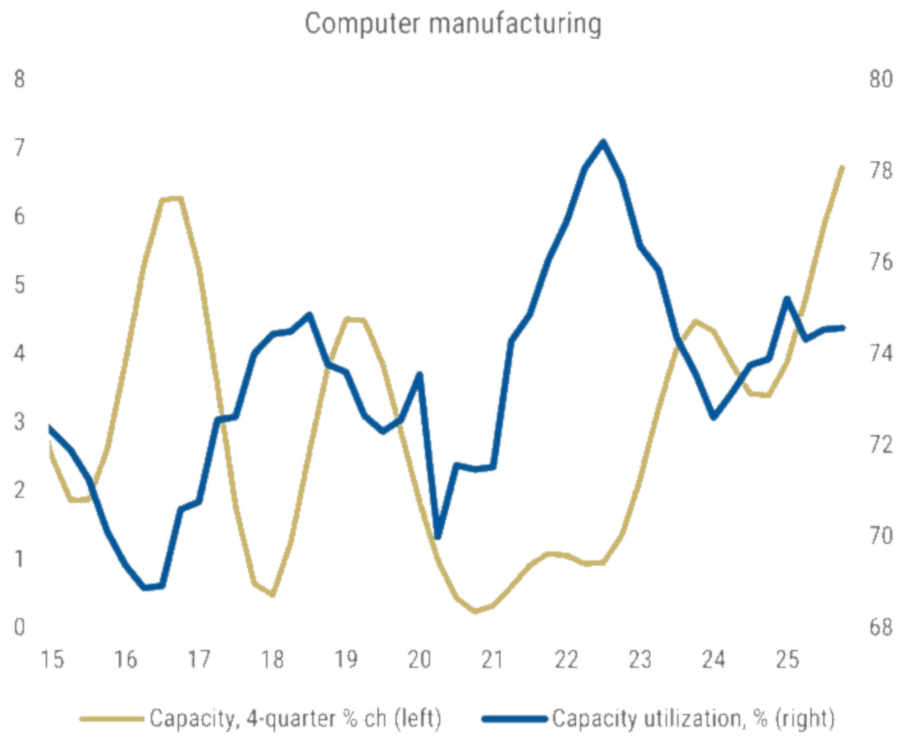
Exhibit 5: Output and productivity growth slowed in low-AI industries



Capital deepening among many of the high-AI industries

Within the high-AI category, tech industries – data processing, computer system design and services, computer manufacturing, and the publishing category that includes software – have led the acceleration in output and labor productivity. The build-out phase of AI — capital deepening — probably supported faster output growth in these industries. One example is in computer manufacturing. Capital deepening has allowed much faster output growth with no significant rise in capacity utilization (Exhibit 6).

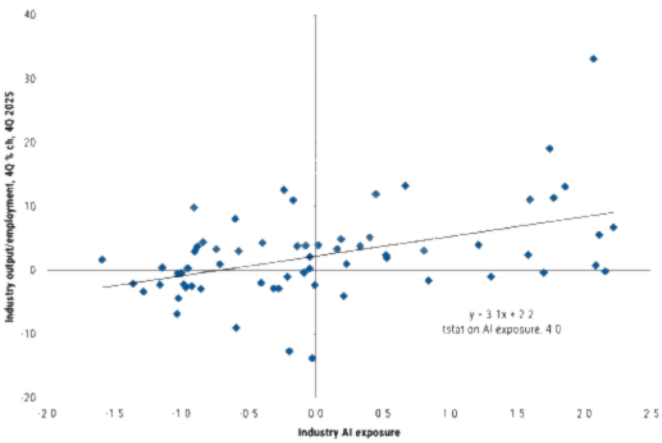
Exhibit 6: Modest increase in computer manufacturing capacity utilization in 2025, amid rapid growth in capacity



Productivity acceleration extends beyond the tech industries

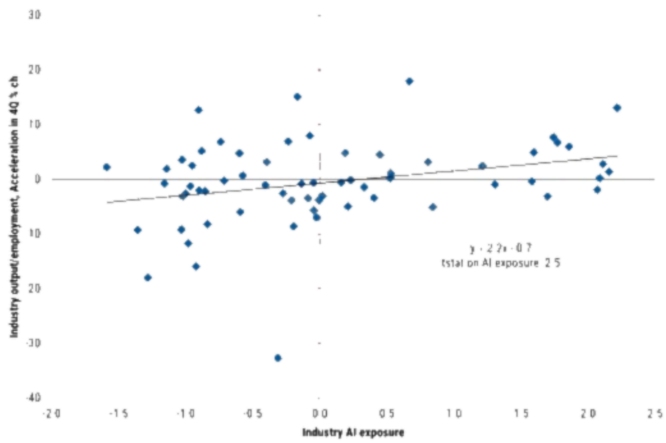
Our data also suggest that support for productivity growth goes beyond just the tech, AI-producing industries. The scatter plots below show that an industry's higher AI adoption is associated with both faster productivity growth and more acceleration in productivity growth in 2025. Those relationships hold up even if the high-AI category is excluded.

Exhibit 7: AI exposure was positively associated with productivity growth in 2025



Morgan Stanley Research

Exhibit 8: AI exposure was positively associated with acceleration in productivity growth in 2025



Morgan Stanley Research

The strength in AI-related investment of the past several years has clearly supported productivity in AI-related industries, but AI adoption appears to be helping other industries' productivity growth too. So far, the labor market disruptions have been small as the faster productivity has been achieved through faster output growth. That pattern may change as AI adoption picks up, and we now have a method of monitoring industry-by-industry the patterns in output and employment growth and AI exposure.

For details on how we calculated industry output per employee, and how our measures compare to the official nonfarm business productivity statistic, please see here in our full report: Industries with high AI exposure are seeing labor productivity from faster output growth not labor replacement.

