

September 17, 2026 12:10 AM GMT

US Economics and Fixed Income Strategy | North America

September FOMC Reaction:
Further hikes ahead

We now expect two additional 25bp rate hikes in December and March, bringing the target range to 4.25-4.5%. The repeated language around removing accommodation, mentions of geopolitical risks, and a revision up of the neutral rate in the projections all leaned hawkish.

Key points

- The Fed hiked its policy rate by 25bp to 3.75-4.0%. We now project 50bp of further tightening for a terminal target range of 4.25-4.5% in 1Q27.
- The median dot showed one additional hike this year followed by a hold next year, but 8 out of 18 participants who submitted forecasts expected an additional hike next year. The neutral rate estimate in the projections was revised higher.
- Chairman Warsh characterized today's rate hike as removing accommodation, which we think suggests the Fed has more work to do. Combined with the discussion of ongoing geopolitical risks, we think this leans in the direction of more hikes than we previously expected.
- Our rates strategists think the market is now likely to price in the probability of more hikes in the short term, given Chairman Warsh's emphasis on inflation trends. A pull-forward of rate hike pricing should lead investors to think more about downside risks to growth in the medium term. They suggest investors enter SFRZ6Z7 flatteners at 40bp, exit September/October FOMC flatteners, and stay long 2y UST-SOFR swap spreads.
- Our FX strategists recommend staying long USD/JPY and believe the September FOMC may make further rises in energy prices increasingly USD-positive.
- Agency MBS: Stay neutral, but with yields on the index near the highs since the GFC and spreads on the index at the wides of the past year, prefer to get long basis on further weakness than sell on strength.
- Munis: Our muni strategists are neutral the tax-exempt basis, and prefer a duration-neutral barbell.

MORGAN STANLEY & CO. LLC

Michael T Gapen

Chief US Economist

Michael.Gapen@morganstanley.com

+1 212 761-0571

Matthew Hornbach

Strategist

Matthew.Hornbach@morganstanley.com

+1 212 761-1837

Jay Bacow

Strategist

Jay.Bacow@morganstanley.com

+1 212 761-2647

Sam D Coffin

Economist

Sam.Coffin@morganstanley.com

+1 212 761-4630

Diego Anzoategui

Economist

Diego.Anzoategui@morganstanley.com

+1 212 761-8573

Arunima Sinha

Global Economist

Arunima.Sinha@morganstanley.com

+1 212 761-4125

Heather Berger

Economist

Heather.Berger@morganstanley.com

+1 212 761-2296

Lingdi Xu

Economist

Lingdi.Xu@morganstanley.com

+1 212 761-2957

Andrew M Watrous

Strategist

Andrew.Watrous@morganstanley.com

+1 212 761-5287

Martin W Tobias, CFA

Strategist

Martin.Tobias@morganstanley.com

+1 212 761-6076

Mark T Schmidt, CFA

Strategist

Mark.Schmidt1@morganstanley.com

+1 212 296-8702

Aryaman Singh

Strategist

Aryaman@morganstanley.com

+1 212 761-1993

Eli P Carter

Strategist

Eli.Carter@morganstanley.com

+1 212 761-4703

Janie Xue

Strategist

Janie.Xue@morganstanley.com

+1 212 761-6051

Molly Nickolin

Strategist

Molly.Nickolin@morganstanley.com

+1 212 761-3592

Jacob F Bjurstrom

Strategist

Jacob.Bjurstrom@morganstanley.com

+1 212 296-4544

Morgan Stanley does and seeks to do business with companies covered in Morgan Stanley Research. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of Morgan Stanley Research. Investors should consider Morgan Stanley Research as only a single factor in making their investment decision.

For analyst certification and other important disclosures, refer to the Disclosure Section, located at the end of this report.

US Economics

MORGAN STANLEY & CO. LLC

Michael Gapen Michael.Gapen@morganstanley.com	+1 212 761-0571
Sam Coffin Sam.Coffin@morganstanley.com	+1 212 761-4630
Diego Anzoategui Diego.Anzoategui@morganstanley.com	+1 212 761-2305
Arunima Sinha Arunima.Sinha@morganstanley.com	+1 212 761-4125
Heather Berger Heather.Berger@morganstanley.com	+1 212 761-2296
Lingdi Xu Lingdi.Xu@morganstanley.com	+1 212 761-2957

September FOMC meeting: Two more rate hikes for a terminal target range of 4.25-4.50%

The Fed hiked its policy rate by 25bp to 3.75-4.0% and we now project two more 25bp rate hikes in December and March for a terminal target range of 4.25-4.50%. We expect this target policy rate to remain in place for all of 2027, before progress on inflation opens the door for normalization in 2028. Three things stood out to us as leaning in the direction of more hikes than less going forward. First, the chair said today's decision was about removing accommodation. If policy is not yet restrictive, then the Fed still has work to do. Second, Chairman Warsh repeatedly pointed to geopolitics (e.g. oil and commodity prices) as an important driver of inflation and, in turn, his reaction function. Resolution of the conflict in the Middle East remains elusive. Third, FOMC participants revised higher their assessment of the neutral rate to 3.25% from 3.06% previously. In our view, this tilts things in the direction of two more 25bp rate hikes. A hike in October cannot be ruled out either, in our view.

The decision: The Fed raised its policy rate by 25bp to 3.75-4.0%, a decision that was widely expected after the August inflation data was released last week. The dot plot pointed to one additional 25bp rate hike in 2026, and 8 of the 18 participants that submitted a projection think a third hike in 2027 is appropriate.

We entered the September meeting expecting 50bp of cumulative tightening, consisting of 25bp hikes in September and December. We now expect 75bp in total, adding a third 25bp hike to the path. We lean in the direction of more hikes than less since today's move was presented as the beginning of the removal of accommodation. Combined with Warsh's focus on uneven inflation performance, geopolitical risks, and the increase in the longer-run neutral rate to 3.25%, we think stopping after one additional hike runs the risk of leaving the policy response incomplete.

Today's hike "removed a dose of accommodation"

The communication turned hawkish, in our mind, when Warsh characterized the stance of policy. In his prepared remarks, he said he would be "hard-pressed to describe broad financial conditions as restrictive" and that this view was "widely shared by the

Committee." He therefore described the September action as removing "a dose of accommodation." While we do not want to over-interpret any language choice, he used this phrasing twice, suggesting it was intentional. He could have said the committee was moving policy into restrictive territory or further into restrictive territory, but chose not to. Hence, we take some signal from the word choice and think it leans in the direction of more cumulative hikes than we thought going in.

"I found it difficult to describe financial conditions as restrictive.... What I heard around the table in the last couple of days is my colleagues were hard-pressed to describe it that way, too. We removed a dose of accommodation."

We acknowledge that later in the press conference, Warsh downplayed the idea of a neutral rate as important in setting policy. When asked if he was thinking in a short-run versus long-run neutral rate framework, he replied:

"I have always been interested in a neutral rate as an academic matter, a real equilibrium rate. It is useful academically, a discussion to help us think about policy. Do I think it has any operational effect on decisions we make today? No, I don't."

We are hard-pressed to come up with a framework that allows for the discussion of restrictive versus accommodative without the concept of a neutral rate. The chair could be using imprecise language – referring to broad financial conditions as opposed to the federal funds rate – but until we know more, we assume the language choice was intentional.

Warsh's reaction function is still incomplete, but it is clear it includes geopolitics and commodity-price transmission to inflation

Warsh identified geopolitics as one of the three developments that changed between July, when the committee held steady, and September, when it raised rates. He said:

"The third thing that has changed in seven weeks is geopolitics. There is no hiding from hot spots around the world, and our judgment about what is the most likely, or least likely, of the geopolitical situation has changed."

His concern also extends beyond the direct effect of energy prices on headline inflation. In discussing the factors driving the increase in long-term yields, Warsh cited geopolitics as a leading explanation and emphasized transmission through commodity-processing margins:

"The third [reason behind higher interest rates] is geopolitics. The situation, hot spots around the world, are driving long-term yields. It is not simply spot prices of energy... but it is the difference between those spot prices and so-called crack spreads. What that means for products that find their way into a store across the country."

He said that the strengthening economy, unfavorable inflation trends, and a changed geopolitical assessment had together contributed to the “firm, unanimous decision” to raise rates. If one believes that the current conflict in the Middle East and resulting elevated oil prices are unlikely to resolve quickly, this part of the reaction function points toward continued tightening. Should oil come back down, then less tightening would be appropriate.

A higher neutral rate also raises our view of the likely terminal rate

The upward revision to the longer-run neutral rate to 3.25%, in our view, strengthens the case for a higher terminal policy rate (two additional 25bp hikes rather than one). The upward revision of roughly half a 25bp rate hike suggests that any given nominal policy rate represents less restraint than previously assumed. Although the chair refuses to provide projections and downplays the importance of the neutral rate as a concept, others on the committee have more traditional views and it points to the risk of more hikes to deliver the desired amount of policy restriction. We also see some linkage between the committee's view of the neutral rate and the chair's view of financial conditions: an upward revision to the neutral rate is directionally consistent with Warsh's view that financial conditions remained accommodative before the meeting and could not yet be described as restrictive afterward.

