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Emerging Insight

Mexico – Breaking monetary policy rules

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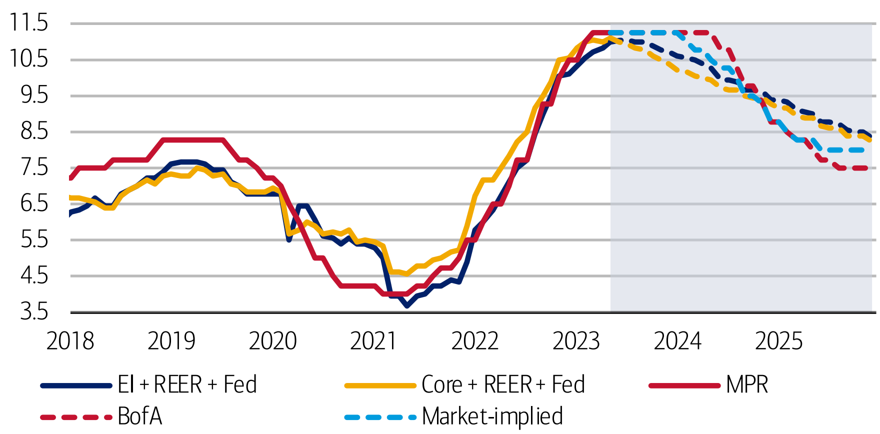
Key takeaways

- A simple Taylor Rule does not approximate Mexico's monetary policy well. Rules augmented with the US policy rate do better.
- Extended Taylor Rules suggest the easing cycle could start in 2023, but we see three reasons why Banxico may take longer.
- We continue with 1y TIIE payers, but see potential in receiving the belly or flatteners if upward US rates momentum fades.

By Christian Gonzalez and Carlos Capistran

Chart of the Day: Policy rate path implied by Taylor Rule and BofA outlook (%)
Taylor Rules advise an earlier, but slower, easing cycle. We believe Banxico will take longer to cut



Source: BofA Global Research, Bloomberg, Haver

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Mexico: Breaking monetary policy rules

We find that a Taylor Rule that excludes US monetary policy does not approximate Mexico's monetary policy well. Augmented Taylor Rules suggest that the easing cycle could be earlier, but slower. However, we still believe Banxico may delay the start of the cutting cycle: 1) Mexico's relative monetary policy stance may not be as restrictive as it seems; 2) there will likely be high political uncertainty around the time of potential cuts; and 3) there is uncertainty regarding the output gap. Using augmented Taylor Rules we show that Mexico's neutral real rate is likely between 2.4% and 3.5%. We continue to prefer 1y TIIE payers but see potential value in receiving the belly or flatteners if upward momentum from US rates fades.

For a complete list of our open trades and closed trades over the past 12 months see our latest Global Emerging Markets Weekly.

The traditional Taylor Rule does not apply to Mexico

Since its introduction in 1993, the Taylor Rule has been extensively used to assess monetary policy. The main idea behind the rule is that central bank policymakers move the policy rate in response to deviations of inflation from target and deviations of output from potential. While the traditional Taylor Rule has been found to describe policy rates in developed economies, several adjustments have been proposed for emerging markets. For instance, Taylor Rules have been augmented to include the real exchange rate or an interest rate from a large economy, typically the US Fed Funds rate, to capture the dynamics of open economies. Similarly, expected inflation has been included to account for the fact that central bank decision-making tends to be forward-looking.

Monetary policy rules in Mexico

We analyze monetary policy in Mexico under different Taylor Rule specifications. In particular, we focus on the following equation:

$$i_t = r^* + \bar{\pi}_t + \beta_{\pi^j} \cdot (\pi_t^j - \bar{\pi}_t) + \beta_y \cdot (y_t - \bar{y}_t) + \beta_e \cdot (e_t - \bar{e}_t) + \varepsilon_t \qquad (1)$$

Where i_t denotes the nominal policy rate; r^* is the neutral real interest rate; $\bar{\pi}_t$ is the inflation target, which can be time-varying; $(\pi_t^j - \bar{\pi}_t)$ is the inflation gap, which can be based on headline, core or expected inflation; $(y_t - \bar{y}_t)$ is the output gap computed via a modified Hamilton filter (see Is the Mexican economy overheated?); and $(e_t - \bar{e}_t)$ is the Real Effective Exchange Rate (REER) gap against its 3-year moving average. We recursively compute the Taylor Rules using linear regressions on an initial 3-year window with data starting in January 2000 and ending in May 2023.

