

The EM Trader

China Easing Adds Breadth

- **China's easing has triggered a broadening in the EM equity rally.** The broad EM equity index was held back until the summer amid weak China activity and an underwhelming policy response, coupled with bouts of global macro volatility. With an improving macro cycle led by Fed easing and the much-needed recent coordinated stimulus announcements from China's policymakers, EM equities have staged an impressive rally, with the MSCI EM index up 11% from mid-September lows and +15% ytd. The recent rally has been powered by outsized gains in heavy-weight Chinese equities that have risen nearly 40% from their lows, with China's outperformance vs. the rest of EM in the past three weeks at its widest in the past 25 years.
- **We expect further upside in EM Equities and prefer 'late cutters' with growth and China-easing beneficiaries.** The trifecta of non-recessionary Fed cuts and easing by other EM central banks, hopes of a stimulus-led growth revival in the dominant China market, and a backdrop of strong, mid-teens corporate earnings growth at fair valuations keeps us constructive on the EM equity complex. Notwithstanding potentially elevated volatility from the upcoming US elections and ongoing Middle East tensions, we expect further gains, and forecast MSCI EM to rise to 1,300 over 12 months. Specifically, for China, our Asia strategists have raised the market to overweight, and elsewhere, we continue to like markets with superior earnings and policy support, reinforcing our South Africa outperformance and Korea over Brazil trade recommendations. We examine spillovers from a potential recovery in China's growth across economic, fundamental and equity price dimensions. Korea, Malaysia, South Africa and commodity markets (Peru, Chile) show the highest sensitivity to China growth, while Korea, South Africa and Peru also exhibit the highest upside beta to past China rallies.
- **EM FX: Offsetting factors, resetting balance.** Asia FX outperformed LatAm currencies through most of the summer and China's stimulus announcements provided an extra boost. While directionally this was consistent with moves across major macro assets (falling US yields, the unwind of carry trades and CNH appreciation, among others), we argued that this relative performance should become more balanced over time. The China stimulus measures have also had a positive impact on LatAm commodity exporter currencies. And, more recently, with the rise in oil prices and Dollar strengthening, Asian currencies

Kamakshya Trivedi

+44(20)7051-4005 |
kamakshya.trivedi@gs.com
Goldman Sachs International

Danny Suwanapruti

+65-6889-1987 |
danny.suwanapruti@gs.com
Goldman Sachs (Singapore) Pte

Sunil Koul

+44(20)7051-4931 | sunil.koul@gs.com
Goldman Sachs International

Tadas Gedminas

+44(20)7051-6015 |
tadas.gedminas@gs.com
Goldman Sachs International

Tarun Lalwani, CFA

+1(212)934-5821 | tarun.lalwani@gs.com
Goldman Sachs India SPL

Teresa Alves

+44(20)7051-7566 |
teresa.alves@gs.com
Goldman Sachs International

Jolene Zhong

+1(917)343-6820 |
jolene.l.zhong@gs.com
Goldman Sachs & Co. LLC

Lexi Kanter

+1(212)855-9701 |
alexandra.kanter@gs.com
Goldman Sachs & Co. LLC

Victor Engel

+44(20)7051-3862 | victor.engel@gs.com
Goldman Sachs International

have underperformed, leading this performance gap to start to close. Looking ahead, uncertainty remains elevated across various fronts – on the magnitude of Chinese stimulus, geopolitical risks and the US election – but we think the gap in performance across regions will continue to close. In particular, among currencies benefiting from China's easing measures, higher oil prices would hurt CLP and KRW, but COP, MXN and ZAR should be more insulated. If China easing disappoints high expectations and oil prices rise further, we would expect a further retracement in Asia FX vs the Dollar.

■ **EM Local Rates: Outperformance interrupted by hawkish external environment.**

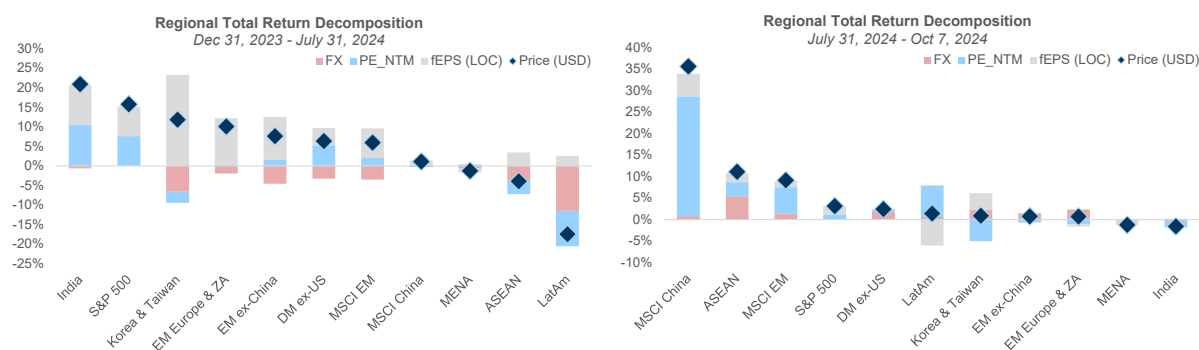
Tempered expectations over further large rate cuts by the Fed, higher long-end US rates and a spike in oil prices have interrupted the recent outperformance of EM local fixed income. Encouragingly, EM local rates have been able to absorb these pressures relatively well, without outsized sell-offs. Hawkish risks are still present, especially if news on the inflation front is less benign. Still, we think it makes sense to position for the ongoing broadening out of the EM cutting cycle, as well as to look out for more pro-cyclical expressions in EM local rates.

- **Continue to position for broadening in the EM cutting cycle.** The recent dovish signals from the RBI have supported our 2Y IGB (FX-unhedged) recommendation, where we have tightened our stops to protect potential gains. We also continue to recommend long 1Y SRBIs FX-hedged in Indonesia, which should be supported by an easing in liquidity conditions there. In Poland, we tightened our stops to protect potential gains on our 1s5s steepener on the back of long-end performance, but we still think an earlier pivot is underpriced there. And in Korea, we expect the BOK to initiate its cutting cycle this week, which should also support our 2s10s steepener recommendation there. **We also see value in SAGBs, which should do well in an environment where the market continues to upgrade the US cyclical backdrop.**

EM Equities: Positive amid a broadening EM equity rally

- **The bullish case for EM equities has strengthened ...** Our constructive view on EM equities coming into the year was predicated on three key expectations: an improving global macro mix (non-recessionary rate cuts, softer Dollar), a policy-driven recovery in China, and a rebound in corporate earnings. While underlying earnings have been recovering, the other two expectations had remained elusive for most of this year, at least until late July. Chinese economic activity stayed weak and was met by a piecemeal and underwhelming response by policymakers. At the same time, the global macro environment was less favourable for EM, amid bouts of rising US rates, Dollar strength and investor concerns around US growth that drove significant volatility during the summer. Consequently, MSCI EM posted only a 6% gain for the first seven months of the year, driven by an 8% EPS change, 2% P/E expansion and a 4% drag from currency.

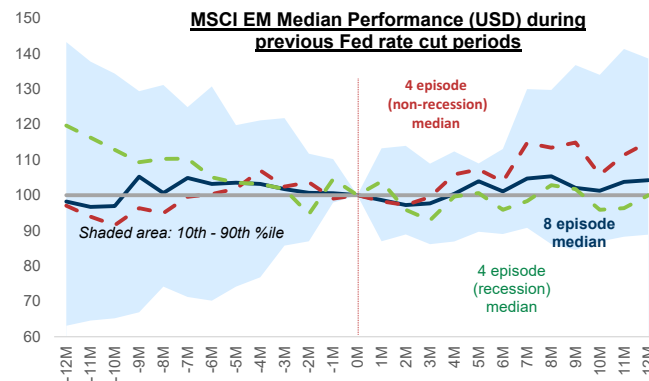
Exhibit 1: EM equities posted modest returns until summer led by earnings, but have seen a strong rally in recent months led by P/E expansion, with significant China outperformance



Source: FactSet, Goldman Sachs Global Investment Research

- Coming out of the summer, the macro cycle improved as the Fed signaled rate cuts and eventually delivered a large 50bp cut, easing any hard landing concerns. This drove a market recovery in August, with MSCI EM rallying 9% from August lows until the last week of September, in line with an historical positive performance during non-recessionary Fed cuts. However, since the last week of September, China policymakers have announced significant easing measures spanning monetary policy, policies to support the equity and property markets, and potential fiscal support down the line. Together, these alleviate some of the growing downside risks to the China growth complex and have allowed China equities to join in and broaden what was hitherto a narrower EM ex-China equity rally.

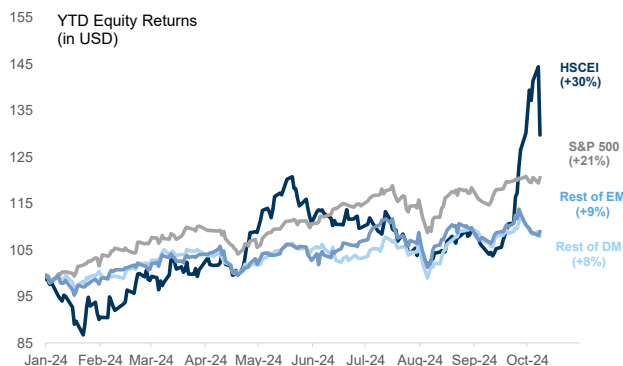
Exhibit 2: EM equities tend to perform well in a non-recessionary Fed cutting cycle



Source: FactSet, MSCI, Goldman Sachs Global Investment Research

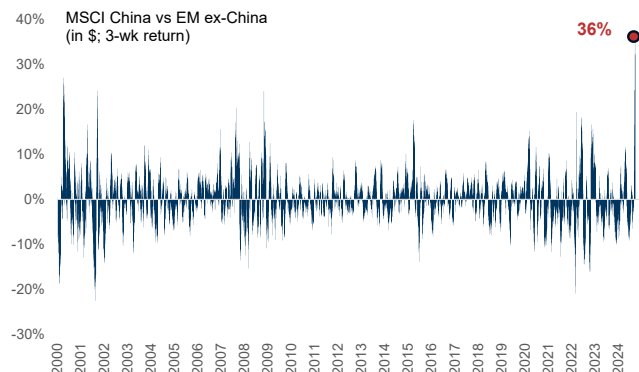
- **... as China's coordinated policy easing triggered a sharp rally in EM equities and revived optimism around a China growth recovery.** MSCI China has rallied nearly 40% from its recent low on September 9, driven by a series of coordinated policy stimulus announcements, and is now up 26% ytd, one of the best-performing equity markets globally. Putting this outsized move in context, China's outperformance vs. the rest of EM in the past three weeks has been the widest in the past 25 years, and has come off starting conditions of an oversold, undervalued and under-positioned market backdrop in China. Given China's still dominant weight in the EM equities index, these gains in China have led to a sharp rally in EM equities, with the MSCI EM index up 11% from mid-September low and 15% ytd.

Exhibit 3: Chinese equities have rallied nearly 40% from September lows, driven by policy stimulus announcements and are up ~26% ytd, leading the major global indices



Source: FactSet, Goldman Sachs Global Investment Research

Exhibit 4: China's outperformance vs. the rest of EM in the past three weeks has been the widest in the past 25 years

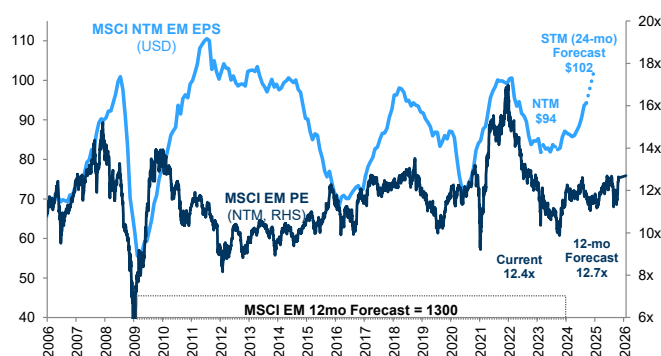


Source: FactSet, Goldman Sachs Global Investment Research

- **Despite recent strong gains, we expect further upside ...** Notwithstanding the recent rally and potentially elevated volatility leading up to the US elections and ongoing Middle East tensions, we remain constructive on EM equities and expect further upside over the next 12 months. The medium-term fundamental case remains constructive, given our base-case non-recessionary easing cycle view, mid-teen earnings growth expectations (GS expectations of 14% profit growth

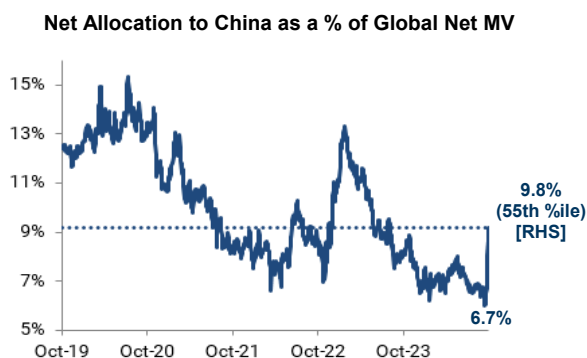
CAGR over 2 years), generally fair valuations and still conservative positioning. We expect MSCI EM to reach 1,300 in 12 months, implying 10% further upside driven by underlying earnings and a flat target multiple (12.7x target P/E vs. 12.4x currently). Specifically for China, our Asia strategists upgraded offshore China equities to overweight and expect further 15% upside given mid-range valuations, potential earnings improvements from growth stimulus and light positioning (hedge fund allocations at the 55th percentile of their 5-year range vs. the 91st percentile at the peak of the reopening rally in January 2023, mutual funds at more than 300bp UW, and onshore retail just starting to engage judging by the increase in margin financing from a low level). If expectations of further China fiscal stimulus and a rally in Chinese stocks is borne out, that should lend further support to the broader EM equity complex.

Exhibit 5: We expect MSCI EM to reach 1,300, led by underlying earnings growth and a flat target P/E



Source: FactSet, MSCI, Goldman Sachs Global Investment Research

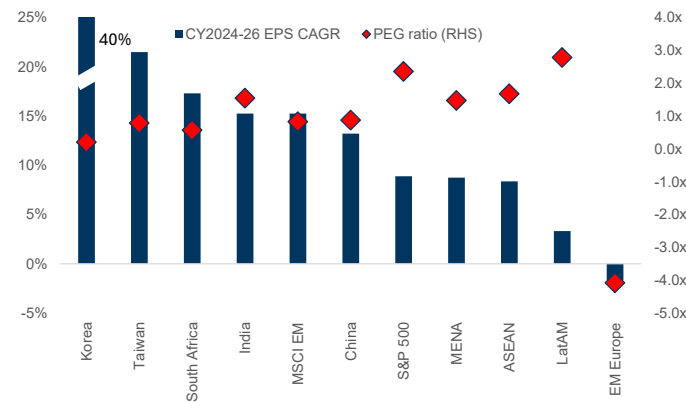
Exhibit 6: Hedge funds have increased net China exposure but remain below past levels



Source: Goldman Sachs FICC and Equities

- **... and prefer 'late cutters' with growth, long duration and China-easing beneficiaries.** Our preference within EM equities continues to lean towards markets with a superior earnings outlook that are poised to be supported by easing rate cycles, including **Korea, South Africa, and India**. In South Africa, despite strong gains, we see further room for outperformance, aided by a front-loading of rate cuts, and as a result we recently revised our target higher for our MXZA outperformance trade recommendation (vs. EM excl. China). We continue to like **Korean** equities on a strong expected profit recovery with attractive valuations over **Brazil** equities, amid divergent rate cycles. The dovish pivot from the RBI earlier today also puts **India** with the 'late cutters' theme, but we also like India more structurally given a resilient macro backdrop, consistent earnings delivery and strong support from domestic flows. That said, we acknowledge that the market could underperform in the near term amid strong China momentum, the impact on activity in the derivatives market from recent SEBI regulations, and rising Middle East tensions (which puts further upward pressure on oil prices).

