



Weekly Economic and Financial Commentary

Start the Warsh Cycle

September 21, 2026





1

Fed Turns the Corner as Growth Absorbs Higher Rates

- The Fed's first hike in three years comes with stronger growth and employment forecasts, while 16 of 18 members see at least one more hike in 2026.
- Ample liquidity and resilient consumption provide room for further tightening, with markets now focused on whether growth can absorb the higher rate path.

2

Global Rates Rise, But the Room to Tighten Is Shrinking

- BOJ and ECB are tightening as energy inflation rises, while BOE is preparing to hike after easing gilt-market pressure.
- Fiscal stress and market constraints are limiting each bank's room to tighten further.

3

AI Bottlenecks Continue Moving Down the Stack

- Tight capacity is extending beyond leading-edge foundries into memory, packaging, substrates, cooling, and optical interconnects, broadening pricing power across the AI hardware stack.
- With AI capex above \$800B in 2026, the key test is whether RPO converts into realized revenue as token demand scales.



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At **MacroMicro**, we empower you to uncover market insights in seconds with industry-leading tools.

About Weekly Economic and Financial Commentary (WEFC)

The **MacroMicro WEFC** cuts through the noise, delivering rigorous analysis and in-depth insights on the most critical market-moving events. These topics cover equities, foreign exchange, bonds, commodities, global central banks, international political economy, and more.

At the core of WEFC is a concise **Chart Pack**, enabling you to grasp market trends at a glance.

Click any chart to access, bookmark, or customize it on our website.

Weekly Market Roundup



Mixed Markets as Fed Delivers First Hike in Three Years

Global equity markets were mixed last week. The Federal Reserve delivered its first rate hike in three years, driving the US 10-year Treasury yield above 5.0%, a nearly two-decade high. Once the hike was digested, technology stocks rebounded: the Nasdaq rose 0.72% and the Philadelphia Semiconductor Index gained 0.83%. Tech-led Asian markets also recovered in the second half of the week. In contrast, European equities lagged, with German and French indices falling.

In FX and rates markets, the Fed's move lifted the US dollar index by 1.1%. The Bank of Japan also raised rates, briefly pushing the yen to its strongest level since February. Taiwan's central bank kept rates on hold, leaving the Taiwan dollar largely unchanged.

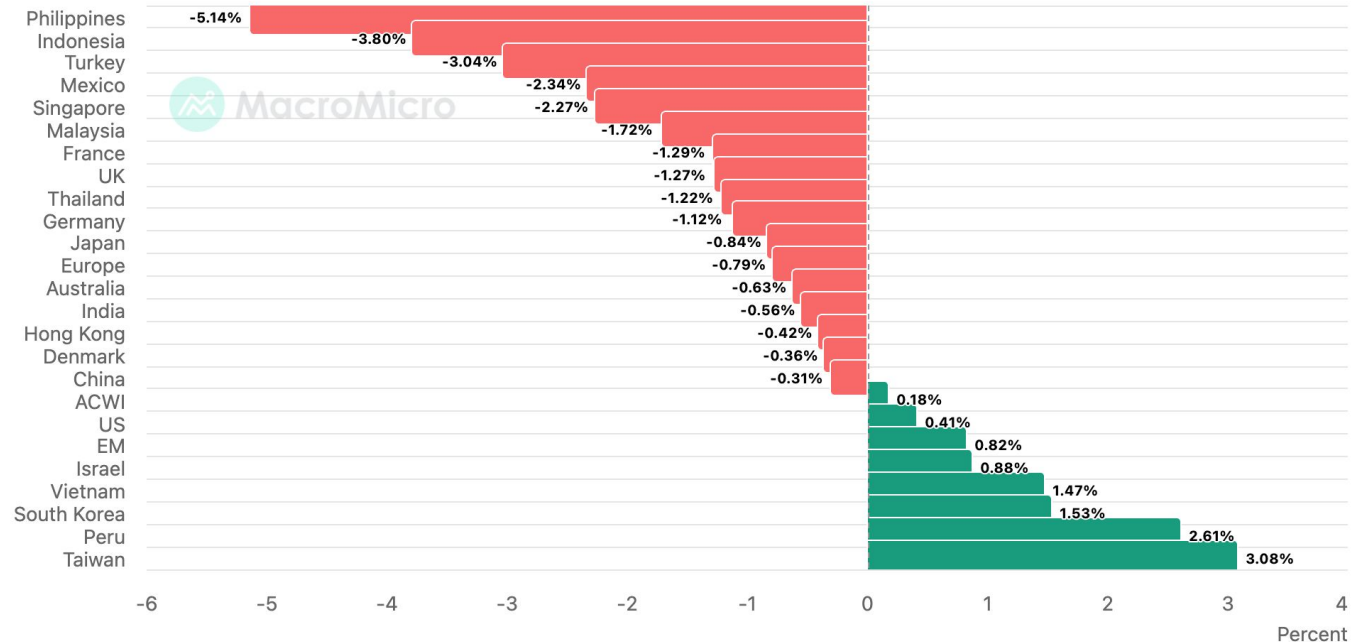
Commodities were softer. Markets digested earlier Middle East tensions, sending WTI crude back below \$100 per barrel.

Note: Due to public holidays, next week's WEFC will be delayed to Tuesday, September 29.

Tech Rebounds While Europe Weakens

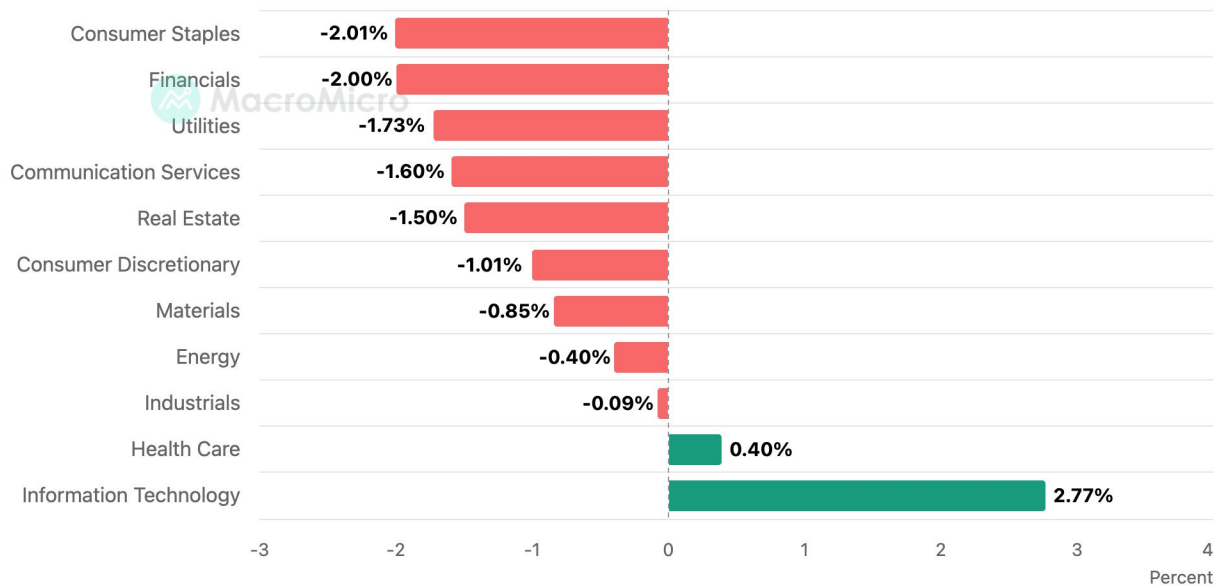
MSCI Stock USD Indices Weekly Performance (%)

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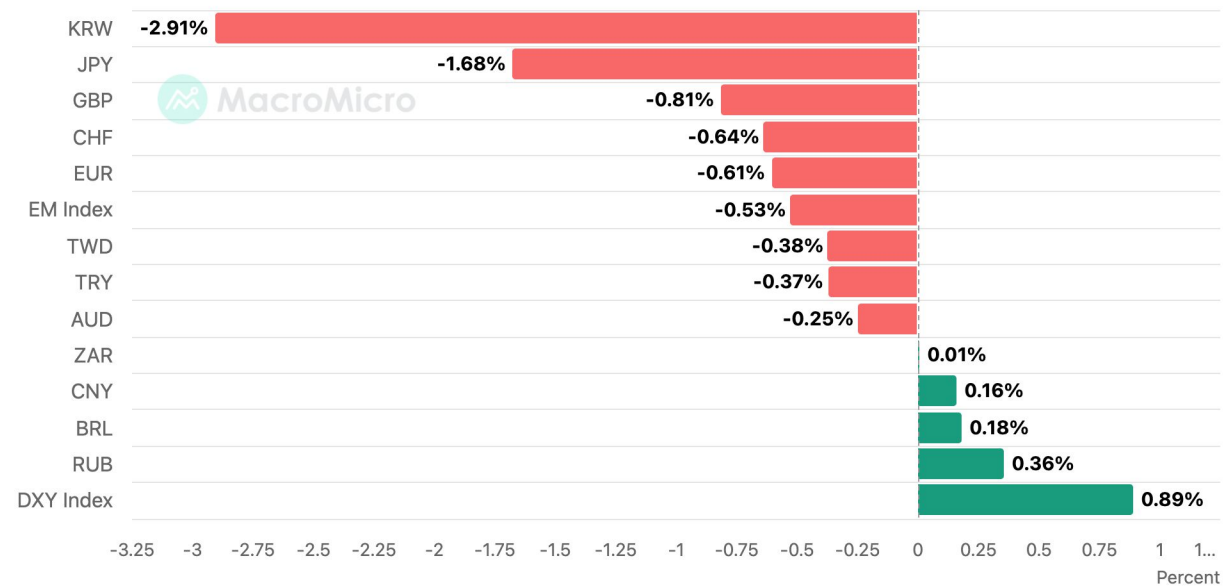
S&P Sectors Weekly Performance (%)

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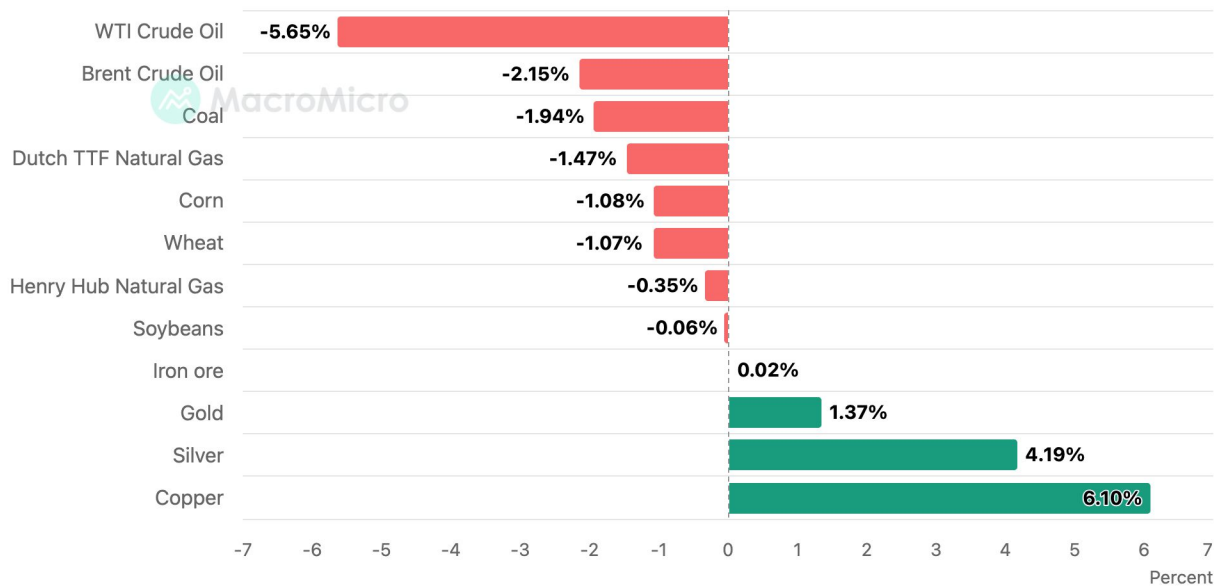
Forex Market Weekly Performance (%)

