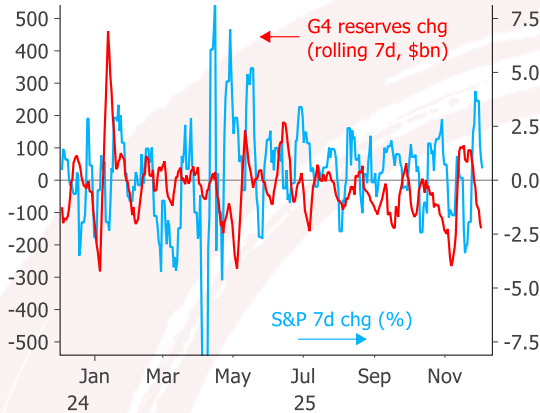


High-frequency observations

4 December 2025

CB liquidity high-frequency update

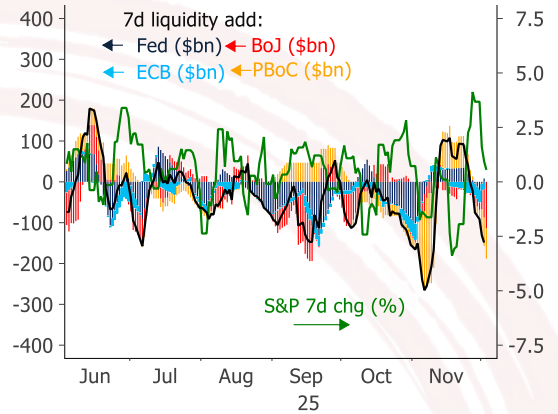
Central bank liquidity vs equities, rolling 7-day



Source: national central banks, Macrobond, Satori Insights. Excludes FX effects.

Latest CB observations by country

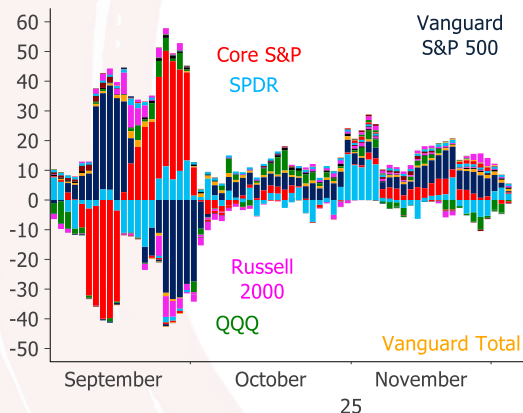
Global reserves vs equities, rolling 7-day



Source: national central banks, Macrobond, Satori Insights.

ETFs as guide to fund flows

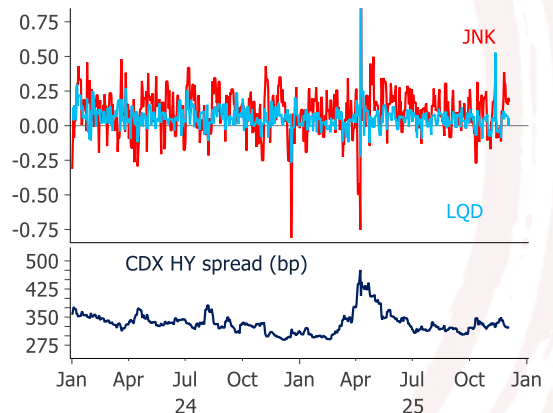
Largest ETF inflows, rolling 1w, \$bn



Source: Bloomberg, Satori Insights.

ETF discounts can guide to positioning

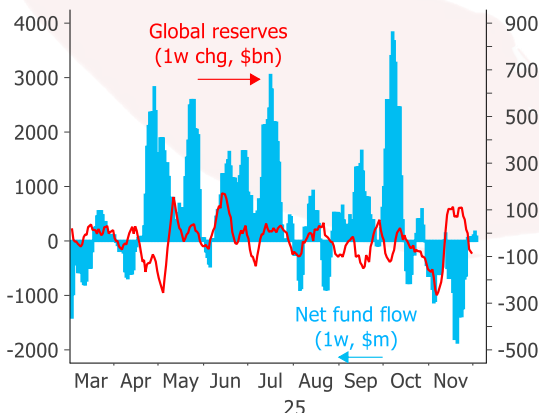
ETF premium/discount to NAV, %



Source: Bloomberg, Satori Insights.

CB reserves vs bitcoin flows

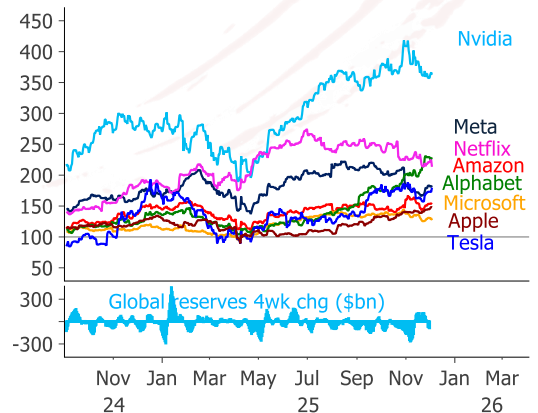
Aggregate net BTC ETF flow (\$m) vs global reserves chg



Source: Macrobond, Fed, CFTC, Satori Insights.

Tech turmoil not just about earnings

Tech equity prices, Jan24=100, vs central bank reserves



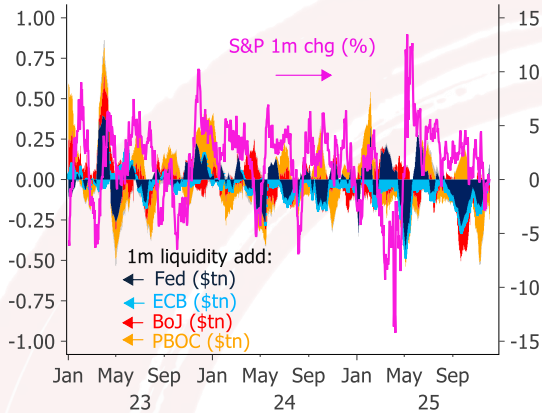
Source: WFE, Fed, S&P Global, Satori Insights.

Central bank liquidity vs S&P

4 December 2025

Global 1m

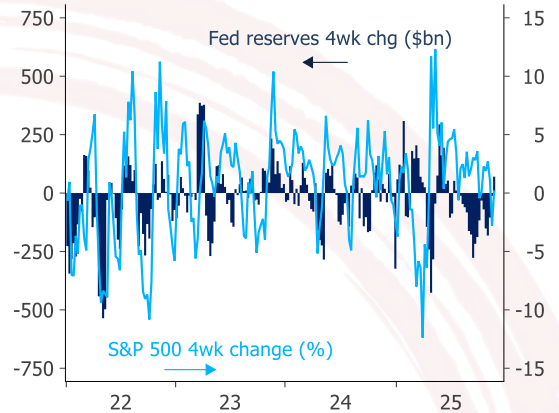
Global reserves chg vs equities, rolling 1m



Source: national central banks, Satori Insights.