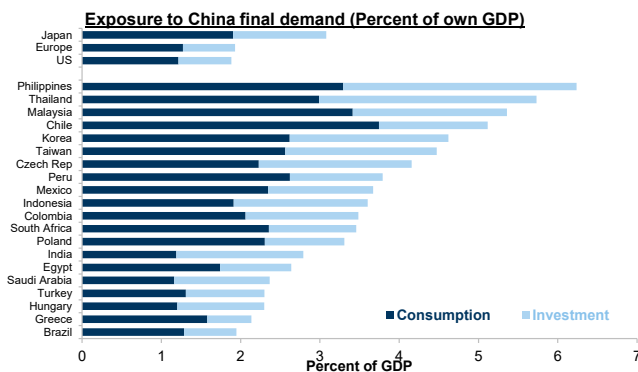
Exhibit 7: Korea, South Africa and India offer strong earnings growth in the region over next two years



Source: Factset, MSCI, Goldman Sachs Global Investment Research

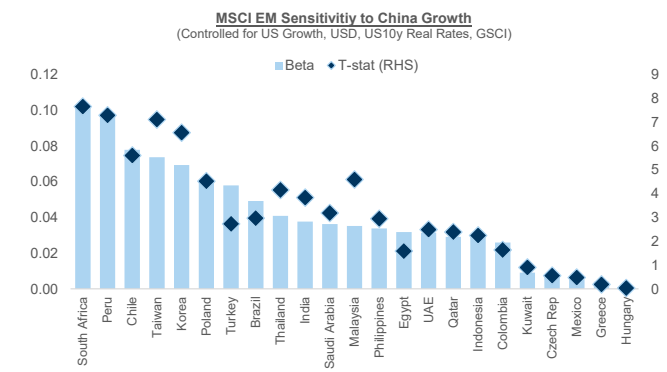
- Additionally, given the recent announcements on China stimulus, we gauge the potential beneficiaries from improving China growth. More specifically, we examine potential spillovers of a rebound in Chinese growth to the rest of the EM markets, along three channels – economic, fundamental linkages via corporate revenues and earnings, and equity market sensitivity to growth. Based on the average rank across these three metrics, we find that **Korea, Malaysia, South Africa and commodity-heavy markets (Peru, Chile) are most sensitive to China growth**. We combine the growth sensitivity with the historical beta of various EM markets during prior China rallies (of more than 20%) over the past two decades. We note that Korea, South Africa and commodity markets, such as Peru, have the highest combined sensitivity to both China economic growth and a China equity rally. This lends support to our fundamentally positive views on Korea and South Africa.

Exhibit 8: Economic linkages: ASEAN and North Asian economies are most exposed to China demand, followed by commodity-heavy EMs (Chile, Peru)



Source: World Input-Output Database, Haver, Goldman Sachs Global Investment Research

Exhibit 9: Equity market sensitivity: South Africa, commodity-heavy EMs (Peru, Chile), and North Asian equity markets have the highest sensitivity to China growth



Source: FactSet, MSCI, Goldman Sachs Global Investment Research

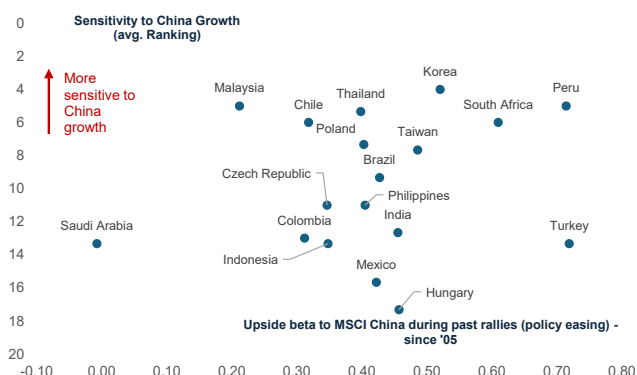
Exhibit 10: Korea, Malaysia, South Africa and commodity markets (Peru, Chile) are most sensitive to China growth, across economic, fundamental and equity price dimensions

Economic (Consumption), Equity fundamental (revenues, earnings), Equity price

Markets	Sensitivity to China Growth			Avg
	Economic	Equity Fundamental	Equity Price	
Korea	6	1	5	4.0
Malaysia	2	2	11	5.0
Peru	5	8	2	5.0
Thailand	4	3	9	5.3
Chile	1	14	3	6.0
South Africa	8	9	1	6.0
Poland	10	6	6	7.3
Taiwan	7	12	4	7.7
Brazil	17	3	8	9.3
Czech Rep	11	3	19	11.0
Philippines	3	18	12	11.0
India	19	9	10	12.7
Colombia	12	9	18	13.0
Saudi Arabia	20	7	13	13.3
Indonesia	13	13	14	13.3
Turkey	16	17	7	13.3
Mexico	9	16	22	15.7
Hungary	18	14	20	17.3

Source: Factset, Goldman Sachs Global Investment Research

Exhibit 11: Korea, South Africa and Peru have the highest combined sensitivity to both China economic growth and China equity rally



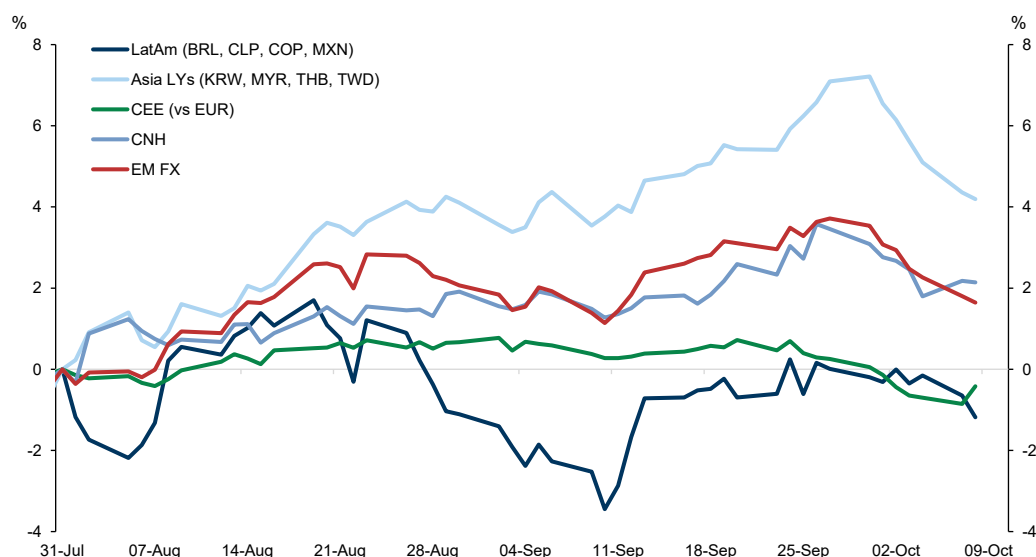
Source: FactSet, Goldman Sachs Global Investment Research

- While the above analysis is helpful to understand how various EM markets may trade the China rally and the extent to which they could benefit from a China growth pick-up, the spillovers this time around could be lower as the property downturn likely reduces commodity sensitivity and the stimulus could be targeted more towards spurring domestic consumption.

EM FX: Offsetting Factors, Resetting Balance

- **A range of offsetting factors have been impacting EM FX.** Over the past few weeks, EM currencies have been caught between a number of global macro developments: the announcement of new China stimulus measures (and lack of follow-through so far), a rise in geopolitical risks in the Middle East and a decline in the likelihood of a US recession following a strong labour market report. While improved China sentiment should lead to EM FX appreciation versus the Dollar, increased geopolitical risks and stronger US data point in the opposite direction. And, the different commodity market implications of each of these developments can also lead to significant differentiation across currencies. Given these offsetting effects, it is not surprising to see that EM FX spot returns versus the Dollar are roughly flat over the past month as the gains over the second half of September have retraced so far through October (Exhibit 12). Going into September, we had noted that the outperformance of Asia FX relative to LatAm should diminish over time. This has gradually materialised as LatAm returns have been more range-bound and, after a strong run, Asia low-yielders have underperformed so far in October. Given all the moving parts, here we look at currency sensitivities to the different factors driving macro markets at the moment and discuss potential ways to position across different outcomes.

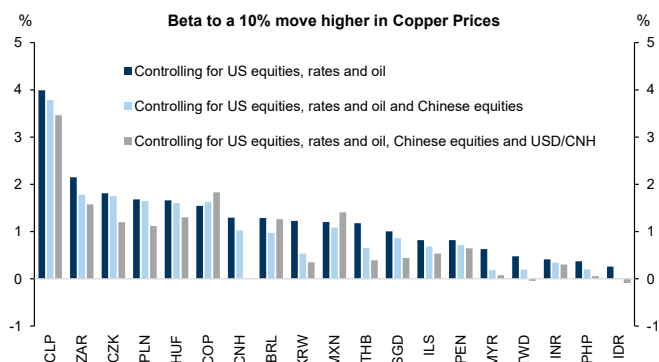
Exhibit 12: EM FX returns vs USD are roughly flat over the last month; the relative performance between LatAm and Asia FX has become more even over the past month



Source: Bloomberg, Goldman Sachs Global Investment Research

- China easing: EM Asia currencies respond more reliably to Chinese equities, whereas the commodities channel is key for ZAR, CLP and the rest of LatAm FX.** Zooming in on the impact of China stimulus, we think the best expressions of this theme within EM FX are likely to depend on which of the China-sensitive assets are impacted in a sustained way, as we discussed in [our recent deep-dive](#). And, this will depend on the details of potential fiscal easing measures that have yet to be confirmed. If stimulus measures are focused on infrastructure spending, as in the past, and thus generate significant commodity demand spillovers, then this could be most positive for CLP and ZAR. Our analysis also suggests that the commodities channel is key for the other LatAm currencies, as this 'beta' is little changed by the inclusion of other variables in our model ([Exhibit 13](#)). CEE currencies are also highly sensitive to copper price moves, although this is mostly driven by the Euro leg. Conversely, the sensitivity of most EM Asia currencies to copper prices is greatly reduced when controlling for moves in Chinese equities and USD/CNH. Indeed, the low-yielder currencies in Asia, namely KRW, THB and MYR, are among the most responsive to moves in Chinese equities. And this 'beta' remains elevated for most EM Asia currencies even after controlling for copper prices and for moves in USD/CNH ([Exhibit 14](#)). Therefore, EM Asia currencies should be the clearer gainers (led by KRW and THB) if stimulus measures are less focused on infrastructure spending and more on putting a floor under the domestic equity market. In this environment, the response of commodity currencies may be more muted than in previous episodes of China stimulus, though the reduction in left-tail growth risks is still a net positive. In an environment where CNH appreciation is limited and stimulus measures do not generate sustained commodity demand spillovers, EM Asia currencies should be the clearer gainers.

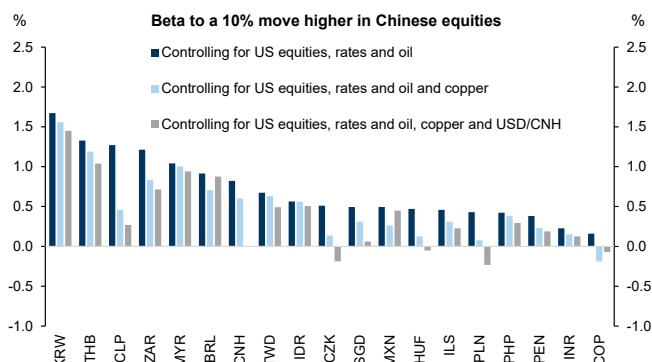
Exhibit 13: CLP and ZAR among the most sensitive to copper prices; the commodities channel is key for LatAm currencies



Predicted move in each currency versus USD for a 10% move higher in copper prices. All specifications control additionally for changes in US cyclical vs defensive equities, US 10-year real yields and oil prices and are estimated over the last two years

Source: Bloomberg, Goldman Sachs Global Investment Research

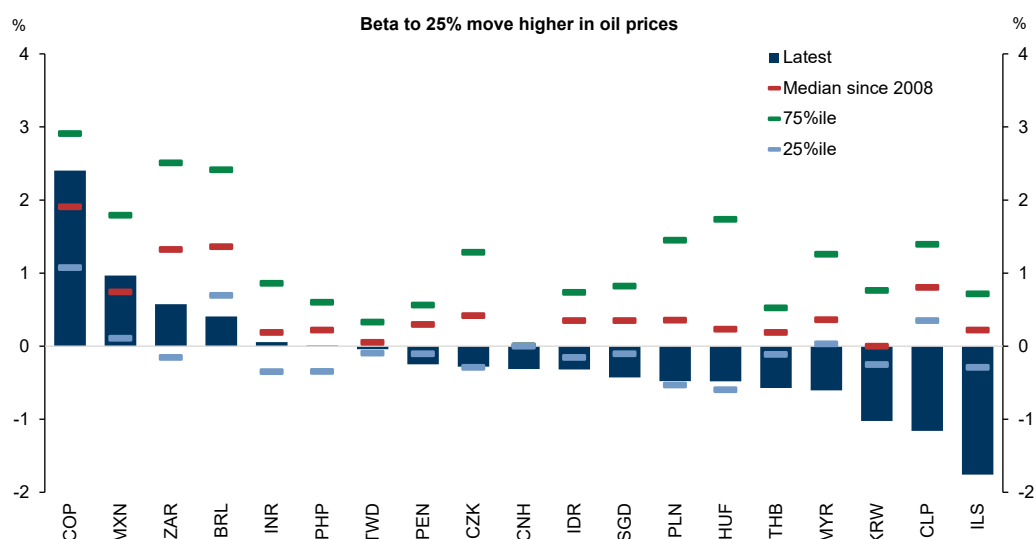
Exhibit 14: The low-yielder currencies in Asia, such as KRW and THB, are among the most responsive to moves in Chinese equities, even after controlling for other factors



Predicted move in each currency versus USD for a 10% move higher in MSCI China. All specifications control additionally for changes in US cyclical vs defensive equities, US 10-year real yields and oil prices and are estimated over the last two years.

Source: Bloomberg, Goldman Sachs Global Investment Research

- **Higher oil prices: An important headwind for some currencies that otherwise would benefit from Chinese stimulus (such as CLP and KRW), but COP, MXN and ZAR would be more insulated.** While Chinese growth expectations are having a clear impact on industrial metals prices, oil prices have been more responsive to changes in geopolitical risk in the Middle East. To assess the impact of an increase in oil prices on EM FX, we refresh our sensitivity analysis of high-frequency FX returns on oil price changes. As [Exhibit 15](#) shows, COP continues to have the highest oil beta within EM FX, followed by MXN, ZAR and BRL (even though South Africa is an oil importer). On the other side, ILS currently has the most negative oil beta, which we think reflects the recent co-movement between oil prices and geopolitical risk. Elsewhere, CLP, KRW and THB are among the currencies that would be most negatively impacted by higher oil prices and among the most sensitive to Chinese growth expectations. And, to a lesser extent, this is also true for PLN and HUF, though a large part of this sensitivity is driven by EUR/USD moves. Therefore, in a scenario where Chinese stimulus measures disappoint market expectations and oil prices move sharply higher, these currencies would be the underperformers. In contrast, ZAR and the rest of LatAm should be relatively more resilient and would likely be the relative outperformers in an environment of continued positive China growth sentiment and rising oil prices. If instead, oil prices fall and China-linked sentiment deteriorates, then BRL and ZAR should underperform.

Exhibit 15: COP continues to have the highest oil beta within EM FX followed by MXN, ZAR and BRL

Predicted move in each currency versus USD for a 25% move higher oil prices. Calculated over rolling 1-year horizons and controlling for changes in US Cyclical vs Defensive equities, US 10-year real yields and copper prices.

Source: Bloomberg, Goldman Sachs Global Investment Research

- Stronger US data: MXN the clearest beneficiary, stronger USD vs G9 is risk to CEE and Asia FX.** Following the strong labour market data last Friday (October 4), our economists have lowered their 12-month US recession probability back to the unconditional long-term average of 15%. And, expectations around the Fed hiking cycle have repriced higher, leading to a stronger Dollar. In [Exhibit 16](#), we show the sensitivity of FX returns to US cyclical versus defensive equities (on the x-axis) and to moves in the Dollar vs G9 FX (in the y-axis) over the past year. Here, MXN continued to screen as highly sensitive to US cyclical vs defensives but also as the most resilient to broad Dollar moves. While better US cyclical pricing would also benefit other EM HY currencies (ZAR, COP, BRL), their sensitivity to broad Dollar moves is higher than for MXN. Conversely, a stronger Dollar and return to “US exceptionalism” would be negative for low-yielder Asia currencies and for CEE FX given its sensitivity to EUR/USD moves.