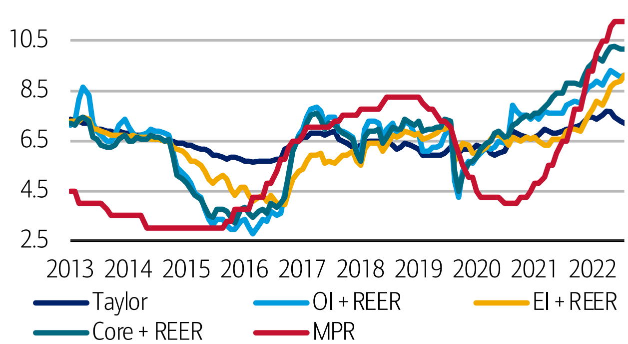
In Mexico, the traditional Taylor Rule (i.e. where $\beta_e = 0$) fails to characterize monetary policy. Even after considering the REER, core inflation and inflation expectations, policy rules deviate significantly from actual monetary policy (Exhibit 1).

The role of US monetary policy

Since Mexico is a small-open economy, it is no surprise that monetary policy is highly synchronized between Mexico and the US. In fact, Mexico historically tends to cut rates after the Fed (Exhibit 2). The exception is the 2013-14 period, where Mexico launched a series of cuts to fine-tune its policy stance. However, even during that period, the Wu-Xia Shadow Federal Funds Rate suggests financial conditions were loosening amid unconventional monetary policy in the US.

Exhibit 1: Monetary policy rates implied by different rules (%)

Policy rules deviate significantly from Mexico's policy rate



Source: BofA Global Research, Bloomberg, Haver.

Note: We denote *Taylor* as the traditional Taylor Rule, which includes the observed inflation gap and the output gap; *OI + REER* includes the observed inflation gap, the output gap and the REER gap; *EI + REER* includes the expected inflation gap, the output gap and the REER gap; while *Core + REER* includes the core inflation gap, the output gap and the REER gap.

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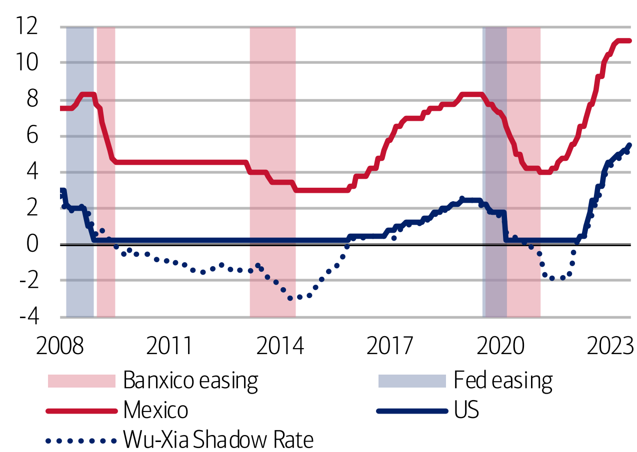
Exhibit 2: Mexico and US monetary policy rates (%)

Banxico's and the Fed's monetary policy cycles are highly synchronized



Source: BofA Global Research, Bloomberg.

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This suggests that the Fed policy rate could play an important role in Banxico's reaction function. Therefore, we consider augmented Taylor Rule specifications that include a measure of US monetary policy:

$$i_t = \alpha_t + \beta_{\pi^j} \cdot (\pi_t^j - \bar{\pi}_t) + \beta_y \cdot (y_t - \bar{y}_t) + \beta_e \cdot (e_t - \bar{e}_t) + \beta_{US} \cdot i_t^{US} + \varepsilon_t \qquad (2)$$

Where we denote i_t^{US} as the Federal Funds Rate, including the Wu-Xia Shadow Federal Funds Rate for periods when the former was zero. Not surprisingly, a Taylor Rule that incorporates US monetary policy more closely approximates Mexico's policy rate (Exhibit 3). We will focus on the Taylor Rule specifications that consider the expected inflation gap and the core inflation gap since, in our view, these more closely resemble the dynamics of Mexico's monetary policy.