Fed 1m

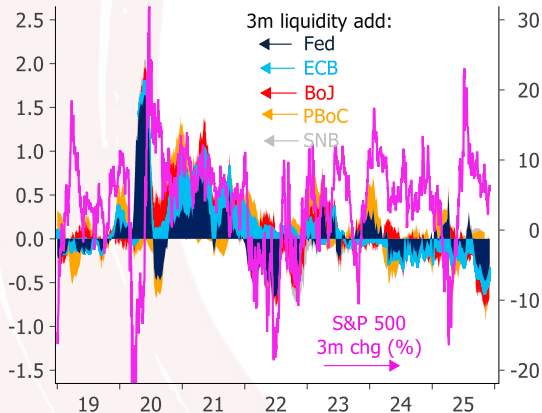
Bank reserves at Fed vs S&P 500, rolling 4wk chg



Source: Federal Reserve, S&P Global, Satori Insights.

Global 3m

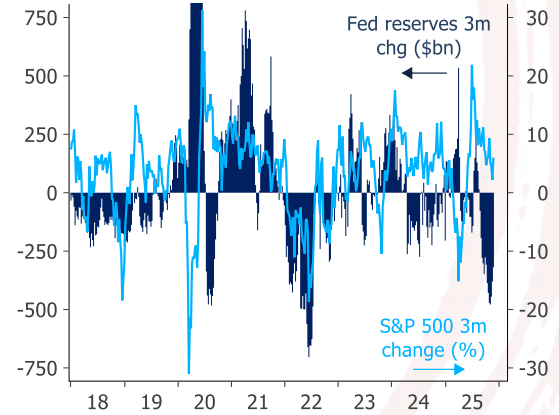
Central bank reserves (\$tn) vs equities, rolling 3m chg



Source: national central banks, Bloomberg, Macrobond, Satori Insights.

Fed 3m

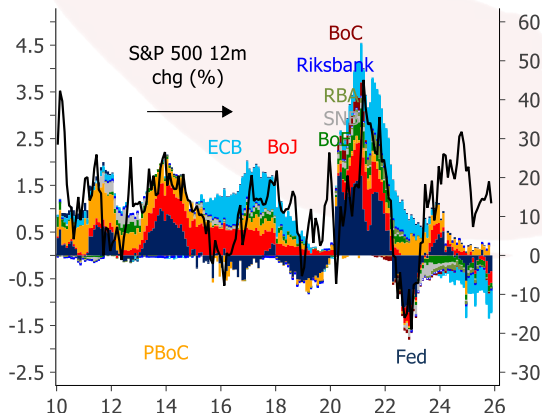
Bank reserves at Fed vs S&P 500, rolling 3m chg



Source: Federal Reserve, S&P Global, Satori Insights.

Global 12m

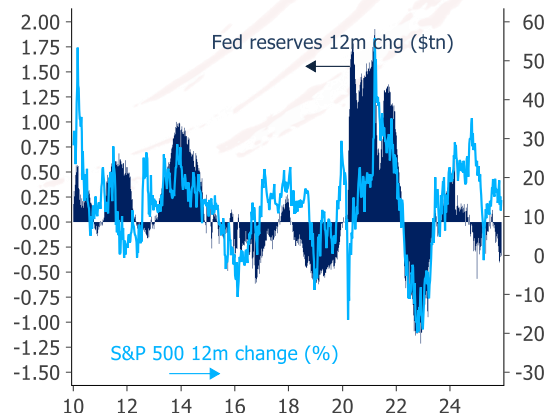
CB reserves chg (\$tn) vs equities, rolling 12m



Source: national central banks, Macrobond, Satori Insights.

Fed 12m

Bank reserves at Fed vs S&P 500, rolling 12m chg



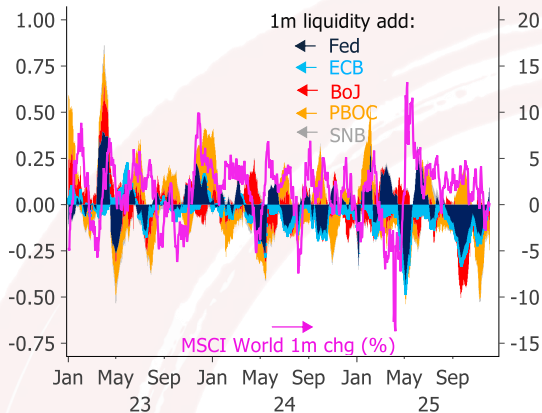
Source: Federal Reserve, S&P Global, Macrobond, Satori Insights.

Central bank liquidity vs MSCI

4 December 2025

Global 1m

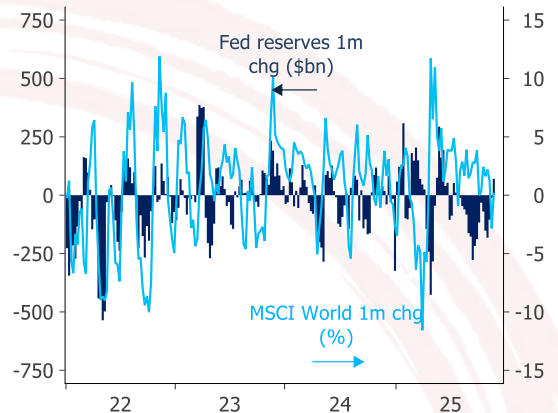
Global reserves chg (\$tn) vs equities, rolling 1m



Source: national central banks, MSCI, Macrobond, Satori Insights.

Fed 1m

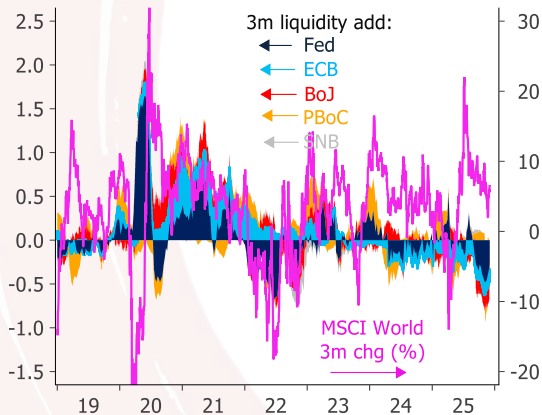
Bank reserves at Fed vs MSCI World, rolling 1m chg



Source: Federal Reserve, S&P Global, Macrobond, Satori Insights.