Exhibit 16: MXN continues to screen as highly sensitive to US cyclical vs defensives but resilient to broad Dollar moves

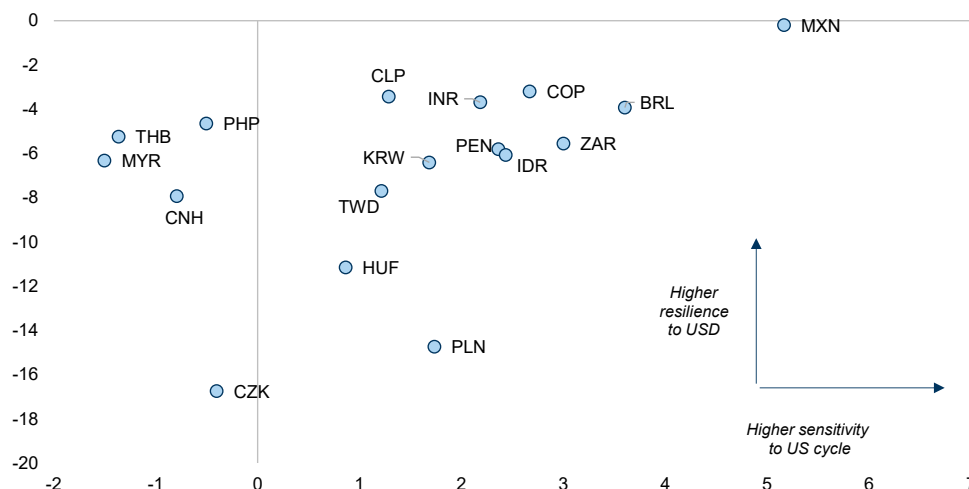


Exhibit shows t-statistics from regressions of FX returns vs USD on US Cyclical vs Defensive equities (x-axis) or USD moves vs G9 FX (y-axis) estimated over the last year.

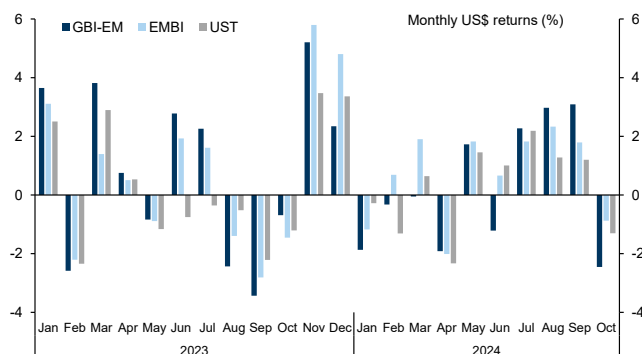
Source: Goldman Sachs Global Investment Research

EM Local Rates: Staying On Course Despite External Headwinds

■ **Outperformance Interrupted by Hawkish External Environment.** The three-month streak of EM local fixed income outperformance has been interrupted in recent weeks ([Exhibit 17](#)) by renewed hawkish pressures from higher US rates, a stronger US Dollar and a spike in oil prices. These pressures peaked last Friday (October 4) as the stronger-than-expected September US labour market report caused the market to swiftly pare back expectations for another 50bp rate cut by the Fed, leading to a reassessment of market expectations of higher terminal rates in the US. Notwithstanding these pressures, EM local rates have performed broadly in line with their betas to US rates, commodities and risk assets ([Exhibit 18](#)), with no obvious candidates where local rates have oversold. We think the broader market pricing is now more balanced, with long-end rates closer to where we view terminal rates in the US. Likewise, we think the market backdrop should support cyclical and risk assets, whether due to a more front-footed Fed or the underlying resilience of the US economy. For EM local rates, the implications are mixed, as any further rallies would not be able to rely on further US rate relief and an intensification of hawkish risks cannot be ruled out if upcoming inflation news is less benign. Still, we think there are ways to position for a favourable cyclical backdrop while also looking for EM cutting cycles that might be priced too conservatively.

Exhibit 17: After a Three-Month Streak, EM Local Fixed Income Has Underperformed in October

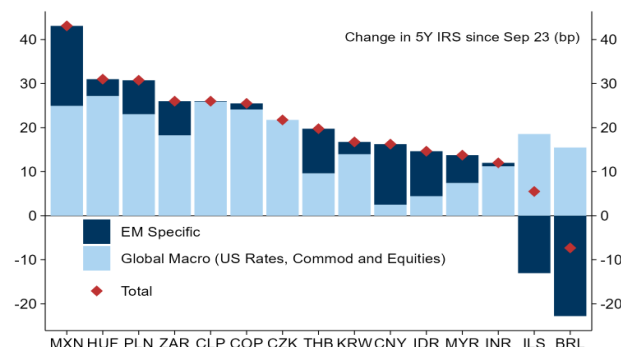
Monthly US\$ returns of GBI-EM, EMBI and UST, October is MTD



Source: Goldman Sachs Global Investment Research, Bloomberg

Exhibit 18: EM Local Rate Sell-Off Has Been Broadly In Line With Global Factors

Change in 5Y IRS since September 23 that is explained by global factors

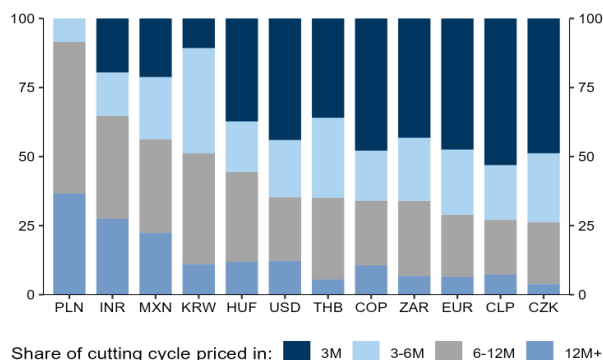


Source: Goldman Sachs Global Investment Research, Bloomberg

- **EM Cutting Cycles Still On Track. We maintain our long 2Y IGB recommendation (FX-unhedged), steepeners in KRW (2s10s) and PLN (1s5s), and remain long 1Y SRBIs FX-hedged in Indonesia.** The pricing out of a faster US cutting cycle has somewhat tempered the excitement of more significant dovish pivots by EM central banks, as the speed of the Fed moves will likely remain a key input in EM central bank reaction functions. Still, we think the direction of travel remains the same — we continue to expect the EM cutting cycle to broaden out, with dovish signals from the RBI pointing to a potential rate cut at the next MPC meeting in December, where have tightened stops to protect potential gains on our 2Y IGB (FX-unhedged) recommendation, and we expect the BOK to initiate its cutting cycle on Friday (October 11). Likewise, we still think the macroeconomic backdrop outside of the US calls for more policy support, and that cutting cycles are priced too conservatively in Mexico, Poland and Korea ([Exhibit 19](#)); in the latter two, we maintain our steepener recommendations, and have recently tightened the stops on the PLN 1s5s steepener recommendation to protect potential gains after a long-end led performance ([Exhibit 20](#)). We think the pivot in the broader cutting cycles should also support front-end rates in Indonesia, where we have initiated a long 1Y SRBIs FX-hedged recommendation that should benefit from easing domestic liquidity conditions there.

Exhibit 19: Cutting Cycles Still Positioned Relatively Conservatively in PLN, MXN, INR and KRW

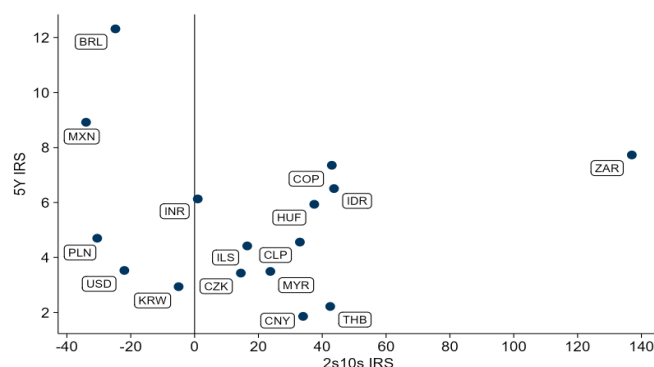
Share of cuts to be delivered in 3/6/12 and 12+ months, including Sept decisions



Source: Goldman Sachs Global Investment Research

Exhibit 20: Rate Curves in Mexico and Poland Remain Deeply Inverted

5Y IRS vs. 2s10s, SOFR rates for US

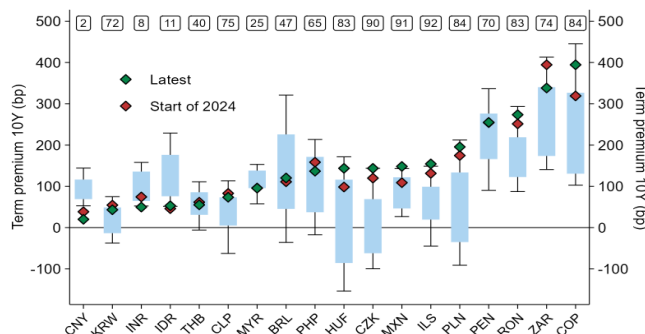


Source: Goldman Sachs Global Investment Research

- **Pricing Cyclical Optimism in the Long End — Supportive for Duration in South Africa, Colombia, Brazil, Peru and Indonesia.** We recently discussed that the long-end risk premium still looks attractive across EM local fixed income (looking through the lens of our updated EM term premium estimates, [Exhibit 21](#)), but without prospects of more sustained US rate relief, the case for adding duration in EM local is not clear-cut. In a recent *Global Markets Daily*, we found that in some EM markets duration can perform in the current environment when the market upgrades the US cyclical backdrop: namely, South Africa, Indonesia, Colombia, Brazil and Peru ([Exhibit 22](#)). As we think there is more room for the market to price in the improved fiscal backdrop in South Africa, we would favour SAGBs to express this theme, and even after a meaningful rally following the elections earlier in the year, we think there is still scope for performance there as well.

Exhibit 21: Long-end Risk Premium Still Priced Relatively High in COP, ZAR, PHP, MXN, and PLN, CLP and KRW

10Y term premium estimates and their ranges, percentiles since 2014

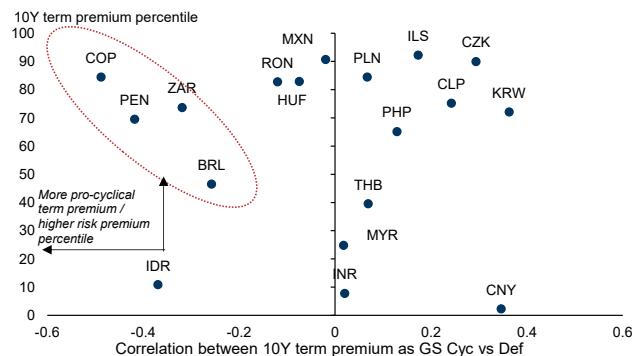


Numbers above indicate percentile, blue-area 25-75th percentile, error bars 10-90th

Source: Goldman Sachs Global Investment Research

Exhibit 22: Long End in COP, ZAR, PEN, BRL and IDR Can Perform When Market Prices Better US Cyclical Backdrop

Last ten-year percentile of 10Y term premium (y-axis) versus correlation between term premium and GS US Cyc vs Def



Source: Goldman Sachs Global Investment Research

Macro forecasts and outlook

Market values in the exhibits that follow are as of 08 October, unless otherwise stated.

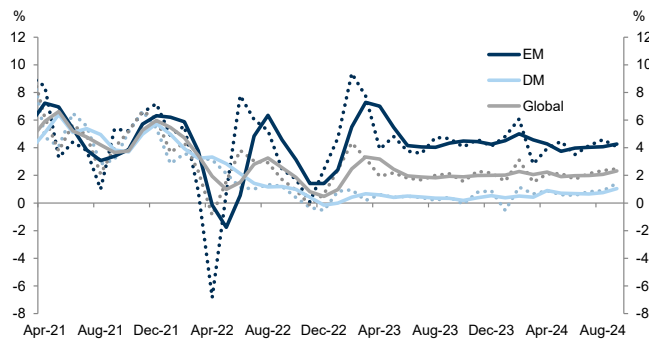
Goldman Sachs macro forecasts for major EMs vs. consensus

	GDP growth					Inflation					Policy rate				
	2023		2024		2025	2023		2024		2025	Current		2024		2025
	Actual	GS	Cons	GS	Cons	Actual	GS	Cons	GS	Cons			GS	Cons	
Brazil	2.9	3.0	2.9	2.0	2.0	4.6	4.4	4.3	4.1	3.7	10.8		11.5	11.4	10.4
Chile	0.2	2.4	2.4	2.2	2.3	3.4	4.5	4.1	3.5	3.8	5.5		5.0	5.1	4.4
China	5.2	4.7	4.8	4.3	4.5	0.2	0.5	0.5	0.8	1.4	2.1		1.5	1.9	1.1
Colombia	0.6	2.1	1.6	2.8	2.6	9.3	5.6	6.7	3.8	4.2	10.3		9.3	8.9	5.5
Czech Republic	0.0	0.9	1.0	3.2	2.6	10.6	2.2	2.3	1.9	2.1	4.3		3.8	3.9	3.0
Hungary	-0.8	1.2	1.8	2.8	3.3	17.1	3.6	4.0	3.0	3.6	6.5		6.0	6.3	4.0
India	7.0	8.2	6.9	6.5	6.6	6.7	5.4	4.5	4.3	4.4	6.5		6.5	6.3	6.0
Indonesia	5.0	5.0	5.0	4.8	5.1	3.7	2.4	2.6	2.8	2.8	6.0		5.5	5.7	5.3
Israel	1.9	0.8	1.4	3.5	4.0	4.2	3.2	2.9	3.0	2.8	4.5		4.5	4.3	3.5
Malaysia	3.6	4.9	5.0	4.2	4.6	2.5	2.0	2.3	3.0	2.6	3.0		3.0	3.0	3.0
Mexico	3.2	1.4	1.5	1.4	1.5	4.7	4.3	4.7	3.6	3.8	10.5		10.0	10.1	8.3
Peru	-0.6	3.1	2.8	2.6	2.8	3.2	2.4	2.5	2.3	2.4	5.3		5.0	4.9	4.5
Philippines	5.5	5.8	5.8	5.9	6.0	6.0	3.3	3.5	2.9	3.0	6.3		5.8	5.9	5.0
Poland	0.1	3.2	3.0	4.2	3.6	11.4	3.6	3.7	4.1	4.4	5.8		5.8	5.8	4.3
Romania	2.1	1.5	2.3	4.3	3.5	10.4	5.5	5.5	3.3	4.0	6.5		6.3	6.3	4.3
Russia	3.6	3.5	3.5	1.2	1.5	5.9	8.1	8.0	7.0	5.5	19.0		19.0	19.4	15.0
South Africa	0.7	1.1	1.0	2.0	1.7	5.9	4.5	4.7	3.4	4.3	8.0		7.8	7.8	6.5
South Korea	1.4	2.3	2.5	2.4	2.2	3.6	2.4	2.5	2.0	2.0	3.5		3.3	3.3	2.5
Thailand	1.9	2.7	2.5	2.8	3.0	1.2	0.6	0.7	1.0	1.3	2.5		2.5	2.4	2.0
Turkey	5.1	2.5	3.0	3.4	3.0	53.9	58.3	59.0	29.0	29.7	50.0		50.0	47.1	29.0

Light blue cells indicate GS forecast above Bloomberg (median) consensus, grey cells indicate GS forecast below Bloomberg (median) consensus. For GDP and inflation, annual average data are used for GS forecasts and consensus. For India, GDP and inflation data are referred to fiscal year (2023 is India FY2023). For policy rates, end of year data are used for GS forecasts and consensus.