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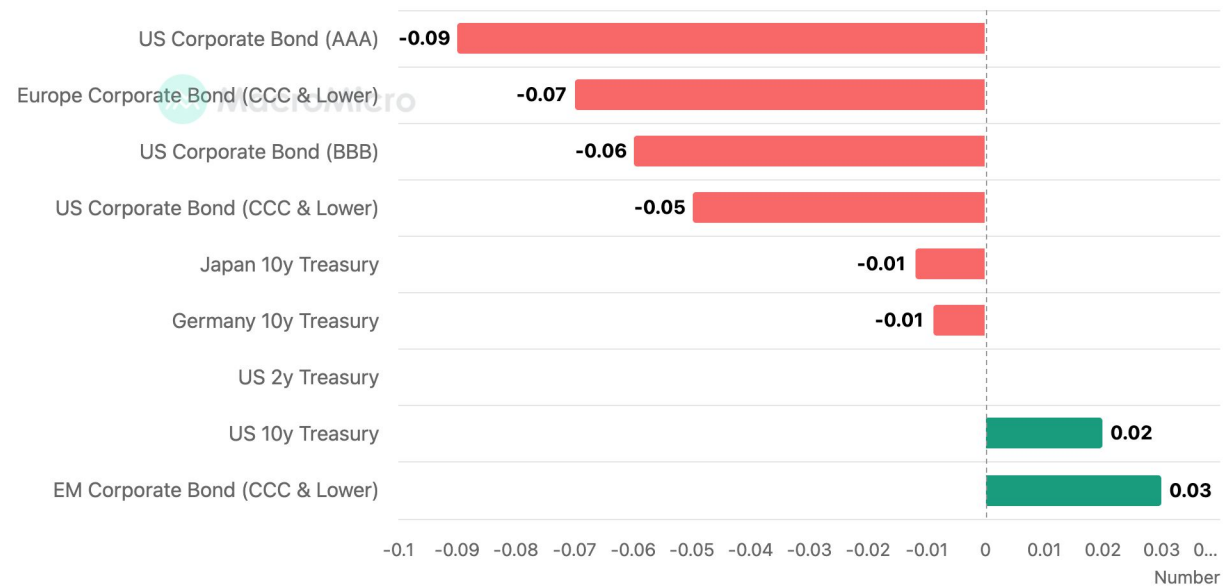
Commodity Market Weekly Performance (%)

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Bond Market Weekly Performance (Percentage Points)

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Fed Delivers First Hike in Three Years, Dot Plot Signals Two More in 2026



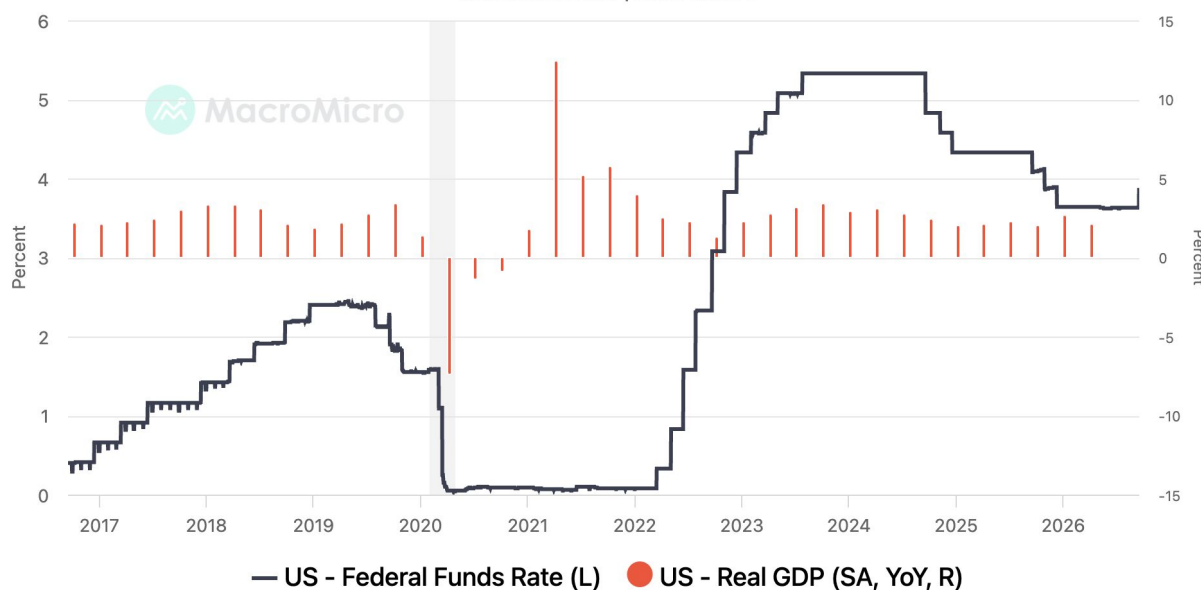
The FOMC raised the federal funds rate 25bp to 3.75-4.00% on a unanimous 12-0 vote, the first hike in three years. The statement added new language that the action will help inflation return to target more promptly, dropping prior references to sector-specific supply shocks.

The dot plot median for 2026 and 2027 shifted up to 4.00-4.25%, with 16 of 18 voting members backing at least one more hike this year. Twelve members project two more 25bp increases in 2026 and four project three, leaving only two members at a single hike.

The first hike since the 2023 tightening cycle ended breaks a two-year pause

US - Federal Funds Rate

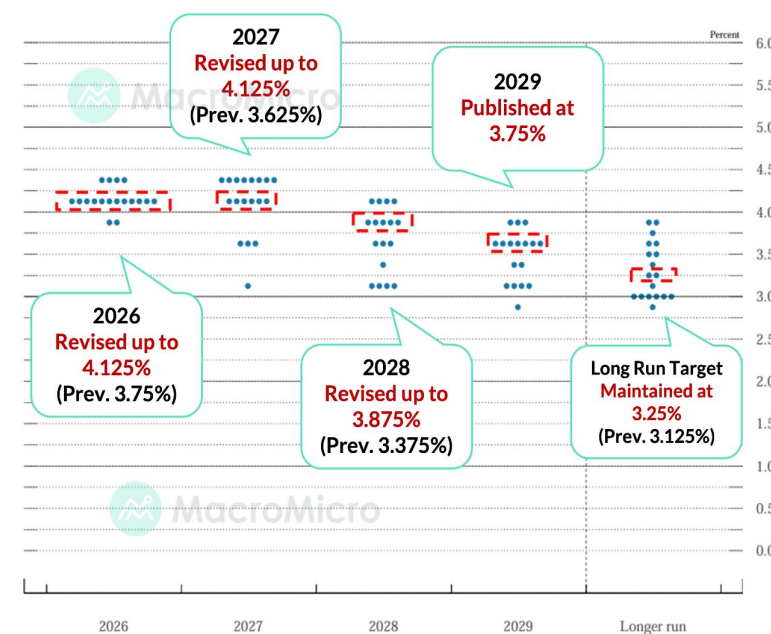
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Twelve of eighteen members cluster at two additional hikes for the remainder of 2026

Distribution of Participants Relative to Previous Median

2026	2027	2028	Longer Run
No. Revising Upward			
9	7	4	2
No. Revising Downward			
0	0	0	0
Up	Up	Up	Up





SEP Revisions Show Growth & Employment Outpacing Long-Run Trend Despite Tightening

Growth & employment forecasts both improve alongside the hike

The Fed raised its 2026-2027 GDP growth forecasts to 2.3% and 2.4%, from 2.2% and 2.3% prior, while cutting the unemployment rate outlook to 4.1% across 2026-2028 from 4.3%. Both figures sit inside the range the Committee treats as consistent with maximum employment, at or below the long-run rate of 4.2%.

Headline and core PCE inflation projections rose to 3.7% and 3.4% for 2026, from 3.6% and 3.3% in June, with the policy rate path revised up to 4.1% for 2026-2027 from 3.8% and 3.6%. The long-run rate dot ticked up to 3.2% from 3.1%.

Inflation forecasts rise in the same meeting the Fed starts hiking against them

FOMC Sept 2026 Projection Changes:

Upward revision to 2026–2027 GDP growth

Downward revision to 2026–2028 Unemployment rate

Upward revision to 2026 & 2028 Inflation and Core Inflation

Upward revision to 2026–2028 Rate Path; Neutral Rate slightly increased

Percent

Variable	Median ¹				
	2026	2027	2028	2029	Longer run
Change in real GDP	2.3	2.4	2.2	2.1	2.0
June projection	2.2	2.3	2.2		2.0
Unemployment rate	4.1	4.1	4.1	4.1	4.2
June projection	4.3	4.3	4.2		4.2
PCE inflation	3.7	2.3	2.1	2.0	2.0
June projection	3.6	2.3	2.0		2.0
Core PCE inflation ⁴	3.4	2.5	2.2	2.0	
June projection	3.3	2.5	2.1		
Memo: Projected appropriate policy path					
Federal funds rate	4.1	4.1	3.9	3.6	3.2
June projection	3.8	3.6	3.4		3.1

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Reserve Buffer Holds Near \$3tn as Short-Bill Purchases Pause & TGA Rebuild Looms

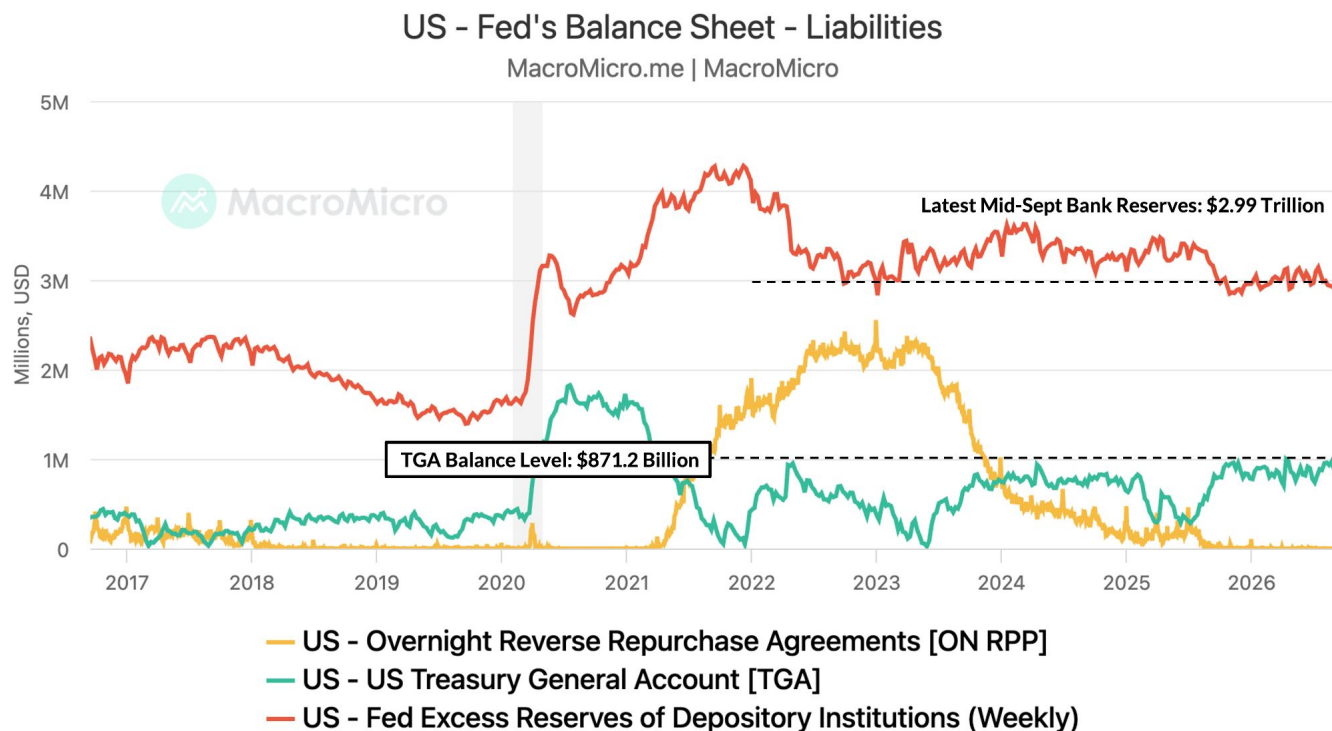


A projected \$100-200bn TGA drawdown offsets the end of Fed bill purchases

The New York Fed halted its Reserve Management Purchases of short-dated bills after August 13, ending a program that ran from December 2025 at a declining monthly pace of \$40bn, \$25bn, then \$10bn. Bank reserves held steady at \$2.99tn following the pause, with the Fed reiterating its commitment to maintaining ample reserves in the banking system.