Global 3m

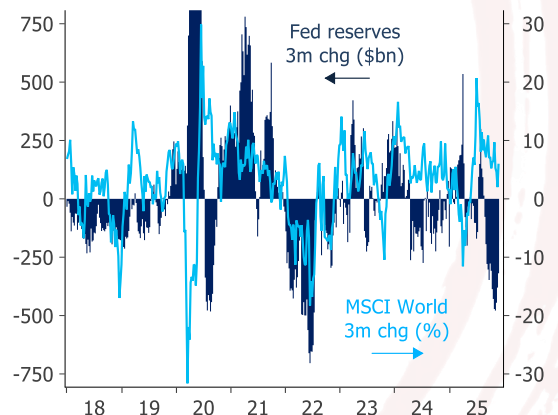
Central bank reserves (\$tn) vs MSCI World, rolling 3m chg



Source: national central banks, Bloomberg, Macrobond, Satori Insights.

Fed 3m

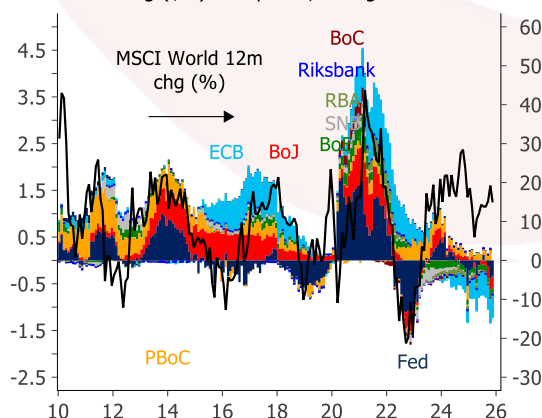
Bank reserves at Fed vs MSCI World, rolling 3m chg



Source: Federal Reserve, S&P Global, Macrobond, Satori Insights.

Global 12m

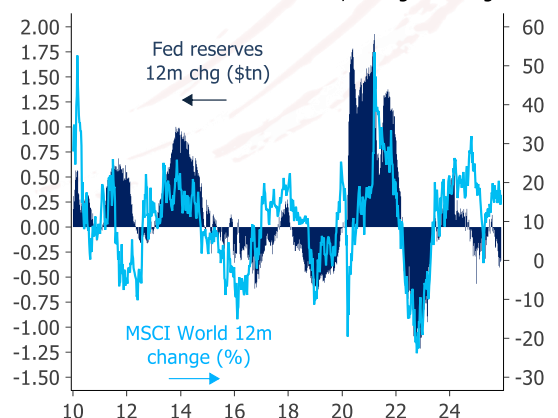
CB reserves chg (\$tn) vs equities, rolling 12m



Source: national central banks, Macrobond, Satori Insights.

Fed 12m

Bank reserves at Fed vs MSCI World, rolling 12m chg



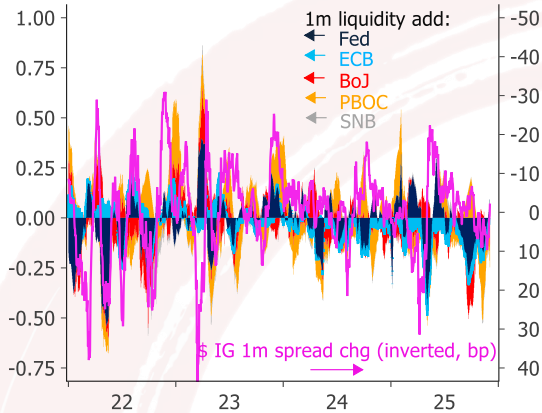
Source: Federal Reserve, S&P Global, Macrobond, Satori Insights.

Central bank liquidity vs \$ IG

4 December 2025

Global 1m

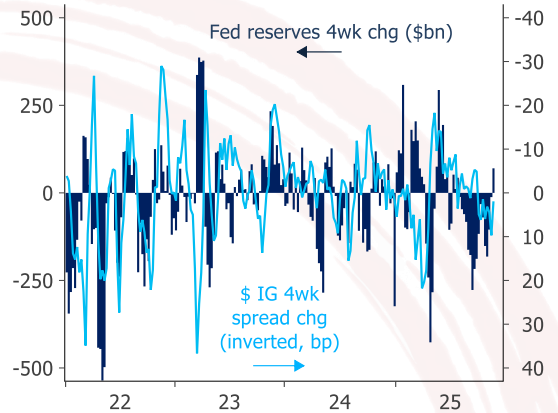
Global reserves chg (\$tn) vs \$ IG, rolling 1m chg



Source: national central banks, Bloomberg, Macrobond, Satori Insights.

Fed 1m

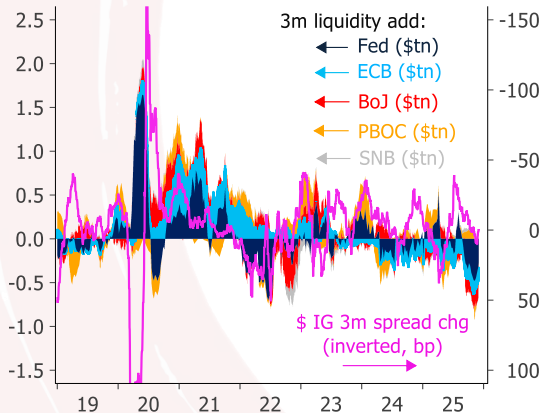
Reserves at Fed vs credit spreads, 4wk changes



Source: Federal Reserve, Bloomberg, Satori Insights.

Global 3m

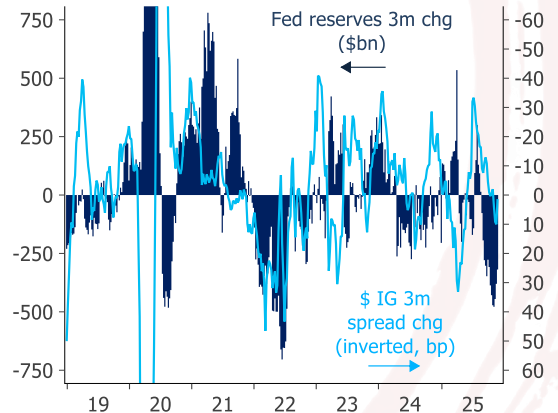
Central bank reserves vs \$ IG, rolling 3m chg



Source: national central banks, Bloomberg, Macrobond, Satori Insights.