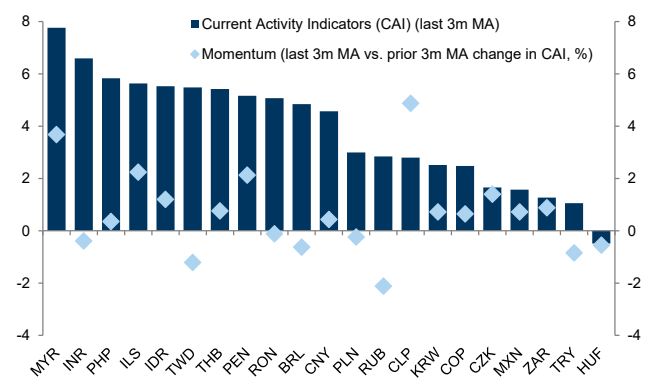
Source: Bloomberg, Goldman Sachs Global Investment Research

GS Current Activity Indicators (CAI)



Source: Goldman Sachs Global Investment Research

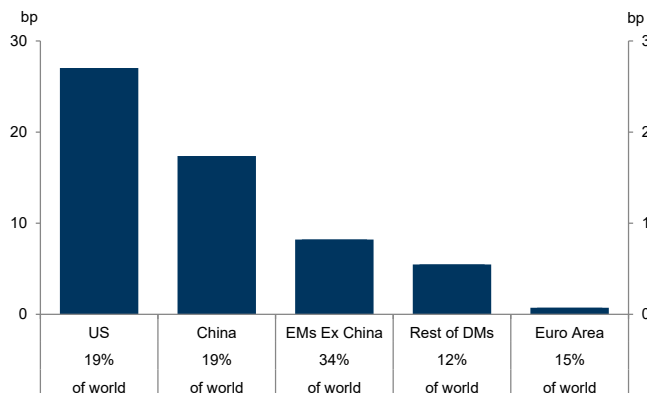
GS Current Activity Indicators (CAI) - latest level and momentum



Momentum calculated between Jun-24 and Sep-24.

Source: Goldman Sachs Global Investment Research

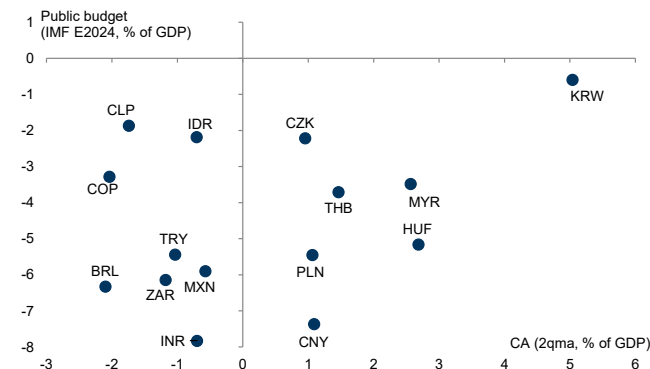
Regional contributions to change in global CAI (Jun-24 - Sep-24)



Regional contributions are weighted by the respective PPP GDP world share.

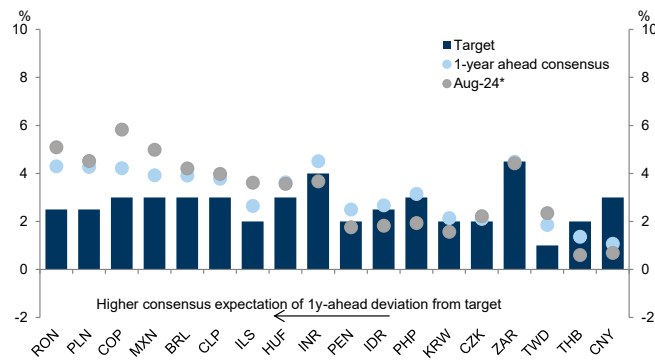
Source: Goldman Sachs Global Investment Research

External and fiscal balances



Source: Haver Analytics, Goldman Sachs Global Investment Research

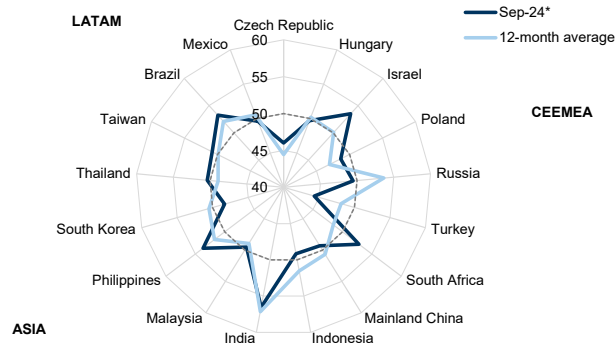
Consensus inflation expectations vs. 1-year realised and Central Bank's targets



*Sep-24 for CLP, COP, IDR, PEN, PHP, KRW, THB.

Source: Consensus Economics, Haver Analytics, Goldman Sachs Global Investment Research

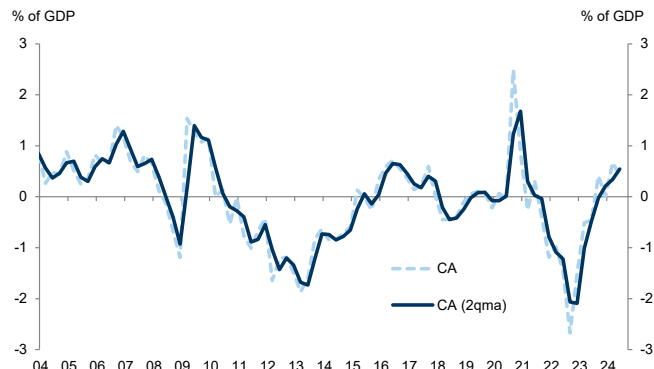
Manufacturing PMI



*For Mexico IMEF Business Climate Index and for Israel global PMI are shown. Aug-24 for ILS.

Source: Markit, Haver Analytics, Goldman Sachs Global Investment Research

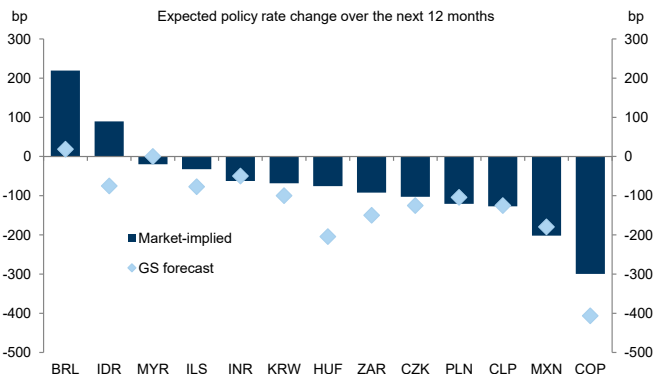
EM average current account balance



Average of BRL, CLP, CNY, COP, CZK, HUF, IDR, INR, KRW, MXN, MYR, PLN, RUB, THB, TRY and ZAR.

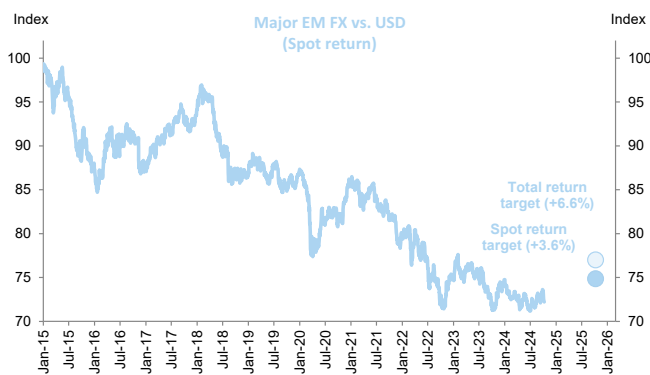
Source: Haver Analytics, Goldman Sachs Global Investment Research

GS and market-implied policy rate change on a 12-month horizon

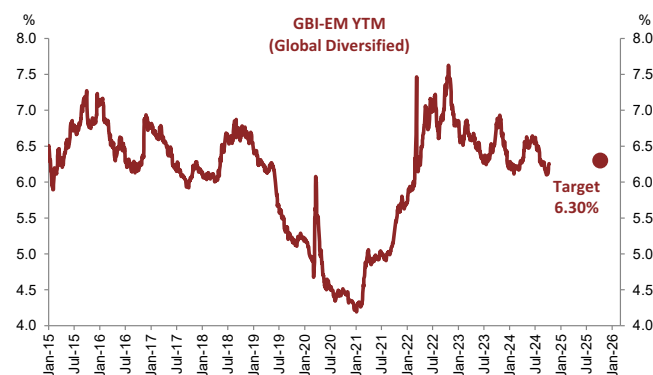


Source: Bloomberg, Goldman Sachs Global Investment Research

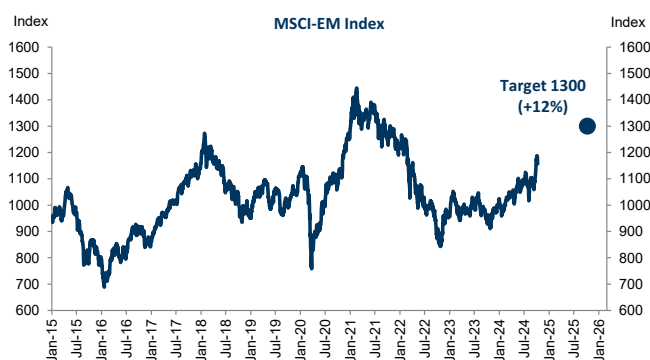
Market forecasts and valuations



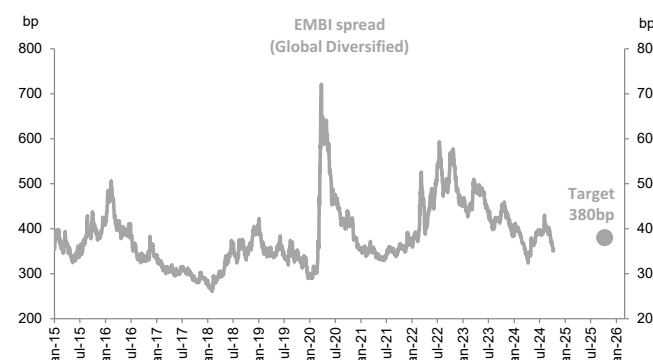
Source: Goldman Sachs, Goldman Sachs Global Investment Research



Source: Bloomberg, Goldman Sachs Global Investment Research



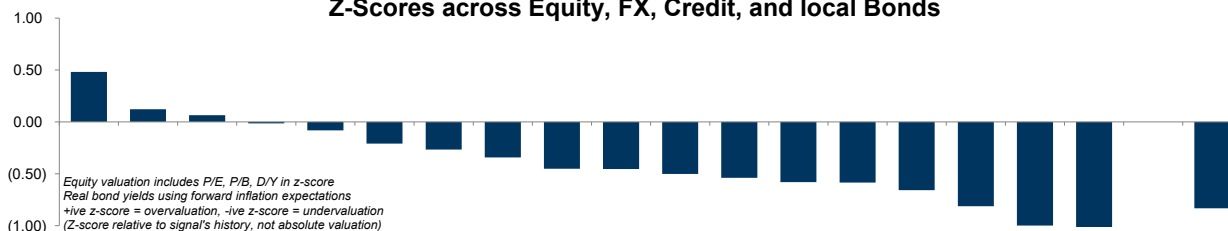
Source: Datastream, Goldman Sachs Global Investment Research



Source: Haver Analytics, Goldman Sachs Global Investment Research

EM cross asset valuation

Average Valuation Z-Scores across Equity, FX, Credit, and local Bonds

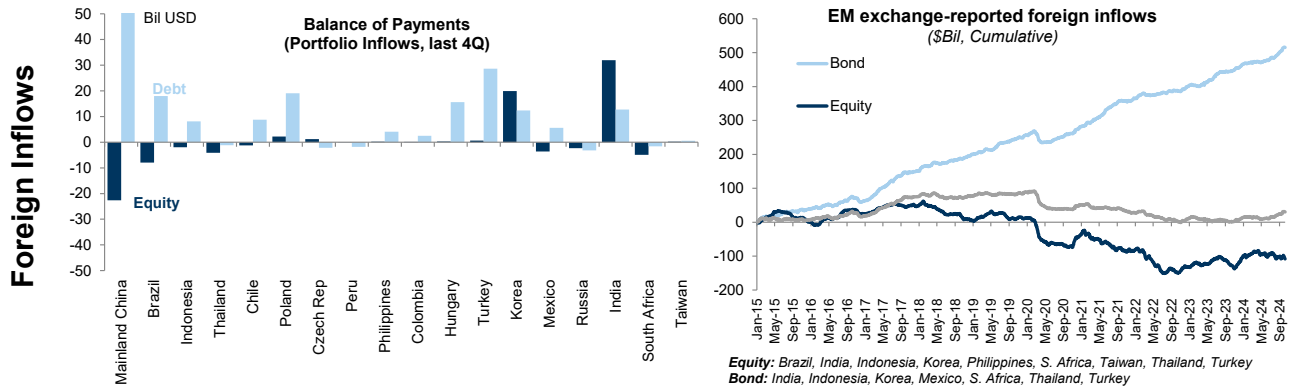


		INR	THB	TWD	MYR	PHP	CZK	PLN	CNY	IDR	PEN	KRW	ZAR	BRL	CLP	HUF	TRY	MXN	COP	EM
Equity	PE (NTM)	23.7x	16.6x	17.5x	14.1x	12.9x	11.7x	7.7x	11.8x	13.4x	12.4x	8.1x	10.1x	8.2x	9.2x	5.5x	4.6x	11.0x	5.8x	12.7x
FX	vs GS FV	(10%)	(4%)	(17%)	(13%)	+1%	+1%	(1%)	(20%)	(10%)	(15%)	(12%)	(21%)	(19%)	(17%)	(10%)	(31%)	(4%)	(13%)	(12%)
Credit	Spread	49bp	36bp	-	38bp	58bp	33bp	69bp	61bp	68bp	74bp	32bp	179bp	146bp	52bp	128bp	276bp	116bp	188bp	802bp
Bonds	Real 10yr	2.5%	1.3%	-0.4%	1.3%	2.9%	1.9%	1.2%	1.2%	4.3%	4.1%	1.0%	6.7%	8.2%	1.7%	3.0%	-	6.0%	6.4%	2.3%
Equity	Z-Score	1.42	0.29	1.83	(0.95)	(0.62)	(0.38)	(1.39)	0.01	(0.95)	(0.27)	(0.91)	(0.63)	(0.63)	(1.25)	(1.53)	(1.21)	(1.56)	(1.93)	0.50
FX	Z-Score	(0.73)	(0.20)	(1.75)	(0.81)	0.32	0.21	0.07	(1.54)	(0.70)	(1.31)	(1.09)	(1.12)	(0.87)	(1.42)	(0.78)	(1.42)	(0.30)	(0.79)	(0.79)
Credit	Z-Score	1.29	1.01	-	1.21	0.78	0.69	0.46	0.53	0.83	0.75	0.63	0.52	0.60	0.80	0.50	0.19	0.25	(0.38)	(2.21)
Bonds	Z-Score	(0.06)	(0.62)	0.11	0.49	(0.81)	(1.36)	(0.20)	(0.36)	(0.98)	(0.98)	(0.64)	(0.92)	(1.42)	(0.48)	(0.83)	-	(2.39)	(2.21)	(0.83)
AVG	Z-Score	0.48	0.12	0.06	(0.01)	(0.08)	(0.21)	(0.27)	(0.34)	(0.45)	(0.45)	(0.50)	(0.54)	(0.58)	(0.59)	(0.66)	(0.81)	(1.00)	(1.33)	(0.83)