The Treasury General Account stood at \$871.2bn in mid-September, with Treasury guidance pointing to \$950bn by month-end and \$1.05tn by October as corporate tax receipts land. Treasury's Q4 cash balance target of \$850bn, down from \$950bn, implies \$100-200bn of TGA drawdown available to support reserves.

Reserves hold at \$2.99tn a month after the RMP purchase program ends





Warsh Frames Hike as Overdue Correction; MM Sees Growth Absorbing the Rate Path

Warsh identified three developments since the prior meeting that drove the unanimous vote: broad-based data showing the economy strengthening, summer inflation trends that failed to confirm real underlying improvement, and shifting geopolitical risk assessments. He noted financial conditions are difficult to characterize as restrictive, prompting the Committee to withdraw a portion of policy accommodation.

The Cleveland Fed nowcast puts September core CPI and core PCE month-over-month gains at a contained 0.2% and 0.28%, driven mainly by oil and crack-spread pass-through into transport rather than sticky services inflation. Retail sales accelerated to 6.01% year-over-year from 5.03% prior, with 9 of 12 categories posting higher growth, supporting MM's house view that sufficient growth absorbs near-term rate pressure into Q4.

Futures price a majority chance of a second hike in October

US - Policy Rate Curve Implied by Interest Rate Futures

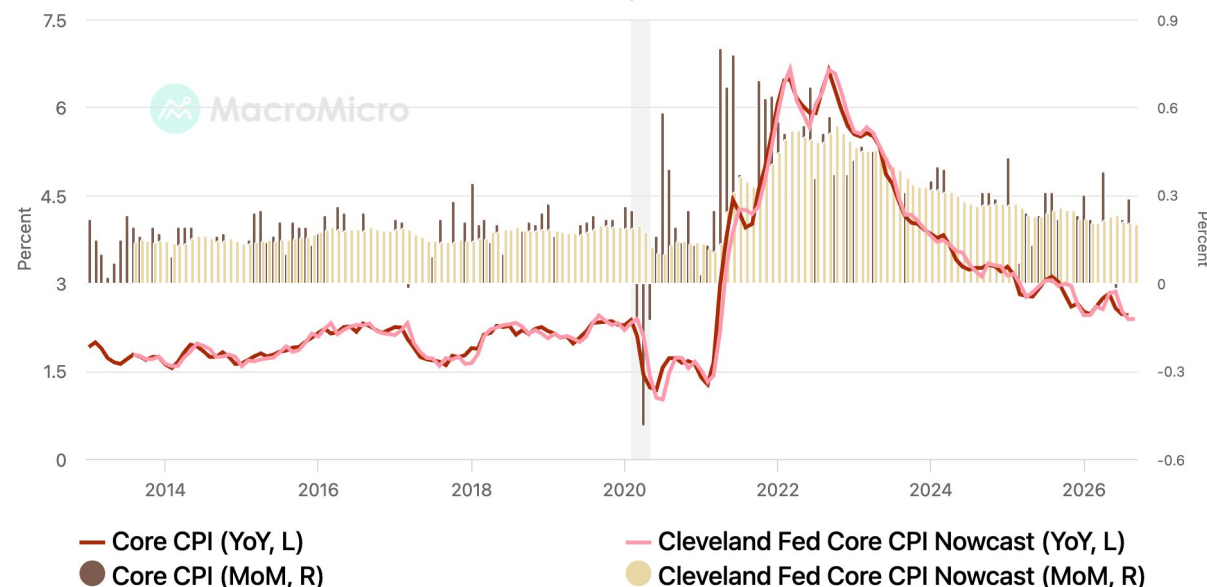
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A contained 0.2% core CPI nowcast supports our view that growth absorbs the rate hikes into Q4

US - Cleveland Fed Inflation Nowcast: CPI

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BOJ Hikes to 1.25%, Fiscal & Political Constraints Cap Further Moves



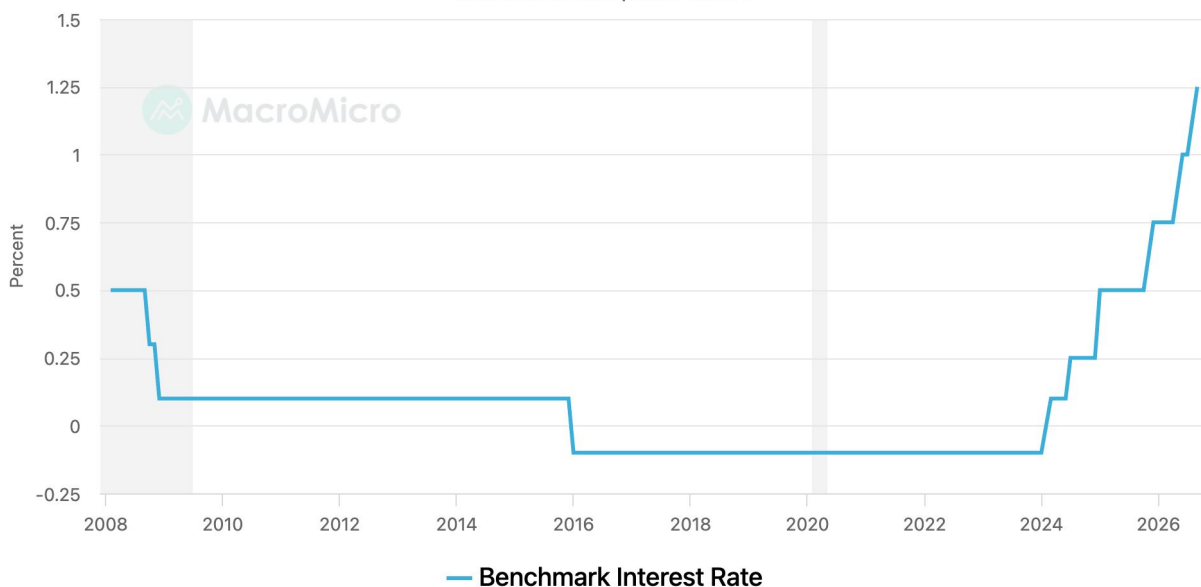
The BOJ raised its policy rate 25bp to 1.25% on a 7-2 vote, with dissents from Asahi and Sato, both Takaichi appointees, who argued core CPI growth below 2% **did not justify the hike**. Real private consumption weakened materially in Q3, and Japan's FY2027 budget request hit a record JPY 143.1tn, up roughly 17% year-on-year, undercutting the case for a rapid hiking cadence.

Japan sold USD 87.8bn in foreign securities in August to slow yen depreciation, raising US concern over Treasury market liquidity, which gives Washington a **direct stake in further BOJ hikes**. Governor Ueda declined to commit to a fixed schedule, citing 2022-23 US and European tightening as a cautionary precedent, and flagged the 2027 shunto wage round as the key confirming data point.

Bank of Japan raises rates to 1.25%, with two members dissenting

Japan - Benchmark Interest Rate

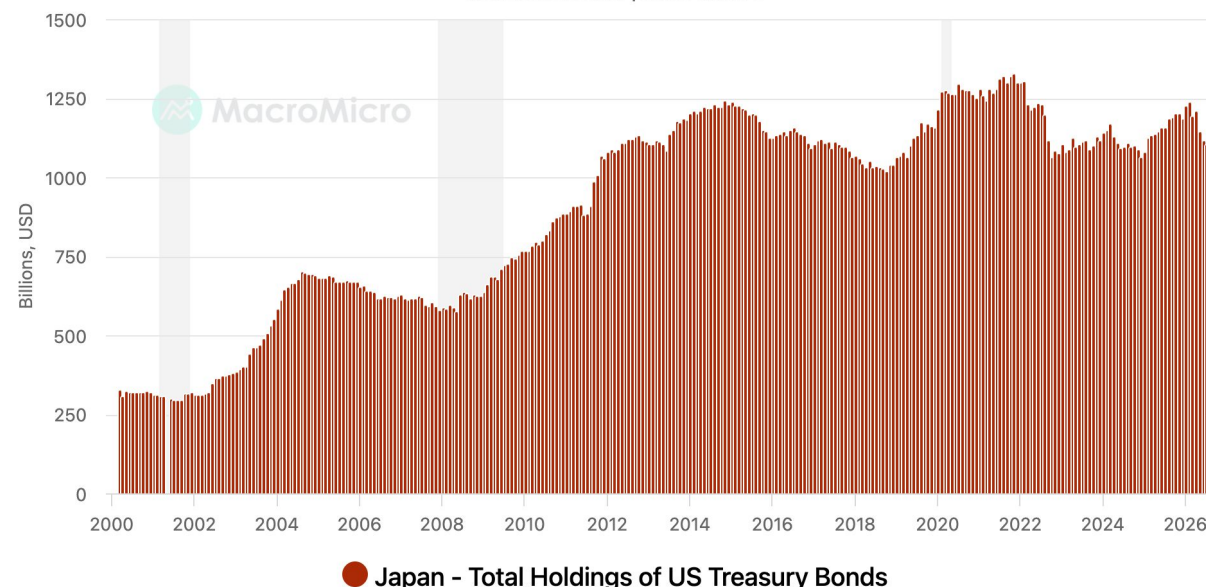
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External pressure argues for hiking sooner, internal caution argues for waiting on shunto

Japan - Total Holdings of US Treasury Bonds

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ECB Delivers Second 2026 Hike as Energy Shock Pushes Headline Inflation to 3.3%



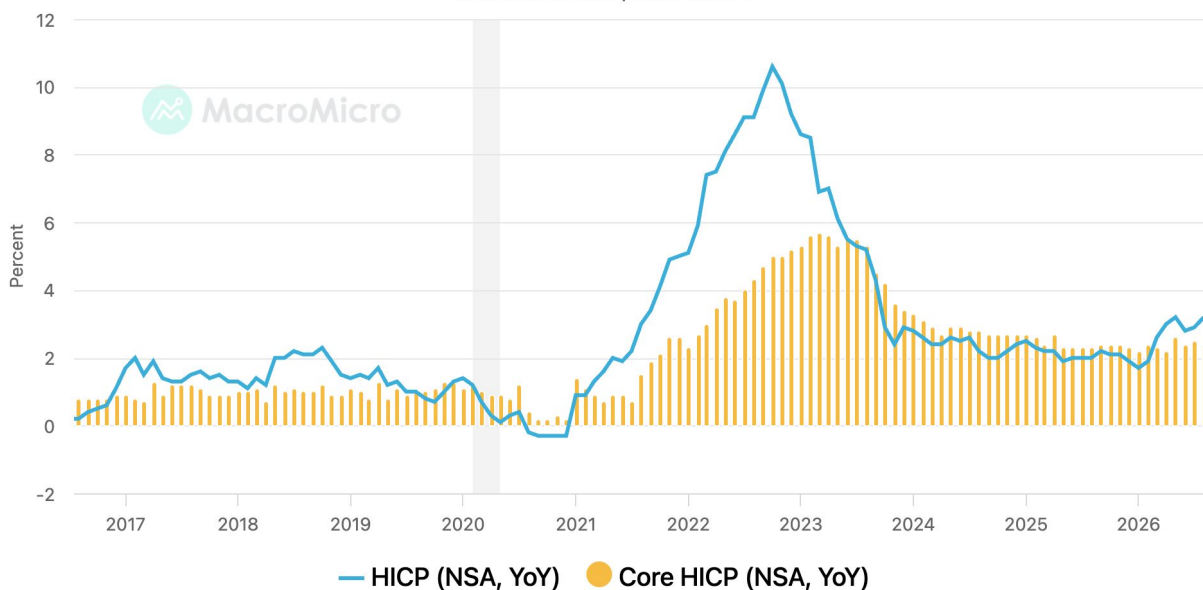
The ECB raised all three key rates 25bp in September, taking the deposit rate to 2.50%, its second hike this year after June. Euro area HICP inflation accelerated to 3.3% in August from 2.9%, driven by a 14.3% year-on-year jump in energy prices tied to Middle East conflict.