An October hike cannot be ruled out

Our revised monetary policy forecast now has 25bp rate hikes in December and March. The bulk of the committee – through the dot plot – seems to be comfortable with a quarterly decision cycle. Hike, assess data, take action again or not. The dot plot does not appear to point to actions at successive meetings.

That said, the median participant sees one more rate hike as appropriate and 8 of the 18 see two additional rate hikes as appropriate. If the chair truly believes that policy is not restrictive, inflation is a choice, and today's decision “took a step in delivering it”, then market-implied probabilities for a hike in October should remain elevated.

If so, our anticipated 75bp in cumulative hikes could come in September, October, and December and the hiking cycle could be completed by year-end. We think patience will prevail and project a more leisurely pace of rate hikes, but we would chalk up a potential October rate hike to the chair's prerogative. If he wants to hike, we think he could make it happen.

We also cannot rule out fewer hikes

With the situation in the Middle East being a primary driver of inflation risk, any resolution to the conflict or de-escalation of the conflict could bring much lower energy prices and inflation prints. We could also be reading too much into the chair's description of accommodation versus restriction and the upward revision to a very uncertain neutral rate. If so, our anticipated hike in March 2027 may not materialize and the Fed only hikes one more time in December. An even more rapid de-escalation of the Middle East conflict or faster disinflation than we project could mean a one-and-done hike in December (e.g. no further hikes).

Global Macro Strategy

MORGAN STANLEY & CO. LLC

Matthew Hornbach, CMT

Matthew.Hornbach@morganstanley.com

+1 212 761-1837

Andrew Watrous

Andrew.Watrous@morganstanley.com

+1 212 761 5287

Martin Tobias, CFA, CMT

Martin.Tobias@morganstanley.com

+1 212 761-6076

Aryaman Singh

Aryaman@morganstanley.com

+1 212 761-1993

Eli Carter

Eli.Carter@morganstanley.com

+1 212 761-4703

Turning your trend foe into a friend

Chair Warsh made it clear again: trends matter more than individual data points. “I said in Jackson Hole, trends matter... I’ll just reiterate: Trends matter; data points are noisy. Data point dependence is a dangerous preoccupation. It’s not something that concerns me.”

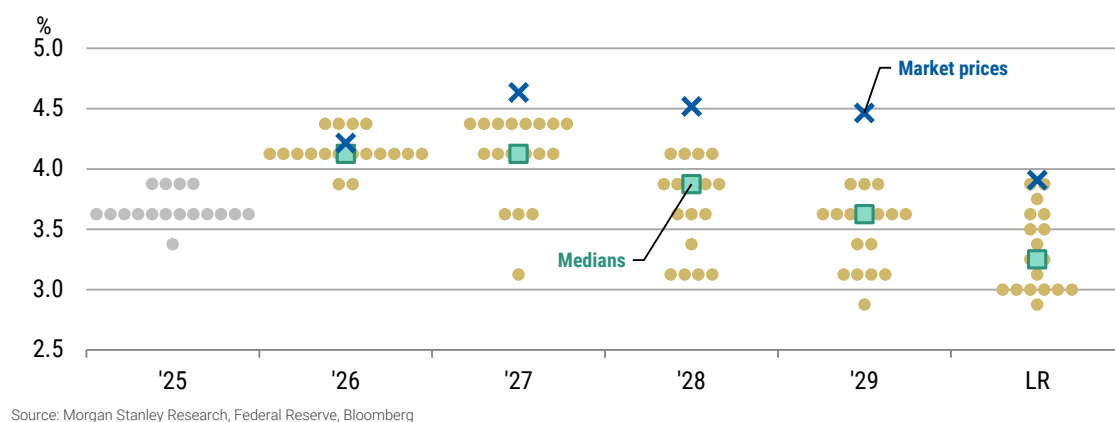
If the inflation trend hasn’t improved up to this point, when will it improve enough to stop further rate hikes? Our economist’s updated projections suggests that the inflation trend should improve sooner rather than later.

- They expect two more hikes – one in December 2026 and one in March 2027 – with the risk skewed toward those hikes happening earlier, in October and December 2026.

The thing about trends? Whether in economic data or markets, trends are most likely to change the longer you look out on the horizon. As a result, markets should price the probability of additional hikes higher in the near term, and lower in the medium term.

To a certain extent, market prices reflect that idea already (see [Exhibit 1](#)). However, we think market pricing for policy in 2027 places too little probability on the inflation trend changing to the other direction – and requiring the Fed to either end the hiking cycle or embark on an easing cycle.

Exhibit 1: FOMC participants' assessments of appropriate monetary policy: midpoint of target range or target level for the federal funds rate: September 2026, medians, and market pricing



In light of Chair Warsh's comments that underscored the importance of trends in his mind: "I am not a data-point dependent guy" and given the risk our economists outline for the potential for hikes to happen earlier, we now suggest investors close September-October FOMC OIS flatteners.

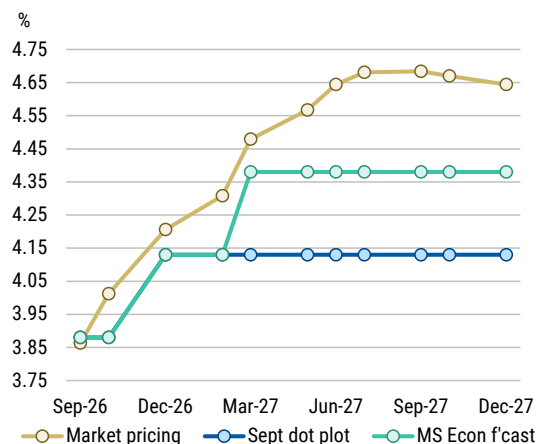
- When we compare the current market-implied path of Fed policy relative to the latest dot plot and our economists updated forecast for the Fed, we see much more rate hike risk premium over 2H27 (see [Exhibit 2](#)).

We think SFRZ6Z7 has steepened quite aggressively as markets repriced the terminal (peak) rate for the Fed higher, due to uncertainty over the manner with which the September hike would be delivered (see [Exhibit 3](#)).

- We think this expression captures risk of a front-loaded rate hike cycle now and consequently more downside risks to growth in the medium term, while also benefitting from hike risk premia that appears elevated over 2H27.

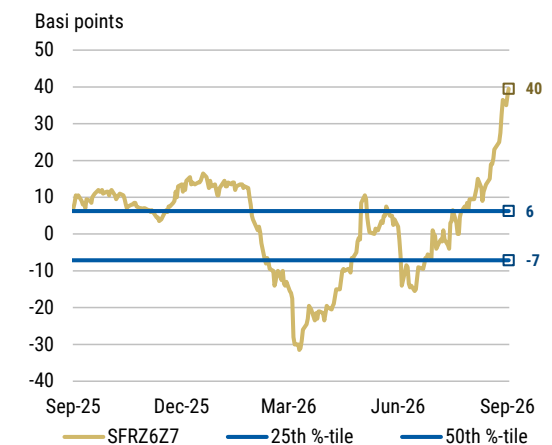
We suggest investors enter SFRZ6Z7 flatteners at +40bp with a target of +10bp and an initial stop of +50bp. The main risk is a prolonged pause that eventually results in the Fed playing catch-up in bringing inflation back down to 2%.

Exhibit 2: Market-implied Fed funds OIS, September 2026 FOMC median dot plot, and Morgan Stanley economist Fed path



Source: Morgan Stanley Research, Bloomberg

Exhibit 3: SFRZ6Z7 curve over the last year and 25th and 50th %-tiles



Source: Morgan Stanley Research, Bloomberg

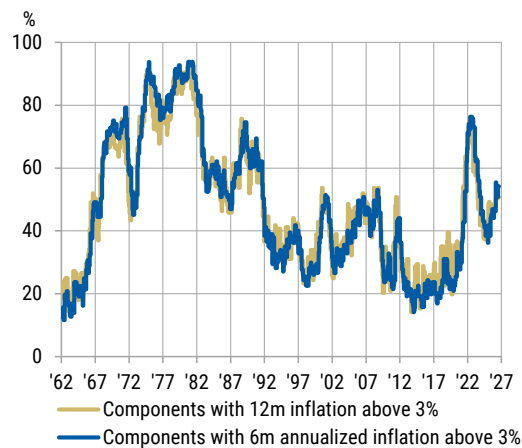
A story of inflation trends and geopolitics

Chair Warsh signaled that commodity prices are an input to his decision-making. He said that commodity prices bear watching and that many key input prices have risen over the past weeks. A rise in energy, fertilizer and metal prices increases the risk of pass-through into core inflation by lifting transport, farming and construction costs.

He said that too many categories are still running above 3% on both a 6m and 12m basis ([Exhibit 4](#)). He also mentioned that the inflation compensation in market prices stays low, potentially referring to the breakeven rates in the belly of the curve. This hawkish tone of the Fed pushed real yields higher and tightened breakevens across the curve ([Exhibit 5](#)).