Source: FactSet, Datastream, Goldman Sachs Global Investment Research

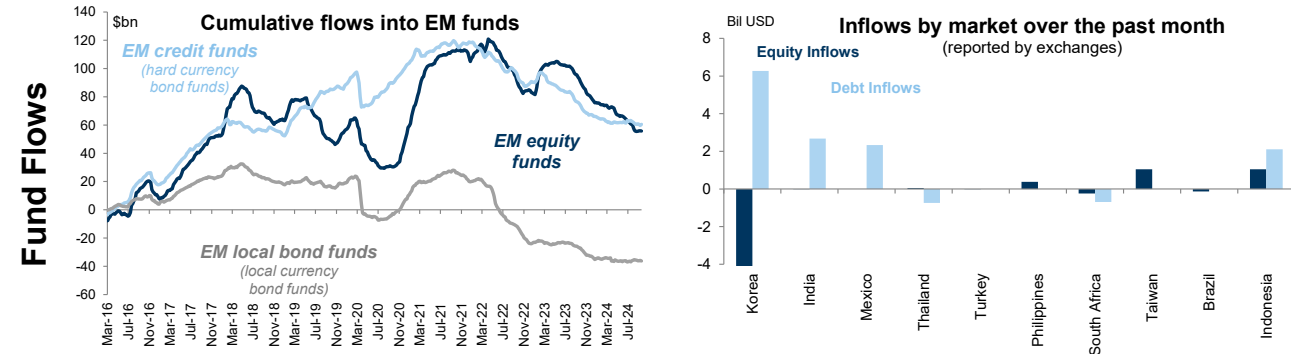
Flows and Positioning

EM portfolio investment and exchange-reported foreign flows



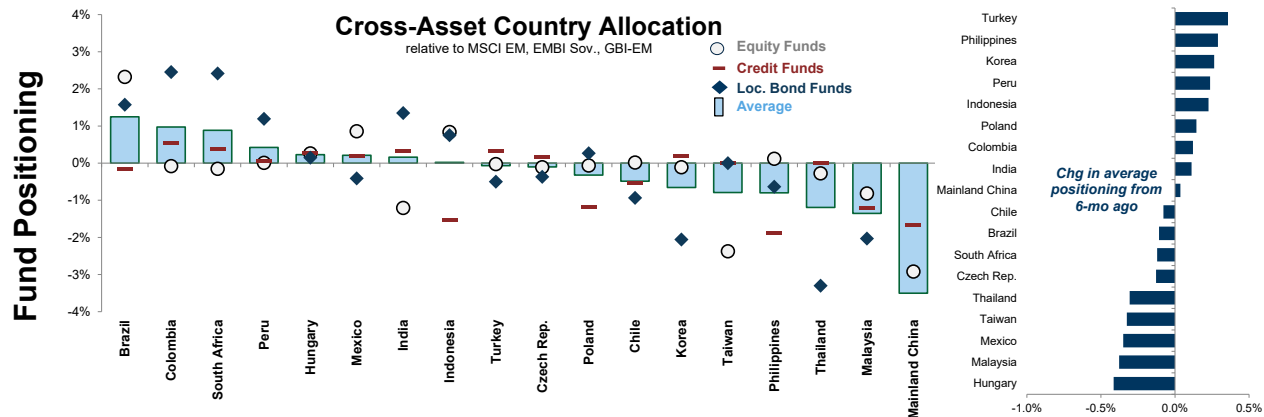
Source: Haver Analytics, Bloomberg, Goldman Sachs Global Investment Research

Cumulative flows into EM mutual funds



Source: EPFR, Bloomberg, Goldman Sachs Global Investment Research

Cross-asset mutual fund positioning



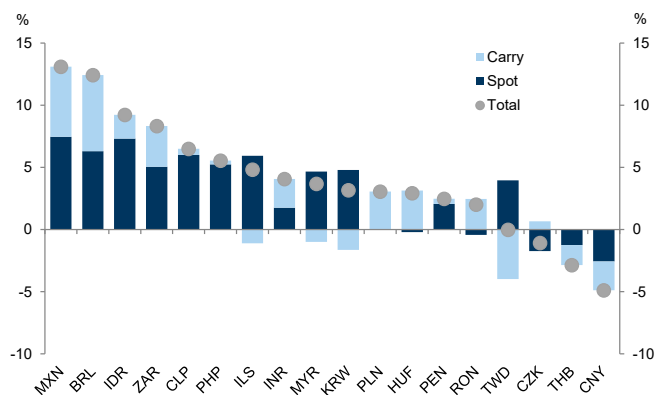
Source: EPFR, Goldman Sachs Global Investment Research

EM Currencies

		Spot	L3M spot return (%)	Forecast			12M return forecast (%)			Fair value			Valuation* (%)		
				3M	6M	12M	Spot	Carry	Total	GSDEER	GSFEER	60/40 Avg	GSDEER	GSFEER	60/40 Avg
vs. USD	ARS	975.1	-5.7	975.0	1050.0	1175.0	-17.0								
	BRL	5.53	-1.8	5.35	5.30	5.20	6.3	6.1	12.4	4.20	4.75	4.42	-24.0	-14.0	-20.0
	CLP	933	-2.9	940	920	880	6.0	0.5	6.5	694	777	727	-25.6	-16.7	-22.1
	CNY	7.06	1.0	7.15	7.25	7.25	-2.6	-2.3	-4.9	5.31	5.98	5.58	-24.8	-15.3	-21.0
	COP	4226	-7.1	4000	3900	3800	11.2	4.6	15.8	3414	4298	3767	-19.2	1.7	-10.8
	CZK	23.06	0.7	22.95	22.77	22.39	3.0	-0.9	2.1	25.41	19.11	22.89	10.2	-17.1	-0.7
	HUF	364	-1.2	355	353	348	4.6	1.5	6.1	331	299	318	-9.1	-17.7	-12.5
	IDR	15668	2.8	15000	14700	14600	7.3	1.9	9.2	14204	13321	13851	-9.3	-15.0	-11.6
	ILS	3.76	-4.3	3.70	3.60	3.55	5.9	-1.1	4.8	3.51	3.00	3.31	-6.6	-20.1	-12.0
	INR	83.9	-0.5	84.0	83.5	82.5	1.8	2.3	4.1	77.0	70.6	74.4	-8.3	-15.9	-11.3
	KRW	1341	2.6	1320	1300	1280	4.8	-1.6	3.2	1162	1152	1158	-13.3	-14.1	-13.7
	MXN	19.34	-8.7	19.25	19.00	18.00	7.5	5.6	13.1	19.39	16.98	18.43	0.3	-12.2	-4.7
	MYR	4.29	8.4	4.25	4.20	4.10	4.7	-1.0	3.7	3.43	4.08	3.69	-20.2	-5.0	-14.1
	NGN	1635	-3.4	1400	1300	1200	36.3								
	PEN	3.73	0.0	3.75	3.70	3.65	2.1	0.4	2.5	3.12	3.19	3.15	-16.1	-14.4	-15.5
	PHP	56.8	2.7	56.0	55.0	54.0	5.2	0.3	5.5	59.5	55.4	57.8	4.7	-2.6	1.8
	PLN	3.92	-0.5	3.82	3.79	3.74	4.8	1.4	6.3	4.06	3.37	3.79	3.7	-14.0	-3.4
	RON	4.53	0.8	4.52	4.44	4.35	4.2	1.0	5.2		4.41			-2.7	
	RUB	96.8	-9.2	98.00	105.00	110.00	-12.0	11.5	-0.5	73.6	65.9	70.5	-24.0	-31.9	-27.2
	THB	33.57	7.6	33.00	33.50	34.00	-1.3	-1.6	-2.9	31.04	31.71	31.31	-7.5	-5.6	-6.7
	TRY	34.26	-3.6	36.00	39.00	44.00	-22.1	40.5	18.4	22.26	27.73	24.45	-35.0	-19.1	-28.6
	TWD	32.2	0.9	32.0	31.5	31.0	4.0	-4.0	0.0	26.6	25.8	26.3	-17.5	-20.0	-18.5
	UAH	41.25	-0.8	36.00	40.00	42.00	-1.8	18.8	17.0						
	ZAR	17.60	2.0	17.25	17.00	16.75	5.0	3.3	8.3	12.77	14.65	13.52	-27.4	-16.7	-23.2
vs. EUR	CZK	25.30	0.1	25.25	25.50	25.75	-1.7	0.7	-1.1	30.47	25.68	28.55	20.4	1.5	12.8
	HUF	399	-1.8	390	395	400	-0.2	3.1	2.9	397	402	399	-0.6	0.8	
	PLN	4.30	-1.1	4.20	4.25	4.30	0.0	3.0	3.1	4.87	4.53	4.73	13.3	5.3	10.1
	RON	4.98	-0.1	4.97	4.97	5.00	-0.4	2.5	2.0		5.93			19.0	
	RUB	106.2	-9.8	107.80	117.60	126.50	-16.0	13.3	-2.8	88.2	88.5	88.4	-16.9	-16.6	-16.8

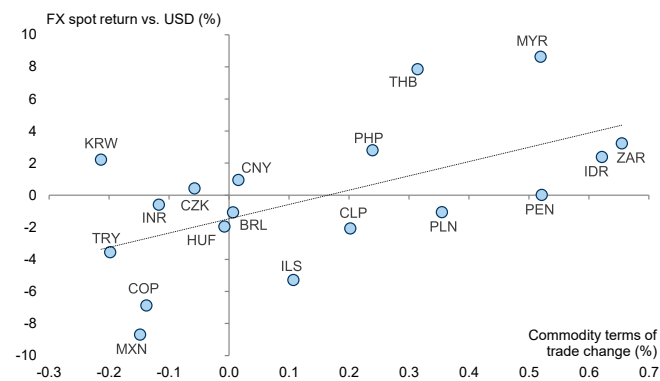
*A positive value signals overvaluation.

Source: Goldman Sachs, Goldman Sachs Global Investment Research

12-month return forecasts vs. USD
CEE currencies vs. EUR

Source: Goldman Sachs, Goldman Sachs Global Investment Research

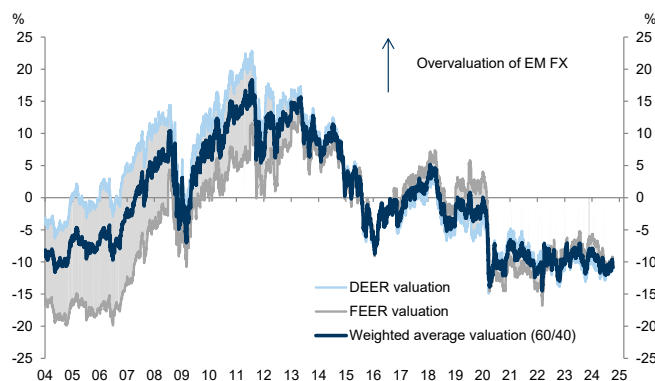
Last 3-month commodity terms of trade change and spot return vs. USD



Source: Goldman Sachs, Goldman Sachs Global Investment Research

Valuation of EM* FX vs. USD

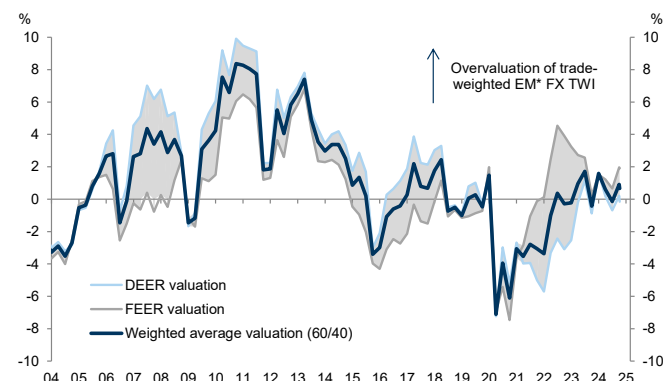
CEE currencies vs. EUR



*Average of 15 countries.

Source: Goldman Sachs, Goldman Sachs Global Investment Research

Trade-weighted valuation of EM* FX

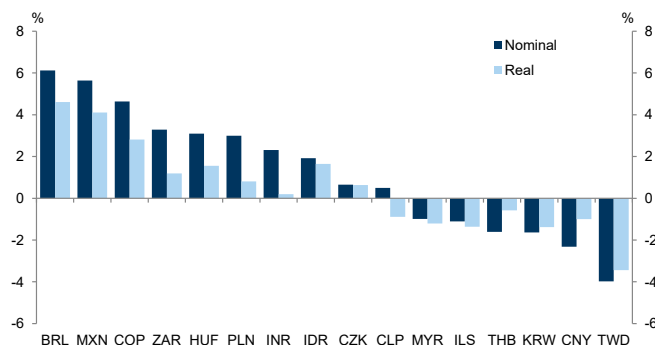


*Average of 15 countries.

Source: Goldman Sachs, Goldman Sachs Global Investment Research

Nominal and real 1-year carry vs. USD

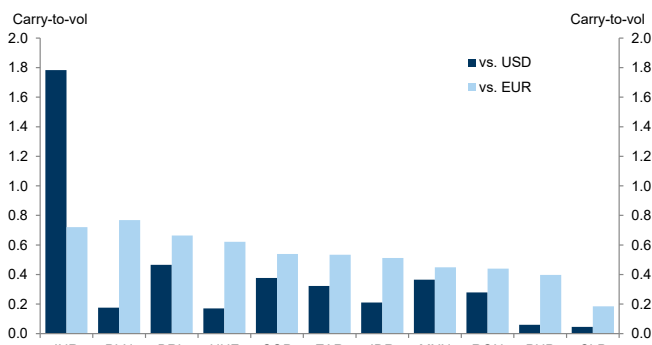
CEE currencies vs. EUR



Source: Consensus Economics, Goldman Sachs, Goldman Sachs Global Investment Research

Carry-to-vol

12-month carry to 3-month annualized realized volatility



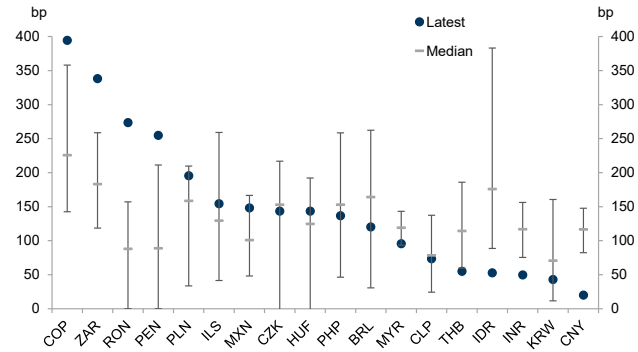
Source: Goldman Sachs, Goldman Sachs Global Investment Research

EM Local Rates

	Nominal swap rates						Slopes						Real swap rates						Bloomberg Barclays EM Local Currency	
	Spot (%)			L3M change (bp)			Spot (%)			L3M change (bp)			Current (%)			Hist. percentile			Yield (%)	L3M USD return (%)
	2Y	5Y	10Y	2Y	5Y	10Y	2s5s	5s10s	2s10s	2s5s	5s10s	2s10s	2Y	5Y	10Y	2Y	5Y	10Y		
BRL	12.37	12.32	12.12	115	68	45	-0.05	-0.20	-0.25	-47	-23	-70	8.69	9.33	9.13	96	92	90	12.0	-1.0
CLP	4.49	4.56	4.82	-69	-58	-43	0.07	0.26	0.33	11	15	26	0.90	1.56	1.82	56	52	49	5.2	4.0
CNY	1.69	1.86	2.03	-16	-13	-17	0.17	0.17	0.34	2	-4	-1	0.50	0.34	0.29	55	27	15	2.0	4.4
COP	7.37	7.36	7.80	-105	-78	-56	-0.01	0.44	0.43	27	22	49	3.45	4.36	4.80	84	83	85	9.7	-1.3
CZK	3.43	3.43	3.57	-30	-6	0	0.00	0.14	0.15	23	6	30	1.34	1.43	1.57	94	83	84	3.7	2.0
HUF	5.92	5.94	6.30	-20	-10	0	0.01	0.36	0.38	11	9	20	2.45	2.94	3.30	79	67	69	6.0	2.0
IDR	6.30	6.51	6.74	-41	-35	-27	0.20	0.23	0.44	6	8	14	3.65	3.92	4.19	90	84	73	6.7	6.7
ILS	4.44	4.42	4.61	26	25	21	-0.02	0.19	0.17	-2	-3	-5	1.95	2.42	2.61	99	96	92	5.1	-3.4
INR	6.16	6.13	6.17	-32	-23	-20	-0.03	0.04	0.01	9	3	13	1.71	1.87	2.04	78	73	61	6.8	2.3
KRW	3.02	2.94	2.97	-21	-17	-17	-0.08	0.03	-0.05	4	1	5	0.89	0.86	0.93	90	85	79	3.0	4.6
MXN	9.32	8.92	8.98	-73	-40	-26	-0.40	0.06	-0.34	34	14	48	5.63	5.92	5.98	90	93	94	9.7	-4.7
MYR	3.45	3.49	3.69	-9	-12	-16	0.05	0.19	0.24	-3	-4	-7	0.90	1.16	1.49	63	59	59	3.8	10.8
PLN	5.09	4.70	4.79	-35	-33	-30	-0.39	0.09	-0.31	2	3	5	1.26	2.20	2.28	76	71	70	5.1	1.9
THB	2.10	2.22	2.53	-11	-10	-10	0.12	0.31	0.43	1	0	1	0.65	0.53	0.68	94	72	53	2.6	10.7
ZAR	7.37	7.73	8.74	-32	-22	-24	0.36	1.01	1.37	9	-2	7	2.88	3.23	4.24	91	81	85	10.1	7.7
EM (10% Cap)																			6.16	4.0