Core inflation excluding energy and food eased to 2.4% in August, with services inflation slowing to 3.0%, indicating limited second-round wage effects. The ECB lifted its 2027 and 2028 inflation forecasts to 2.5% and 2.1% respectively, framing the hike as pre-emptive rather than reactive to current core trends.

The energy-driven gap between headline and core inflation defines this as a targeted price shock

Eurozone - Harmonised Index of Consumer Prices [HICP]

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Above-target forecasts through 2028 justify calling this an insurance hike against entrenchment

ECB Macroeconomic Projections (Sep 2026)

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	2026	2027	2028
Real GDP	0.90% ▲ (Prev 0.80%)	1.40% ▲ (Prev 1.20%)	1.50% (Prev 1.50%)
Unemployment rate	6.20% ▼ (Prev 6.30%)	6.10% ▼ (Prev 6.20%)	5.90% ▼ (Prev 6.00%)
Inflation (HICP)	3.00% (Prev 3.00%)	2.50% ▲ (Prev 2.30%)	2.10% ▲ (Prev 2.00%)
Core HICP	2.50% (Prev 2.50%)	2.60% ▲ (Prev 2.50%)	2.30% ▲ (Prev 2.20%)

French Fiscal Stress Complicates the ECB's Growth Backdrop



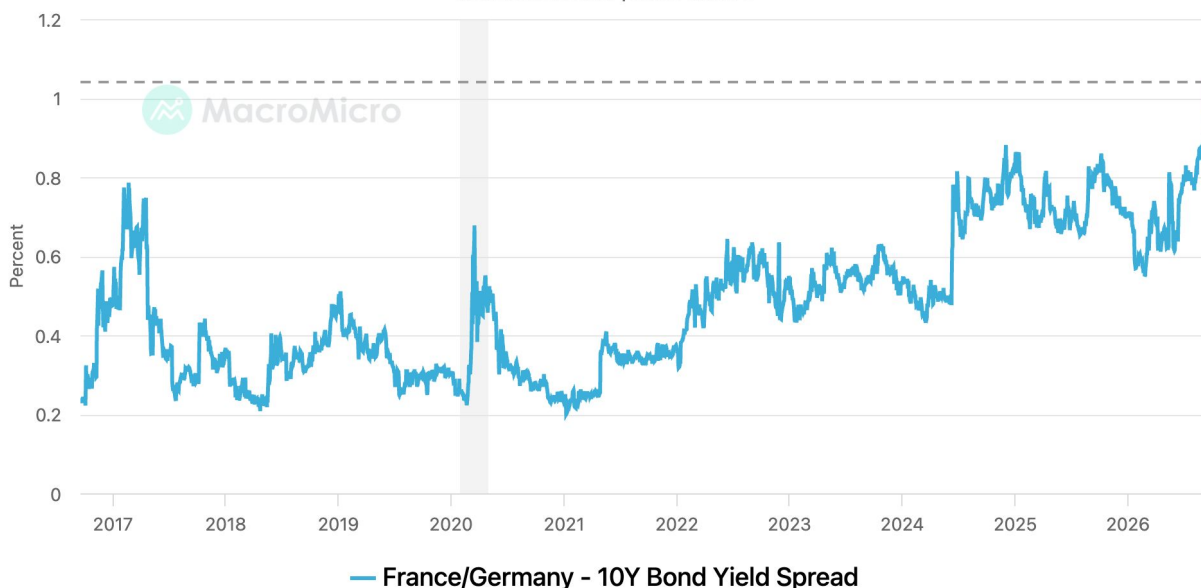
French 10-year yields rose to 4.51-4.58%, the highest since the 2008 financial crisis, while the OAT-Bund spread widened past 100bp for the first time since the 2012 euro debt crisis. The move reflects a deteriorating fiscal path, with the 2026 deficit projected at 5.4% of GDP and 2027 at 6.5% absent corrective measures.

PM Lecornu's EUR 54bn fiscal consolidation plan targets a 5% deficit by 2027, but lacks a parliamentary majority to pass, with both far-right and far-left frontrunners for 2027 favoring looser fiscal policy. Eurozone composite PMI still rose to 52.1 in August, a fourth-straight month above 50, showing France's fiscal strain has not yet spread to broader euro area activity.

The spread's break above 100bp prices in political risk ahead of the 2027 presidential election

France/Germany - 10Y Bond Yield Spread

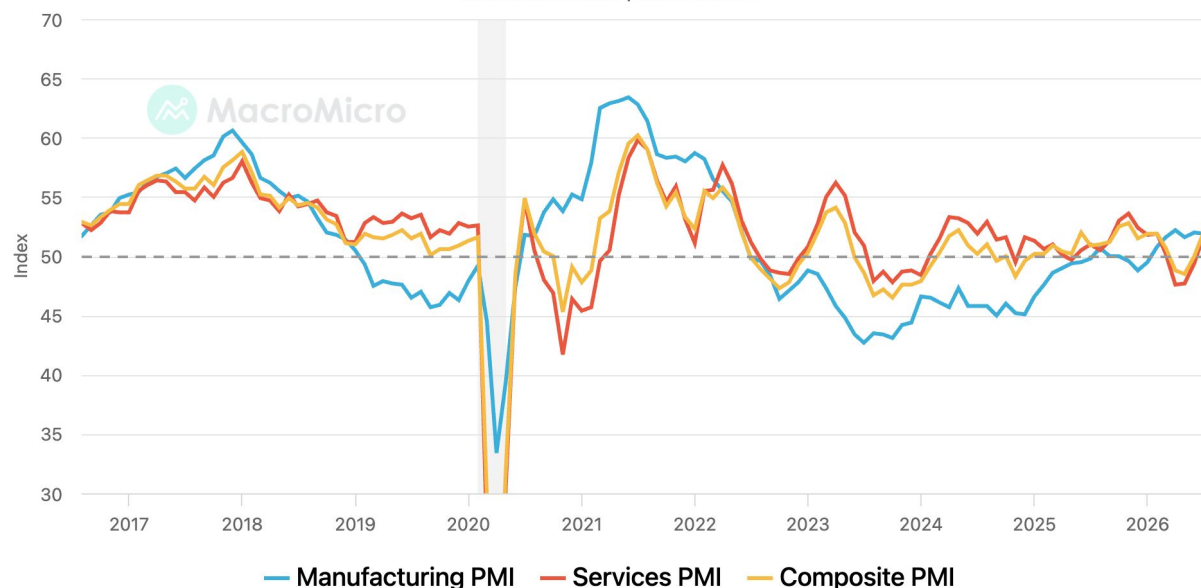
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Resilient regional PMI data means the ECB can treat French spread widening as a fiscal problem for now

Eurozone - PMI & NMI

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BOE Holds at 3.75%, Reshapes QT to Clear Path for a November Hike

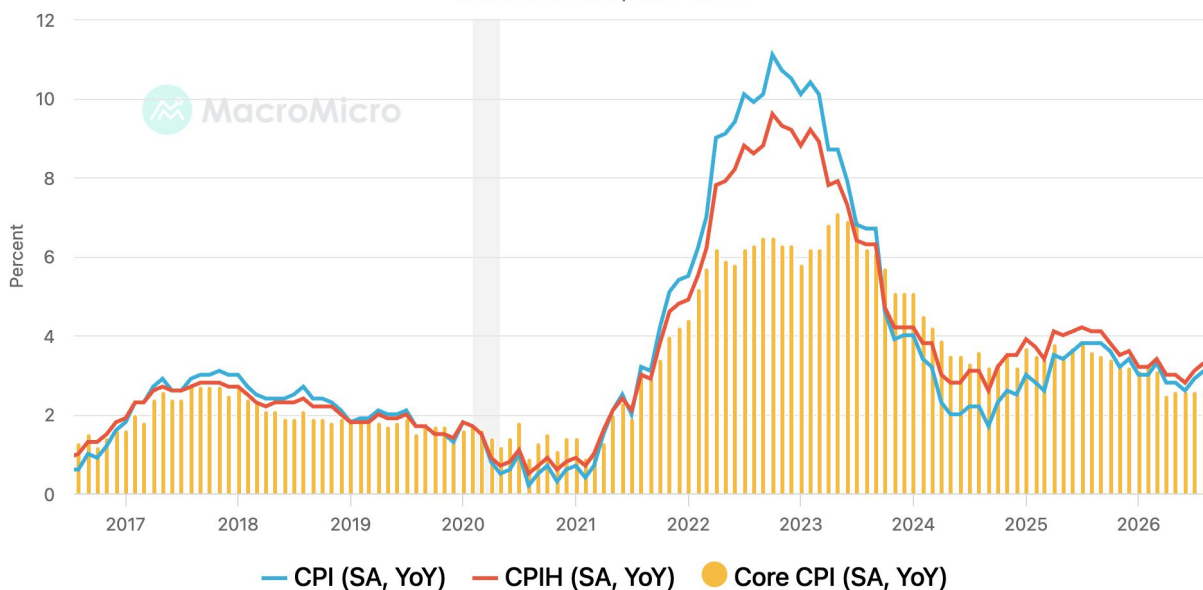
The MPC voted 6-3 to hold at 3.75%, with Greene, Mann, and Pill dissenting for an immediate 25bp hike as August UK inflation rose to 3.1%, already above the 2% target with a 4%+ peak forecast for next year. Bailey tied the hold explicitly to bond market conditions, signaling a hike is likely once QT reform has calmed long-end gilt yields.

The BOE will pause active gilt sales for up to six months, permanently retain GBP 120bn of long-dated gilts as banknote backing, and spread the remainder over eight years at GBP 20bn annually, down from unconstrained sales. The 30-year gilt yield fell 12bp to 5.74% on the announcement, its best single-day move since May, giving the MPC room to raise rates without compounding long-end borrowing costs.

A three-way dissent for immediate action signals the hold is tactical even as CPI runs above target

UK - Consumer Price Index

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Easing long-end yield pressure now is what buys the BOE room to hike as soon as November

UK - Implied Policy Rate Curve from Interest Rate Futures

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Global Rate Path: Sovereign Debt Capacity Has Replaced Inflation as the Limit on Rate Hikes



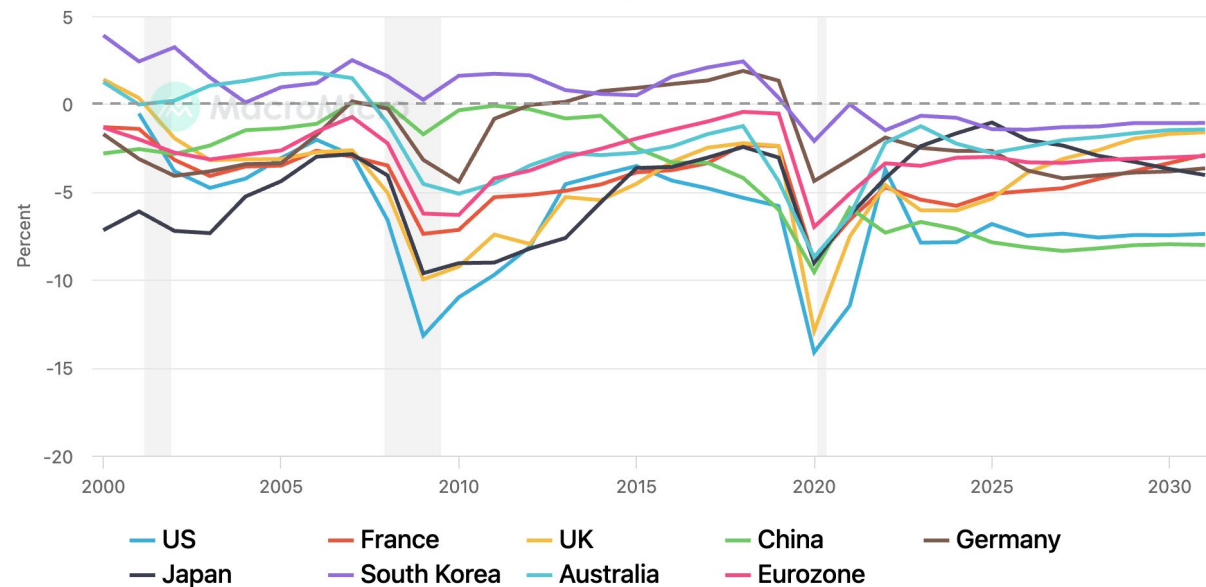
Deficit-funded expansion from aging populations, defense rearmament, and subsidy programs now drives sovereign yields more than inflation data does, and central bank hikes are adding to that pressure rather than easing it. Japan's yen defense requires selling US Treasuries to fund FX intervention, tightening the same bond market its own rate hike is meant to stabilize.