Exhibit 9: AI exposure and productivity growth, by industry

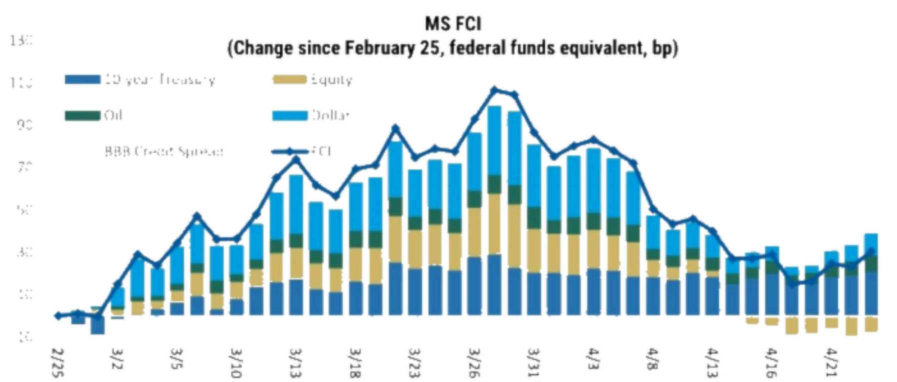
	AI-exposure	Productivity, 4Q/4Q % ch.		Acceleration/Deceleration
	AIIE score	2024	2025	
Nonfarm business productivity		2.3	2.5	0.3
Employment/output productivity proxy		1.6	2.4	0.8
High AI exposure industries (top 25% AIIE)	> 1.25	2.1	5.7	3.6
Medium AI exposure industires (middle 50% AIIE)	-0.30 to 1.25	1.3	1.5	0.2
Low AI exposure industries (bottom 25% AIIE)	< -0.30	1.5	-1.1	-2.6
Securities, commodity contracts, and investments	2.2	-6.3	6.8	13.1
Legal services	2.2	-1.5	-0.1	1.4
Credit intermediation, Federal Reserve banks, and related activities	2.1	2.8	5.6	2.8
Insurance carriers and related activities	2.1	0.6	0.8	0.2
Funds, trusts, and other financial vehicles	2.1	35.1	33.2	-1.9
Computer systems design and related services	1.9	7.2	13.2	6.0
Publishing industries, except internet (includes software)	1.8	4.7	11.4	6.7
Data processing, internet publishing, and other information services	1.7	11.4	19.1	7.7
Management of companies and enterprises	1.7	2.8	-0.4	-3.2
Mfg: Computer and electronic products	1.6	6.2	11.1	4.9
Miscellaneous professional, scientific, and technical services	1.6	2.8	2.5	-0.4
Educational services	1.3	0.0	-1.0	-1.0
Broadcasting and telecommunications	1.2	1.6	4.0	2.4
Social assistance	0.8	3.5	-1.6	-5.1
Ambulatory health care services	0.8	-0.1	3.1	3.2
Oil and gas extraction	0.7	-4.6	13.3	17.9
Hospitals	0.5	0.9	2.0	1.1
Real estate	0.5	2.2	2.4	0.2
Transit and ground passenger transportation	0.4	7.5	11.9	4.5
Motion picture and sound recording industries	0.4	8.6	5.2	-3.4
Performing arts, spectator sports, museums, and related activities	0.3	5.3	3.8	-1.5
Miscellaneous manufacturing	0.2	1.2	1.0	-0.2
Utilities	0.2	1.0	-4.0	-5.0
Wholesale trade	0.2	0.1	4.9	4.8
Mfg: Electrical equipment, appliances, and components	0.2	4.0	3.4	-0.6
Other retail	0.0	7.0	4.0	-3.0
General merchandise stores	0.0	1.6	-2.3	-3.9
Other transportation and support activities	0.0	-6.8	-13.8	-7.0
Mfg: Chemical products	0.0	7.8	2.1	-5.7
Nursing and residential care facilities	0.0	0.9	0.3	-0.6
Machinery	-0.1	-4.1	3.9	8.0
Pipeline transportation	-0.1	3.1	-0.4	-3.5
Rental and leasing services and lessors of intangible assets	-0.1	4.6	3.8	-0.8
Mfg: Other transportation equipment	-0.2	-4.1	11.0	15.1
Mfg. Petroleum and coal products	-0.2	-4.0	-12.7	-8.6
Mfg: Printing and related support activities	-0.2	2.9	-1.0	-3.9
Mfg. Motor vehicles, bodies and trailers, and parts	-0.2	5.7	12.6	6.9
Other services, except government	-0.3	-0.3	-2.8	-2.5
Motor vehicle and parts dealers	-0.3	29.9	-2.8	-32.7
Air transportation	-0.4	1.2	4.3	3.2
Food and beverage stores	-0.4	-0.9	-2.0	-1.0
Administrative and support services	-0.6	2.4	3.0	0.7
Rail transportation	-0.6	-3.0	-9.0	-6.0
Water transportation	-0.6	3.4	8.1	4.7
Construction	-0.7	1.3	1.0	-0.3
Fabricated metal products	-0.7	-3.5	3.3	6.9
Mfg. Apparel and leather and allied products	-0.8	12.6	4.4	-8.2
Mfg. Paper products	-0.9	-0.8	-2.9	-2.1
Accommodation	-0.9	-1.4	3.7	5.1
Textile mills and textile product mills	-0.9	5.0	3.0	-2.0
Mfg. Plastics and rubber products	-0.9	-2.8	9.9	12.7
Primary metals	-0.9	13.5	-2.5	-15.9
Amusements, gambling, and recreation industries	-1.0	-2.1	0.4	2.5
Nonmetallic mineral products	-1.0	-1.4	-2.6	-1.3
Support activities for mining	-1.0	9.5	-2.2	-11.7
Mfg: Furniture and related products	-1.0	2.2	-0.4	-2.6
Waste management and remediation services	-1.0	-1.2	-4.3	-3.1
Mining, except oil and gas	-1.0	-4.1	-0.5	3.6
Mfg. Food and beverage and tobacco products	1.0	2.4	6.8	9.2
Wood products	-1.1	-1.5	0.5	1.9
Food services and drinking places	-1.2	-1.5	-2.2	-0.8
Truck transportation	-1.3	14.6	-3.3	-18.0
Forestry, fishing, and related activities	-1.4	7.2	-2.1	-9.3
Warehousing and storage	-1.6	-0.5	1.7	2.2

Financial Conditions: The market is doing the Fed's work so far

Following the conflict in the Middle East and the uncertainty it brings to the next steps for monetary policy, we include the evolution of our FRB/US-based model of financial conditions, which aims to capture how changes in asset prices weigh on future economic activity. The index includes five daily variables: the 10-year Treasury yield, S&P 500 returns, the corporate BBB credit spread, the valuation of the U.S. dollar, and the price of oil. These are aggregated based on their estimated growth elasticities relative to the federal funds rate, using the Federal Reserve's FRB/US model. As a result, the index can be interpreted as the equivalent change in the federal funds rate, expressed in basis points, required to generate a similar effect on economic activity.

Since hostilities in the Middle East began on February 28, the tightening in financial conditions is equivalent to about a 30bp rise in the federal funds rate. Since the April 7 ceasefire announcement, however, financial conditions have eased by 42bps. This March tightening reversed all of the easing seen earlier this year, most of which occurred between the December and January FOMC meetings, and was primarily driven by a weaker U.S. dollar. The net tightening since February 28 has been driven mainly by higher 10-year U.S. Treasury yields and dollar appreciation, with higher oil prices playing a secondary role.

Exhibit 10: Financial conditions have tightened following the conflict in the Middle East



The effective tariff rate and tariff receipts

The tariff rate on US imports fell to 8.5% in the February 2026 data

On February 20, 2026, the Supreme Court struck down the President's authority to impose tariffs under IEEPA. Section 122 tariffs will replace IEEPA tariffs in the short term, though uncertainty rises after the 150-day period when Congress would need to extend those tariffs. Replacing IEEPA with Section 122 tariffs of 15% and considering composition effects of US imports, we estimate baseline tariffs near 11%. Our estimate of "core" tariffs (ex fuels, gold and AI-related imports) remains closer to 13-14%. In our view, near-term tariffs are likely capped below 'Liberation Day' levels—at least until Section 232 and 301 investigations are complete. In the February 2026 data, the effective tariff rate is estimated at ~8.5%.

Exhibit 11: US effective tariff rate

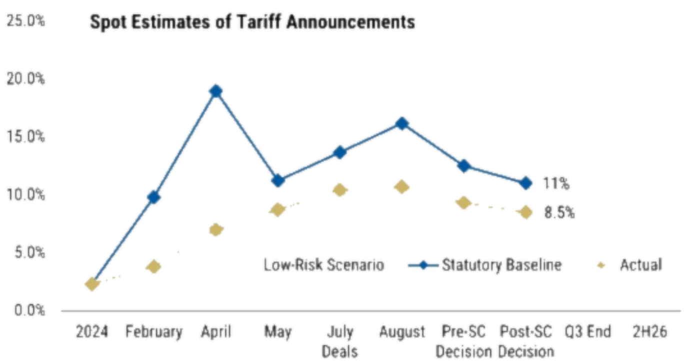
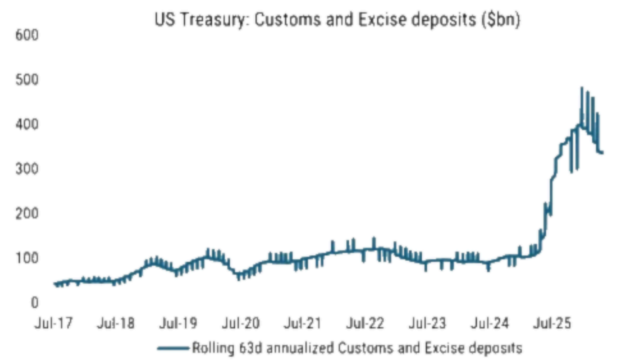


Exhibit 12: US Treasury: Customs and excise deposits from tariffs



1Q GDP tracking +0.2pt to 2.4%

Strong retail sales in March and upward revisions to the prior months pushed 1Q consumption to 1.5% from 1.1%, and raised our GDP tracking to 2.4%. 1Q consumption is slightly stronger than we expected in our baseline, before we began 1Q tracking. The 1.5% pace is held back by 1Q residual seasonality in prices, which we put at about 0.4 pct pt (a.r.). After adjusting for that, the underlying pace in 1Q consumption appears to have been about 2% growth—even as tariffs and oil price increases held back real spending. Furthermore, momentum was building throughout the quarter, with real consumption probably rising 0.4% m/m in March.

There is more uncertainty around the GDP estimate than normal. Construction spending data and housing starts for February and March have not yet been reported—still delayed by the federal government shutdown. The various construction data will be reported next week before GDP and could affect our forecast.

Prices: 1Q core PCE prices rise at a 4.1% q/q annual rate and headline PCE at 4.3%.

Private domestic final purchases (consumption plus investment) rises at a 2.2% q/q annual rate, 0.2 pct pt below its average over the past year. Consumption slows slightly, but nonresidential fixed investment rises at a strong 6.6% pace—depending in part on what the business construction spending data for February show.

GDP's further boosted by about 0.6 pct pt by a rebound in federal government output, which returns to trend in 1Q after the 4Q shutdown.

Our forecast also incorporates a 0.3 pct pt drag from trade, mostly offset by a 0.2 pct pt boost from inventory investment. The trade drag would be larger except that we're assuming slower March imports following the Chinese new year.