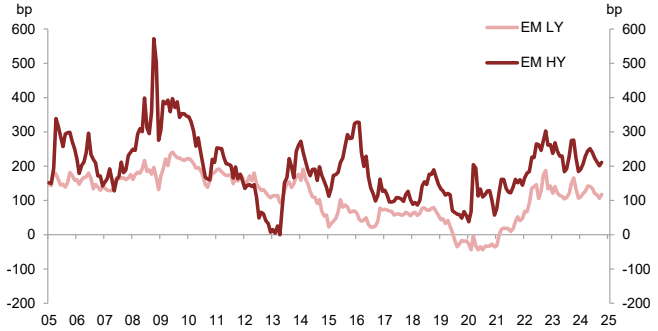
Source: Bloomberg, Goldman Sachs, Goldman Sachs Global Investment Research

Current 10-year local bond term premia estimates vs. historical interquartile range



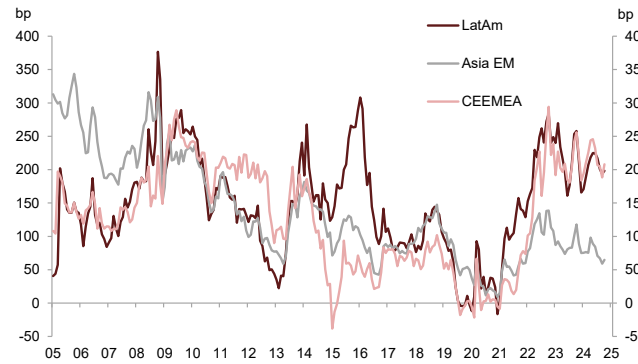
Source: Bloomberg, Goldman Sachs Global Investment Research

History of average 10-year local bond term premia estimates



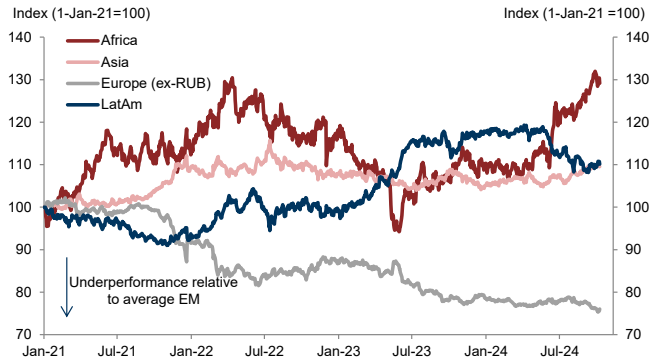
Source: Bloomberg, Goldman Sachs Global Investment Research

History of average 10-year local bond term premia estimates



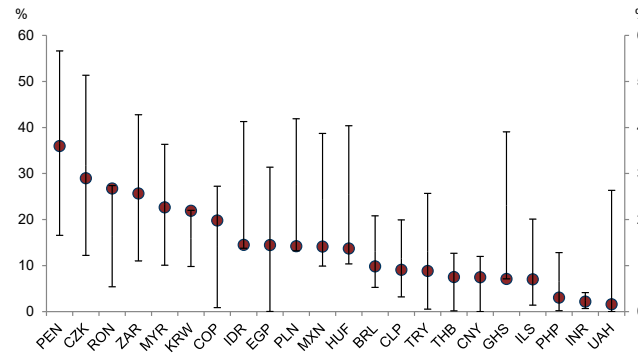
Source: Bloomberg, Goldman Sachs Global Investment Research

Regional relative performance vs. average EM



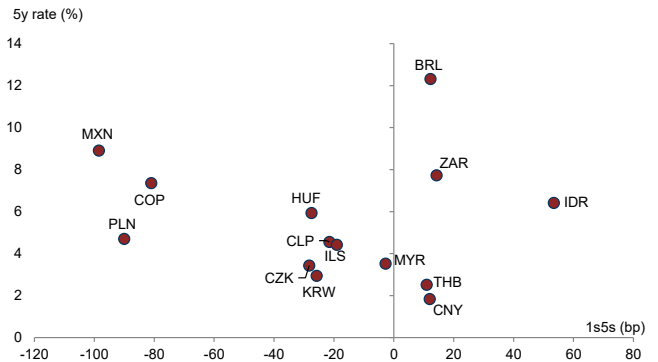
Source: Bloomberg, Goldman Sachs Global Investment Research

Local government bonds foreign ownership vs. last 16-year range



Source: Haver Analytics, Goldman Sachs Global Investment Research

Level vs. slope of local swap curve



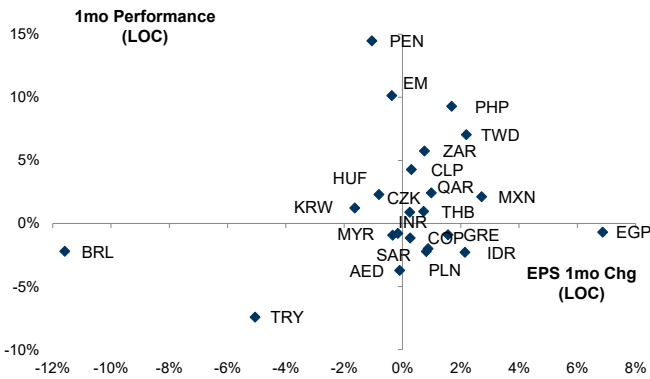
Local bond yields are used for IDR

Source: Haver Analytics, Goldman Sachs, Goldman Sachs Global Investment Research

EM Equities																		
	wgt	Index	Current	GS Target 12-mo	Equities Performance (%)						EPS % change (NTM)						Consensus EPS Growth	
					Local		USD	P/E	P/B	D/Y	Local			USD			2023E	2024E
					1w	ytd	ytd	NTM	LTM	C	NTM	1m	3m	12m	1m	3m		
Mainland China	29.9%	HSCEI	8331	7275	13.0	35.7	36.7	11.8	1.6	2.7	0.5	2.2	4.0	1.6	5.9	8.2	1.7%	15.2%
Philippines	0.6%	SPBLGPT	7537	28300	1.8	19.3	16.7	12.9	2.0	2.8	1.7	4.4	14.5	1.9	9.2	15.6	29.3%	13.1%
Thailand	1.4%	TWSE	1453	23500	0.6	4.3	6.3	16.6	1.8	3.2	0.7	1.4	-0.9	5.9	15.7	12.1	3.5%	3.9%
Egypt	0.1%	EGX30	30852	31600	0.2	17.7	-38.8	5.7	2.5	2.8	6.9	15.0	62.6	7.6	14.4	4.1	76.3%	47.8%
Taiwan	17.7%	JSE 40	22611	76000	-0.2	36.0	31.3	17.5	3.1	2.9	2.2	10.5	28.6	3.3	13.2	31.1	-27.2%	33.9%
Chile	0.4%	IPSA	6475	6375	-0.4	0.7	-5.5	9.2	1.2	4.2	0.3	4.2	-6.2	2.4	9.5	-6.7	-47.0%	-20.9%
Peru	0.3%	MEXBOL	30246	60000	-0.9	24.8	24.2	12.4	2.4	4.2	-1.0	1.0	13.5	-0.2	4.0	15.7	-22.9%	34.5%
Mexico	1.9%	FBMKLCI	52040	1850	-0.9	-7.9	-22.3	11.0	2.0	4.5	2.7	4.1	5.9	2.9	-2.9	-6.1	8.4%	10.9%
Brazil	4.7%	IBOV	132018	138000	-0.9	-7.3	-20.1	8.2	1.7	5.6	-11.6	-9.2	-2.5	-8.0	-7.4	-10.4	-26.9%	-14.1%
Qatar	0.8%	WIG	10512	80400	-1.0	-1.5	-1.5	10.8	1.5	4.5	1.0	-0.2	2.6	1.0	-0.2	2.6	-0.9%	3.9%
Hungary	0.2%	BUX	73878	65000	-1.0	14.9	8.9	5.5	1.0	5.3	-0.8	0.0	17.7	-1.1	3.5	21.4	41.4%	3.1%
Malaysia	1.4%	MSCI Kuwait	1635	895	-1.2	11.4	18.2	14.1	1.5	4.0	-0.2	1.2	7.1	4.7	15.7	21.9	0.4%	9.9%
Czech Rep	0.1%	PX	1594	1500	-1.7	-2.4	-5.9	11.7	1.7	5.9	0.3	0.4	-0.6	0.3	3.8	1.2	-33.7%	-4.9%
South Africa	3.0%	SASEIDX	77564	13000	-1.8	11.6	16.4	10.1	1.8	3.7	0.8	2.3	6.4	3.8	8.4	16.3	-8.8%	6.6%
Colombia	0.1%	COLCAP	1309	1425	-1.8	10.4	2.1	5.8	0.9	8.7	0.3	3.1	-0.7	0.0	2.4	-3.7	-5.6%	-3.4%
Korea	10.1%	KOSPI	2594	3100	-1.9	-4.0	-8.6	8.1	1.0	2.3	-1.6	9.9	47.2	0.5	15.6	51.9	-44.9%	96.5%
Indonesia	1.6%	JCI	7557	8700	-3.5	-2.7	-4.6	13.4	2.4	4.4	2.1	-0.2	1.8	4.3	8.0	4.0	-7.4%	1.1%
Greece	0.4%	ASE	1425	1550	-3.9	8.5	7.8	6.6	1.0	7.2	1.6	3.5	24.7	2.4	7.8	31.5	71.1%	6.9%
Saudi Arabia	4.7%	DSM	12037	11400	-4.1	-3.9	-4.1	16.0	2.3	3.6	0.8	3.1	4.2	0.8	3.1	4.2	-13.3%	8.3%
Poland	0.8%	PCOMP	81672	7700	-4.4	-3.0	-3.2	7.7	1.2	6.1	0.9	9.1	12.3	1.6	14.3	27.8	-14.3%	-2.7%
UAE	1.1%	XU100	4429	10000	-5.3	-0.5	-0.5	8.6	1.5	4.9	-0.1	2.4	19.8	-0.1	2.4	19.8	34.1%	1.3%
India	18.4%	NIFTY	25013	27500	-5.5	20.1	19.2	23.7	4.3	1.2	-0.3	2.3	14.2	-0.3	1.8	13.2	26.1%	14.8%
Turkey	0.6%	SET	9042	1550	-8.2	27.3	11.3	4.6	1.2	4.5	-5.1	-0.4	55.5	-5.4	-4.5	24.7	4.7%	-7.8%
EM (USD)	-	MSCI EM	1184	1150	1.7	18.2	15.6	12.7	1.9	2.8	-0.4	4.4	13.3	0.7	6.5	14.3	-13.6%	18.0%

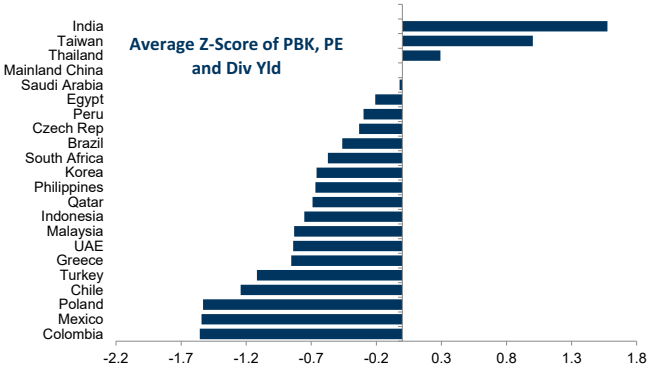
Source: Factset, I/B/E/S, Goldman Sachs Global Investment Research

Earnings and Performance by Market



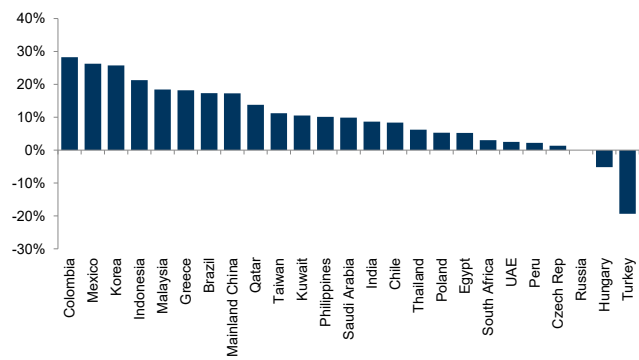
Source: Factset, Goldman Sachs Global Investment Research

Combined Valuations vs History (since 1995)



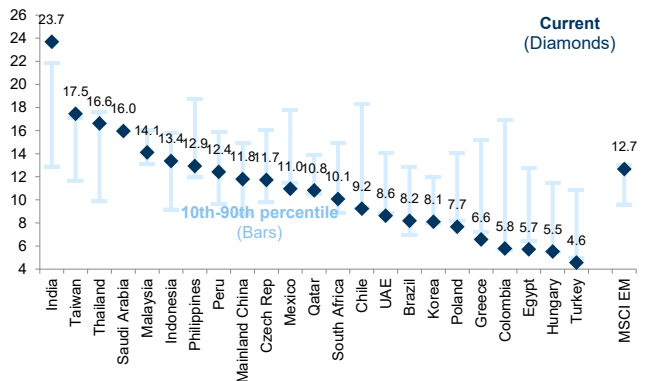
Source: Factset, Goldman Sachs Global Investment Research

12mo GS Return Forecast (USD)



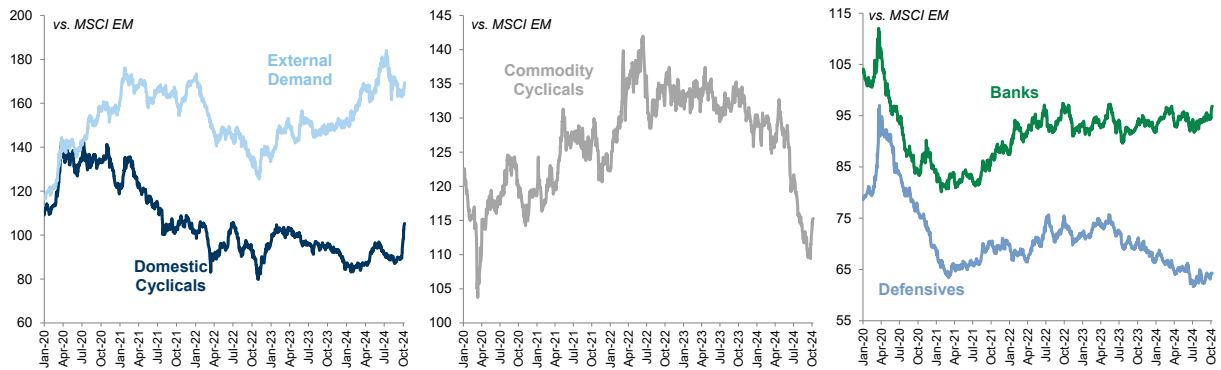
Source: Factset, Goldman Sachs Global Investment Research