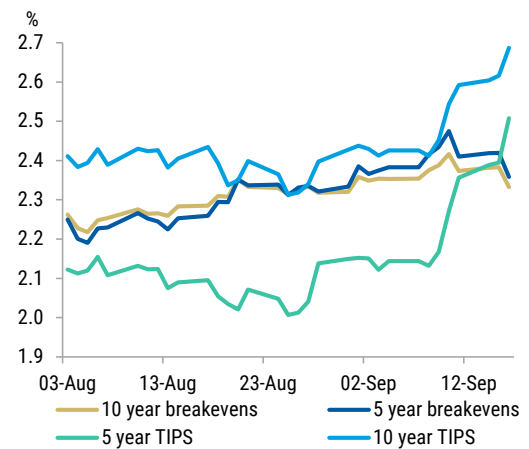
We maintain long 1y1y versus short 5y5y CPI swap forward as a relative value trade in CPI swap forward space. The risk of inflation pass-through from higher commodity prices can push 1y1y higher, while the Fed's credibility story keeps 5y5y contained.

Exhibit 4: Breadth of inflation in PCE



Source: Morgan Stanley Research, Bloomberg

Exhibit 5: Real yields move higher and breakevens tighten



Source: Morgan Stanley Research, Bloomberg

- **Trade idea: Enter SFRZ6Z7 curve flattener at +40bp with a target of +10bp and an initial stop of +50bp.**
- **Trade idea: Maintain long 2-year (Sep '27) UST SOFR swap spreads at -1.4bp with a target of +1bp and a trailing stop of -5bp.**
- **Trade idea: Exit pay fixed September FOMC OIS vs. receive fixed October FOMC OIS at +13bp (FOMC OIS flattener).**
- **Trade idea: Maintain long 1y1y vs short 5y5y CPI swap forward at 8bp with a target of 25bp and stop of 0bp.**

USD outlook

We see the outcome of the September FOMC meeting as consistent with a rising USD, particularly versus JPY.

Our rates team's expectation that markets will price additional near-term UST curve flattening is likely to boost the USD versus low yielders like JPY. We recommend remaining long USD/JPY, as discussed [here](#).

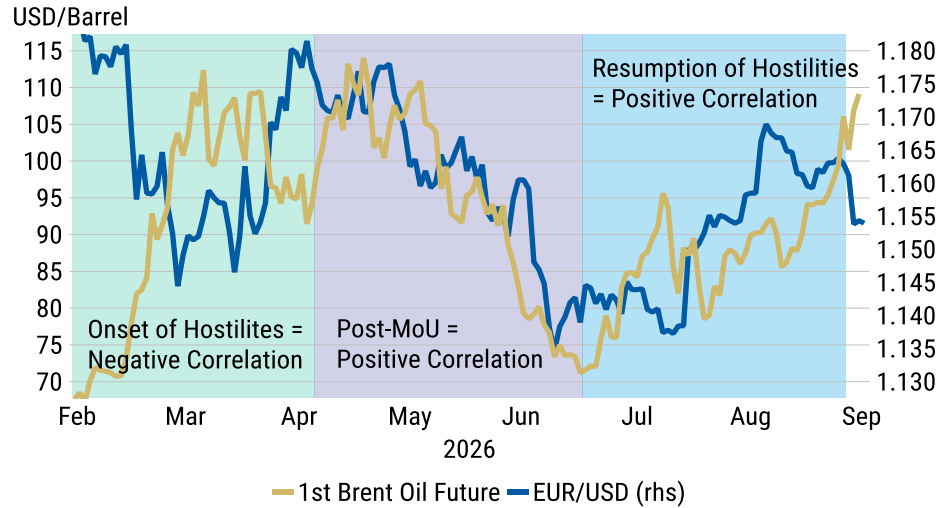
- **Trade idea: Maintain long USD/JPY at 156.23 with a target of 163.00 and a stop of 150.00.**

We also think that Chair Warsh's communication regarding inflation trends may displace a market perception that the recent rise in inflation swaps in Europe relative to inflation swaps in the US means that further rises in energy prices will be USD negative.

More broadly, Chair Warsh's communication on inflation may also matter for how markets translate renewed increases in energy prices for EUR/USD. In recent months, markets appear to have treated the energy shock as EUR-bullish via a differential impact on front-end ECB vs. Fed rates. As energy prices have risen, Euro Area inflation expectations have risen sharply relative to US inflation expectations, ECB pricing has moved higher, and EUR has remained resilient despite a deterioration in real yield differentials.

Chair Warsh emphasized that the Fed's "predominant focus" is price stability, specifically noted that commodity prices bear watching, and reiterated that the Committee wants to prevent relative-price shocks from broadening into more persistent inflation. If the September FOMC leads markets to perceive the Fed as highly sensitive to renewed energy-related inflation pressures, that EUR/USD asymmetry may shift. We think that outcome would make further increases in energy prices less EUR-positive and more USD-positive.

Over the past six months, EUR/USD has traded surprisingly closely with energy prices ([Exhibit 6](#)). EUR declined in May and June as oil prices eased, before recovering in July and August as energy prices rose.

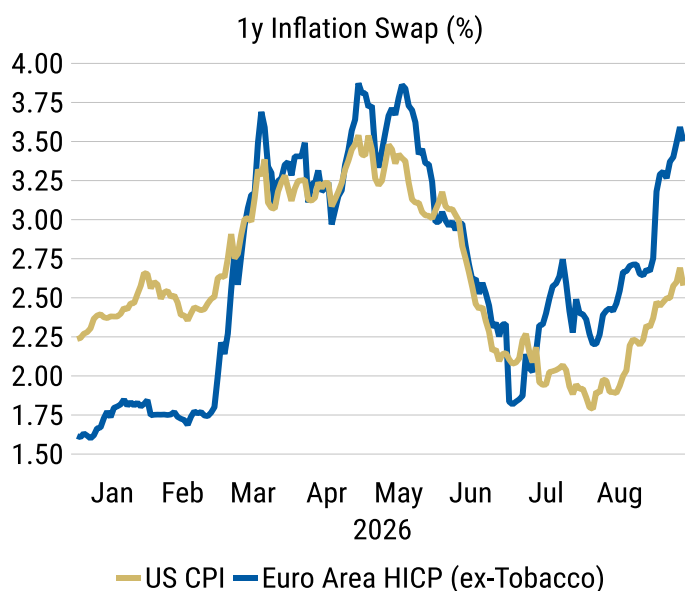
Exhibit 6: EUR has traded in line with energy over the past six months

Source: Bloomberg, Morgan Stanley Research

That relationship is somewhat counterintuitive. Oil's USD denomination mechanically biases its relationship with EUR/USD positively, but Europe remains a large net importer of energy. Historically, rising higher energy prices have represented a deterioration in the region's terms of trade, a drag on real incomes and growth, and therefore a headwind for EUR especially when energy price movements result from fluctuations in global supply mediated by conflict. In other words, an increase in energy prices associated with geopolitical risk in the Middle East would normally be expected to support the USD and vice versa.

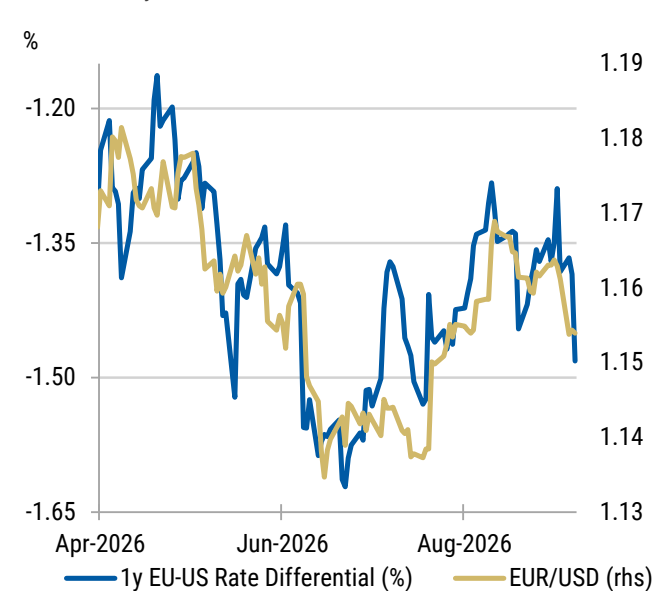
We think the recent EUR-energy price relationship is best understood through a perceived asymmetry in central bank reaction functions. Higher natural gas prices have raised Euro Area inflation expectations much more than US inflation expectations. One-year US inflation swaps are around 2.6%, not far from February 2026 levels, while equivalent Euro Area inflation swaps are around 3.5%, roughly 175bp above their February levels.