The Atlanta Fed pushed its tracking estimate up by 0.3 pct pt to 1.2%. They do not include the boost from government reopening that we do; our consumption estimate contributes 0.3 pct pt more than theirs; and our residential investment estimate also contributes 0.3 pct pt more than theirs, as they show an 8% annual rate of decline. The NY Fed GDP nowcast remained at 2.3%.

Exhibit 13: The effects of incoming data on our US GDP tracking estimate

Details of 1Q 2026 US GDP tracking (% q/q saar unless indicated)

Date	Data release	GDP	Final sales	Domestic final sales	PCE	Res	Equip	Struct	IPP	Gov	X	M	NX (level)	CIPI (level)
3-Mar	Baseline	2.2	2.2	2.0	1.4	-0.5	3.0	0.8	4.8	4.0	1.2	0.1	941	13
6-Mar	Retail sales, prices, 4Q GDP	2.0	2.1	1.8	1.5	-0.5	0.0	1.0	3.0	4.0	1.2	-1.0	932	16
12-Mar	Trade	1.8	1.6	1.9	1.5	-0.5	**3.0**	1.0	3.0	4.0	**6.5**	**8.0**	-978	**-2**
17-Mar	Housing starts	1.8	1.6	1.9	1.5	**-0.8**	3.0	1.0	3.0	4.0	6.5	8.0	-978	2
13-Mar	Durables	1.6	1.4	1.8	1.5	-0.8	**0.0**	1.0	3.0	4.0	6.5	8.0	-997	5
14-Mar	Consumption (Jan)	1.8	1.5	1.9	**1.6**	-0.8	0.0	1.0	3.0	4.0	6.5	8.0	-997	5
18-Mar	PPI	1.9	1.7	2.0	**1.2**	-0.8	5.0	1.0	**9.0**	4.0	6.5	8.0	997	5
19-Mar	New home sales	1.9	1.7	2.0	1.2	**-1.1**	4.0	1.0	9.0	4.0	6.5	8.0	-997	5
1-Apr	Retail sales	2.0	1.8	2.1	**1.2**	-1.1	5.0	-1.0	9.0	4.0	6.5	8.0	997	5
2-Apr	Trade, inventories	2.0	1.8	2.1	1.2	1.1	3.0	1.0	9.0	4.0	**13.5**	**13.5**	999	5
2-Apr	Light vehicle sales	2.0	1.8	2.1	**1.3**	1.1	3.0	1.0	9.0	4.0	13.5	13.5	-999	5
7-Apr	Durables	2.3	2.1	2.4	1.3	1.1	**8.0**	1.0	9.0	4.0	13.5	13.5	999	5
9-Apr	4Q GDP and Feb consumption	**2.2**	2.0	2.2	**1.1**	1.1	8.0	1.0	9.0	4.0	13.5	13.5	1000	4
21-Apr	Retail sales, business inventories	2.4	2.2	2.5	**1.5**	1.1	8.0	1.0	9.0	4.0	13.5	13.5	1000	4
	GDP tracking	**2.4**	**2.2**	**2.5**	**1.5**	**-1.1**	**8.0**	**-1.0**	**9.0**	**4.0**	**13.5**	**13.5**	**-1000**	**-4**
	Contribution to GDP growth (pp)		*2.2*	*2.6*	*1.0*	*0.0*	*0.4*	*0.0*	*0.5*	*0.7*	*1.4*	*-1.8*	*-0.3*	*0.2*
	Morgan Stanley official forecast	**2.2**	**2.2**	**2.0**	**1.4**	**-0.5**	**3.0**	**0.8**	**4.8**	**4.0**	**1.2**	**-0.1**	**-941**	**-13**

Exhibit 14: GDP nowcasts

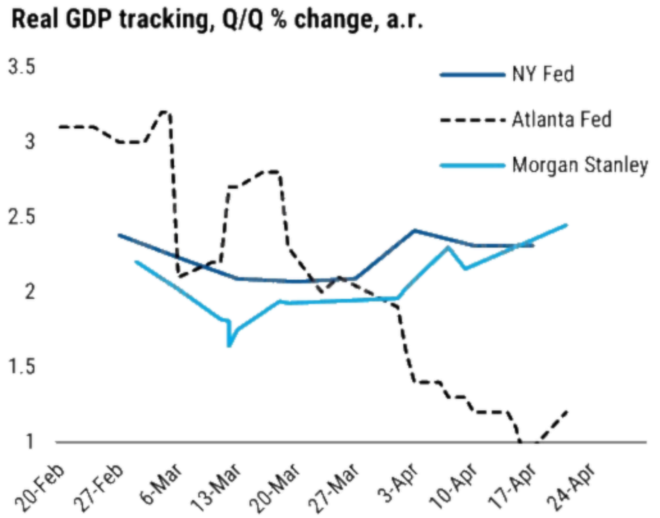


Exhibit 15: Morgan Stanley vs Atlanta Fed GDP tracking

	Morgan Stanley		Atlanta Fed	
	Q/Q % change, a.r.	Contrib to GDP growth, pp, a.r.	Q/Q % change, a.r.	Contrib to GDP growth, pp, a.r.
Real GDP	**2.4**		**1.3**	
Final Sales [1]	2.2	2.2	0.8	0.8
Final Domestic Demand [2]	2.5	2.6	1.5	1.6
Final Private Domestic Demand [3]	2.2	1.9	1.5	1.3
Personal Consumption Expenditures	1.5	1.0	1.1	0.7
— Goods	-0.9	-0.2	-2.0	-0.4
— Services	2.6	1.2	2.5	1.2
Nonresidential Fixed Investment	6.6	0.9	6.7	0.9
— Structures	-1.0	0.0	-5.9	-0.2
— Equipment	8.0	0.4	14.7	0.8
— IPP	9.0	0.5	5.7	0.3
Residential Investment	-1.1	0.0	-8.0	-0.3
Exports	13.5	1.4	12.8	1.3
Imports	13.5	-1.8	16.6	-2.1
Government	4.0	0.7	1.5	0.3
Inventory contribution (pct pts. a.r.)		0.2		0.5
Trade contribution (pct pts. a.r.)		-0.3		-0.8

1. GDP less contribution from inventory investment
2. GDP less contributions from inventories and trade
3. GDP less inventories, trade, & government (i.e., private consumption plus investment)

Exhibit 16: Software pricing boosts our 1Q business investment forecast

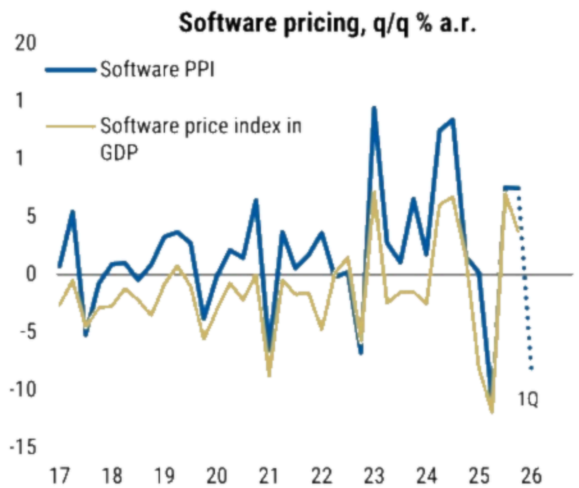
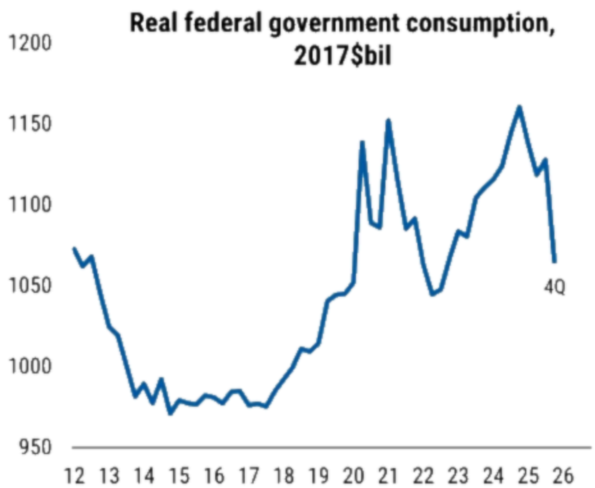


Exhibit 17: Our 1Q tracking incorporates a rebound in federal output after the shutdown



Data review & preview

Review of past week's data

Exhibit 18:

Monday 20 Apr	Data	Period	Forecast	Consensus	Prev	Actual
	No scheduled data or Fedspeak					
Tuesday 21 Apr	**Data**	**Period**	**Forecast**	**Consensus**	**Prev**	**Actual**
8:15 AM	ADP Weekly Employment Change	4-Apr			39.3	54.8
8:30 AM	Philadelphia Fed Non-Manufacturing Activity	Apr			-23.9	-16.5
8:30 AM	Retail Sales Advance m/m	Mar	1.2	1.2	0.6	1.7
8:30 AM	Retail Sales Ex Auto m/m	Mar	1.4	1.3	0.5	1.9
8:30 AM	Retail Sales Control Group	Mar	0.3	0.2	0.5	0.7
10:00 AM	Business Inventories	Feb			-0.1	0.4
10:00 AM	Pending Home Sales m/m	Mar			1.8	1.5
10:00 AM	Pending Home Sales NSA y/y	Mar			-0.6	1.8
Wednesday 22 Apr	**Data**	**Period**	**Forecast**	**Consensus**	**Prev**	**Actual**
7:00 AM	MBA Mortgage Applications	17-Apr				7.9
Thursday 23 Apr	**Data**	**Period**	**Forecast**	**Consensus**	**Prev**	**Actual**
8:30 AM	Initial Jobless Claims	18-Apr	210		207	214
8:30 AM	Continuing Claims	11-Apr	1820		1818	1821
9:45 AM	S&P US Manufacturing PMI	Apr P			52.3	54.0
9:45 AM	S&P US Services PMI	Apr P			49.8	51.3
11:00 AM	Kansas City Fed Manf. Activity	Apr			11	10
4:30 PM	Fed balance sheet (H.4.1)	16-Apr				
Friday 24 Apr	**Data**	**Period**	**Forecast**	**Consensus**	**Prev**	**Actual**
10:00 AM	U. of Mich. Sentiment	Apr F			47.6	
10:00 AM	U. of Mich. 5-10 Yr Inflation	Apr F			3.4	
11:00 AM	Kansas City Fed Services Activity	Apr			15	
4:15 PM	Commercial bank balance sheets (H.8)	17-Apr				

Preview of upcoming data

Exhibit 19: Monday

Monday 27 Apr	Data	Period	Forecast	Consensus	Prev
10:30 AM	Dallas Fed Manf. Activity	Apr			-0.2

Exhibit 20: Tuesday

Tuesday 28 Apr	Data	Period	Forecast	Consensus	Prev
8:15 AM	ADP Weekly Employment Change	11-Apr			54.8
9:00 AM	FHFA House Price Index m/m	Feb			0.1
9:00 AM	S&P Cotality CS 20-City m/m SA	Feb			0.2
10:00 AM	Richmond Fed Manufact. Index	Apr			0.0
10:00 AM	Conf. Board Consumer Confidence	Apr		89.5	91.8
10:30 AM	Dallas Fed Services Activity	Apr			-13.3

Home prices. Home price growth has slowed as inventories have picked up but better affordability has yet to spark more demand. The national Case-Shiller index was up only 0.9% y/y in January, down from 4.2% a year earlier. Our housing strategists expect further deceleration to 0.5% in February. Our rates strategists are bullish on duration, and lower mortgage rates should lead to reacceleration in prices towards 2% in the back-half of the year.

Exhibit 21: Wednesday

Wednesday 29 Apr	Data	Period	Forecast	Consensus	Prev
7:00 AM	MBA Mortgage Applications	24-Apr			7.9
8:30 AM	Advance Goods Trade Balance	Mar	-74.0	-86.9	-83.4
8:30 AM	Wholesale Inventories m/m	Mar P			0.8
8:30 AM	Housing Starts	Mar	1350	1400	1487
8:30 AM	Building Permits	Mar P	1400	1390	1386
8:30 AM	Durable Goods Orders	Mar P	-1.0	0.5	-1.3
8:30 AM	Durables Ex Transportation	Mar P	0.4	0.4	0.9
8:30 AM	Cap Goods Orders Nondef Ex Air	Mar P	0.4	0.7	0.7
8:30 AM	Cap Goods Ship Nondef Ex Air	Mar P	0.4		1.0
2:00 PM	**FOMC Rate Decision (Upper Bound)**	**29-Apr**	**3.75**	3.75	**3.75**

[illegible]

Trade deficit in goods. We expect the goods deficit narrows by about $10bn to $74bn. We think imports were pulled forward into February ahead of the Chinese new year and slow in March. There is some offset from slower exports of gold, but the net is a smaller March deficit.

Durable goods orders. We expect aircraft orders held back durable goods orders in March but that underlying demand continued to rise healthily.

Housing starts and permits. Starts and permits for February and March will be reported. We expect little change in trend although winter weather may have delayed some single-family starts. We expect starts average a 1.35 million unit annual rate with single-family at 920k. (Multi-family starts fall from an exaggerated pace in January.) Single-family permits, less weather sensitive than starts , probably move sideways at about a 880k pace.

FOMC decision. We expect the Fed on hold, with little change in tone in the FOMC Statement or Press Conference. The FOMC likely retains an easing bias but emphasizes that heightened uncertainty means patience in policy making.

At the last press conference, questions focused on inflation effects rather than growth effects of oil price pressures. We expect a more balanced set of questions following this meeting, which could give the impression of a lesser focus on inflation risks.

Exhibit 22: Thursday

Thursday 30 Apr	Data	Period	Forecast	Consensus	Prev
8:30 AM	Personal Income	Mar		0.4	-0.1
8:30 AM	Personal Spending	Mar		0.8	0.5
8:30 AM	Real Personal Spending	Mar			0.1
8:30 AM	PCE Price Index m/m	Mar		0.7	0.4
8:30 AM	PCE Price Index y/y	Mar		3.5	2.8
8:30 AM	Core PCE Price Index m/m	Mar		0.3	0.4
8:30 AM	Core PCE Price Index y/y	Mar		3.2	3.0
8:30 AM	GDP Annualized q/q	1Q A	2.4	1.6	0.5
8:30 AM	Personal Consumption	1Q A	1.5		1.9
8:30 AM	Core PCE Price Index q/q	1Q A	4.1		2.7
8:30 AM	Initial Jobless Claims	25-Apr	210		214
8:30 AM	Continuing Claims	18-Apr	1815		1821
8:30 AM	Employment Cost Index	1Q	0.8	0.8	0.7
9:45 AM	MNI Chicago PMI	Apr			52.8
4:30 PM	Fed balance sheet (H.4.1)	23-Apr			

[illegible]

Income and spending. We expect real consumer spending rose 0.4% m/m in March with goods up 0.7% and services up 0.3%. Retail sales for March were strong, and we do not expect higher gas prices weighed on real spending yet. We expect more effect from the shock in Q2 and beyond. Data in line with our expectation would mean Q1 real spending up 1.5% (q/q saar). This is stronger than we previously expected. Q1 spending is partially dragged down by residual seasonality but was likely boosted somewhat by higher tax refunds.

Income growth is weaker in March, up 0.2% m/m in nominal terms with real disposable personal income down 0.4% m/m. Labor income is only slightly stronger, with nominal labor income up 0.3% as higher payrolls were offset by slower hours. Other forms of income including rental income, proprietor's income, and asset income are all relatively soft at 0.1% to 0.2% each. With strong spending, the saving rate falls from 4.0% in February to 3.3% in March.

PCE prices. We forecast core PCE inflation at 0.22% m/m in March. Incorporating our expectation of a mild upward revision to January (+2bp to core PCE), the year over year rate is projected to rise to 3.11% in March, from 2.99% in February. Headline PCE is forecast at 0.60% m/m (3.42% y/y). Core goods inflation remains positive but moderates relative to February, and we think tariff pass-through is nearing completion.

Our estimates use CPI data to project PCE legal services. If, as in January, the BEA again relies on PPI legal services rather than CPI, core PCE inflation would likely print higher—around 0.26% m/m instead of 0.22%.

Jobless claims. Claims remain low, with new and continuing claims at or below their levels of a year ago.

1Q GDP. We estimate 1Q GDP rising at a 2.4% q/q annual rate. There is more uncertainty around the estimate than normal. Construction spending data and housing starts for February and March have not yet been reported—ongoing delays caused by the federal government shutdown. The various construction data will be reported earlier in this week and could affect our forecast.

1Q core PCE prices rise at a 4.1% q/q annual rate and headline PCE at 4.3%.

Private domestic final purchases (consumption plus investment) rises at a 2.2% q/q annual rate, 0.2 pct pt below its average over the past year. Somewhat slower real consumption (1.5%), amid tariff price pressures plus the residual seasonality in prices that holds back 1Q consumption every year. Nonresidential fixed investment rises at a strong 6.6% pace—depending in part on what the business construction spending data for February show.

GDP's further boosted by about 0.6 pct pt by a rebound in federal government output, which returns to trend in 1Q after the 4Q shutdown.