Taylor Rule advises an early, but slow, easing cycle

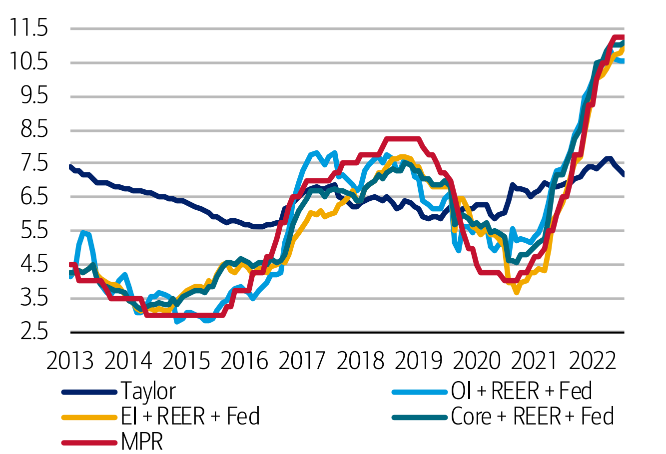
We now turn to what a Taylor Rule would prescribe as a monetary policy path that is consistent with our expected macroeconomic outlook. In particular, we use our forecasts for core inflation, 1-year-ahead inflation expectations (see How quickly can inflation expectations fall?), GDP growth, real exchange rate and US monetary policy, to analyze the path prescribed by the modified Taylor Rule.

Both the expected inflation and the core inflation Taylor Rule call for cuts towards the end of 2023 (Exhibit 4). While this is earlier than the market's call of a first cut in 1Q24 and our call of a first cut in June 2024, the Taylor Rules prescribes a much slower pace. By the end of 2025, the Taylor Rule prescribes a policy rate of about 8.25%, above the 8.0% market expectation and our 7.5% forecast.

We expect Banxico to deviate from monetary policy rules

While a Taylor Rule framework suggests cuts could start earlier, our view is that Banxico will delay the start of the easing cycle (and then cut faster than what Taylor Rules suggest). We see three main reasons for Banxico to deviate towards the hawkish side.

Exhibit 3: Monetary policy rates implied by rules with US rates (%)
Taylor Rules with US monetary policy approximate Banxico rates



Source: BofA Global Research, Bloomberg, Haver.
Note: We denote *Taylor* as the traditional Taylor Rule, which includes the observed inflation gap and the output gap; *OI + REER + Fed* includes the observed inflation gap, the output gap, the REER gap and the Wu-Xia Shadow Fed Funds Rate; *EI + REER + Fed* includes the expected inflation gap, the output gap, the REER gap and the Wu-Xia Shadow Fed Funds Rate; while *Core + REER + Fed* includes the core inflation gap, the output gap, the REER gap and the Wu-Xia Shadow Fed Funds Rate.

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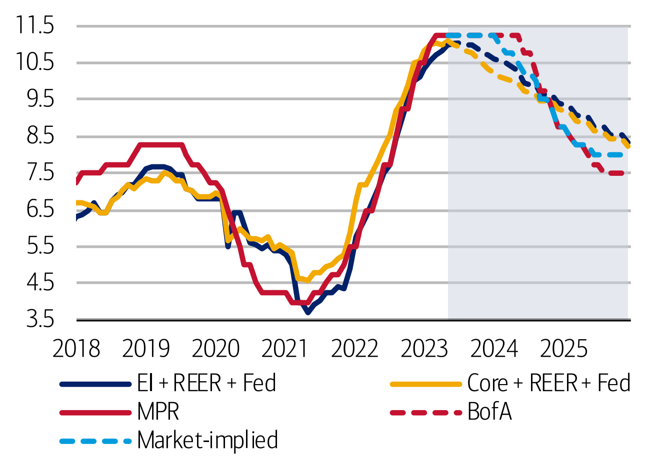
Exhibit 4: Policy rate path implied by Taylor Rule and BofA outlook (%)
Taylor Rules advise an earlier, but slower, easing cycle



Source: BofA Global Research, Bloomberg, Haver
Note: *EI + REER + Fed* includes the expected inflation gap, the output gap, the REER gap and the Wu-Xia Shadow Fed Funds Rate; while *Core + REER + Fed* includes the core inflation gap, the output gap, the REER gap and the Wu-Xia Shadow Fed Funds Rate. *BofA* is the monetary policy path forecasted by BofA and *Market-implied* is the market-implied policy rate path.