Exhibit 7: Inflation expectations have risen more in Europe than in the US



Source: Bloomberg, Morgan Stanley Research

Exhibit 8: Near-term policy differentials have been key for EUR/USD, and they have reflected inflation differentials



Source: Bloomberg, Morgan Stanley Research

That divergence has been consistent with a market perception that the ECB reaction function is more sensitive than the Fed reaction function to the inflationary consequences of the energy shock. EUR/USD has consequently traded more closely with near-term ECB-versus-Fed policy expectations than with real yield differentials in recent months.

This also helps explain an otherwise striking divergence: EUR has remained resilient even as European real yields have fallen substantially relative to US real yields. In part, the deterioration in European real yields is itself a consequence of the energy shock. Higher gas prices raise European inflation expectations; unless nominal European rates rise one-for-one, real yields fall. EUR/USD has therefore been trading more closely in line the expected ECB response to the inflation shock more than with the deterioration in real rates and the underlying terms of trade.

Exhibit 9: EUR has stayed resilient despite real yield differentials moving against it...

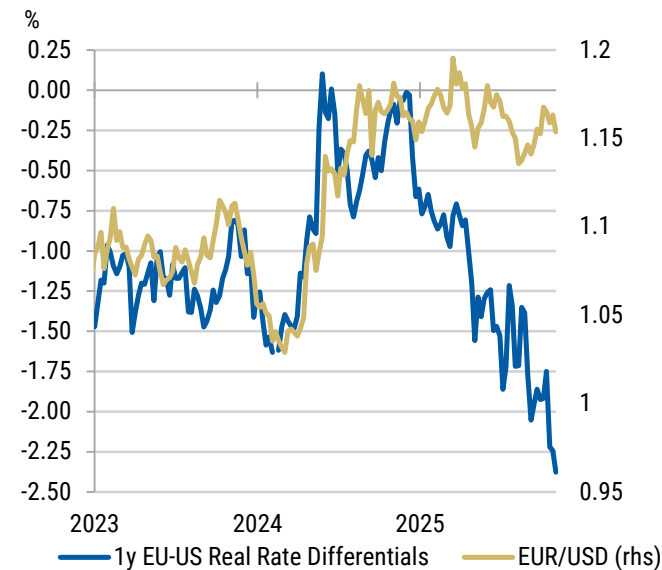
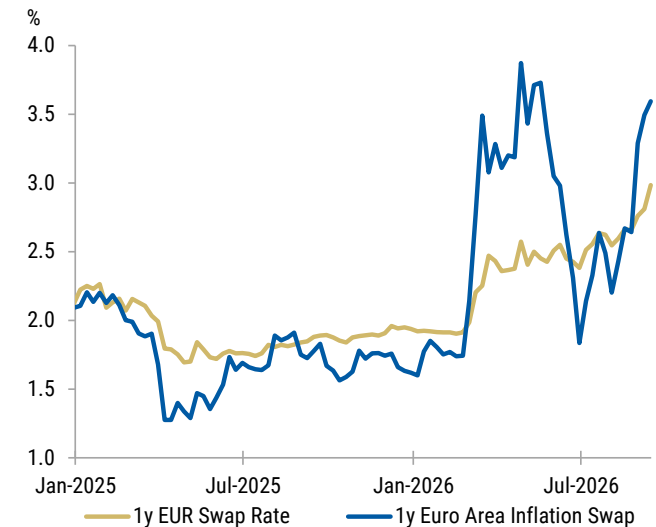


Exhibit 10: ...as markets have priced an ECB response to higher energy prices



Europe's greater exposure to natural gas explains much of the divergence in inflation pricing. European gas prices have risen sharply over the past six months, as our energy strategy colleagues discuss [here](#). Gas storage remains well below historical levels for mid-September, while European buyers [had expected](#) additional supply from Qatar's Ras Laffan facility to return to the market ([Exhibit 11](#)). Our energy strategists notes that this dynamic leaves risks to gas prices skewed higher.

Exhibit 11: Inflation expectation differentials have tracked with European natural gas

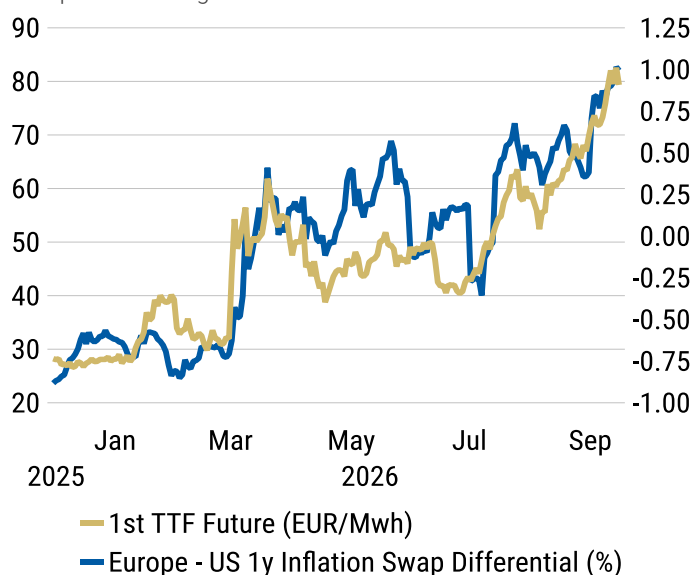
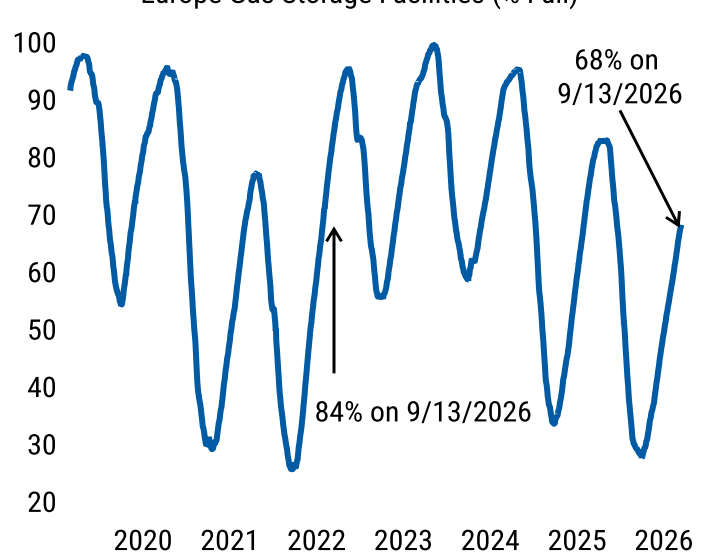


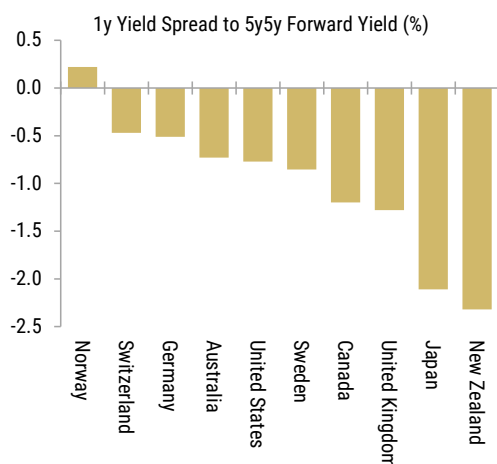
Exhibit 12: Natural gas storage looks low
Europe Gas Storage Facilities (% Full)



Our economists currently expect one further ECB hike this cycle and [note](#) that additional tightening could become appropriate if gas prices remain elevated. A rise in TTF toward our €85/MWh forecast (or potentially our €100/MWh bull case) could therefore put further upward pressure on ECB pricing.

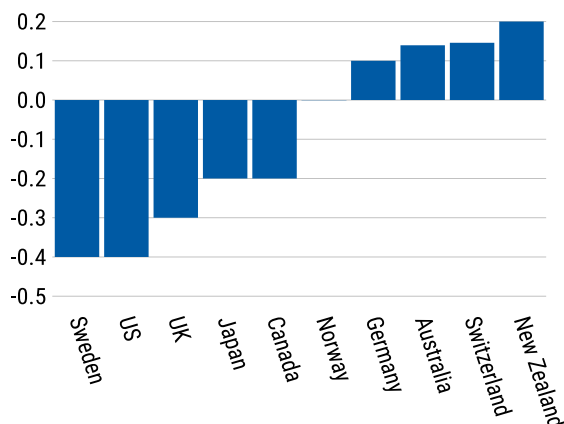
There are good reasons why markets have so far focused on the ECB response rather than the growth cost of higher energy prices. Europe avoided recession in 2022 despite much higher gas prices (see our discussion [here](#) and our economists' discussion [here](#)); market pricing suggests subdued concerns about ECB-overtightening (see our discussion [here](#) and [Exhibit 13](#)); European [corporates are less energy-intensive than they were in 2022](#) and better prepared for another energy shock; and global growth has remained relatively resilient (see the resilience of global labor markets in [Exhibit 14](#)). Together, those factors have reduced the perceived growth sensitivity of the Euro Area to higher energy prices and allowed the relative policy-rate channel to dominate.