Whether a government can carry its debt load depends on GDP growth outpacing the rate on new issuance, and that growth gap varies sharply by country. The US and Germany need 0.8 to 1.1 additional points of growth, reachable through AI-driven productivity gains; Japan needs 1.6, France 2.0, and the UK 2.3, mapping directly onto this week's three constrained hikers.

Central banks hiking into a deficit-driven yield problem add to the pressure they are trying to control

World - Fiscal Balance (% of GDP)

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The size of the growth gap determines how much further each central bank can hike

Required GDP Growth Increase to Maintain Government Debt/GDP Stability Over the Next 10 Years

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Country	Assumed Debt Growth Rate	Required GDP Growth Rate to Maintain Stability	Past Potential GDP Growth Rate	Additional GDP Growth Increase Required (pp)
US	6.4%	3.6%	2.5%	+1.1 pp
Germany	4.4%	2.1%	1.2%	+0.8 pp
France	5.4%	3.6%	1.6%	+2.0 pp
UK	6.8%	3.8%	1.5%	+2.3 pp
Japan	4.4%	2.3%	0.8%	+1.6 pp

Foundry: Pricing Power Peaks as Advanced Nodes Stay Scarce



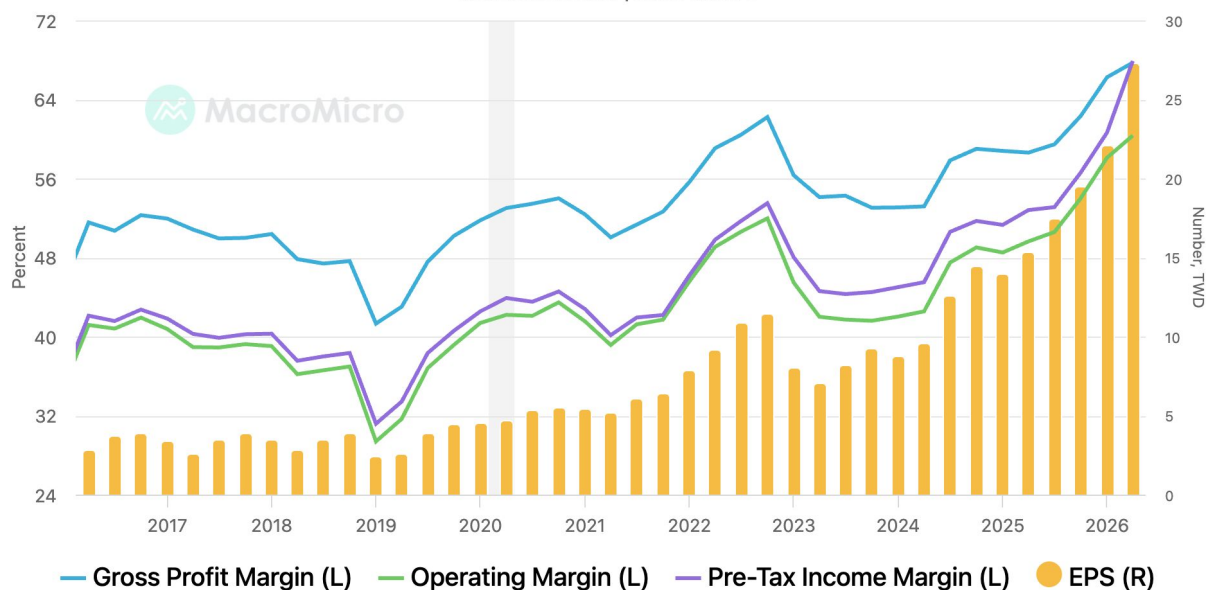
TSMC's 2Q26 gross, operating, and net margins all hit record highs, confirming AI demand is translating into pricing power at the foundry level. Q3 2026 revenue guidance of \$44.6-45.8bn, against July-August actuals of roughly \$30.7bn, again beat consensus expectations.

TSMC raised its full-year 2026 USD revenue growth guidance from "above 30%" to "slightly above 40%," while capex discipline remains intact rather than repeating the overbooking seen in 2022. Free cash flow across the foundry segment has risen sharply since 2H25 as pricing gains convert directly into cash.

Foundry & advanced packaging capacity remain tight, driving strong TSMC profits

Taiwan - TSMC Financial Statement

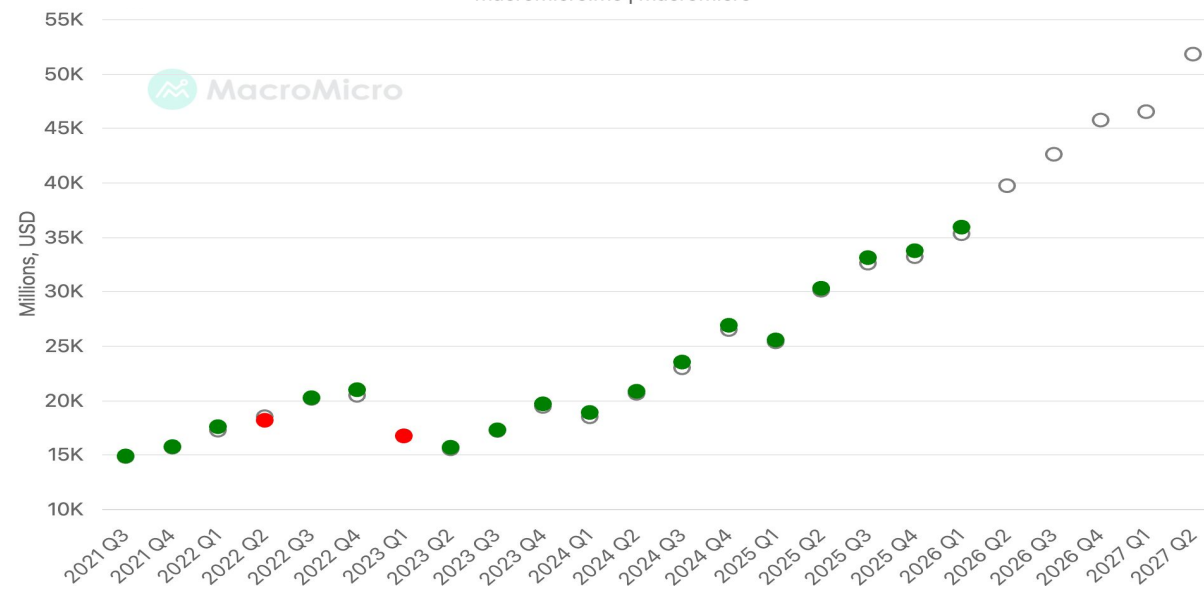
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FY2026 revenue guidance raised, now forecasting growth of just over 40% YoY

TSMC ADR - Revenue Forecast Comparison

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Memory Enters a Supercycle as Suppliers Lock In Multi-Year Contracts

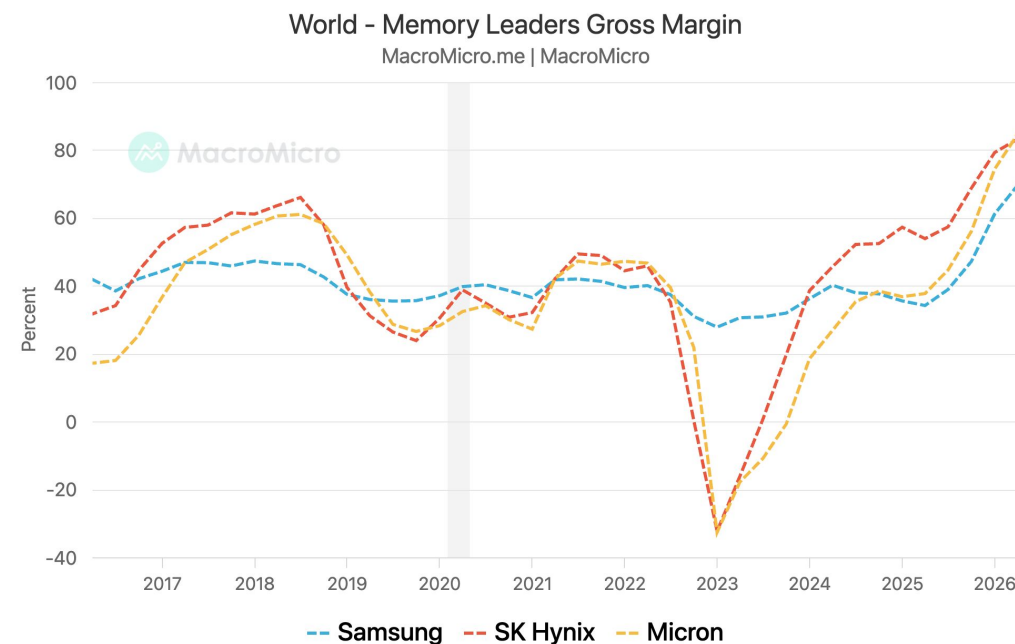
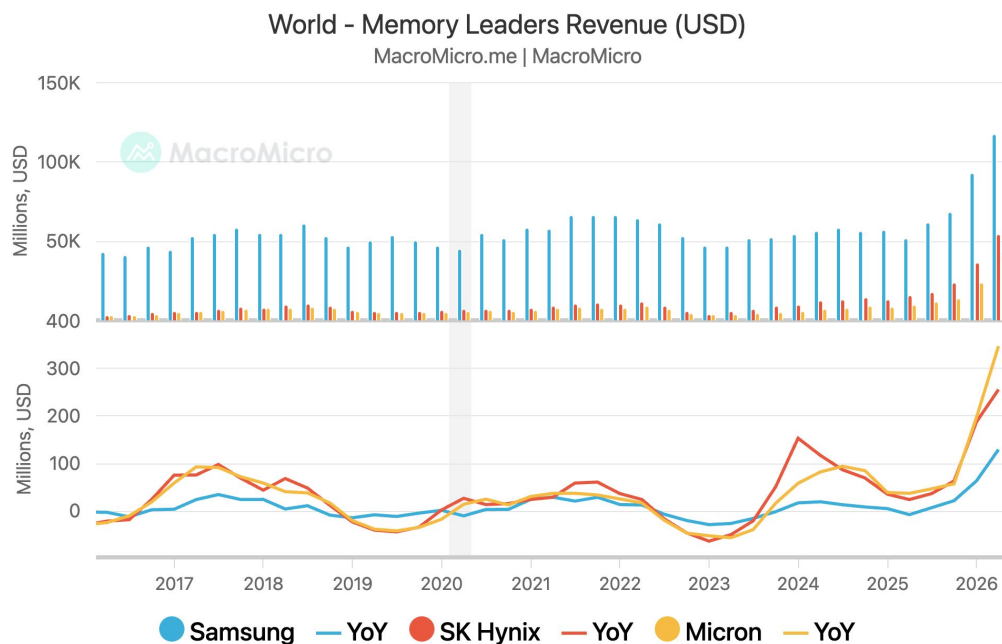


Leading memory makers have posted record revenue and gross margins near 80% since 2H25 as capacity shifts toward HBM and DDR5 while legacy EOL DDR4 supply is deliberately wound down. Both mature and next-generation memory are converging on supply tightening and price increases simultaneously, a break from prior cycles where only leading-edge product saw pricing power.