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First, inflation has been unusually high in this episode, and monetary policy in Mexico may not be as restrictive as the Taylor rule suggests, even after controlling for the US Fed. We have argued that, as a small open economy, what matters for Mexico is its real ex-ante policy stance relative to the US. Recently, the spread between the real ex-ante rate in Mexico and in the US has narrowed (Exhibit 5), as inflation expectations have declined faster in the US than in Mexico, and Mexico has remained on hold while the US has continued hiking. In fact, from a historical perspective, Mexico's real ex-ante monetary policy stance is almost at levels consistent with the 400bp levels seen in 2012-14 and 2017-20. This, in our view, suggests the relative monetary policy stance is not as restrictive as it seems. If this is the case, Banxico will need to keep rates higher for longer. Granted, the Taylor Rule already includes the Fed funds rate, but there may be some non-linearities when inflation is well above the target and also there are other aspects of monetary policy that we are not explicitly considering, such as QE/QT. The US Fed may still hike more and there is uncertainty around the path the Fed may follow.

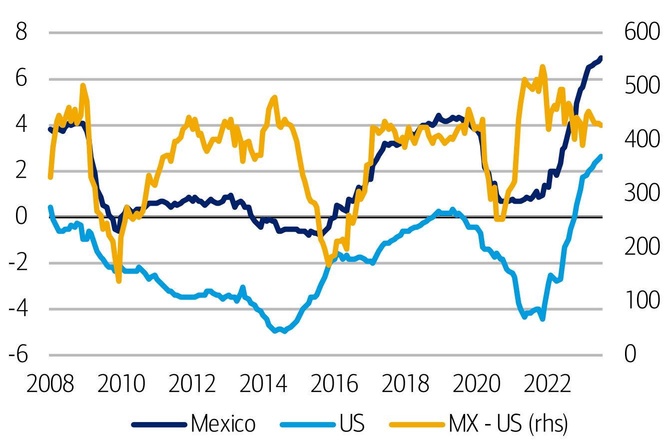
A second reason to expect a delay in Banxico's cutting cycle is related to the federal elections in Mexico in June 2024. The peso is usually more volatile than usual ahead of federal elections, and this time around it may be even more volatile because there will also be Federal Elections in the US in 2024 (November). We do not incorporate elections in our Taylor Rules, but it makes sense for Banxico to wait until after the June election to start a cutting cycle to prevent a disorderly adjustment of the peso. After the election, Banxico may want to compensate the delay by cutting faster than what the Taylor Rule with Fed Fund rates suggests.

A third reason is the uncertainty about Mexico's output gap. Mexico's average growth since 1993 is 2.6% (using qoq saar rates). But in the last six quarters Mexico has averaged 3.8% growth (using qoq saar rates). Such strong growth is likely due to above-average growth in the US, nearshoring and recent government expenditure in Mexico. With such strong growth, we believe there is a large positive output gap. But Banxico estimates a smaller gap. We expect the output gap to narrow in the following quarters, but Banxico expects it to increase. With inflation above the target, this uncertainty may make Banxico keep a tighter posture than that recommended by simple rules.

Leveraging Taylor Rules to extract neutral rates

Another benefit of a Taylor Rule approach is that one can easily approximate neutral rates by analyzing the constant in the Taylor Rule regression. While this is only one of

Exhibit 5: Real ex-ante monetary policy rates in the US and Mexico (%)
Mexico's real ex-ante policy stance relative to the US has eased



Source: BofA Global Research, Bloomberg, Haver.
Note: We use the Wu-Xia Shadow Federal Funds Rate to account for unconventional monetary policy during the zero lower bound period in the US.