Exhibit 13: Yield curves remain upward sloping in most G10 economies



Source: Bloomberg, Morgan Stanley Research

Exhibit 14: Labor markets have held firm
Unemployment Rate Percentage Point Change (v. 12/2025)



Source: Bloomberg, Morgan Stanley Research

But that interpretation depends on the ECB reaction function *and* on the Fed reaction function. If markets view the ECB as more responsive than the Fed to the inflationary consequences of higher energy prices, the shock can support EUR through relative front-end rates. Warsh's communication may make that perceived asymmetry less pronounced.

We think Warsh's September communication may begin to shift that perception. A market perception that the Fed will be more reactive than before to moves in energy prices may diminish the recent positive EUR/USD beta to energy prices, even if European inflation pricing remains more sensitive to the shock.

The potential for energy prices to stay elevated may therefore increase USD-positive risks – the opposite of the recent correlation. We therefore see our energy strategy colleagues' forecast for [88 EUR/MWh TTF](#) and [100 \\$/bbl Brent oil](#) forecasts for year-end as providing tailwinds to the USD over time.

US Agency MBS – No Need To Step In Yet

MORGAN STANLEY & CO. LLC

Jay Bacow

Jay.Bacow@morganstanley.com

+1 212 761-2647

MORGAN STANLEY & CO. LLC

Janie Xue

Janie.Xue@morganstanley.com

+1 212 761-6051

MORGAN STANLEY & CO. LLC

Jacob Bjurstrom

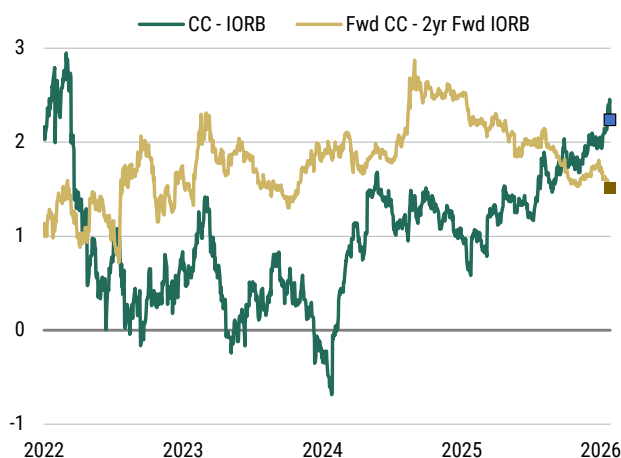
Jacob.Bjurstrom@morganstanley.com

+1 212 296-4544

We had thought that mortgages would prefer a hike to a hold given the hike was what the market was expecting, but the hawkish language from Chair Warsh was the real surprise. Markets are now pricing in a greater than 50% chance of a hike in October and three more hikes this cycle, reversing the insurance cuts in 2025 and then some. Recognizing markets need term premium, it's hard to not look at two-year yields approaching 4.75% and say they are attractive amid a dot plot released today where the most hawkish member has a 4.375% policy rate forecast.

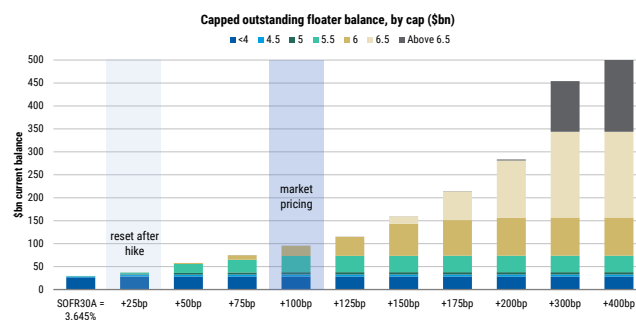
However, market participants seem to have been caught wrong-footed on front-end risk for the better part of this year – at the end of February markets were pricing a policy rate of effectively 3% by year-end 2026, or two cuts from the beginning of the year, and now markets are pricing 4.2%. It's been a rough move, and our concern is what happens if this momentum continues. Chair Warsh spoke to the geopolitical risk driving long-term yields and global energy prices, things which could be elevated for some time. Furthermore, when asked the impact of hiking rates given that it wouldn't reopen the Strait of Hormuz, he said: *"We cannot affect any individual price, whether it be oil prices, whether it be foodstuffs at the grocery store. But what we can do and will do is ensure that any change in relative prices don't broaden out, don't have second- and third-order effects on the economy."*

Exhibit 15: Yield on mortgages doesn't look as attractive to the forwards



Source: Bloomberg, Morgan Stanley Research

Exhibit 16: As more hikes get realized (technically priced in), floaters pick up more duration



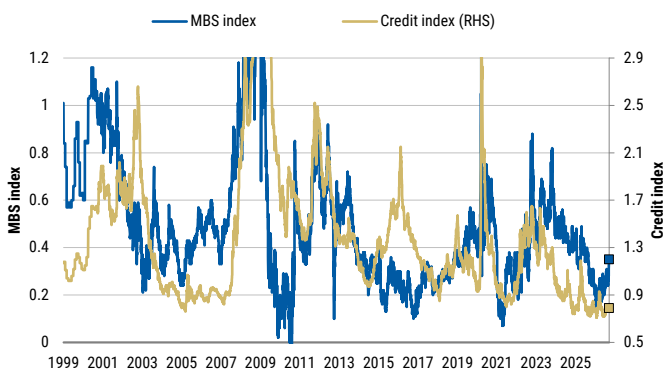
Source: Morgan Stanley Research, Bloomberg

Basically, the concern we have is that markets could get caught off-guard again on front-end pricing. Beyond the data changing or energy prices remaining elevated for longer, the other concern is more about the Fed's reaction function. Specifically, given that Chair Warsh is unlikely to give much forward guidance, we can imagine a scenario where as the Fed hikes markets need to price in a more sustained hiking cycle. This would be exacerbated if the Fed were to hike in October given the >50% chance currently priced in.

If the Fed were to realize the three more hikes priced into the markets, the carry profile would erode further, but that should be mostly priced in given it is the current market. At this point, were that to happen, we think mortgages would perform fine, but the performance is probably closer towards the end of the hiking cycle than the beginning when the peak rate is hopefully more clear. The other concern with the Fed hiking rates is the impact on floaters.

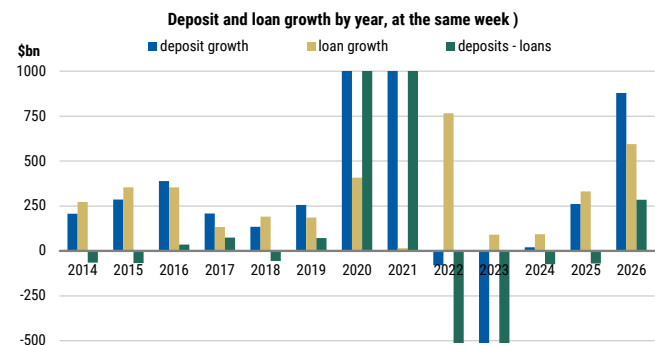
We show our estimate of how many floaters will get capped out as a function of where SOFR will set in [Exhibit 16](#). Now, it's important to remember that floaters will pick up duration much before they get capped out, but we're getting closer to an inflection point where some of the investors who owned floaters to get mortgage exposure that is easier to hedge may get stopped out of their trades due to mark-to-market losses on floaters. In effect, this is another example of mortgages having duration and convexity causing issues into a hiking cycle, but at a (hopefully) much smaller scale than the 2022-2023 experience.

Exhibit 17: Mortgage spreads have moved wider, especially vs. IG credit



Source: Bloomberg, Morgan Stanley Research

Exhibit 18: Bank deposit growth is still outpacing loan growth



Source: Federal Reserve, Bloomberg, Morgan Stanley Research

Otherwise, when we look at the mortgage basis, we're biased to get long, but think that investors may get a slightly better entry point if they wait. Why aren't we long now? A few reasons:

- Deleveraging flows could come from either floater holders, investors long mortgages outright, or leveraged players
- Uncertainty around the policy rate will likely delay bank demand while GSE demand has stagnated, making finding the marginal buyer harder
- Comparable risk assets are still snug and vol is still low on a longer term lookback; if either change then mortgages would likely widen in sympathy

On the positive side, which we think is more consequential, the catalysts may be more likely to materialize in 2027 than in Sep/Oct 2026.

- Yields on the index are at the highs since the GFC if you exclude fall 2023, and spreads on the index are at the wides of the past year. Mortgages look attractive vs comparable asset classes
- At this rate level supply will be very low while comparable asset classes will see continued supply (IG)
- Bank demand will likely be stronger going forward as they get Basel clarity and the ability to hedge interest rate risk in HTM, especially given the strength in deposit growth this year vs loan growth ([Exhibit 9](#))
- GSE demand and [overseas pension funds changing their benchmark](#) could combine to buy the entire net issuance.

This leaves us neutral right now, but with a bias to buying on weakness rather than selling on strength.