PE Ratios (since 2003)



Source: Factset, Goldman Sachs Global Investment Research

EM “Macro Slice” performance vs. MSCI EM

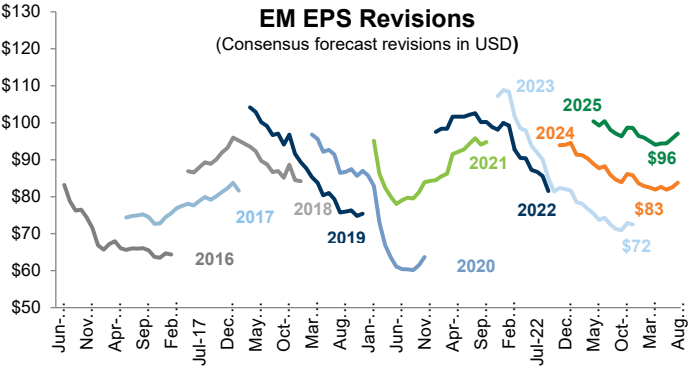


Source: FactSet, Goldman Sachs Global Investment Research

EM valuation and earnings growth

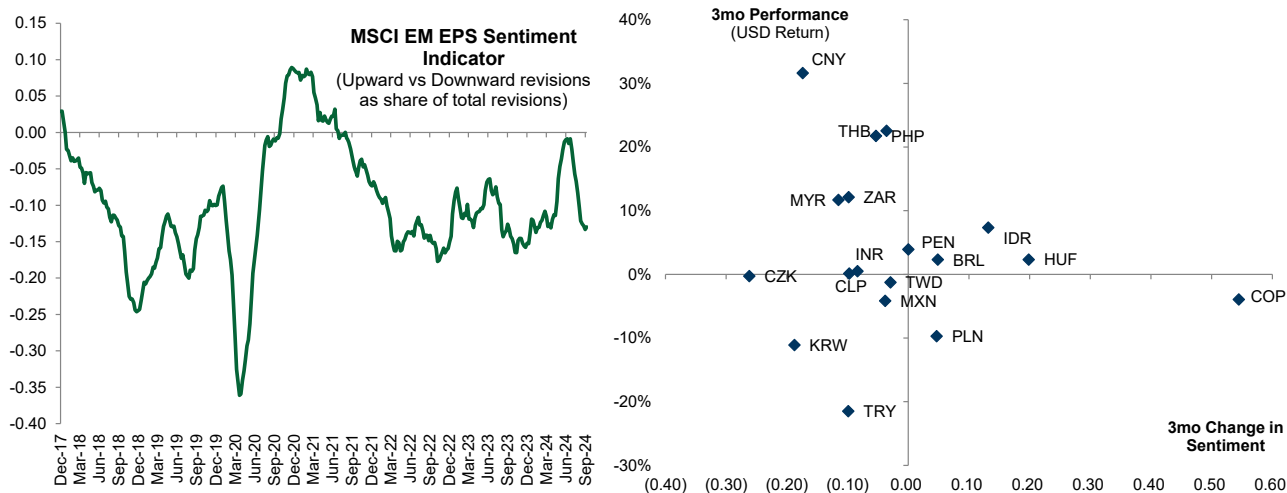
	MSCI EM Valuation			Earnings Growth		
	P/E (NTM)	P/B (LTM)	D/Y (LTM)	2022	2023	2024E
Brazil	8.2	1.7	5.6	12.9	(28.9)	(4.6)
Chile	9.2	1.2	4.2	97.5	(33.3)	(26.7)
Mainland China	11.8	1.6	2.7	(11.4)	(1.7)	6.5
Colombia	5.8	0.9	8.7	51.2	(8.0)	0.1
Czech Rep	11.7	1.7	5.9	185.1	(32.9)	(3.9)
Egypt	5.7	2.5	2.8	17.6	80.9	62.8
Greece	6.6	1.0	7.2	48.9	35.0	12.7
Hungary	5.5	1.0	5.3	12.1	37.5	8.0
India	23.7	4.3	1.2	10.8	17.8	15.7
Indonesia	13.4	2.4	4.4	45.5	(4.0)	1.6
Korea	8.1	1.0	2.3	(13.5)	(35.4)	79.2
Malaysia	14.1	1.5	4.0	(0.6)	(4.3)	11.1
Mexico	11.0	2.0	4.5	9.2	10.7	4.0
Peru	12.4	2.4	4.2	144.4	(19.6)	27.9
Philippines	12.9	2.0	2.8	27.6	27.6	15.1
Poland	7.7	1.2	6.1	76.0	(16.0)	(10.2)
Qatar	10.8	1.5	4.5	11.6	(0.2)	6.2
Saudi Arabia	16.0	2.3	3.6	12.2	(25.3)	8.6
South Africa	10.1	1.8	3.7	11.4	5.8	9.8
Taiwan	17.5	3.1	2.9	2.1	(21.1)	30.2
Thailand	16.6	1.8	3.2	6.3	(3.8)	0.1
Turkey	4.6	1.2	4.5	268.9	13.1	(19.5)
UAE	8.6	1.5	4.9	19.1	15.8	12.2
EM (Local)	12.7	1.9	2.8	1.7	(11.6)	16.9
EM (USD)	-	-	-	1.1	(11.9)	17.4

*Earnings growth based on consensus estimates in local currency



Source: FactSet, Goldman Sachs Global Investment Research

MSCI EM EPS Sentiment Indicator (up vs down revisions as share of total)



Source: Factset, I/B/E/S, Goldman Sachs Global Investment Research

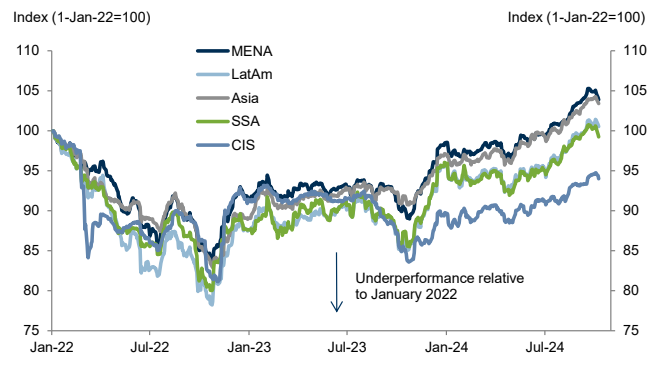
EM Sovereign Credit

Rating	Currency Code	Country	Duration	Sovereign Spread (bp)			Return (%)		Valuations (~5-year)					
				Spread	Pct. Rank	2wk ch.	YTD ch.	2wk	YTD	Generic sovereign spread	Model-implied signal	Misalignment (Actual minus implied)	Valuation signal	Degree of mispricing
Medians		LatAm	7.8	186	16%	-14	-21	-0.4	5	387	340	10	Fair	
		CEE/Balkans	7.8	125	33%	-12	-19	-1.3	3	126	126	0	Fair	
		CIS	6.7	271	30%	-23	36	-0.5	5	596	592	-221	Over	■
		SSA	5.1	556	75%	-36	-8	0.4	6	532	480	52	Fair	■
		Asia	6.2	148	28%	-46	78	-0.5	7	265	383	-68	Over	■
		MENA	5.5	147	1%	-13	-26	-1.0	5	510	450	134	Under	■
		AA	8.6	64	31%	-7	-2	-1.7	3	39	88	-49	Over	■
		A	7.9	79	58%	-10	26	-1.5	3	66	144	-77	Over	■
		BBB	8.7	125	20%	-6	36	-1.1	4	118	169	-50	Over	
		BB	6.5	192	9%	-34	-21	-0.5	5	249	260	-11	Fair	
		B	5.0	544	67%	-35	4	0.0	9	594	571	3	Fair	
	IG	8.2	147	22%	-20	-17	-1.4	3	168	155	-58			
	HY	4.8	544	74%	-35	4	0.0	6	405	375	-12			
	EMBI Global Diversified	-	354	56%	-20	-35	-	-	366	351	-18			
AA	AED	UAE/Abu Dhabi	8.2	76	-	-5	2	-1.8	4	-	-	-	-	-
	QAR	Qatar	9.1	52	-	-8	-6	-1.6	4	39	88	-49	Over	■
A	CLP	Chile	9.7	90	53%	-4	-16	-2.0	4	77	133	-56	Over	■
	PLN	Poland	8.4	79	49%	-10	-4	-1.5	4	45	76	-31	Over	■
	SAR	Saudi Arabia	7.7	91	-	-3	11	-1.8	3	79	224	-144	Over	■
BBB	HUF	Hungary	7.8	140	35%	-12	-4	-1.2	4	127	88	38	Fair	■
	IDR	Indonesia	8.2	63	0%	-15	-5	-1.1	3	69	135	-67	Over	■
	MXN	Mexico	8.9	168	59%	-6	5	-1.9	3	126	227	-101	Over	■
	USD	Panama	8.7	227	95%	-21	-53	-0.3	10	160	198	-38	Fair	■
	PEN	Peru	10.1	125	30%	-6	2	-1.8	3	100	167	-66	Over	■
	PHP	Philippines	8.2	69	4%	-13	0	-1.3	3	81	161	-80	Over	■
	RON	Romania	7.1	179	67%	-15	-21	-1.0	6	165	205	-40	Fair	
BB	BRL	Brazil	7.4	177	36%	-21	-2	-0.4	6	185	110	74	Under	■
	COP	Colombia	7.8	288	83%	-11	16	-1.3	3	259	252	6	Fair	■
	CRC	Costa Rica	9.2	194	1%	-20	-24	-0.6	7	159	187	-28	Fair	■
	DOP	Dominican Republic	7.6	186	-	-14	-50	-1.0	9	180	275	-95	Over	■
	GTQ	Guatemala	6.6	189	4%	-18	-18	-0.6	6	165	201	-36	Fair	■
	XOF	Ivory Coast	5.7	354	11%	-18	20	-0.6	6	281	425	-144	Fair	■
	JOD	Jordan	4.1	372	38%	-18	76	-0.4	4	326	217	109	Under	■
	MAD	Morocco	7.2	147	12%	-13	-26	-1.0	6	130	208	-78	Over	■
	OMR	Oman	6.0	137	-	-10	-8	-0.8	6	132	277	-145	Over	■
	ZAR	South Africa	6.0	238	23%	-18	-42	-0.7	8	215	221	-6	Fair	■
B	AOA	Angola	5.0	621	50%	-23	-85	-0.1	12	628	453	175	Under	■
	BHD	Bahrain	5.5	209	-	-7	-37	-0.8	8	192	228	-36	Over	■
	EGP	Egypt	5.5	561	73%	-17	-379	0.2	30	524	617	-93	Fair	■
	KES	Kenya	4.6	568	64%	-37	-29	0.3	8	647	529	118	Under	■
	MNT	Mongolia	2.9	227	0%	-79	-49	1.3	7	303	345	-42	Fair	■
	NGN	Nigeria	5.3	544	57%	-35	-20	0.4	8	552	563	-11	Fair	■
	TRY	Turkey	5.0	232	24%	-9	-50	-0.9	8	253	477	-224	Fair	■

Valuations as of 1st September. For more details, please visit the latest update of the EM sovereign credit model by clicking on the table above.

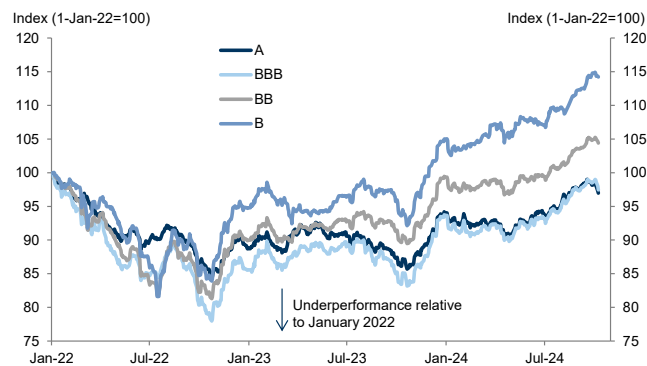
Source: Bloomberg, Haver Analytics, Goldman Sachs Global Investment Research

Median regional relative performance to January 2022



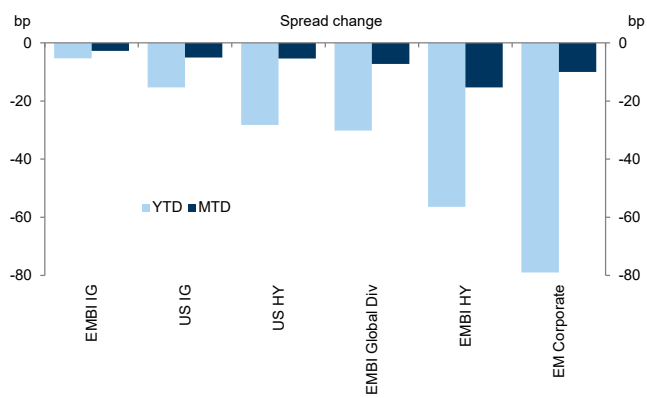
Source: Bloomberg, Goldman Sachs Global Investment Research

Median ratings relative performance to January 2022



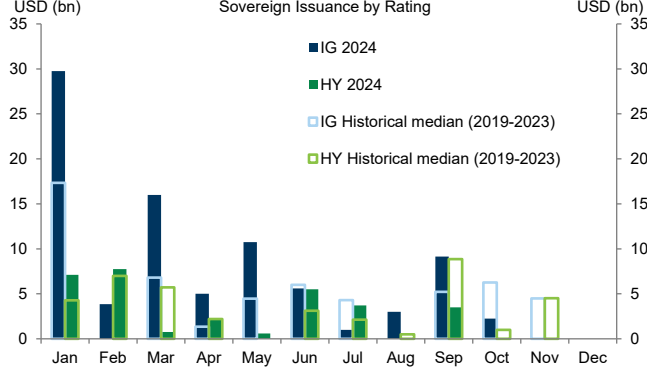
Source: Bloomberg, Goldman Sachs Global Investment Research

YTD and MTD spread performance



Source: Bloomberg, Goldman Sachs Global Investment Research

EM sovereign USD issuance by rating



Source: Bloomberg, Dealogic, Goldman Sachs Global Investment Research

Disclosure Appendix

Reg AC

We, Kamakshya Trivedi, Danny Suwanapruti, Sunil Koul, Tadas Gedminas, Tarun Lalwani, CFA, Teresa Alves, Jolene Zhong, Lexi Kanter and Victor Engel, hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

Unless otherwise stated, the individuals listed on the cover page of this report are analysts in Goldman Sachs' Global Investment Research division.

Disclosures

MSCI Disclosure

All MSCI data used in this report is the exclusive property of MSCI, Inc. (MSCI). Without prior written permission of MSCI, this information and any other MSCI intellectual property may not be reproduced or disseminated in any form and may not be used to create any financial instruments or products or any indices. This information is provided on an "as is" basis, and the user of this information assumes the entire risk of any use made of this information. Neither MSCI, any of its affiliates nor any third party involved in, or related to, computing or compiling the data makes any express or implied warranties or representations with respect to this information (or the results to be obtained by the use thereof), and MSCI, its affiliates and any such third party hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any of this information. Without limiting any of the foregoing, in no event shall MSCI, any of its affiliates or any third party involved in, or related to, computing or compiling the data have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages. MSCI and the MSCI indexes are service marks of MSCI and its affiliates. The Global Industry Classification Standard (GICS) were developed by and is the exclusive property of MSCI and Standard & Poor's. GICS is a service mark of MSCI and S&P and has been licensed for use by The Goldman Sachs Group.

Regulatory disclosures

Disclosures required by United States laws and regulations

See company-specific regulatory disclosures above for any of the following disclosures required as to companies referred to in this report: manager or co-manager in a pending transaction; 1% or other ownership; compensation for certain services; types of client relationships; managed/co-managed public offerings in prior periods; directorships; for equity securities, market making and/or specialist role. Goldman Sachs trades or may trade as a principal in debt securities (or in related derivatives) of issuers discussed in this report.