Our forecast also incorporates a 0.3 pct pt drag from trade, mostly offset by a 0.2 pct pt boost from inventory investment. The trade drag would be larger except that we're assuming slower March imports following the Chinese new year.

Employment Cost Index. We were surprised at the extent of slowing in the 4Q ECI, which showed compensation, wages & salaries, and benefits all rising 0.7% in the three months through December: a 3.0% annual rate. We expect some slight reacceleration in the three months through March, forecasting a 0.8% increase. Average hourly earnings accelerated from a 3.5% pace through December to a 3.9% pace through March.

Exhibit 23: Friday

Friday 01 May	Data	Period	Forecast	Consensus	Prev
12:00 AM	Light Vehicle Sales	Apr	16.0	16.1	16.3
9:45 AM	S&P US Manufacturing PMI	Apr F			54.0
10:00 AM	ISM Manufacturing	Apr	52.9	52.7	52.7
4:15 PM	Commercial bank balance sheets (H.8)	24-Apr			

Source: Bloomberg, Morgan Stanley Research

Manufacturing ISM We are tracking April manufacturing ISM at 52.9, with firm demand and continued output expansion signaling resilience. However, uncertainty around supply and prices keeps near-term risks tilted to the downside. Regional surveys and the S&P flash PMI show solid output and new orders, alongside rising input costs from higher oil prices. S&P details also indicate worsening supplier delivery times, pointing to ongoing supply constraints amid Middle East geopolitical uncertainty.

Light vehicle sales. We expect March vehicle sales at 16.0mn, down from February's pace and slightly below last year's. We expect the oil shock to weigh on durable goods purchases, including autos, but the data through April have not shown this weakness yet.

Data calendar

Exhibit 24: April 27 - May 8

Monday	*TUESDAY*	*WEDNESDAY*	*THURSDAY*	*FRIDAY*
27	28	29	30	1
Dallas Fed Manf. Activity (Apr, 10:30 AM) 2-Year Notes Auction (11:30 AM) 5-Year Notes Auction (1 PM)	ADP Weekly Employment Chg. (Wk of Apr 11, 8:15 AM) House Price Indexes (Feb, 9 AM) Richmond Fed Manuf. Index (Apr, 10 AM) Conf. Board Cosumer Confidence (Apr, 10 AM) Housing vacancies (1Q, 10 AM) Dallas Fed Services Activity (Apr, 10:30 AM) 2-Year FRN Auction (11:30 AM) 7-Year Notes Auction (1 PM)	MBA Mortgage Applications (Week of Apr 24, 7 AM) Wholesale and Retail Inventories (Mar, 8:30 AM) Census Releases February and March Housing Starts Data (8:30 AM) Advance Goods Trade Balance (Mar, 8:30 AM) Housing Starts & Building Permits (Mar, 8:30 AM) Durable Goods Orders (Mar P, 8:30 AM) FOMC Rate Decision (2 PM)	Personal Income and Outlays (Mar, 8:30 AM) Jobless Claims (Week of Apr 25, 8:30 AM) Employment Cost (1Q, 8:30 AM) GDP (1Q A, 8:30 AM) MNI Chicago PMI (Apr, 9:45 AM) Leading Index (Mar, 10 AM) Fed H.4.1 release (4:30 PM)	S&P Manufacturing PMI (Apr F, 9:45 AM) ISM Manufacturing (Apr, 10 AM) Fed H.8 Release (4:15 PM) Wards Vehicle Sales (Apr)
4	5	6	7	8
Factory Orders (Mar, 10 AM) Durable Goods Orders (Mar F, 10 AM) Senior Loan Officer Survey (1Q, 3 PM)	Trade Balance (Mar, 8:30 AM) S&P Services PMI (Apr F, 9:45 AM) Census Releases February and March New Home Sales (10 AM) ISM Services (Apr, 10 AM) New Home Sales (Mar, 10 AM) JOLTS (Mar, 10 AM)	MBA Mortgage Applications (Week of May 1, 7 AM) ADP Employment Change (Apr, 8:15 AM) Treasury Quarterly Refunding (8:30 AM) Manheim Used Vehicle (May, 9 AM)	Challenger Job Cuts (Apr, 7:30 AM) Productivity and Costs (1Q P, 8:30 AM) Jobless Claims (Week of May 2, 8:30 AM) Census Releases February and March Construction Spending (Week of Jan 0, 10 AM) Construction Spending (Mar, 10 AM) NY Fed 1-Yr Inflation Expectations (Apr, 11 AM) Consumer Credit (Mar, 3 PM)	Employment Report (Apr, 8:30 AM) U. of Mich. Consumer Sentiment (May P, 10 AM) Wholesale Trade and Inventories (Mar, 10 AM)

US economic outlook

Exhibit 25: Morgan Stanley forecasts

	4Q/4Q % change			Quarterly % change, annual rate (unless otherwise noted)									
	2025A	**2026E**	**2027E**	**3Q25A**	**4Q25A**	**1Q26E**	**2Q26E**	**3Q26E**	**4Q26E**	**1Q27E**	**2Q27E**	**3Q27E**	**4Q27E**
Real GDP	**2.0**	**2.2**	**2.1**	**4.4**	**0.5**	**1.9**	**2.3**	**2.3**	**2.4**	**2.1**	**2.1**	**2.1**	**2.1**
Final Sales [1]	2.2	2.2	2.1	4.5	0.3	1.7	2.3	2.3	2.5	2.0	2.1	2.1	2.1
Final Domestic Demand [2]	**1.8**	**2.1**	**2.2**	**2.8**	**0.6**	**2.0**	**2.0**	**2.2**	**2.3**	**2.2**	**2.2**	**2.2**	**2.2**
Final Private Domestic Demand [3]	2.4	2.1	2.4	2.9	1.8	1.7	2.1	2.4	2.5	2.3	2.4	2.4	2.4
Personal Consumption Expenditures	2.1	1.7	1.8	3.5	1.9	1.2	1.6	1.9	2.0	1.8	1.8	1.8	1.8
– Goods	1.4	0.1	1.8	3.0	0.3	-2.9	0.8	1.2	1.2	1.8	1.8	1.8	1.8
– Services	2.4	2.4	1.8	3.6	2.7	3.0	2.0	2.2	2.3	1.8	1.8	1.8	1.8
Nonresidential Fixed Investment	5.6	4.7	4.9	3.2	2.4	4.6	4.5	4.8	4.8	4.9	4.9	4.9	4.9
– Structures	-5.5	1.6	3.0	-5.0	-6.5	-1.0	1.8	2.8	2.9	3.0	3.0	3.0	3.0
– Equipment	9.6	4.9	5.3	5.2	4.3	3.0	5.5	5.5	5.5	5.3	5.3	5.3	5.3
– IPP	8.0	5.9	5.5	5.6	5.4	9.0	4.8	5.0	5.0	5.5	5.5	5.5	5.5
Residential Investment	-3.8	1.3	2.5	-7.1	-1.7	-0.8	1.0	2.5	2.7	2.5	2.5	2.5	2.5
Exports	1.1	4.0	1.5	9.6	-3.2	6.5	3.0	3.0	3.5	1.5	1.5	1.5	1.5
Imports	-1.9	3.0	2.9	-4.4	-1.0	8.0	-0.1	2.0	2.0	2.9	2.9	2.9	2.9
Government	-1.2	2.1	1.6	2.2	-5.6	4.0	1.5	1.5	1.5	1.6	1.6	1.6	1.6
Inventory contribution (pct pts, a.r.)	-0.2	0.0	0.0	-0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trade contribution (pct pts, a.r.)	0.4	0.0	-0.2	1.6	-0.2	-0.4	0.3	0.1	0.0	-0.2	-0.2	-0.2	0.0
Nominal GDP (Current $)	5.4	5.4	4.2	8.3	4.2	6.5	6.8	3.9	4.4	4.5	4.0	4.0	4.3
Nominal Consumption	5.0	4.6	3.8	6.3	4.9	5.6	6.1	3.2	3.7	4.3	3.6	3.5	4.0
Employment & Personal Income													
Civilian Unemployment Rate (%)	**4.5**	**4.6**	**4.5**	**4.3**	**4.5**	**4.4**	**4.6**	**4.7**	**4.6**	**4.6**	**4.6**	**4.5**	**4.5**
Civilian Labor Force Participation Rate (%)	62.5	62.0	61.9	62.3	62.5	62.1	62.1	62.0	62.0	61.9	61.9	61.9	61.9
Employment to Population Ratio (%)	59.7	59.1	59.1	59.6	59.7	59.3	59.2	59.1	59.1	59.1	59.1	59.1	59.1
Average Monthly Change in Nonfarm Payrolls (Thous.)	10	25	60	23	-39	33	8	25	35	60	60	60	60
Real DPI	1.3	1.2	1.2	1.0	0.2	2.4	-1.3	1.6	2.0	2.6	1.7	1.8	1.5
Saving rate (%)	4.0	3.5	3.7	4.4	4.0	4.3	3.9	3.7	3.5	3.7	3.7	3.7	3.7
Business Indicators													
Industrial Production	1.7	1.1	1.2	2.1	-1.2	1.4	0.7	1.2	1.3	1.2	1.2	1.2	1.2
Productivity	2.6	2.0	1.5	5.2	1.8	1.6	2.4	1.9	1.9	1.5	1.5	1.5	1.5
Inflation (quarterly % change, a.r.)													
Consumer Price Index				3.1	2.5	3.4	5.8	1.2	1.9	2.8	1.8	1.8	2.6
CPI ex Food & Energy				3.2	2.0	2.8	3.1	2.2	2.4	3.2	2.2	2.4	2.8
PCE Price Index				2.8	2.9	4.3	4.4	1.3	1.7	2.5	1.8	1.7	2.1
PCE ex Food & Energy				2.9	2.7	4.1	2.9	1.9	2.0	2.7	2.0	2.0	2.3
Inflation (4-quarter % change)													
Consumer Price Index	2.7	3.1	2.2	2.9	2.7	2.7	3.7	3.2	3.1	2.9	1.9	2.1	2.2
CPI ex Food & Energy	2.7	2.6	2.6	3.1	2.7	2.5	2.8	2.5	2.6	2.7	2.5	2.5	2.6
PCE Price Index	2.8	2.9	2.0	2.7	2.8	3.0	3.6	3.2	2.9	2.5	1.8	1.9	2.0
PCE ex Food & Energy	**2.9**	**2.7**	**2.3**	**2.9**	**2.9**	**3.1**	**3.1**	**2.9**	**2.7**	**2.4**	**2.2**	**2.2**	**2.3**
Monetary Policy													
Fed Funds Target (%, midpoint of target range)	**3.625**	**3.125**	**3.125**	**4.125**	**3.625**	**3.625**	**3.625**	**3.375**	**3.125**	**3.125**	**3.125**	**3.125**	**3.125**
Fiscal Policy													
Federal Budget balance (% of GDP)	-5.4	-5.9	-5.9										