Fed 3m

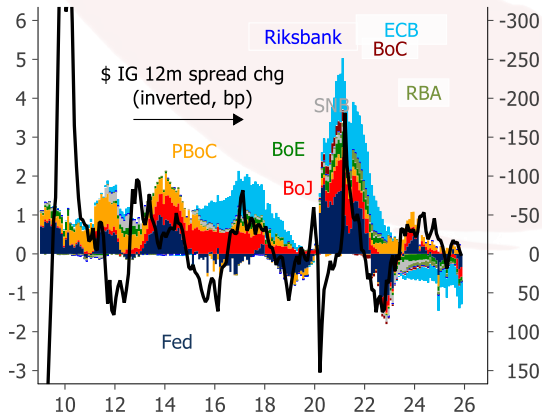
Reserves at Fed vs credit spreads, 3m changes



Source: Federal Reserve, Bloomberg, Satori Insights.

Global 12m

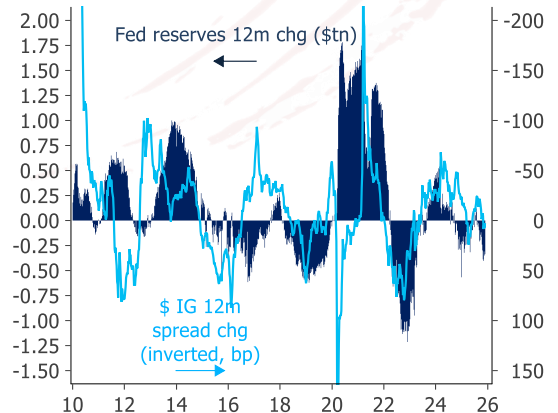
Global CB reserves (\$tn) vs credit, rolling 12m chg



Source: national central banks, Bloomberg, Macrobond, Satori Insights.

Fed 12m

Reserves at Fed vs credit spreads, 12m changes



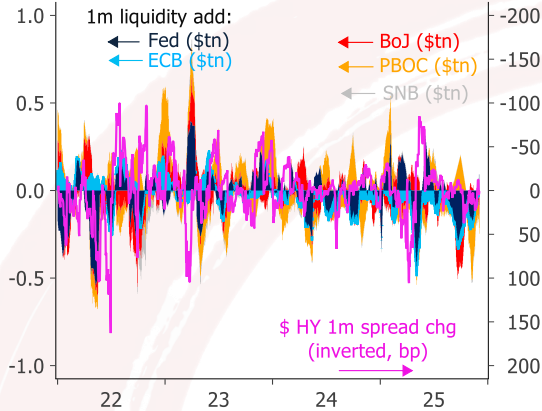
Source: Federal Reserve, Bloomberg, Satori Insights.

Central bank liquidity vs \$ HY

4 December 2025

Global 1m

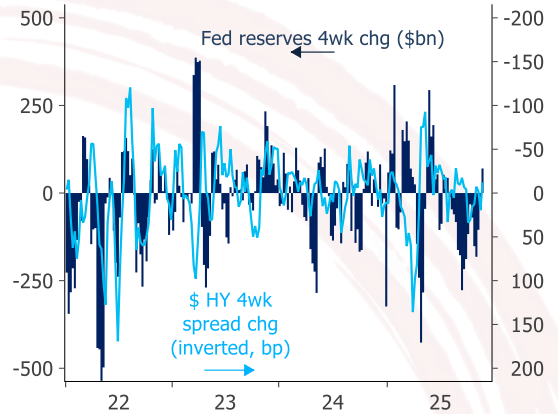
Central bank reserves changes vs HY spreads, rolling 1m



Source: Bloomberg, national central banks, Macrobond, Satori Insights.

Fed 1m

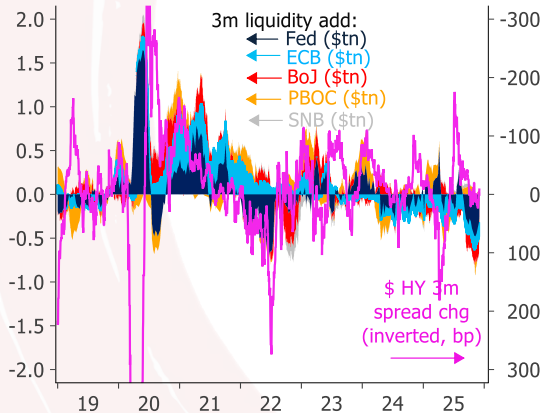
\$ HY spreads vs Fed reserves, rolling 4wk chg



Source: Federal Reserve, Bloomberg, Satori Insights.

Global 3m

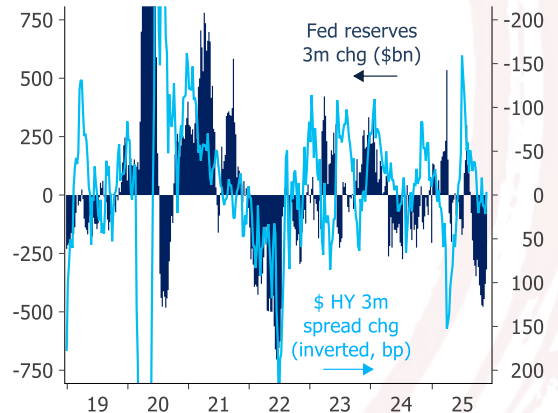
Central bank reserves changes vs HY spreads, rolling 3m



Source: Bloomberg, national central banks, Macrobond, Satori Insights.

Fed 3m

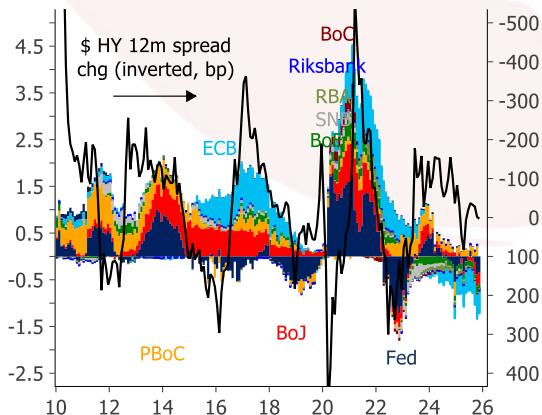
Reserves at Fed vs credit spreads, 3m changes



Source: Federal Reserve, Bloomberg, Macrobond, Satori Insights.

Global 12m

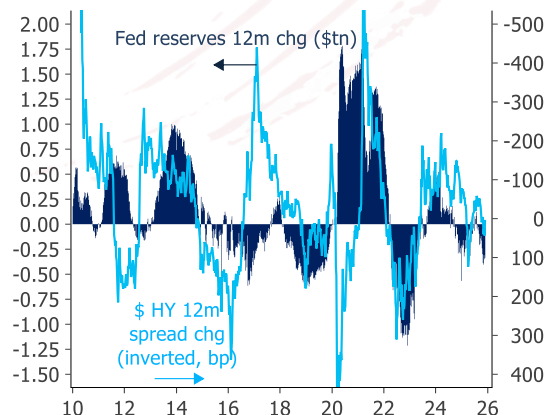
CB reserves chg (\$tn) vs HY, rolling 12m



Source: national central banks, Macrobond, Satori Insights.