Munis: A Few Hikes Won't Dent Supply

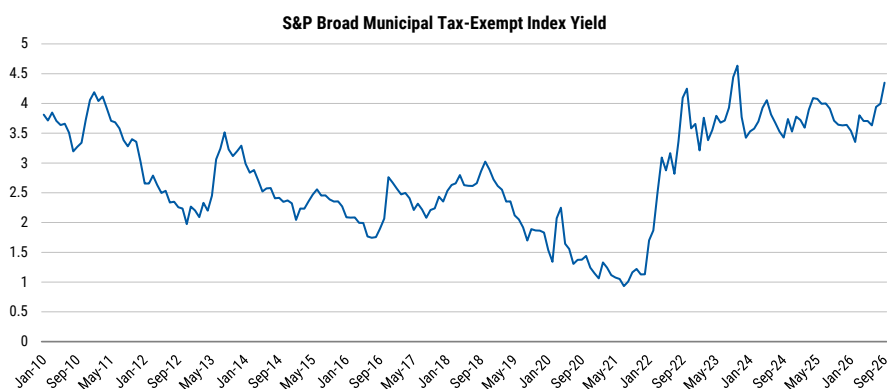
MORGAN STANLEY & CO. LLC

Mark T Schmidt, CFA
mark.schmidt1@morganstanley.com

+1 212 296-8702

We see a better entry point for tax-exempts: The rise in yields is historically unusual, and presents investors with the among the best entry points in the past 15 years.

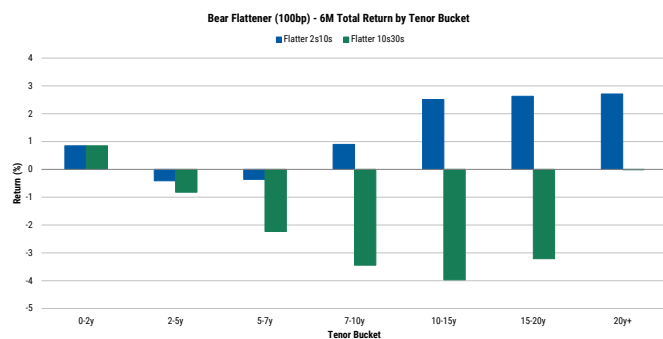
Exhibit 19: Index yields approaching 4.5% make for one of the best entry points in the past 15 years



Source: Bloomberg, Morgan Stanley Research

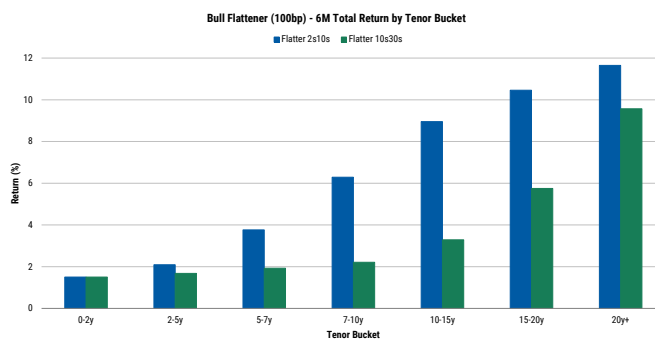
We prefer a barbell: We see additional opportunities for the curve to flatten as the FOMC restores its inflation-fighting credibility. That keeps us preferring barbells instead of ladders here.

Exhibit 20: Bear flattener (100bp): 6M total return by tenor



Source: MSRB, Morgan Stanley Research

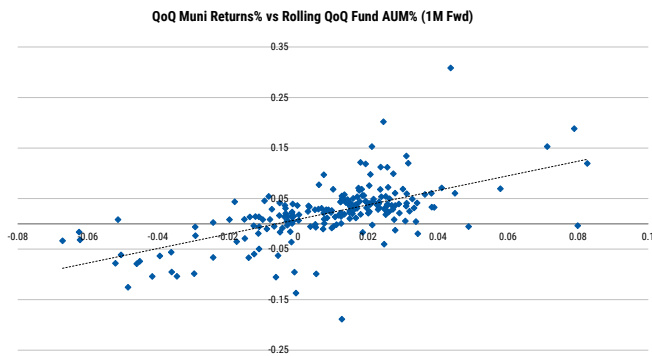
Exhibit 21: Bull flattener (100bp): 6M total return by tenor



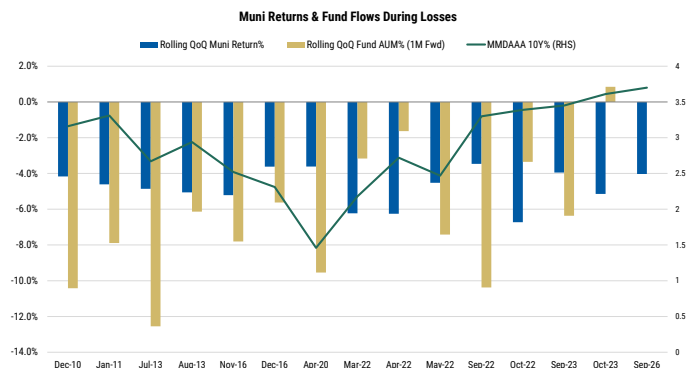
Source: MSRB, Morgan Stanley Research

Although starting yields are compelling, we are only neutral towards tax-exempt munis here. Two reasons why:

- **Supply may rise post-FOMC, which precludes a bullish stance:** Supply typically dips heading into "live" Fed meetings. Although it's early, the data points to a pick-up in the calendar next week.
- **It's been a rough quarter for total returns – flows may be sluggish for a few more weeks:** Inflows slow (or stop) when total returns are this negative. Offsetting this risk is the fact that very high yields create a compelling entry point.

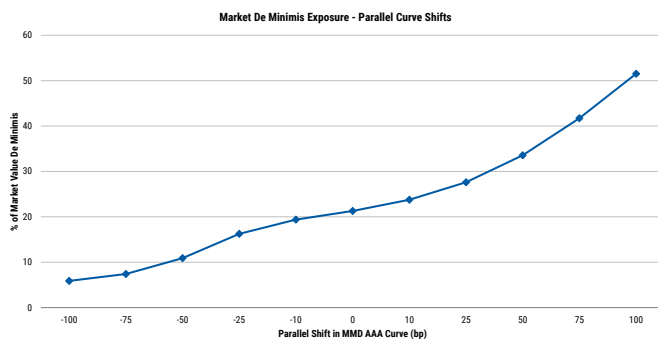
Exhibit 22: Flows have followed returns historically

Source: EPFR, Morgan Stanley Research. Note: The EPFR data and charts displayed here must not be extracted and republished (whether internally or externally). Such use will violate the terms of Morgan Stanley's contract with EPFR, which only covers named users.

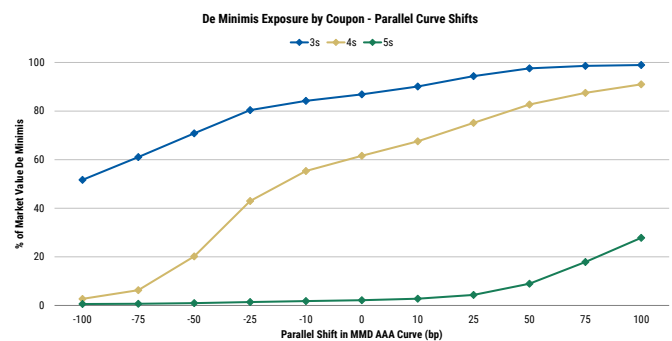
Exhibit 23: Fund flows have been, on most occasions, weaker following losses

Source: EPFR, Morgan Stanley Research. Note: The EPFR data and charts displayed here must not be extracted and republished (whether internally or externally). Such use will violate the terms of Morgan Stanley's contract with EPFR, which only covers named users.

If investors position for higher rates across the curve, de minimis risks could further dent performance: Were rates to rise 50bp or more, the increase in bonds subject to additional incremental taxation (*de minimis*) could negatively impact broad market performance. That keeps us favoring a mix of 3% and 5% coupons to 4% coupons. (See [A Rising Rates Playbook](#), September 15 2026)

Exhibit 24: The next 25bp is fine – if yields across the curve rise more than that, then things get tricky

Source: MSRB, Morgan Stanley Research

Exhibit 25: We favor a mix of 5s and 3s to 4s. The risk of falling into de minimis (4% coupons) strikes us as a headwind for liquidity