Exhibit 26: Monthly inflation forecasts

	% Change - Year-over-Year					% Change - Month-over-Month				Headline CPI
	Headline PCE	Core PCE	Headline CPI	Core CPI		Headline PCE	Core PCE	Headline CPI	Core CPI	NSA Index
Jan-25	2.6	2.8	3.0	3.3	Jan-25	0.37	0.31	0.43	0.43	317.671
Feb-25	2.7	3.0	2.8	3.1	Feb-25	0.40	0.45	0.23	0.25	319.082
Mar-25	2.4	2.7	2.4	2.8	Mar-25	0.02	0.10	0.03	0.07	319.799
Apr-25	2.3	2.6	2.3	2.8	Apr-25	0.17	0.19	0.16	0.24	320.795
May-25	2.5	2.8	2.4	2.8	May-25	0.18	0.23	0.10	0.13	321.465
Jun-25	2.6	2.8	2.7	2.9	Jun-25	0.29	0.26	0.25	0.23	322.561
Jul-25	2.6	2.9	2.7	3.1	Jul-25	0.17	0.25	0.23	0.31	323.048
Aug-25	2.7	2.9	2.9	3.1	Aug-25	0.26	0.22	0.35	0.31	323.976
Sep-25	2.8	2.8	3.0	3.0	Sep-25	0.26	0.19	0.30	0.22	324.800
Oct-25	2.7	2.8	2.9	2.8	Oct-25	0.19	0.23	0.13	0.09	#N/A
Nov-25	2.8	2.8	2.7	2.6	Nov-25	0.22	0.18	0.13	0.09	324.122
Dec-25	2.9	3.0	2.7	2.6	Dec-25	0.33	0.33	0.30	0.23	324.054
Jan-26	2.8	3.1	2.4	2.5	Jan-26	0.32	0.41	0.17	0.30	325.252
Feb-26	2.8	3.0	2.4	2.5	Feb-26	0.38	0.37	0.27	0.22	326.785
Mar-26	3.4	3.1	3.3	2.6	Mar-26	0.60	0.22	0.87	0.20	330.213
Apr-26	3.6	3.1	3.7	2.7	Apr-26	0.37	0.22	0.61	0.34	332.710
May-26	3.6	3.1	3.8	2.8	May-26	0.18	0.21	0.16	0.22	333.610
Jun-26	3.5	3.1	3.7	2.8	Jun-26	0.17	0.19	0.16	0.19	334.436
Jul-26	3.4	3.0	3.5	2.6	Jul-26	0.09	0.16	0.04	0.19	334.322
Aug-26	3.3	2.9	3.4	2.5	Aug-26	0.17	0.16	0.20	0.20	334.773
Sep-26	3.2	2.9	3.3	2.5	Sep-26	0.17	0.14	0.23	0.18	335.392
Oct-26	3.1	2.8	3.2	2.6	Oct-26	0.06	0.13	0.01	0.17	334.897
Nov-26	3.0	2.8	3.2	2.7	Nov-26	0.18	0.18	0.20	0.21	334.557
Dec-26	2.9	2.6	3.3	2.7	Dec-26	0.23	0.20	0.30	0.23	334.492
Jan-27	2.9	2.5	3.3	2.7	Jan-27	0.24	0.29	0.24	0.34	335.974
Feb-27	2.6	2.3	3.2	2.7	Feb-27	0.14	0.21	0.11	0.25	337.030
Mar-27	2.2	2.3	2.5	2.7	Mar-27	0.20	0.17	0.25	0.18	338.492
Apr-27	2.0	2.2	2.0	2.6	Apr-27	0.14	0.17	0.13	0.17	339.425
May-27	1.9	2.2	2.0	2.5	May-27	0.13	0.16	0.11	0.16	340.157
Jun-27	1.9	2.1	2.0	2.4	Jun-27	0.14	0.15	0.13	0.14	340.899
Jul-27	1.9	2.2	2.0	2.5	Jul-27	0.10	0.17	0.06	0.20	340.844
Aug-27	1.9	2.2	2.0	2.5	Aug-27	0.19	0.19	0.23	0.23	341.421
Sep-27	2.0	2.2	2.1	2.5	Sep-27	0.21	0.19	0.27	0.23	342.198
Oct-27	2.0	2.3	2.2	2.6	Oct-27	0.13	0.19	0.12	0.24	342.052
Nov-27	2.0	2.3	2.2	2.6	Nov-27	0.19	0.19	0.23	0.23	341.815
Dec-27	2.0	2.3	2.2	2.6	Dec-27	0.23	0.19	0.32	0.23	341.824

US Outlook Scenarios

Exhibit 27: Morgan Stanley US Economics baseline and alternative outlooks for the US Economy, 2026, and 2027