Fed 12m

Reserves at Fed vs credit spreads, 12m changes



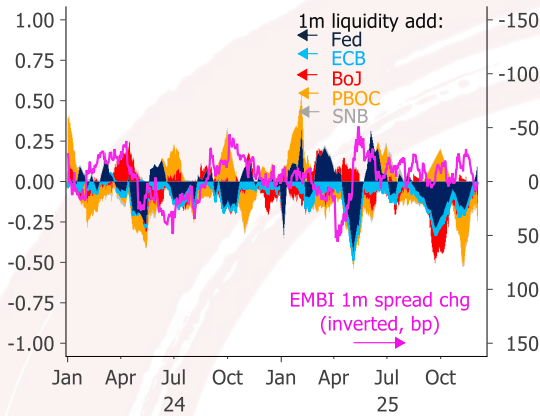
Source: Federal Reserve, Bloomberg, Satori Insights.

Central bank liquidity vs EMBI

4 December 2025

Global 1m

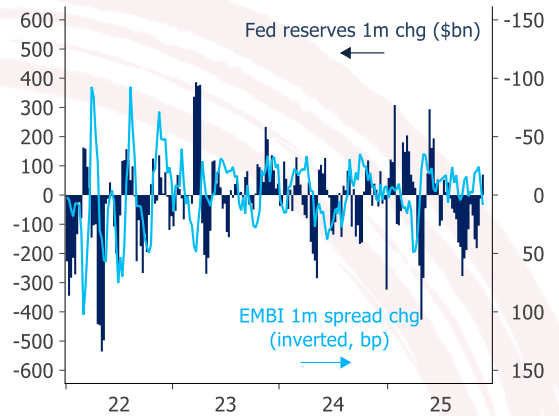
Global reserves chg (\$tn) vs EMBI, rolling 1m chg



Source: national central banks, Bloomberg, Macrobond, Satori Insights.

Fed 1m

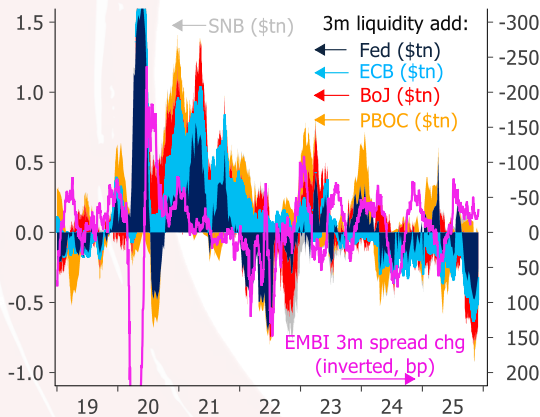
Reserves at Fed vs credit spreads, 1m changes



Source: Federal Reserve, Bloomberg, Satori Insights.

Global 3m

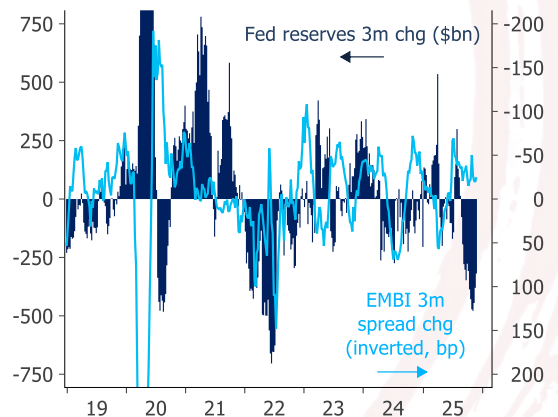
Central bank reserves vs EMBI, rolling 3m chg



Source: national central banks, Bloomberg, Macrobond, Satori Insights.

Fed 3m

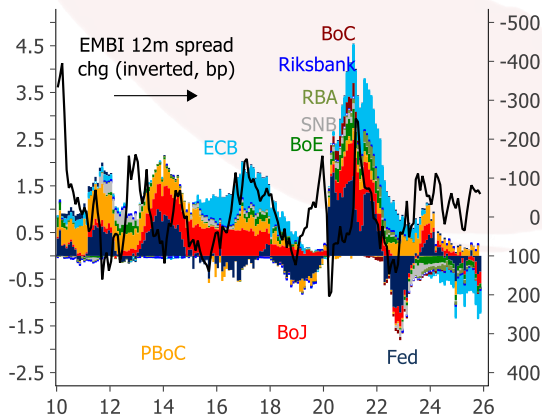
Reserves at Fed vs credit spreads, 3m changes



Source: Federal Reserve, Bloomberg, Satori Insights.

Global 12m

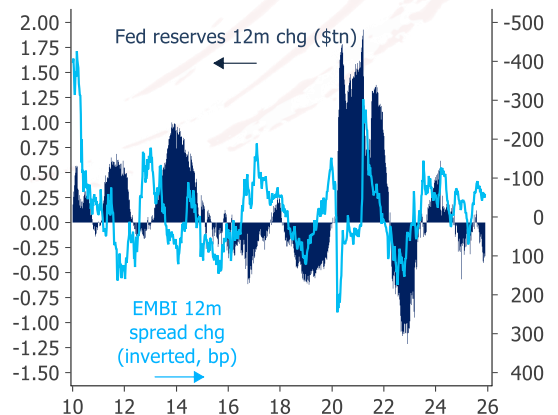
CB reserves chg (\$tn) vs EMBI, rolling 12m



Source: national central banks, Macrobond, Satori Insights.

Fed 12m

Reserves at Fed vs credit spreads, 12m changes



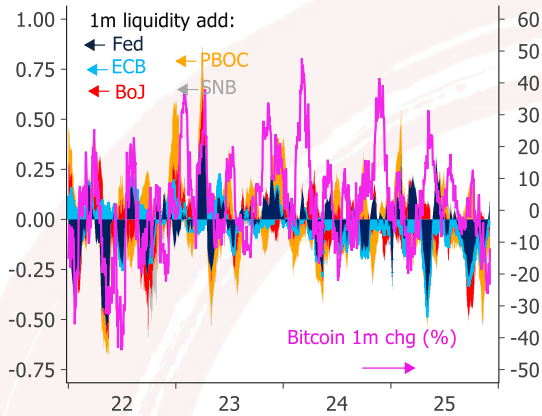
Source: Federal Reserve, Bloomberg, Satori Insights.