Source: MSRB, Morgan Stanley Research

Valuation Methodology & Risks

Exhibit 26: GMS live trades and recommendations

Interest Rate Strategy				
TRADE	ENTRY LEVEL	ENTRY DATE	RATIONALE	RISKS
SFRZ6Z7 flattener	40bp	9/16/2026	We think this expression captures risk of a front-loaded rate hike cycle now and consequently more downside risks to growth in the medium term, while also benefitting from hike risk premia that appears elevated over 2H27.	The main risk is a prolonged pause that eventually results in the Fed playing catch-up in bringing inflation back down to 2%.
Long 2y (Sep '27) UST SOFR swap spread	-21.6bp	10/3/2025	We expect softer funding conditions and a steepening of the very front end to cause swap spreads in the front end to widen given recent relationships.	Risks to the trade include firmer funding than expected or a stabilizing job market.
Currency and Foreign Exchange				
TRADE	ENTRY LEVEL	ENTRY DATE	RATIONALE	RISKS
Long USD/JPY	153.40	9/11/2026	We think expectations for GPIF repatriation looks too speculative, while rising oil prices and markets' pricing of a high US terminal rate continue to support the pair.	A key risk to this trade is that JPY carry positions continue to be unwound, driven by the further speculation about repatriation from GPIF and Japanese investors more broadly.
Inflation-Linked Bonds				
TRADE	ENTRY LEVEL	ENTRY DATE	RATIONALE	RISKS
Long 1y1y vs short 5y5y CPI swap forward	11bp	9/14/2026	This pair appears attractive based on our fair value model. A passthrough of higher commodity prices into inflation expectations and a mildly hawkish Fed	The risks to this trade is a more than expected hawkish Fed policy or a rapid decline in energy prices

Source: Morgan Stanley Research

Exhibit 27: Agency MBS live trades and recommendations

Trade	Entry Date	Rationale	Risks
Short FNCL 5.5s vs Tsy tactically	6/17/2026	Market underpriced for Fed hikes, mortgages perform poorly in that scenario, bank and GSE demand could wane	Mortgage valuations cheap to competing assets, risk assets outperform, Fed cuts
Replace index exposure with multifamily	6/17/2026	Less negative carry way to short MBS, bank demand for multifamily still strong	Multifamily spreads near tight due to positive technicals
Long DW5/FNCL 5.5	6/17/2026	Long vol, 15yr issuance should dry up amid higher rates, 15s reasonable OAS	give liquidity, carry
Buy 250-350k 5.0 vs roll	5/29/2026	Cheap/fair vs TBA OAS likely near wide of possible range given technicals of worsening TBA deliverable	5.0 roll goes special
Buy seasoned 5.0 and 5.s vs roll	5/1/2026	Pick OAS vs TBA, take advantage of pools seasoning vs deliverable	Roll goes special

Source: Morgan Stanley Research

Disclosure Section

Mortgage Backed Securities (MBS) and Collateralized Mortgage Obligations (CMO)

Principal is returned on a monthly basis over the life of the security. Principal prepayment can significantly affect the monthly income stream and the maturity of any type of MBS, including standard MBS, CMOs and Lottery Bonds. Yields and average lives are estimated based on prepayment assumptions and are subject to change based on actual prepayment of the mortgages in the underlying pools. The level of predictability of an MBS/CMO's average life, and its market price, depends on the type of MBS/CMO class purchased and interest rate movements. In general, as interest rates fall, prepayment speeds are likely to increase, thus shortening the MBS/CMO's average life and likely causing its market price to rise. Conversely, as interest rates rise, prepayment speeds are likely to decrease, thus lengthening average life and likely causing the MBS/CMO's market price to fall. Some MBS/CMOs may have "original issue discount" (OID). OID occurs if the MBS/CMO's original issue price is below its stated redemption price at maturity, and results in "imputed interest" that must be reported annually for tax purposes, resulting in a tax liability even though interest was not received. Investors are urged to consult their tax advisors for more information. Government agency backing applies only to the face value of the CMO and not to any premium paid.

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

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

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

Analyst Certification

The following analysts hereby certify that their views about the companies and their securities discussed in this report are accurately expressed and that they have not received and will not receive direct or indirect compensation in exchange for expressing specific recommendations or views in this report: Jay Bacow; Jacob F Bjurström; Eli P Carter; Matthew Hornbach; Molly Nickolin; Mark T Schmidt, CFA; Aryaman Singh; Martin W Tobias, CFA; Andrew M Watrous; Janie Xue.

Global Research Conflict Management Policy

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

Important Regulatory Disclosures on Subject Companies

Within the last 12 months, Morgan Stanley managed or co-managed a public offering (or 144A offering) of securities of GOVERNMENT NATIONAL MORTGAGE ASSOCIATION.

In the next 3 months, Morgan Stanley expects to receive or intends to seek compensation for investment banking services from United States of America.

Within the last 12 months, Morgan Stanley has provided or is providing investment banking services to, or has an investment banking client relationship with, the following company: GOVERNMENT NATIONAL MORTGAGE ASSOCIATION, United States of America.

Within the last 12 months, Morgan Stanley has either provided or is providing non-investment banking, securities-related services to and/or in the past has entered into an agreement to provide services or has a client relationship with the following company: GOVERNMENT NATIONAL MORTGAGE ASSOCIATION.

The equity research analysts or strategists principally responsible for the preparation of Morgan Stanley Research have received compensation based upon various factors, including quality of research, investor client feedback, stock picking, competitive factors, firm revenues and overall investment banking revenues. Equity Research analysts' or strategists' compensation is not linked to investment banking or capital markets transactions performed by Morgan Stanley or the profitability or revenues of particular trading desks.

Morgan Stanley and its affiliates do business that relates to companies/instruments covered in Morgan Stanley Research, including market making, providing liquidity, fund management, commercial banking, extension of credit, investment services and investment banking. Morgan Stanley sells to and buys from customers the securities/instruments of companies covered in Morgan Stanley Research on a principal basis. Morgan Stanley may have a position in the debt of the Company or instruments discussed in this report. Morgan Stanley trades or may trade as principal in the debt securities (or in related derivatives) that are the subject of the debt research report.

Certain disclosures listed above are also for compliance with applicable regulations in non-US jurisdictions.

STOCK RATINGS

Morgan Stanley uses a relative rating system using terms such as Overweight, Equal-weight, Not-Rated or Underweight (see definitions below). Morgan Stanley does not assign ratings of Buy, Hold or Sell to the stocks we cover. Overweight, Equal-weight, Not-Rated and Underweight are not the equivalent of buy, hold and sell. Investors should carefully read the definitions of all ratings used in Morgan Stanley Research. In addition, since Morgan Stanley Research contains more complete information concerning the analyst's views, investors should carefully read Morgan Stanley Research, in its entirety, and not infer the contents from the rating alone. In any case, ratings (or research) should not be used or relied upon as investment advice. An investor's decision to buy or sell a stock should depend on individual circumstances (such as the investor's existing holdings) and other considerations.

Global Stock Ratings Distribution

(as of August 31, 2026)

The Stock Ratings described below apply to Morgan Stanley's Fundamental Equity Research and do not apply to Debt Research produced by the Firm.

For disclosure purposes only (in accordance with FINRA requirements), we include the category headings of Buy, Hold, and Sell alongside our ratings of Overweight, Equal-weight, Not-Rated and Underweight. Morgan Stanley does not assign ratings of Buy, Hold or Sell to the stocks we cover. Overweight, Equal-weight, Not-Rated and Underweight are not the equivalent of buy, hold, and sell but represent recommended relative weightings (see definitions below). To satisfy regulatory requirements, we correspond Overweight, our most positive stock rating, with a buy recommendation; we correspond Equal-weight and Not-Rated to hold and Underweight to sell recommendations, respectively.

Stock Rating Category	Coverage Universe		Investment Banking Clients (IBC)			Other Material Investment Services Clients (MISC)	
	Count	% of Total	Count	% of Total IBC	% of Rating Category	Count	% of Total Other MISC
Overweight/Buy	1555	42%	450	48%	29%	767	44%
Equal-weight/Hold	1577	43%	395	42%	25%	770	44%
Not-Rated/Hold	3	0%	1	0%	33%	1	0%
Underweight/Sell	559	15%	93	10%	17%	216	12%
Total	3,694		939			1754	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

Analyst Stock Ratings

Overweight (O). The stock's total return is expected to exceed the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Equal-weight (E). The stock's total return is expected to be in line with the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Not-Rated (NR). Currently the analyst does not have adequate conviction about the stock's total return relative to the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Underweight (U). The stock's total return is expected to be below the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Unless otherwise specified, the time frame for price targets included in Morgan Stanley Research is 12 to 18 months.

Analyst Industry Views

Attractive (A): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be attractive vs. the relevant broad market benchmark, as indicated below.

In-Line (I): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be in line with the relevant broad market benchmark, as indicated below.

Cautious (C): The analyst views the performance of his or her industry coverage universe over the next 12-18 months with caution vs. the relevant broad market benchmark, as indicated below.

Benchmarks for each region are as follows: North America - S&P 500; Latin America - relevant MSCI country index or MSCI Latin America Index; Europe - MSCI Europe; Japan - TOPIX; Asia - relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

Important Disclosures for Morgan Stanley Smith Barney LLC Customers

Important disclosures regarding any material conflict of interest that can reasonably be expected to have influenced Morgan Stanley Smith Barney LLC's choice of a third-party research provider or the subject company of a third-party research report, are available on the Morgan Stanley Wealth Management disclosure website at www.morganstanley.com/online/researchdisclosures.

For Morgan Stanley specific disclosures, you may refer to <https://www.morganstanley.com/eqr/disclosures/webapp/generalresearch>.