The three leading memory suppliers have for the first time signed roughly five-year supply contracts covering pricing, volume, and financial guarantees, aiming to avoid repeating past boom-bust cycles. System performance is increasingly determined by memory capacity (tokens per dollar, tokens per watt) rather than compute speed alone, pushing memory architecture toward vertical stacking on xPUs and ASICs.

The Three Leading Memory Makers Post Strong Profits

Memory Becomes The Biggest Beneficiary Of Price Increases



Advanced Packaging & Substrates Emerge as the Next Bottleneck



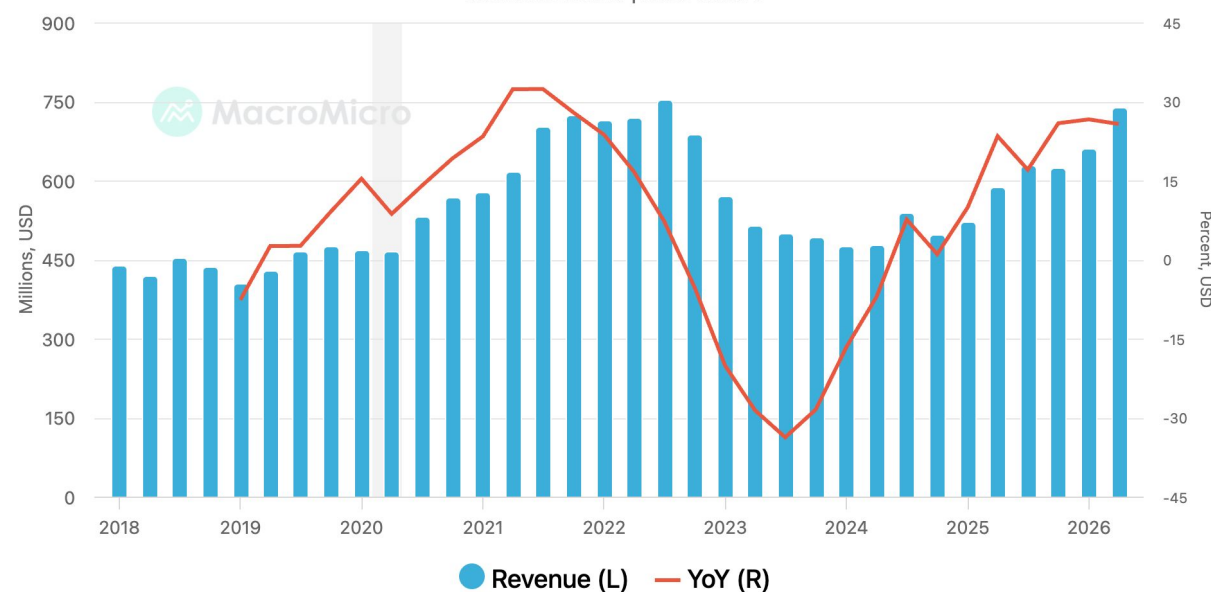
Chiplet-based heterogeneous integration is driving substrate area growth and higher layer counts, pushing ABF demand higher as I/O bump counts rise with each generation. Glass-core materials are now entering production to address warpage and high-frequency signal loss at larger substrate sizes.

CoWoS interposer area and HBM stack counts continue to expand while fan-out panel-level packaging (FOPLP) advances, with TSMC delegating portions of the CoWoS "on-Substrate" step to outside packaging vendors. Packaging and test margins are rising as capacity stays tight and AI chip integration complexity increases.

Heterogeneous integration drives explosive substrate demand, with revenue & gross margin climbing steadily

World - ABF Substrate Industry - Average Revenue of Major Companies

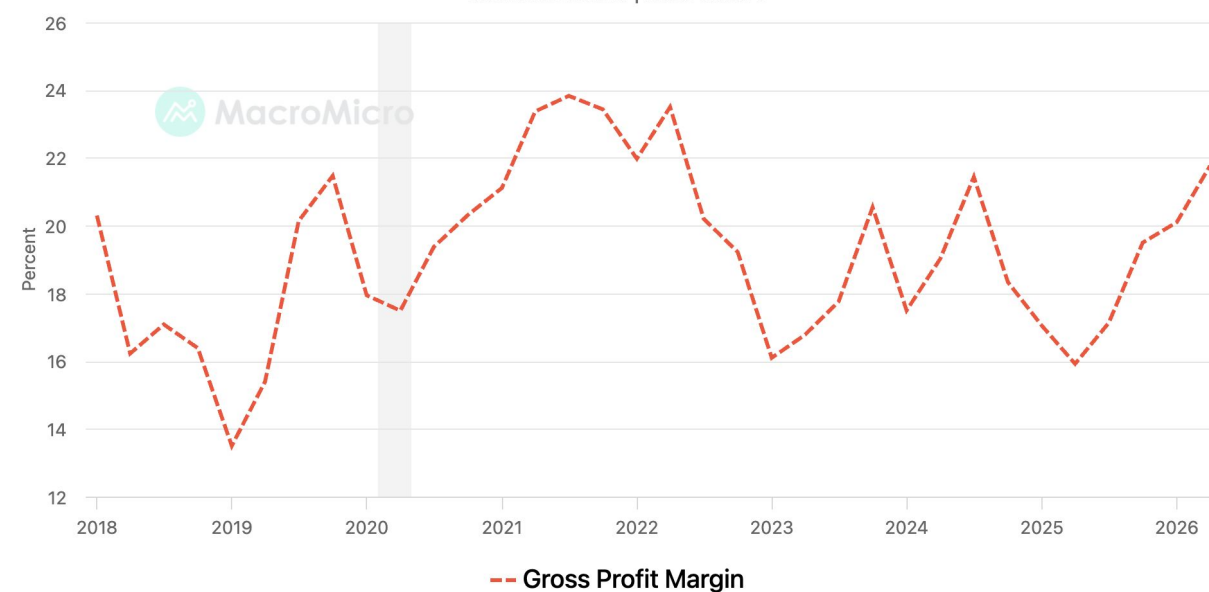
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Packaging & Testing Shift From A "Cost" To A "Necessity," & Margins Rise

World - Packaging & Testing Industry - Average Gross Margin of Major Companies

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Substrate & PCB Supply Chains Upgrade Structurally on Spec Escalation

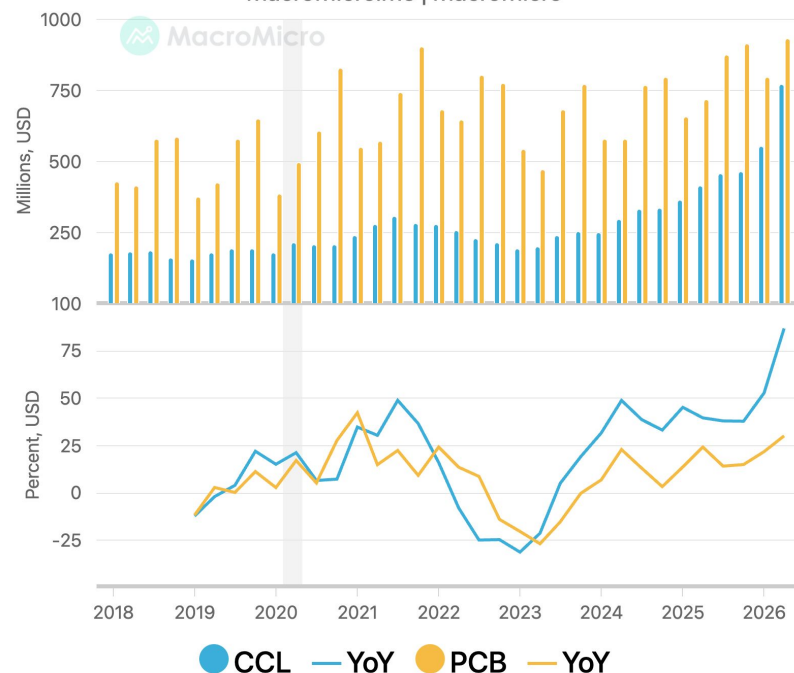


CCL suppliers face tight upstream glass fiber cloth and copper foil supply as specifications move to M7-M9 grades, producing a supply-demand gap and elevated margins. The upgrade cycle mirrors the substrate-side bump and layer-count escalation described in advanced packaging.

PCB makers are shifting toward very high layer counts and high-grade HDI, with mSAP processes now applied to optical module boards, lifting output value and margin structure. This places PCB in the same structural upgrade category as CCL, ABF, and advanced packaging.

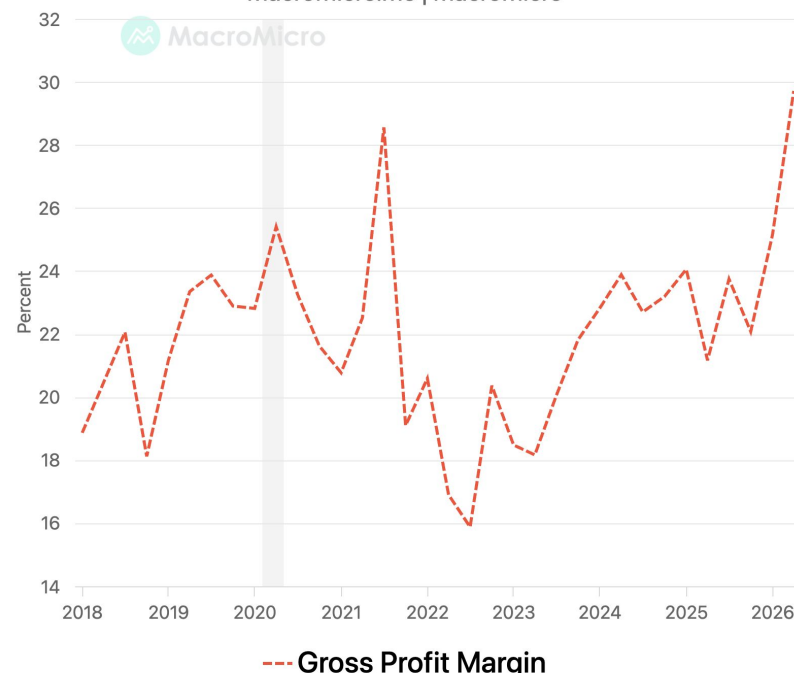
World - CCL vs. PCB Industry - Major Companies
Average Revenue

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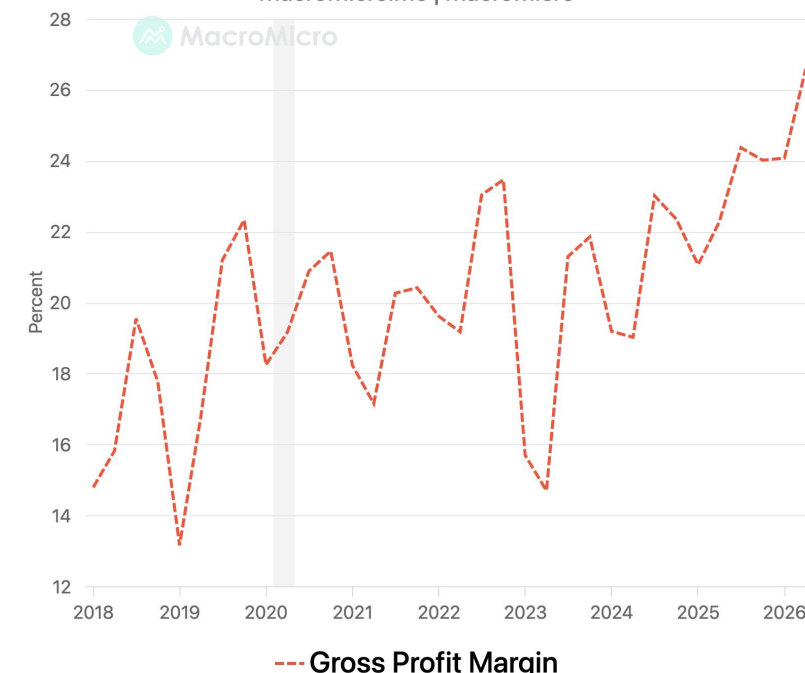
World - CCL Industry - Average Gross Margin of Major Companies