Central bank liquidity vs bitcoin

4 December 2025

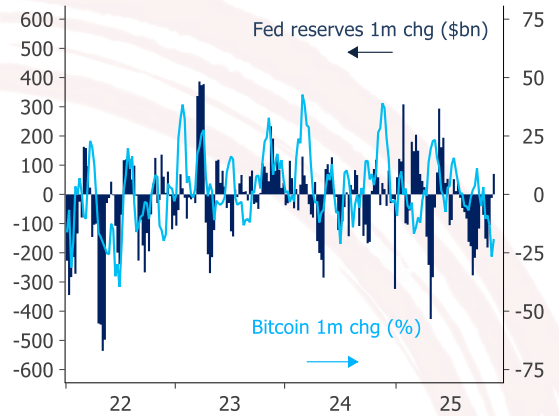
Global 1m

Global reserves chg (\$tn) vs bitcoin, rolling 1m chg



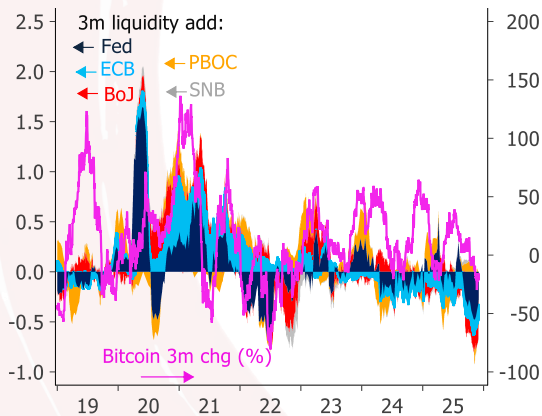
Fed 1m

Reserves at Fed vs bitcoin, 1m changes



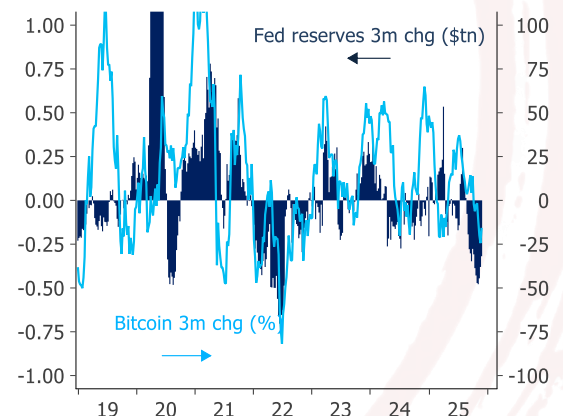
Global 3m

Global reserves chg (\$tn) vs bitcoin, rolling 3m chg



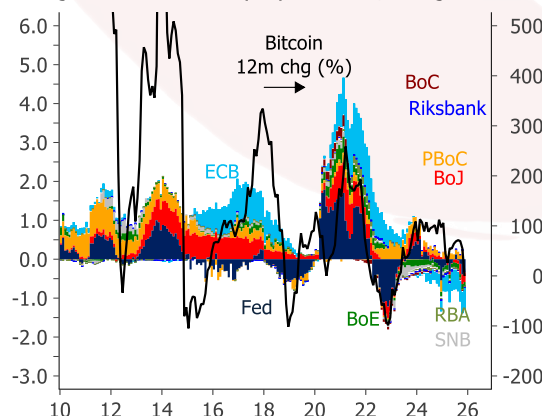
Fed 3m

Reserves at Fed vs bitcoin, 3m changes



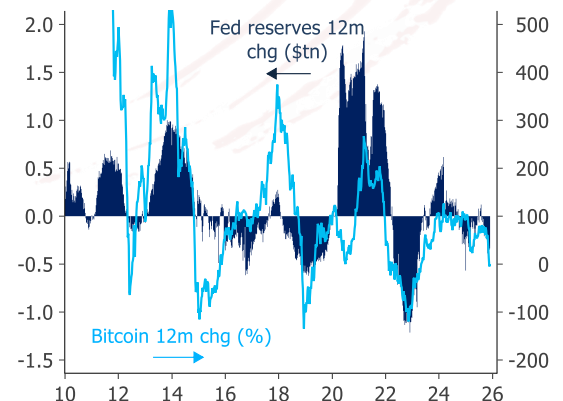
Global 12m

Change in bank reserves (\$tn) vs bitcoin, rolling 12m



Fed 12m

Reserves at Fed vs bitcoin, 12m changes

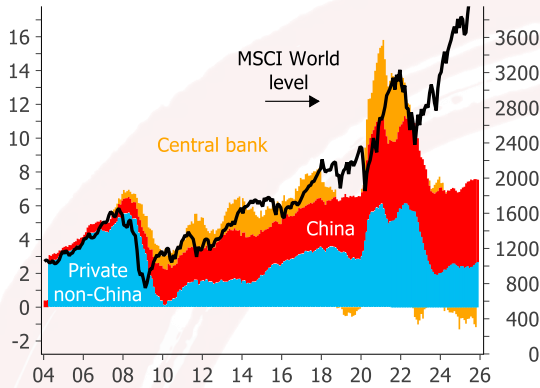


Private vs central bank credit

4 December 2025

Global credit flow

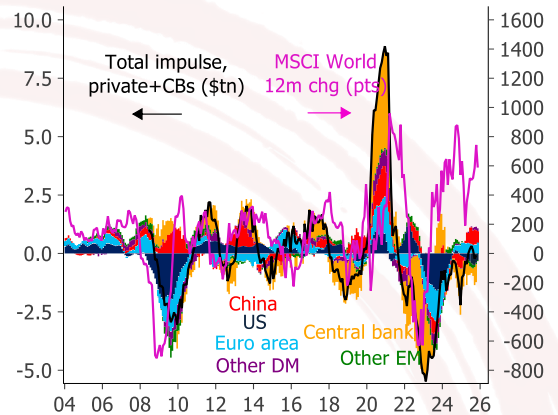
Private (HH+corp) vs CB credit creation, rolling 12m, \$tn



Source: PBoC, Fed, ECB, BCB, Macrobond, BoE, Central Bank of Taiwan, HKMA, RBI, BI, BOK, BNM, MAS, BOT, SARB, SNB, RBA, BOJ, MSCI, S&P Global, Robert Shiller, World Bank, BEA, ICE, BIS, Macrobond, Satori Insights.