	Baseline: Emerging from policy uncertainty (55%)	Productivity-driven upside (15%)	Aggregate demand upside (10%)	Mild recession (20%)
		Key Forecasts		
GDP growth	Strong economic momentum from 2H25 meets headwinds from tariffs and higher oil prices in 1H26, but real growth reaccelerates in 2H26. Real GDP grows 2.2% in 2026, and 2.1% in 2027.	The oil shock abates quickly. AI-related investment bears fruit sooner than anticipated and boosts productivity and growth. GDP grows 3.1% in 2026, and 2.5% in 2027.	The oil shock abates quickly. Elevated wealth supports consumption and "animal spirits" keep business spending elevated. GDP grows 3.2% in 2026, and 2.2% in 2027.	The lagged effects from tariffs and immigration combine with an oil price shock. Real GDP falls for a couple quarters, with a cumulative decline around 1%. GDP grows around 0.5% in 2026 and recovers in 2027.
Labor markets	Average monthly payroll gains remain around 25k in 2026 and 60k in 2027. The unemployment rate peaks at 4.7% in 3Q26, then comes down to 4.6% by end-2026 and 4.5% by end-2027.	The unemployment rate remains steady at 4.4% in 2026 and 2027. AI does not lead to widespread displacement of labor.	Stronger demand results in tighter labor markets. The unemployment rate gradully falls to 3.9% by the end of 2026 and remains there through 2027.	The unemployment rate picks up to 5.5% in 2026. After rapid Fed cuts, labor markets begin to recover. The unemployment rate ends 2027 around 5%.
Inflation	Oil pushes headline inflation higher in 2026, but second-round effects on core are limited. Tariff pass-through ends and disinflation in rents keep services gradually decelerating. Core PCE ends 2026 at 2.7% and 2027 at 2.3%.	The positive productivity shock raises supply and is disinflationary to a small degree. Core PCE falls to 2.5% in 2026 and 2.0% in 2027.	The disinflation process pauses, and in 2H26 there is a step-up in inflation despite lower oil prices. Core PCE ends 2026 at 3.1% and 2027 at 2.3%.	Oil pushes inflation to a higher peak than baseline, but it also falls faster in 2027. Headline and Core PCE end 2026 at 3.5% and 3.0%
Federal reserve policy	The Fed responds to employment softness and disinflation with cuts. We expect 25bp cuts in September and December, to a terminal range of 3.0–3.25%	Strong growth makes the Fed stop the cutting cycle in 1H26. As the impact from tariffs fades and disinflation resumes, the supply story becomes more evident. The Fed resumes gradual cuts by year end and continues in 2027 to a terminal range of 2.75-3.0%.	The Fed remains on hold through most of 2026, then raises rates in 4Q26 as inflation rises and unemployment falls. Hikes continue in 1H27, reaching a peak of 4.375%	The Fed eases policy to a terminal rate of 1.5–1.75% in 2H26. No asset purchases. The Fed then keeps its policy rate unchanged for the next four quarters. In 2H27, the Fed starts removing accommodation. The target rate finishes 2027 at 2.5–2.75%.
		Forecast details		
Consumer spending	Slow real income growth weighs on consumption near-term. By the end of 2026, spending growth beings to sequentially improve as real labor income recovers and the fiscal bill provides support. Real personal consumption grows 1.7% in 2026, and 1.8% in 2027.	Disinflation helps consumption accelerate. Consumption grows 2.5% in 2026 and 2027, with middle- and lower-income cohorts benefitting	Better than expected equity market returns and a rebound in labor markets boost consumption to around 3% in 2026 then back to near 2% in 2027. Upper-income consumers drive spending still	Drags from high energy prices are larger than expected, leading to a few quarters of consumption declines. With easier policy, consumption recovers in late 2026 and 2027.
Nonresidential fixed investment	Nonresidential fixed investment rises 4.7% in 2026 and 4.9% in 2027. AI spending leads investment in the near-term, but non-AI investment starts to pick up in 2H26 and 2027.	Investment is solid throughout the forecast horizon as productivity gains result in stronger AI and non-AI related spending	Business spending, and specifically non-AI spending, is stronger in 2026 due to animal spirits from the fiscal bill.	A retrenching non-AI business sector cuts employment and capex. Investment declines for a couple quarters in 2026, followed by tepid recovery.
Residential investment	Rising inflation in 1H 26 keeps mortgage rates elevated and suppresses housing activity in 2026. Still, real residential investment rises 1.3% (4Q/4Q) in 2026 and 2.5% in 2027	Stronger growth paired with continued cuts helps demand. Housing activity accelerates more than in the baseline.	Stronger growth is balanced by higher rates in 2026, resulting in still limited housing activity over the forecast horizon.	Housing activity is weak in 2026 on the back of slower growth and weaker labor markets. Activity picks up in 2027 as growth recovers and lower rates spur demand
Net trade	Recovery in imports is slow as domestic demand for goods remains weak until 2Q 2026. We expect imports rise 3.0% in 2026 then 2.9% in 2027. Exports rise 4.0% in 2026 then 1.5% in 2027	Imports are somewhat stronger than in the baseline, resulting in a larger drag on GDP.	Imports are strong with strong demand, resulting in a larger drag on GDP.	Imports and exports both fall over the next few quarters as demand falls and slow global growth limits export demand. Net trade contributes positively to GDP growth in 2026.
Fiscal policy	We expect fiscal deficits to remain just below 6% of GDP in our forecast horizon. Relatively high deficits imply a moderate fiscal impulse in 2026 and 2027. The deficit as a percent of GDP is 5.9% in 2026 and 5.8% in 2027.	The fiscal impulse is similar to the baseline. With stronger growth, fiscal deficits decline. The deficit as a percent of GDP is 5.5% in 2026 and 5.4% in 2027.	Fiscal multipliers are higher than in the baseline, resulting in higher contribution to growth. With stronger growth, fiscal deficits decline. The deficit as a percent of GDP is 5.7% in 2026 and 5.6% in 2027.	Deficits rise further as tax receipts decelerate and automatic stabilizers boost transfer payments. Defense spending picks up. The deficit as a percent of GDP is 6.6% in 2026 and 6.3% in 2027.
Credit conditions	The pace of tightening in lending standards has slowed. Near-term slow growth and geopolitical uncertainty keep conditions tight, though we may see modest easing over the forecast horizon.	Credit conditions remain relatively tight, though we may see modest easing over the forecast horizon.	Credit conditions loosen somewhat on the back of stronger growth and animal spirits.	Credit conditions tighten further as the economy contracts. By late next year, the Fed has eased policy enough to encourage some new credit supply but demand remains weak.
Productivity growth	Productivity growth has been strong. We do not pull forward all the strength but pencil in a modest AI boost in 2026 and 2027.	AI-related investment bears fruit sooner-than-anticipated and boosts productivity. This raises potential growth by about 50bps in 2026 and 2027 versus the baseline.	Productivity growth has been strong. We do not pull forward all the strength but pencil in a modest AI boost in 2026 and 2027	With rapid declines in output, productivity falls over the next few quarters. Productivity then begins to recover into 2027.
Consumer and business confidence	Confidence of households remains near lows. Business confidence has rebounded somewhat last year. Consumer confidence should gradually recover as inflation decelerates.	Consumer confidence rebounds somewhat, similar to the baseline. Business confidence improves as productivity gains become clear.	Confidence rebounds more than the baseline as the unemployment rate falls and wealth continues to support high-income consumers.	Recession pushes confidence down further, testing new lows.

Source: Morgan Stanley Research [illegible]

Disclosure Section

The information and opinions in Morgan Stanley Research were prepared by Morgan Stanley & Co. LLC, and/or Morgan Stanley C.T.V.M. S.A., and/or Morgan Stanley México, Casa de Bolsa, S.A. de C.V., and/or Morgan Stanley Canada Limited. As used in this disclosure section, "Morgan Stanley" includes Morgan Stanley & Co. LLC, Morgan Stanley C.T.V.M. S.A., Morgan Stanley México, Casa de Bolsa, S.A. de C.V., Morgan Stanley Canada Limited and their affiliates as necessary.

For important disclosures, stock price charts and equity rating histories regarding companies that are the subject of this report, please see the Morgan Stanley Research Disclosure Website at www.morganstanley.com/eqr/disclosures/webapp/generalresearch, or contact your investment representative or Morgan Stanley Research at 1585 Broadway, (Attention: Research Management), New York, NY, 10036 USA.

For valuation methodology and risks associated with any recommendation, rating or price target referenced in this research report, please contact the Client Support Team as follows: US/Canada +1 800 303-2495; Hong Kong +852 2848-5999; Latin America +1 718 754-5444 (U.S.); London +44 (0)20-7425-8169; Singapore +65 6834-6860; Sydney +61 (0)2-9770-1505; Tokyo +81 (0)3-6836-9000. Alternatively you may contact your investment representative or Morgan Stanley Research at 1585 Broadway, (Attention: Research Management), New York, NY 10036 USA.

Global Research Conflict Management Policy

Morgan Stanley Research has been published in accordance with our conflict management policy, which is available at www.morganstanley.com/institutional/research/conflictpolicies. A Portuguese version of the policy can be found at www.morganstanley.com.br

Important Disclosures

Morgan Stanley is not acting as a municipal advisor and the opinions or views contained herein are not intended to be, and do not constitute, advice within the meaning of Section 975 of the Dodd-Frank Wall Street Reform and Consumer Protection Act.

Morgan Stanley Research does not provide individually tailored investment advice. Morgan Stanley Research has been prepared without regard to the circumstances and objectives of those who receive it. Morgan Stanley recommends that investors independently evaluate particular investments and strategies, and encourages investors to seek the advice of a financial adviser. The appropriateness of an investment or strategy will depend on an investor's circumstances and objectives. The securities, instruments, or strategies discussed in Morgan Stanley Research may not be suitable for all investors, and certain investors may not be eligible to purchase or participate in some or all of them. Morgan Stanley Research is not an offer to buy or sell or the solicitation of an offer to buy or sell any security/instrument or to participate in any particular trading strategy. The value of and income from your investments may vary because of changes in interest rates, foreign exchange rates, default rates, prepayment rates, securities/instruments prices, market indexes, operational or financial conditions of companies or other factors. There may be time limitations on the exercise of options or other rights in securities/instruments transactions. Past performance is not necessarily a guide to future performance. Estimates of future performance are based on assumptions that may not be realized. If provided, and unless otherwise stated, the closing price on the cover page is that of the primary exchange for the subject company's securities/instruments.