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World - PCB Industry - Average Gross Margin of Major Companies

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Liquid Cooling Penetration Crosses 50% as TDP Exceeds 1kW



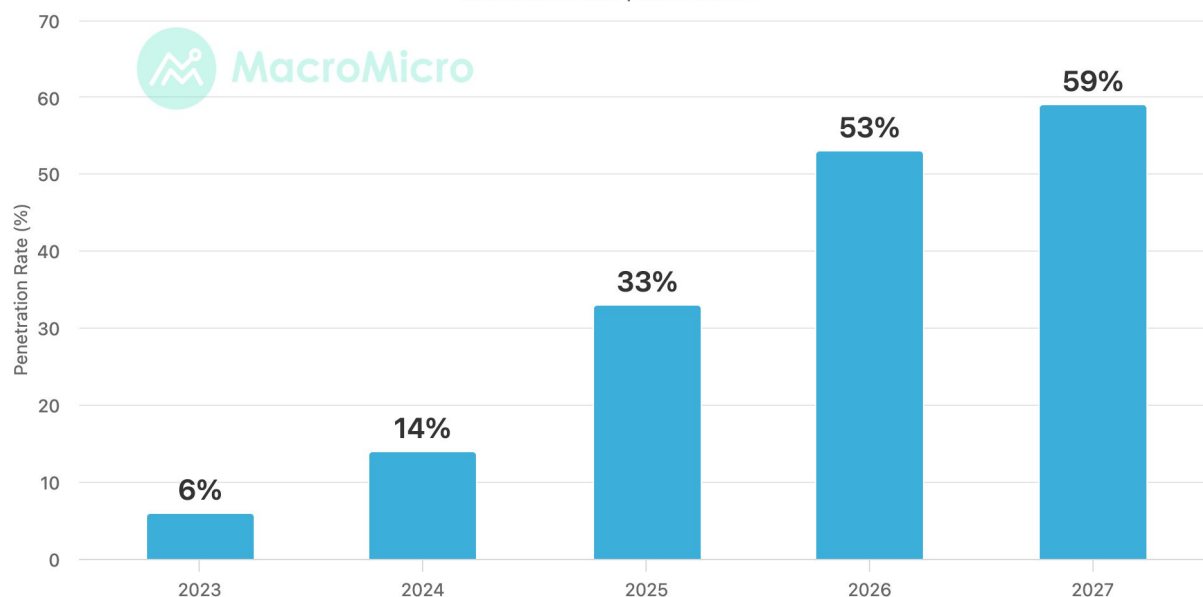
High-end AI chip TDP has broadly surpassed 1kW and full-rack AI server power draw now reaches several hundred kW, pushing air cooling past its practical limit. TrendForce projects liquid cooling penetration in AI chips will exceed 50% in 2026 and approach 60% by 2027.

Thermal suppliers have shifted from selling individual components to delivering full liquid-cooling systems (CDU, manifold, rack) and are co-designing package-level cooling (cold plate, vapor chamber) directly with foundries. Sector revenue has posted consecutive record highs over the past two years, with a further step-up expected in 2H26 on VR200 shipments.

Liquid Cooling Penetration Keeps Rising Year After Year, Becoming Standard For High-End AI Infrastructure

2023–2027 Estimated Liquid Cooling Penetration Rate for AI Chips

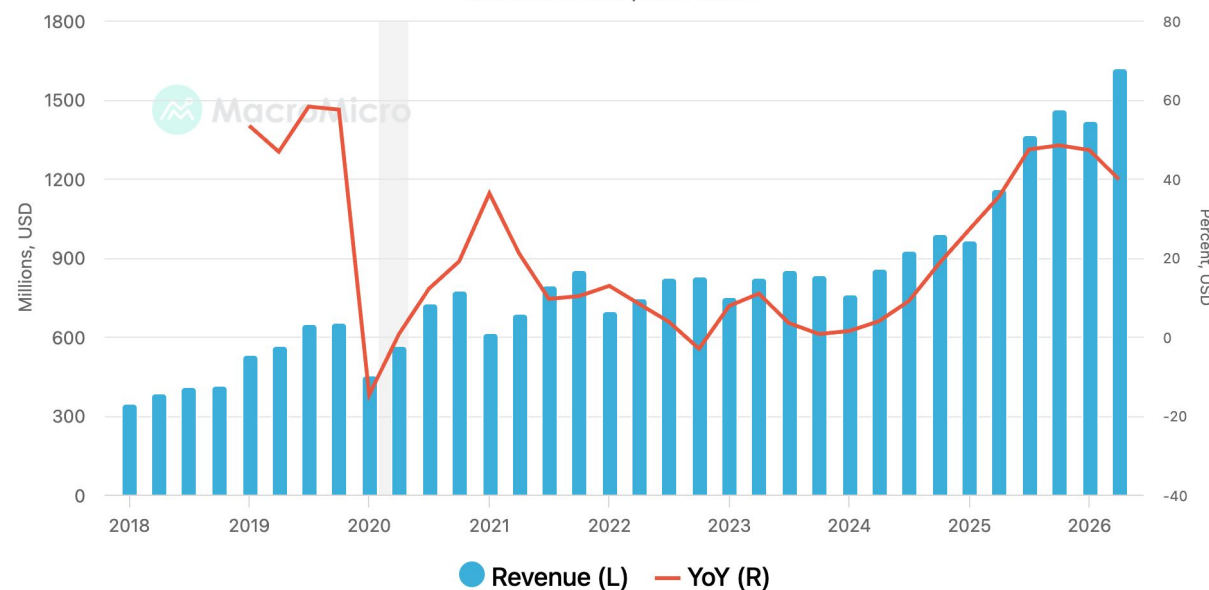
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Revenue Keeps Hitting New Highs, With VR200 Shipments Expected To Drive Further Growth

World - Thermal Management Industry - Average Revenue for Major Companies

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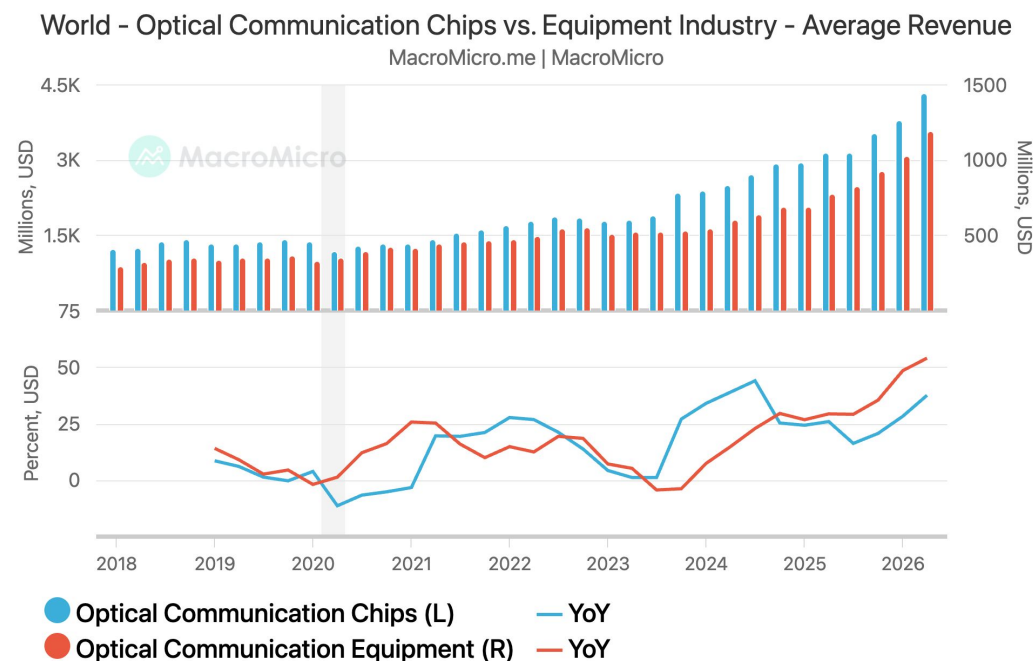
Optical Interconnect Moves From Pluggable Modules Toward CPO



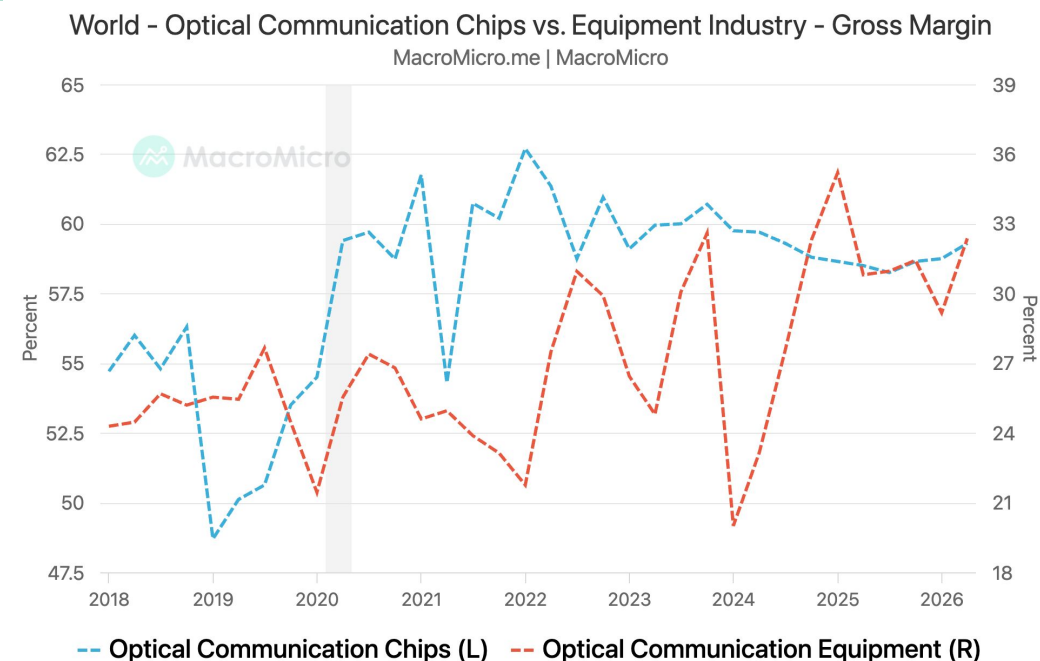
The industry is transitioning from 800G to 1.6T transceivers and optical circuit switches (OCS), with NPO/CPO development on schedule and indium phosphide front-end capacity constraints easing; TrendForce-adjacent estimates point to the OCS TAM doubling to \$4bn by 2030. Nvidia's CPO-based Spectrum-X Photonics entered mass production in August 2026.

As optical and electronic dies integrate more tightly through 2.5D/3D heterogeneous packaging, thermal warpage increasingly disrupts fiber and waveguide alignment, pushing test procedures earlier into the wafer and die stage rather than the module stage. This raises the value captured by advanced packaging, test equipment, and optical metrology suppliers.