Global credit impulse

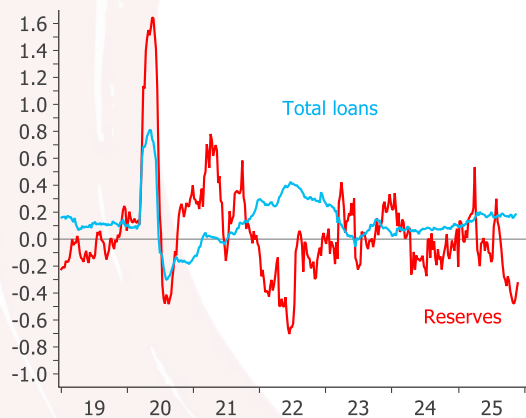
12m chg in 12m credit creation (HH+corp) vs equities



Source: national central banks, MSCI, BIS, Macrobond, Satori Insights.

Fed reserves vs bank credit

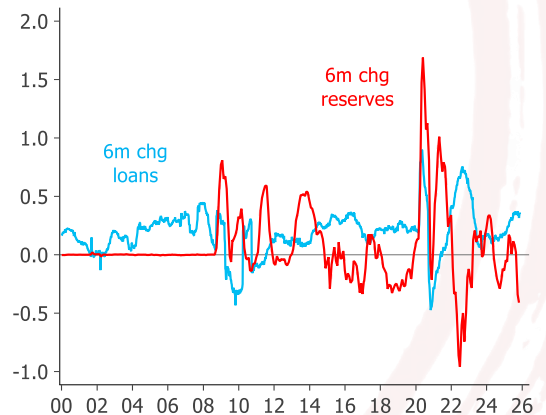
US bank loan vs reserves chg, rolling 3m, \$tn



Source: Federal Reserve, Macrobond, Satori Insights.

Fed reserves vs bank credit

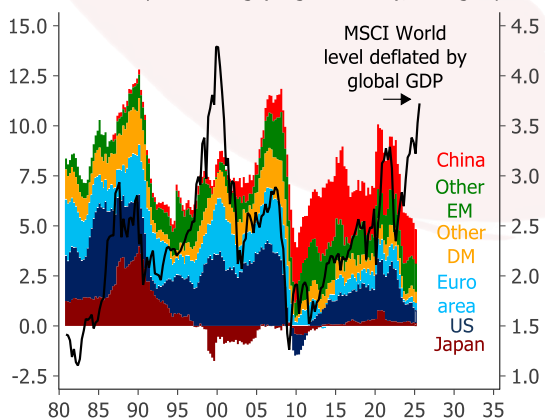
US loan growth vs reserves chg at Fed, rolling 6m, \$tn



Source: Federal Reserve, Satori Insights.

Private credit creation vs equities

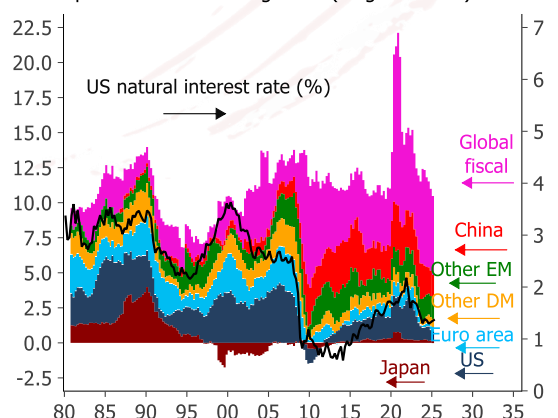
Household+corp borrowing (% global GDP), rolling 4q



Source: BIS, IMF, Eurostat, MSCI, Macrobond, Satori Insights.

Private vs fiscal credit

Global private+fiscal credit growth (% global GDP) vs r^*



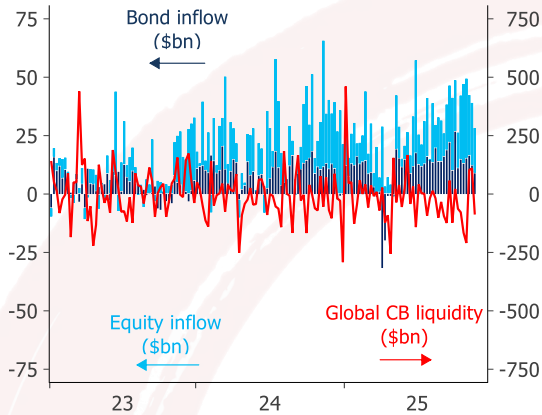
Source: BIS, IMF, Eurostat, MSCI, New York Fed, Fed, Richmond Fed, Satori Insights.

Mutual fund + ETF flows

4 December 2025

Weekly fund flows

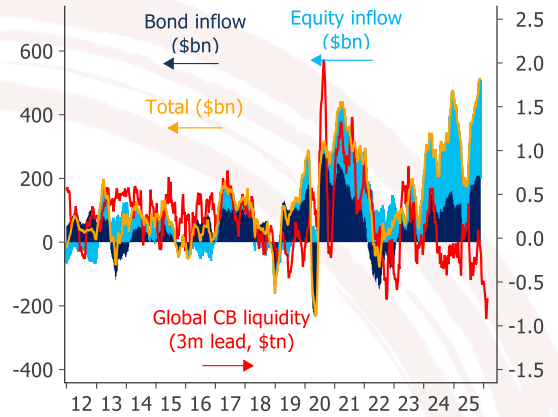
Global reserves chg vs mutual fund+ETF flow, rolling 1w



Source: national central banks, ICI, Satori Insights.

Quarterly fund flows

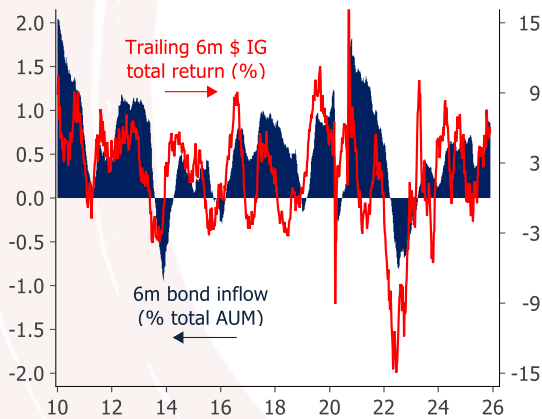
Global reserves chg vs mutual fund+ETF flow, rolling 3m



Source: national central banks, ICI, Macrobond, Satori Insights.

Bond flows vs returns

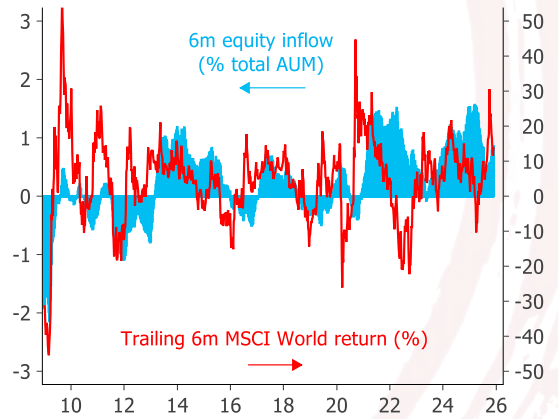
Mutual fund+ETF inflow, total bonds, rolling 6m



Source: ICI, Bloomberg, Satori Insights.