The following are additional required disclosures: **Ownership and material conflicts of interest:** Goldman Sachs policy prohibits its analysts, professionals reporting to analysts and members of their households from owning securities of any company in the analyst's area of coverage.

Analyst compensation: Analysts are paid in part based on the profitability of Goldman Sachs, which includes investment banking revenues. **Analyst as officer or director:** Goldman Sachs policy generally prohibits its analysts, persons reporting to analysts or members of their households from serving as an officer, director or advisor of any company in the analyst's area of coverage. **Non-U.S. Analysts:** Non-U.S. analysts may not be associated persons of Goldman Sachs & Co. LLC and therefore may not be subject to FINRA Rule 2241 or FINRA Rule 2242 restrictions on communications with subject company, public appearances and trading securities held by the analysts.

Additional disclosures required under the laws and regulations of jurisdictions other than the United States

The following disclosures are those required by the jurisdiction indicated, except to the extent already made above pursuant to United States laws and regulations. **Australia:** Goldman Sachs Australia Pty Ltd and its affiliates are not authorised deposit-taking institutions (as that term is defined in the Banking Act 1959 (Cth)) in Australia and do not provide banking services, nor carry on a banking business, in Australia. This research, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act, unless otherwise agreed by Goldman Sachs. In producing research reports, members of Global Investment Research of Goldman Sachs Australia may attend site visits and other meetings hosted by the companies and other entities which are the subject of its research reports. In some instances the costs of such site visits or meetings may be met in part or in whole by the issuers concerned if Goldman Sachs Australia considers it is appropriate and reasonable in the specific circumstances relating to the site visit or meeting. To the extent that the contents of this document contains any financial product advice, it is general advice only and has been prepared by Goldman Sachs without taking into account a client's objectives, financial situation or needs. A client should, before acting on any such advice, consider the appropriateness of the advice having regard to the client's own objectives, financial situation and needs. A copy of certain Goldman Sachs Australia and New Zealand disclosure of interests and a copy of Goldman Sachs' Australian Sell-Side Research Independence Policy Statement are available at: <https://www.goldmansachs.com/disclosures/australia-new-zealand/index.html>. **Brazil:** Disclosure information in relation to CVM Resolution n. 20 is available at <https://www.gs.com/worldwide/brazil/area/gir/index.html>. Where applicable, the Brazil-registered analyst primarily responsible for the content of this research report, as defined in Article 20 of CVM Resolution n. 20, is the first author named at the beginning of this report, unless indicated otherwise at the end of the text. **Canada:** This information is being provided to you for information purposes only and is not, and under no circumstances should be construed as, an advertisement, offering or solicitation by Goldman Sachs & Co. LLC for purchasers of securities in Canada to trade in any Canadian security. Goldman Sachs & Co. LLC is not registered as a dealer in any jurisdiction in Canada under applicable Canadian securities laws and generally is not permitted to trade in Canadian securities and may be prohibited from selling certain securities and products in certain jurisdictions in Canada. If you wish to trade in any Canadian securities or other products in Canada please contact Goldman Sachs Canada Inc., an affiliate of The Goldman Sachs Group Inc., or another registered Canadian dealer. **Hong Kong:** Further information on the securities of covered companies referred to in this research may be obtained on request from Goldman Sachs (Asia) L.L.C. **India:** Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (India) Securities Private Limited, Research Analyst - SEBI Registration Number INH000001493, 951-A, Rational House, Appasaheb Marathe Marg, Prabhadevi, Mumbai 400 025, India, Corporate Identity Number U71410MH2006FTC160634, Phone +91 22 6616 9000, Fax +91 22 6616 9001. Goldman Sachs may beneficially own 1% or more of the securities (as such term is defined in clause 2 (h) the Indian Securities Contracts (Regulation) Act, 1956) of the subject company or companies referred to in this research report. Investment in securities market are subject to market risks. Read all the related documents carefully before investing. Registration granted by SEBI and certification from NISM in no way guarantee performance of the intermediary or provide any assurance of returns to investors. Goldman Sachs (India) Securities Private Limited Investor Grievance E-mail: india-client-support@gs.com. Compliance Officer: Anil Rajput [Tel: + 91 22 6616 9000 | Email: anil.m.rajput@gs.com]. **Japan:** See below. **Korea:** This research, and any access to it, is intended only for "professional investors" within the meaning of the Financial Services and Capital Markets Act, unless otherwise agreed by Goldman Sachs. Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (Asia) L.L.C., Seoul Branch. **New Zealand:** Goldman Sachs New Zealand Limited and its affiliates are neither "registered banks" nor "deposit takers" (as defined in the Reserve Bank of New Zealand Act 1989) in New Zealand. This research, and any access to it, is intended for "wholesale clients" (as defined in the Financial Advisers Act 2008) unless otherwise agreed by Goldman Sachs. A copy of certain Goldman Sachs Australia and New Zealand disclosure of interests is available at: <https://www.goldmansachs.com/disclosures/australia-new-zealand/index.html>. **Russia:** Research reports distributed in the Russian Federation are not advertising as defined in the Russian legislation, but are information and analysis not having product promotion as their main purpose and do not

provide appraisal within the meaning of the Russian legislation on appraisal activity. Research reports do not constitute a personalized investment recommendation as defined in Russian laws and regulations, are not addressed to a specific client, and are prepared without analyzing the financial circumstances, investment profiles or risk profiles of clients. Goldman Sachs assumes no responsibility for any investment decisions that may be taken by a client or any other person based on this research report. **Singapore:** Goldman Sachs (Singapore) Pte. (Company Number: 198602165W), which is regulated by the Monetary Authority of Singapore, accepts legal responsibility for this research, and should be contacted with respect to any matters arising from, or in connection with, this research. **Taiwan:** This material is for reference only and must not be reprinted without permission. Investors should carefully consider their own investment risk. Investment results are the responsibility of the individual investor. **United Kingdom:** Persons who would be categorized as retail clients in the United Kingdom, as such term is defined in the rules of the Financial Conduct Authority, should read this research in conjunction with prior Goldman Sachs research on the covered companies referred to herein and should refer to the risk warnings that have been sent to them by Goldman Sachs International. A copy of these risks warnings, and a glossary of certain financial terms used in this report, are available from Goldman Sachs International on request.

European Union and United Kingdom: Disclosure information in relation to Article 6 (2) of the European Commission Delegated Regulation (EU) (2016/958) supplementing Regulation (EU) No 596/2014 of the European Parliament and of the Council (including as that Delegated Regulation is implemented into United Kingdom domestic law and regulation following the United Kingdom's departure from the European Union and the European Economic Area) with regard to regulatory technical standards for the technical arrangements for objective presentation of investment recommendations or other information recommending or suggesting an investment strategy and for disclosure of particular interests or indications of conflicts of interest is available at <https://www.gs.com/disclosures/europeanpolicy.html> which states the European Policy for Managing Conflicts of Interest in Connection with Investment Research.

Japan: Goldman Sachs Japan Co., Ltd. is a Financial Instrument Dealer registered with the Kanto Financial Bureau under registration number Kinsho 69, and a member of Japan Securities Dealers Association, Financial Futures Association of Japan Type II Financial Instruments Firms Association, The Investment Trusts Association, Japan, and Japan Investment Advisers Association. Sales and purchase of equities are subject to commission pre-determined with clients plus consumption tax. See company-specific disclosures as to any applicable disclosures required by Japanese stock exchanges, the Japanese Securities Dealers Association or the Japanese Securities Finance Company.

Global product; distributing entities

Goldman Sachs Global Investment Research produces and distributes research products for clients of Goldman Sachs on a global basis. Analysts based in Goldman Sachs offices around the world produce research on industries and companies, and research on macroeconomics, currencies, commodities and portfolio strategy. This research is disseminated in Australia by Goldman Sachs Australia Pty Ltd (ABN 21 006 797 897); in Brazil by Goldman Sachs do Brasil Corretora de Títulos e Valores Mobiliários S.A.; Public Communication Channel Goldman Sachs Brazil: 0800 727 5764 and / or contatogoldmanbrasil@gs.com. Available Weekdays (except holidays), from 9am to 6pm. Canal de Comunicação com o Público Goldman Sachs Brasil: 0800 727 5764 e/ou contatogoldmanbrasil@gs.com. Horário de funcionamento: segunda-feira à sexta-feira (exceto feriados), das 9h às 18h; in Canada by Goldman Sachs & Co. LLC; in Hong Kong by Goldman Sachs (Asia) L.L.C.; in India by Goldman Sachs (India) Securities Private Ltd.; in Japan by Goldman Sachs Japan Co., Ltd.; in the Republic of Korea by Goldman Sachs (Asia) L.L.C., Seoul Branch; in New Zealand by Goldman Sachs New Zealand Limited; in Russia by OOO Goldman Sachs; in Singapore by Goldman Sachs (Singapore) Pte. (Company Number: 198602165W); and in the United States of America by Goldman Sachs & Co. LLC. Goldman Sachs International has approved this research in connection with its distribution in the United Kingdom.

Goldman Sachs International ("GSI"), authorised by the Prudential Regulation Authority ("PRA") and regulated by the Financial Conduct Authority ("FCA") and the PRA, has approved this research in connection with its distribution in the United Kingdom.

European Economic Area: GSI, authorised by the PRA and regulated by the FCA and the PRA, disseminates research in the following jurisdictions within the European Economic Area: the Grand Duchy of Luxembourg, Italy, the Kingdom of Belgium, the Kingdom of Denmark, the Kingdom of Norway, the Republic of Finland and the Republic of Ireland; GSI - Succursale de Paris (Paris branch) which is authorised by the French Autorité de contrôle prudentiel et de résolution ("ACPR") and regulated by the Autorité de contrôle prudentiel et de résolution and the Autorité des marchés financiers ("AMF") disseminates research in France; GSI - Sucursal en España (Madrid branch) authorized in Spain by the Comisión Nacional del Mercado de Valores disseminates research in the Kingdom of Spain; GSI - Sweden Bankfilial (Stockholm branch) is authorized by the SFSA as a "third country branch" in accordance with Chapter 4, Section 4 of the Swedish Securities and Market Act (Sv. lag (2007:528) om värdepappersmarknaden) disseminates research in the Kingdom of Sweden; Goldman Sachs Bank Europe SE ("GSBE") is a credit institution incorporated in Germany and, within the Single Supervisory Mechanism, subject to direct prudential supervision by the European Central Bank and in other respects supervised by German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin) and Deutsche Bundesbank and disseminates research in the Federal Republic of Germany and those jurisdictions within the European Economic Area where GSI is not authorised to disseminate research and additionally, GSBE, Copenhagen Branch filial af GSBE, Tyskland, supervised by the Danish Financial Authority disseminates research in the Kingdom of Denmark; GSBE - Sucursal en España (Madrid branch) subject (to a limited extent) to local supervision by the Bank of Spain disseminates research in the Kingdom of Spain; GSBE - Succursale Italia (Milan branch) to the relevant applicable extent, subject to local supervision by the Bank of Italy (Banca d'Italia) and the Italian Companies and Exchange Commission (Commissione Nazionale per le Società e la Borsa "Consob") disseminates research in Italy; GSBE - Succursale de Paris (Paris branch), supervised by the AMF and by the ACPR disseminates research in France; and GSBE - Sweden Bankfilial (Stockholm branch), to a limited extent, subject to local supervision by the Swedish Financial Supervisory Authority (Finansinspektionen) disseminates research in the Kingdom of Sweden.

General disclosures

This research is for our clients only. Other than disclosures relating to Goldman Sachs, this research is based on current public information that we consider reliable, but we do not represent it is accurate or complete, and it should not be relied on as such. The information, opinions, estimates and forecasts contained herein are as of the date hereof and are subject to change without prior notification. We seek to update our research as appropriate, but various regulations may prevent us from doing so. Other than certain industry reports published on a periodic basis, the large majority of reports are published at irregular intervals as appropriate in the analyst's judgment.

Goldman Sachs conducts a global full-service, integrated investment banking, investment management, and brokerage business. We have investment banking and other business relationships with a substantial percentage of the companies covered by Global Investment Research. Goldman Sachs & Co. LLC, the United States broker dealer, is a member of SIPC (<https://www.sipc.org>).

Our salespeople, traders, and other professionals may provide oral or written market commentary or trading strategies to our clients and principal trading desks that reflect opinions that are contrary to the opinions expressed in this research. Our asset management area, principal trading desks and investing businesses may make investment decisions that are inconsistent with the recommendations or views expressed in this research.

We and our affiliates, officers, directors, and employees will from time to time have long or short positions in, act as principal in, and buy or sell, the securities or derivatives, if any, referred to in this research, unless otherwise prohibited by regulation or Goldman Sachs policy.

The views attributed to third party presenters at Goldman Sachs arranged conferences, including individuals from other parts of Goldman Sachs, do not necessarily reflect those of Global Investment Research and are not an official view of Goldman Sachs.

Any third party referenced herein, including any salespeople, traders and other professionals or members of their household, may have positions in the products mentioned that are inconsistent with the views expressed by analysts named in this report.

This research is focused on investment themes across markets, industries and sectors. It does not attempt to distinguish between the prospects or performance of, or provide analysis of, individual companies within any industry or sector we describe.

Any trading recommendation in this research relating to an equity or credit security or securities within an industry or sector is reflective of the investment theme being discussed and is not a recommendation of any such security in isolation.

This research is not an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. It does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Clients should consider whether any advice or recommendation in this research is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. The price and value of investments referred to in this research and the income from them may fluctuate. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Fluctuations in exchange rates could have adverse effects on the value or price of, or income derived from, certain investments.

Certain transactions, including those involving futures, options, and other derivatives, give rise to substantial risk and are not suitable for all investors. Investors should review current options and futures disclosure documents which are available from Goldman Sachs sales representatives or at <https://www.theocc.com/about/publications/character-risks.jsp> and https://www.fiadocumentation.org/fia/regulatory-disclosures_1/fia-uniform-futures-and-options-on-futures-risk-disclosures-booklet-pdf-version-2018. Transaction costs may be significant in option strategies calling for multiple purchase and sales of options such as spreads. Supporting documentation will be supplied upon request.

Differing Levels of Service provided by Global Investment Research: The level and types of services provided to you by Goldman Sachs Global Investment Research may vary as compared to that provided to internal and other external clients of GS, depending on various factors including your individual preferences as to the frequency and manner of receiving communication, your risk profile and investment focus and perspective (e.g., marketwide, sector specific, long term, short term), the size and scope of your overall client relationship with GS, and legal and regulatory constraints. As an example, certain clients may request to receive notifications when research on specific securities is published, and certain clients may request that specific data underlying analysts' fundamental analysis available on our internal client websites be delivered to them electronically through data feeds or otherwise. No change to an analyst's fundamental research views (e.g., ratings, price targets, or material changes to earnings estimates for equity securities), will be communicated to any client prior to inclusion of such information in a research report broadly disseminated through electronic publication to our internal client websites or through other means, as necessary, to all clients who are entitled to receive such reports.

All research reports are disseminated and available to all clients simultaneously through electronic publication to our internal client websites. Not all research content is redistributed to our clients or available to third-party aggregators, nor is Goldman Sachs responsible for the redistribution of our research by third party aggregators. For research, models or other data related to one or more securities, markets or asset classes (including related services) that may be available to you, please contact your GS representative or go to <https://research.gs.com>.

Disclosure information is also available at <https://www.gs.com/research/hedge.html> or from Research Compliance, 200 West Street, New York, NY 10282.

© 2024 Goldman Sachs.

You are permitted to store, display, analyze, modify, reformat, and print the information made available to you via this service only for your own use. You may not resell or reverse engineer this information to calculate or develop any index for disclosure and/or marketing or create any other derivative works or commercial product(s), data or offering(s) without the express written consent of Goldman Sachs. You are not permitted to publish, transmit, or otherwise reproduce this information, in whole or in part, in any format to any third party without the express written consent of Goldman Sachs. This foregoing restriction includes, without limitation, using, extracting, downloading or retrieving this information, in whole or in part, to train or finetune a machine learning or artificial intelligence system, or to provide or reproduce this information, in whole or in part, as a prompt or input to any such system.