The fixed income research analysts, strategists or economists principally responsible for the preparation of Morgan Stanley Research have received compensation based upon various factors, including quality, accuracy and value of research, firm profitability or revenues (which include fixed income trading and capital markets profitability or revenues), client feedback and competitive factors. Fixed Income Research analysts', strategists' or economists' compensation is not linked to investment banking or capital markets transactions performed by Morgan Stanley or the profitability or revenues of particular trading desks.

With the exception of information regarding Morgan Stanley, Morgan Stanley Research is based on public information. Morgan Stanley makes every effort to use reliable, comprehensive information, but we make no representation that it is accurate or complete. We have no obligation to tell you when opinions or information in Morgan Stanley Research change apart from when we intend to discontinue equity research coverage of a subject company. Facts and views presented in Morgan Stanley Research have not been reviewed by, and may not reflect information known to, professionals in other Morgan Stanley business areas, including investment banking personnel.

Morgan Stanley may make investment decisions that are inconsistent with the recommendations or views in this report.

To our readers based in Taiwan or trading in Taiwan securities/instruments: Information on securities/instruments that trade in Taiwan is distributed by Morgan Stanley Taiwan Limited ("MSTL"). Such information is for your reference only. The reader should independently evaluate the investment risks and is solely responsible for their investment decisions. Morgan Stanley Research may not be distributed to the public media or quoted or used by the public media without the express written consent of Morgan Stanley. Any non-customer reader within the scope of Article 7-1 of the Taiwan Stock Exchange Recommendation Regulations accessing and/or receiving Morgan Stanley Research is not permitted to provide Morgan Stanley Research to any third party (including but not limited to related parties, affiliated companies and any other third parties) or engage in any activities regarding Morgan Stanley Research which may create or give the appearance of creating a conflict of interest. Information on securities/instruments that do not trade in Taiwan is for informational purposes only and is not to be construed as a recommendation or a solicitation to trade in such securities/instruments. MSTL may not execute transactions for clients in these securities/instruments.

Morgan Stanley is not incorporated under PRC law and the research in relation to this report is conducted outside the PRC. Morgan Stanley Research does not constitute an offer to sell or the solicitation of an offer to buy any securities in the PRC. PRC investors shall have the relevant qualifications to invest in such securities and shall be responsible for obtaining all relevant approvals, licenses, verifications and/or registrations from the relevant governmental authorities themselves. Neither this report nor any part of it is intended as, or shall constitute, provision of any consultancy or advisory service of securities investment as defined under PRC law. Such information is provided for your reference only.

Morgan Stanley Research is disseminated in Brazil by Morgan Stanley C.T.V.M. S.A. located at Av. Brigadeiro Faria Lima, 3600, 6th floor, São Paulo - SP, Brazil; and is regulated by the Comissão de Valores Mobiliários; in Mexico by Morgan Stanley México, Casa de Bolsa, S.A. de C.V which is regulated by Comision Nacional Bancaria y de Valores. Paseo de los Tamarindos 90, Torre 1, Col. Bosques de las Lomas Floor 29, 05120 Mexico City; in Japan by Morgan Stanley MUFG Securities Co., Ltd. and, for Commodities related research reports only, Morgan Stanley Capital Group Japan Co., Ltd; in Hong Kong by Morgan Stanley Asia Limited (which accepts responsibility for its contents) and by Morgan Stanley Bank Asia Limited; in Singapore by Morgan Stanley Asia (Singapore) Pte. (Registration number 199206298Z) and/or Morgan Stanley Asia (Singapore) Securities Pte Ltd (Registration number 200008434H), regulated by the Monetary Authority of Singapore (which accepts legal responsibility for its contents and should be contacted with respect to any matters arising from, or in connection with, Morgan Stanley Research) and by Morgan Stanley Bank Asia Limited, Singapore Branch (Registration number T14FC0118J); in Australia to "wholesale clients" within the meaning of the Australian Corporations Act by Morgan Stanley Australia Limited A.B.N. 67 003 734 576, holder of Australian financial services license No. 233742, which accepts responsibility for its contents; in Australia to "wholesale clients" and "retail clients" within the meaning of the Australian Corporations Act by Morgan Stanley Wealth Management Australia Pty Ltd (A.B.N. 19 009 145 555, holder of Australian financial services license No. 240813, which accepts responsibility for its contents; in Korea by Morgan Stanley & Co International plc, Seoul Branch; in India by Morgan Stanley India Company Private Limited having Corporate Identification No (CIN) U22990MH1998PTC115305, regulated by the Securities and Exchange Board of India ("SEBI") and holder of licenses as a Research Analyst (SEBI Registration No. INH000001105); Stock Broker (SEBI Stock Broker Registration No. INZ000244438), Merchant Banker (SEBI Registration No. INM000011203), and depository participant with National Securities Depository Limited (SEBI Registration No. IN-DP-NSDL-567-2021) having registered office at Altimus, Level 39 & 40, Pandurang Budhkar Marg, Worli, Mumbai 400018, India; Telephone no. +91-22-61181000; Compliance Officer Details: Mr. Tejarshi Hardas, Tel. No.: +91-22-61181000 or Email: tejarshi.hardas@morganstanley.com; Grievance officer details: Mr. Tejarshi

Hardas, Tel. No.: +91-22-61181000 or Email: msic-compliance@morganstanley.com. Morgan Stanley India Company Private Limited (MSICPL) may use AI tools in providing research services. All recommendations contained herein are made by the duly qualified research analysts; in Canada by Morgan Stanley Canada Limited; in Germany and the European Economic Area where required by Morgan Stanley Europe S.E., regulated by Bundesanstalt fuer Finanzdienstleistungsaufsicht (BaFin) under the reference number 149169; in the United States by Morgan Stanley & Co. LLC, which accepts responsibility for its contents. Morgan Stanley & Co. International plc, authorized by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority, disseminates in the UK research that it has prepared, and research which has been prepared by any of its affiliates, only to persons who (i) are investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended, the "Order"); (ii) are persons who are high net worth entities falling within Article 49(2)(a) to (d) of the Order; or (iii) are persons to whom an invitation or inducement to engage in investment activity (within the meaning of section 21 of the Financial Services and Markets Act 2000, as amended) may otherwise lawfully be communicated or caused to be communicated. RMB Morgan Stanley Proprietary Limited is a member of the JSE Limited and A2X (Pty) Ltd. RMB Morgan Stanley Proprietary Limited is a joint venture owned equally by Morgan Stanley International Holdings Inc. and RMB Investment Advisory (Proprietary) Limited, which is wholly owned by FirstRand Limited. The information in Morgan Stanley Research is being disseminated by Morgan Stanley Saudi Arabia, regulated by the Capital Market Authority in the Kingdom of Saudi Arabia, and is directed at Sophisticated investors only.

The trademarks and service marks contained in Morgan Stanley Research are the property of their respective owners. Third-party data providers make no warranties or representations relating to the accuracy, completeness, or timeliness of the data they provide and shall not have liability for any damages relating to such data. The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of MSCI and S&P.

Morgan Stanley Research, or any portion thereof may not be reprinted, sold or redistributed without the written consent of Morgan Stanley.

Indicators and trackers referenced in Morgan Stanley Research may not be used as, or treated as, a benchmark under Regulation EU 2016/1011, or any other similar framework.

The information in Morgan Stanley Research is being communicated by Morgan Stanley & Co. International plc (DIFC Branch), regulated by the Dubai Financial Services Authority (the DFSA) or by Morgan Stanley & Co. International plc (ADGM Branch), regulated by the Financial Services Regulatory Authority Abu Dhabi (the FSRA), and is directed at Professional Clients only, as defined by the DFSA or the FSRA, respectively. The financial products or financial services to which this research relates will only be made available to a customer who we are satisfied meets the regulatory criteria of a Professional Client. A distribution of the different MS Research ratings or recommendations, in percentage terms for Investments in each sector covered, is available upon request from your sales representative.

The information in Morgan Stanley Research is being communicated by Morgan Stanley & Co. International plc (QFC Branch), regulated by the Qatar Financial Centre Regulatory Authority (the QFCRA), and is directed at business customers and market counterparties only and is not intended for Retail Customers as defined by the QFCRA.

As required by the Capital Markets Board of Turkey, investment information, comments and recommendations stated here, are not within the scope of investment advisory activity. Investment advisory service is provided exclusively to persons based on their risk and income preferences by the authorized firms. Comments and recommendations stated here are general in nature. These opinions may not fit to your financial status, risk and return preferences. For this reason, to make an investment decision by relying solely to this information stated here may not bring about outcomes that fit your expectations.

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