Equity flows vs returns

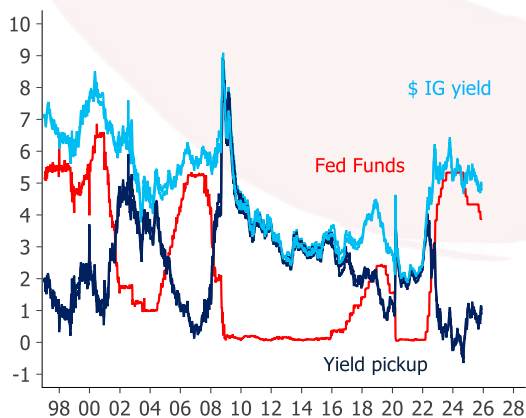
Mutual fund+ETF inflow, total equities, rolling 6m



Source: ICI, Bloomberg, Satori Insights.

Yield pickup vs deposits

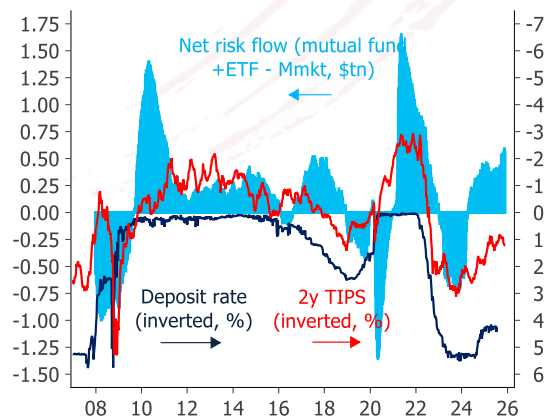
US investment grade yield vs cash, %



Source: Bloomberg, Federal Reserve, Satori Insights.

Net flow into risk vs money markets

Rolling 1y US net risky mutual fund+ETF flow vs rates



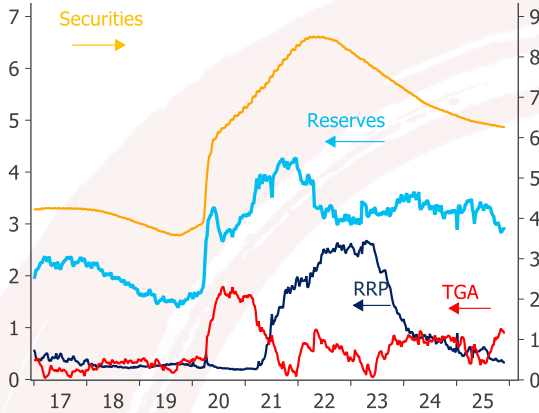
Source: ICI, Federal Reserve, Macrobond, Satori Insights.

CB balance sheet details

4 December 2025

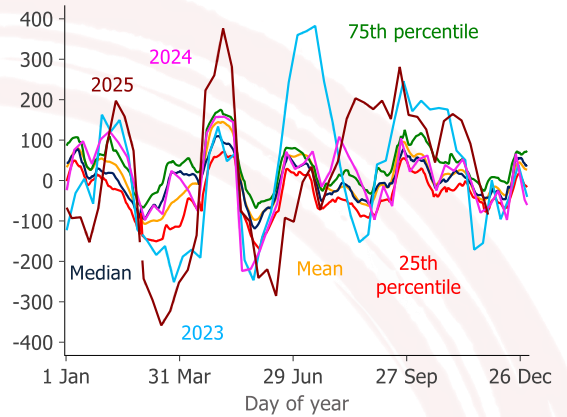
$\Delta \text{Reserves} \approx \Delta \text{Securities} - \Delta \text{RRP} - \Delta \text{TGA}$

Fed balance sheet items with projections, \$tn



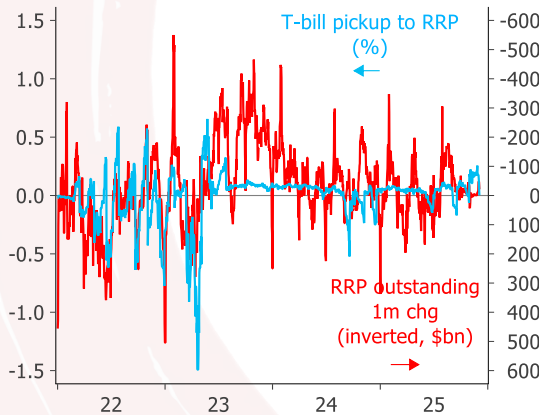
TGA seasonals

Treasury General Account seasonals, 4-wk chg, 2010-



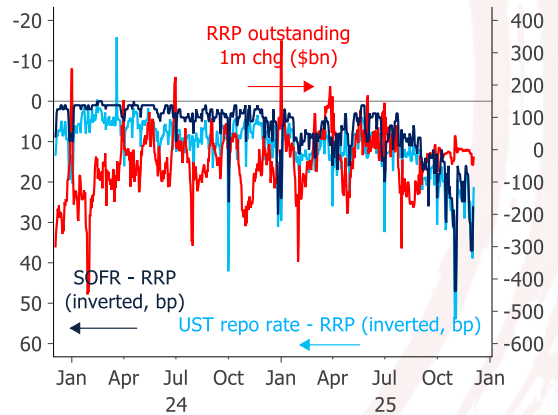
RRP drivers: pickup on T-bills

1m Tbill pickup to RRP vs RRP balance



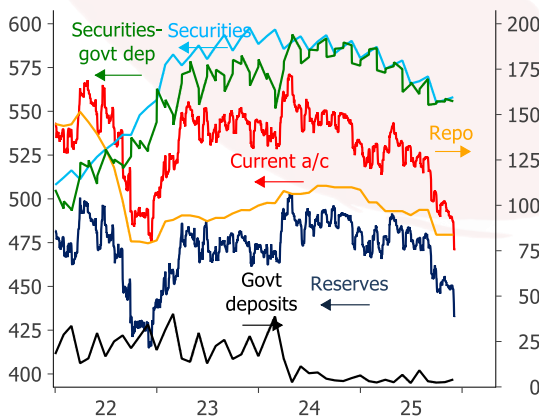
RRP drivers: pickup on private repo

Money market rate differentials vs RRP balance



Factors driving BoJ reserves changes

BoJ balance sheet items, ¥tn



China reserves and credit drivers

China credit metrics, 3m chg (\$tn)