Margins climb as the roadmap moves optical engines progressively closer to the xPU



Test complexity shifts value toward equipment & metrology as CPO integration tightens



Assembly Remains the Weakest Link as Cost Pass-Through Lags



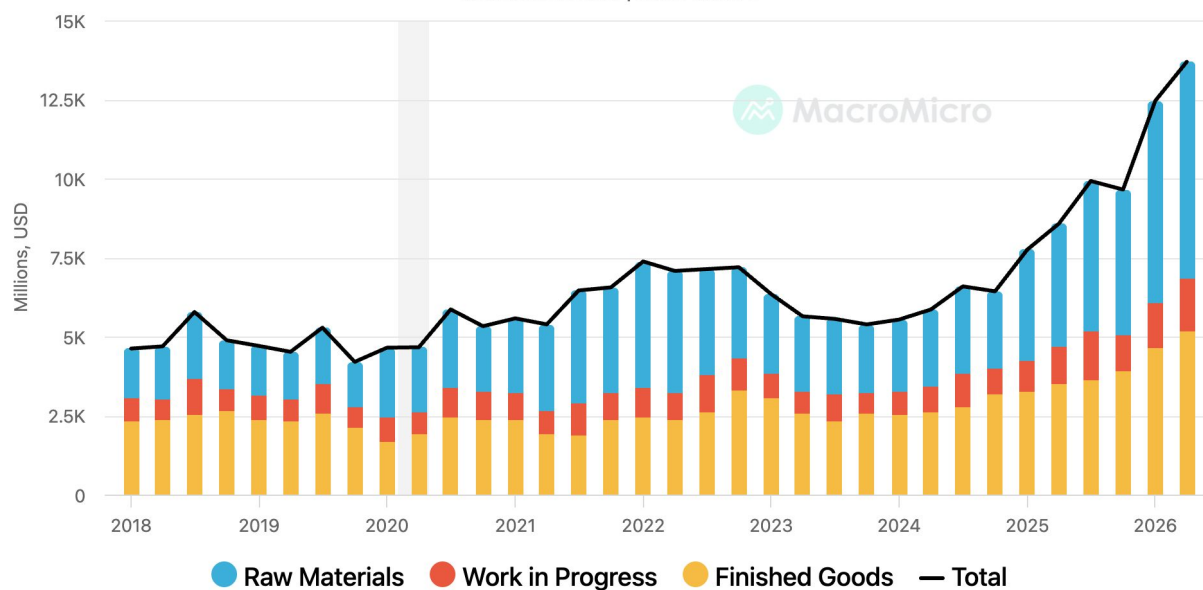
ODMs sit at the bottom of the cost chain and are absorbing rising chip, server component, and rack costs amid upstream shortages and extended lead times, pushing assembler inventory higher. This is a margin timing problem rather than a demand problem for the segment.

The main near-term risk is mismatched component lead times delaying finished system shipments while tying up working capital, compressing ODM gross margin until costs are passed to customers. Inventory in the AI infrastructure layer is described as passively accumulating pending VR200's move to full-scale production.

Rising Server Costs Combined With Component Bottlenecks Lead To Heavy Inventory Pressure

World - OEM/ODM Industry - Average Inventory Composition for Major Companies

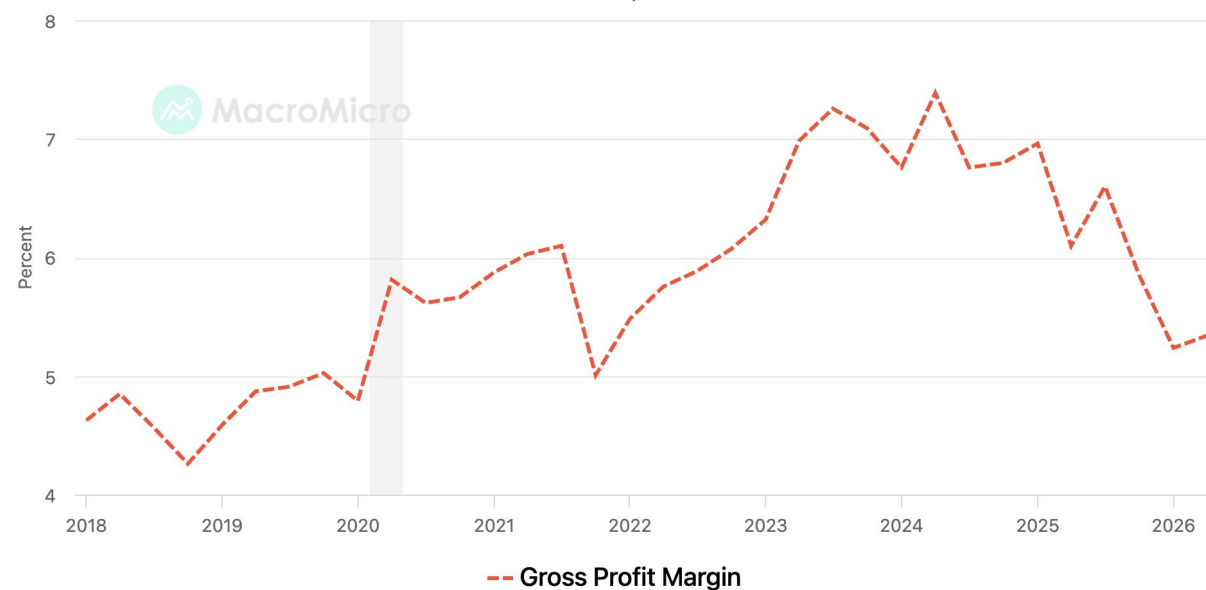
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Costs Passed Down From Upstream Squeeze Assemblers' Margins

World - OEM/ODM Industry - Average Gross Margin for Major Companies

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Capex Above \$800bn in 2026 Will Determine Whether AI Demand Is Durable



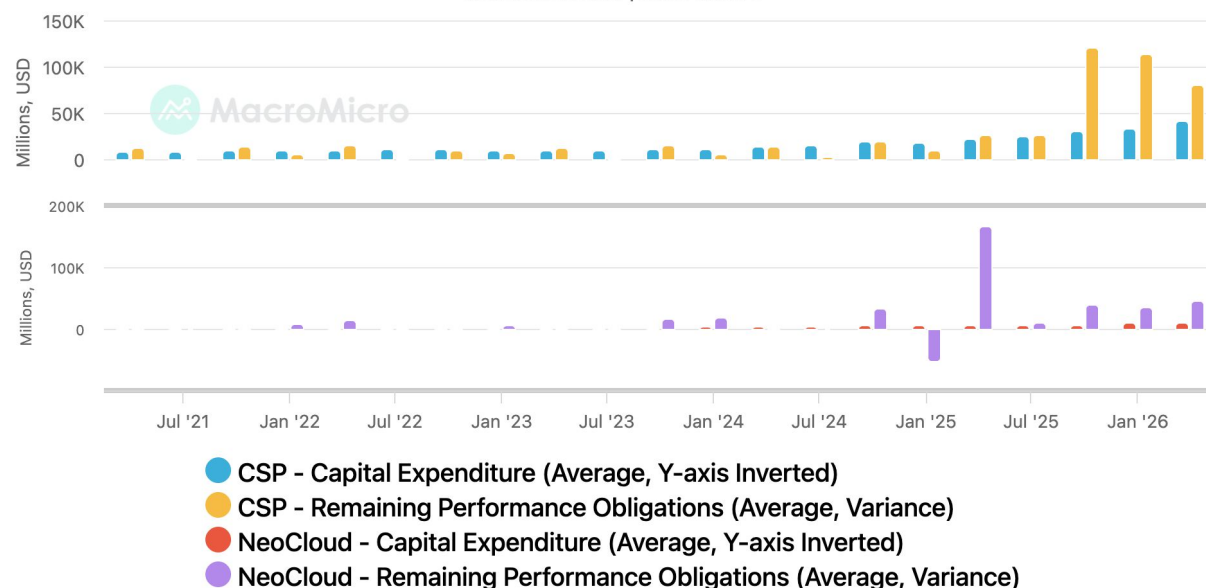
Hyperscaler and neocloud capex is set to exceed \$800bn in 2026, with off-balance-sheet financing continuing to expand alongside it. Whether accumulated remaining performance obligations (RPO) can convert into realized capex and revenue is the key determinant of whether current AI infrastructure spending is durable.

Global token usage continues to grow and AI agents have begun entering enterprise workflows concurrently, marking the shift from AI training-phase investment to measurable application-layer usage. Monitor RPO-to-capex conversion and enterprise AI agent adoption through 2026 as the clearest signals of whether this capex cycle converts into durable revenue rather than remaining committed spend.

Whether RPO Can Successfully Replace CapEx to Drive Profit Is What Matters Most

World - AI Compute Supply Layer - Average CapEx Coverage Ratio by Major Industry

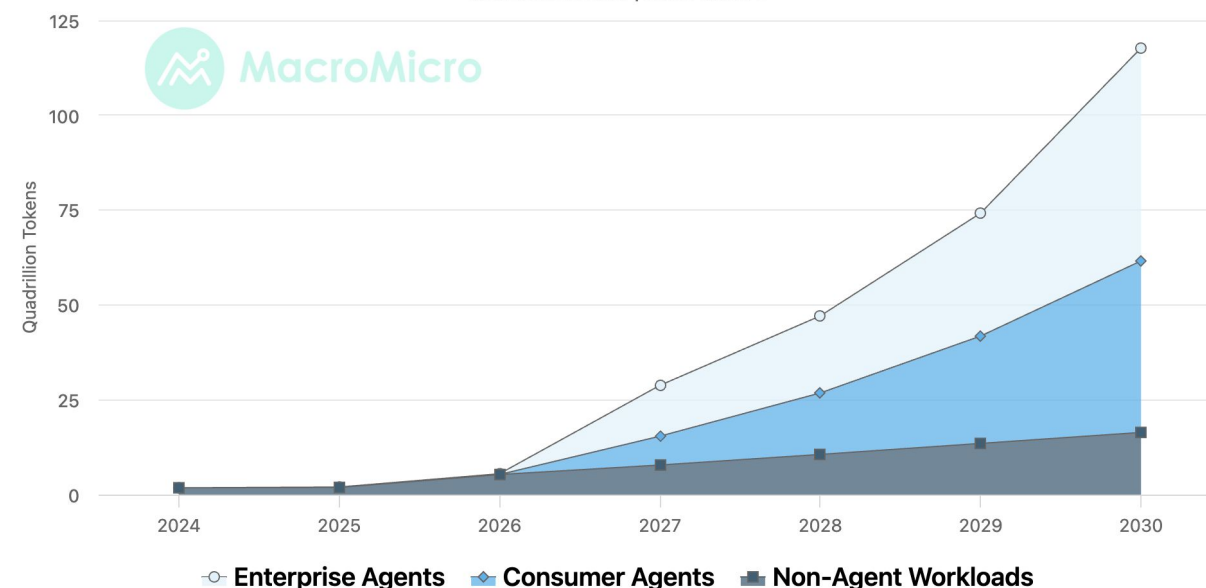
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Token Consumption Is Expected To Grow 24-Fold By 2030

Estimated Monthly Token Count for Agentic AI Applications

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MacroMicro Economic Calendar



Key Economic Events This Week



Add to Your Calendar

Fed Speakers (Mon–Tue): Chicago Fed’s Goolsbee (Mon), followed by Vice Chair Jefferson and New York Fed’s Williams (Tue). Markets will watch for any reiteration of inflation concerns or Middle East upside risks that could reinforce hawkish rate-hike bets.

Eurozone, UK & US Flash PMIs (Wed, Sep 23): Eurozone manufacturing PMI expected to edge up to 52.8 (prev. 52.7) on recovering new orders and exports. UK and US S&P flash PMIs also due; price and employment sub-components will be closely scrutinized after the recent PPI acceleration and amid ECB/BoE balancing acts on inflation vs. growth.

Trump–Xi White House Meeting (Thu, Sep 24): Key focus on tariffs, China’s prior commitments, third-country trade circumvention, rare-earth exports and AI. Preceded by Bessent–He Lifeng talks; any extension of the trade truce or tariff relief could lift risk appetite.

Note: Due to public holidays, next week's WEFC will be delayed to Tuesday, September 29.

The Week Ahead				
Sep 21 Monday	Sep 22 Tuesday	Sep 23 Wednesday	Sep 24 Thursday	Sep 25 Friday
		03:30 Germany - Manufacturing PMI 04:00 Eurozone - Service PMI [NMI] 04:00 Eurozone - Manufacturing PMI 10:30 US - Crude Oil Inventories (Weekly Change) 20:30 Japan - Manufacturing PMI	08:30 US - Initial Jobless Claims	



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