Each Morgan Stanley research report is reviewed and approved on behalf of Morgan Stanley Smith Barney LLC. This review and approval is conducted by the same person who reviews the research report on behalf of Morgan Stanley. This could create a conflict of interest.

Other Important Disclosures

Morgan Stanley Research policy is to update research reports as and when the Research Analyst and Research Management deem appropriate, based on developments with the issuer, the sector, or the market that may have a material impact on the research views or opinions stated therein. In addition, certain Research publications are intended to be updated on a regular periodic basis (weekly/monthly/quarterly/annual) and will ordinarily be updated with that frequency, unless the Research Analyst and Research Management determine that a different publication schedule is appropriate based on current conditions.

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

Morgan Stanley produces an equity research product called a "Tactical Idea." Views contained in a "Tactical Idea" on a particular stock may be contrary to the recommendations or views expressed in research on the same stock. This may be the result of differing time horizons, methodologies, market events, or other factors. For all research available on a particular stock, please contact your sales representative or go to Matrix at <http://www.morganstanley.com/matrix>.

Morgan Stanley Research is provided to our clients through our proprietary research portal on Matrix and also distributed electronically by Morgan Stanley to clients. Certain, but not all, Morgan Stanley Research products are also made available to clients through third-party vendors or redistributed to clients through alternate electronic means as a convenience. For access to all available Morgan Stanley Research, please contact your sales representative or go to Matrix at <http://www.morganstanley.com/matrix>.

Any access and/or use of Morgan Stanley Research is subject to Morgan Stanley's Terms of Use (<http://www.morganstanley.com/terms.html>). By accessing and/or using Morgan Stanley Research, you are indicating that you have read and agree to be bound by our Terms of Use (<http://www.morganstanley.com/terms.html>). In addition you consent to Morgan Stanley processing your personal data and using cookies in accordance with our Privacy Policy and our Global Cookies Policy (http://www.morganstanley.com/privacy_pledge.html), including for the purposes of setting your preferences and to collect readership data so that we can deliver better and more personalized service and products to you. To find out more information about how Morgan Stanley processes personal data, how we use cookies and how to reject cookies see our Privacy Policy and our Global Cookies Policy (http://www.morganstanley.com/privacy_pledge.html). Please use the provided link to review the Terms and Conditions and Most Important Terms and Conditions for Morgan Stanley India Company Private Limited (https://www.morganstanley.com/assets/pdfs/about-us-global-offices/india/Terms_and_conditions.pdf) and the following link to review the audit report (https://ny.matrix.ms.com/eqr/research/webapp/researchdocs/MSICPL_Morgan_Stanley_Research_Audit_Report.pdf).

If you do not agree to our Terms of Use and/or if you do not wish to provide your consent to Morgan Stanley processing your personal data or using cookies please do not access our research.

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

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

The "Important Regulatory Disclosures on Subject Companies" section in Morgan Stanley Research lists all companies mentioned where Morgan Stanley owns 1% or more of a class of common equity securities of the companies. For all other companies mentioned in Morgan Stanley Research, Morgan Stanley may have an investment of less than 1% in securities/instruments or derivatives of securities/instruments of companies and may trade them in ways different from those discussed in Morgan Stanley Research. Employees of Morgan Stanley not involved in the preparation of Morgan Stanley Research may have investments in securities/instruments or derivatives of securities/instruments of companies mentioned and may trade them in ways different from those discussed in Morgan Stanley Research. Derivatives may be issued by Morgan Stanley or associated persons.

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

Morgan Stanley Research personnel may participate in company events such as site visits and are generally prohibited from accepting payment by the company of associated expenses unless pre-approved by authorized members of Research management.

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

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

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

Morgan Stanley Research is disseminated in Brazil by Morgan Stanley C.T.V.M. S.A. located at Av. Brigadeiro Faria Lima, 3600, 6th floor, São Paulo - SP, Brazil; and is regulated by the Comissão de Valores Mobiliários; in Mexico by Morgan Stanley México, Casa de Bolsa, S.A. de C.V. which is regulated by Comisión Nacional Bancaria y de Valores. Paseo de los Tamarindos 90, Torre 1, Col. Bosques de las Lomas Floor 29, 05120 Mexico City; in Japan by Morgan Stanley MUFG Securities Co., Ltd. and, for Commodities related research reports only, Morgan Stanley Capital Group Japan Co., Ltd; in Hong Kong by Morgan Stanley Asia Limited (which accepts responsibility for its contents) and by Morgan Stanley Bank Asia Limited; in Singapore by Morgan Stanley Asia (Singapore) Pte. (Registration number 199206298Z) and/or Morgan Stanley Asia (Singapore) Securities Pte Ltd (Registration number 200008434H), regulated by the Monetary Authority of Singapore (which accepts legal responsibility for its contents and should be contacted with respect to any matters arising from, or in connection with, Morgan Stanley Research) and by Morgan Stanley Bank Asia Limited, Singapore Branch (Registration number T14FC0118); in Australia to "wholesale clients" within the meaning of the Australian Corporations Act by Morgan Stanley Australia Limited A.B.N. 67 003 734 576, holder of Australian financial services license No. 233742, which accepts responsibility for its contents; in Australia to "wholesale clients" and "retail clients" within the meaning of the Australian Corporations Act by Morgan Stanley Wealth Management Australia Pty Ltd (A.B.N. 19 009 145 555, holder of Australian financial services license No. 240813, which accepts responsibility for its contents; in Korea by Morgan Stanley & Co International plc, Seoul Branch; in India by Morgan Stanley India Company Private Limited having Corporate Identification No (CIN) U22990MH1998PTC115305, regulated by the Securities and Exchange Board of India ("SEBI") and holder of licenses as a Research Analyst (SEBI Registration No. INH000001105); Stock Broker (SEBI Stock Broker Registration No. INZ000244438), Merchant Banker (SEBI Registration No. INM000011203), and depository participant with National Securities Depository Limited (SEBI Registration No. IN-DP-NSDL-567-2021) having registered office at Altimus, Level 39 & 40, Pandurang Budhkar Marg, Worli, Mumbai 400018, India; Telephone no. +91-22-61181000; Compliance Officer Details: Mr. Tejarshi Hardas, Tel. No.: +91-22-61181000 or Email: tejarshi.hardas@morganstanley.com; Grievance officer details: Mr. Tejarshi Hardas, Tel. No.: +91-22-61181000 or Email: msic-compliance@morganstanley.com. Morgan Stanley India Company Private Limited (MSICPL) may use AI tools in providing research services. All recommendations contained herein are made by the duly qualified research analysts; in Germany and the European Economic Area where required by Morgan Stanley Europe S.E., authorised and regulated by Bundesanstalt fuer Finanzdienstleistungsaufsicht (BaFin) under the reference number 149169; in the US by Morgan Stanley & Co. LLC, which accepts responsibility for its contents. Morgan Stanley & Co. International plc, authorized by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority, disseminates in the UK research that it has prepared, and research which has been prepared by any of its affiliates, only to persons who (i) are investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended, the "Order"); (ii) are persons who are high net worth entities falling within Article 49(2)(a) to (d) of the Order; or (iii) are persons to whom an invitation or inducement to engage in investment activity (within the meaning of section 21 of the Financial Services and Markets Act 2000, as amended) may otherwise lawfully be communicated or caused to be communicated. RMB Morgan Stanley Proprietary Limited is a member of the JSE Limited and A2X (Pty) Ltd. RMB Morgan Stanley Proprietary Limited is a joint venture owned equally by Morgan Stanley International Holdings Inc. and RMB Investment Advisory (Proprietary) Limited, which is wholly owned by FirstRand Limited. Morgan Stanley Research is disseminated in Canada by Morgan Stanley Canada Limited and Morgan Stanley Wealth Management Canada Inc., members of the Canadian Investment Regulatory Organization (CIRO). The information in Morgan Stanley Research is being disseminated by Morgan Stanley Saudi Arabia, regulated by the Capital Market Authority in

the Kingdom of Saudi Arabia, and is directed at Sophisticated investors only.

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

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

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

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

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

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

The issuers and/or fixed income products recommended or discussed in certain fixed income research reports may not be continuously followed. Accordingly, investors should regard those fixed income research reports as providing stand-alone analysis and should not expect continuing analysis or additional reports relating to such issuers and/or individual fixed income products. Morgan Stanley may hold, from time to time, material financial and commercial interests regarding the company subject to the Research report.

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

The following authors are neither Equity Research Analysts/Strategists nor Fixed Income Research Analysts/Strategists and are not opining on or expressing recommendations on equity or fixed income securities: Michael T Gapen; Lingdi Xu; Heather Berger; Arunima Sinha; Diego Anzoategui; Sam D Coffin.

The following authors are Fixed Income Research Analysts/Strategists and are not opining on or expressing recommendations on equity securities: Mark T Schmidt, CFA; Molly Nickolin; Eli P Carter; Aryaman Singh; Janie Xue; Matthew Hornbach; Martin W Tobias, CFA; Andrew M Watrous; Jay Bacow.