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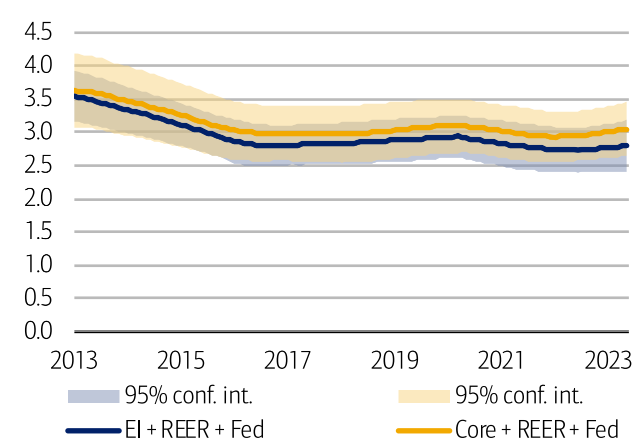
Exhibit 6: Mexico's neutral real rate implied by Taylor Rules (%)
According to Taylor Rules, Mexico's neutral rate is around 3%



Source: BofA Global Research, Bloomberg, Haver.
Note: We compute 95% confidence intervals using HAC errors.

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many methodologies available to extract neutral rates, the Taylor Rule approach is parsimonious, unlike the DSGE or Laubach-Williams methodologies, and takes into account the macroeconomic outlook (e.g. inflation, growth, US monetary policy and exchange rate), unlike univariate smoothing techniques such as an HP filter.

Since the neutral real rate is the interest rate consistent with a closed output, inflation and REER gaps, it follows from equation (2) that Mexico's neutral real rate in this specification is:

$$r_t^* = \alpha_t + \beta_{US} \cdot i_t^{US} - \bar{\pi}_t + \varepsilon_t \tag{3}$$

Where r_t^* is Mexico's neutral real rate, which varies with the US monetary policy rate. Note that equation (3) does not make the assumption that the US monetary policy stance is neutral, which renders this approach a partial equilibrium approach.

According to this analysis, the neutral rate in Mexico most likely ranges between 2.4% and 3.5%, depending on the Taylor Rule specification (Exhibit 6). This is slightly above the latest estimates from Banxico, which put the neutral rate between 1.8% and 3.4% with a point estimate of 2.6%.

However, we note that there are upside risks to our results. For instance, according to the Fed's DSGE model (June 2023 update), the natural rate of interest is expected to be 2.2% in 2023, compared to 2.0% in the December 2022 update. A higher neutral rate in the US can put upward pressure on Mexico's neutral rate.

We keep paying front-end rates, cautious about terminal

While Taylor Rules suggest Banxico could cut rates earlier than our June 2024 expectation, we see several upside risks that – in our view – will put pressure on Banxico to cut later than the market expectation. As a result, we continue to like 1y TIIE payers (current: 11.23). Risks are an earlier start of Banxico's cutting cycle or a dovish Fed shift.

Moreover, our Taylor Rule also suggests that Banxico will be unable to reach neutral by end-2025. However, we believe that a delayed easing cycle implies that the central bank will, eventually, need to cut more aggressively. A real neutral rate of 3.5% implied by the Taylor Rule suggests that the terminal nominal rate could be around 7.5%, assuming inflation returns to the 4% historical median. This is in line with our terminal rate forecast, but lower than market pricing of 8%. While this could suggest receivers in the belly of the curve or flatteners between front-end and belly could be attractive, we prefer to wait until momentum from higher US rates fades.

In terms of the exchange rate, high rates and a resilient US backdrop supports a resilient peso. However, we remain neutral as risk-reward of being long MXN is not attractive given the current valuation. Our core view remains unchanged. We believe MXN outperformance is explained by carry (see Keep calm, but don't carry on with MXN), and that valuation in real terms is stretched given Mexico's deterioration in long-term growth and productivity. Similarly, we are still convinced MXN remains vulnerable to global shocks, in particular a US recession (see The Kryptonites to the Super Peso). Thus, we continue to believe that potential downside in spot returns outweighs the carry.

News and Views

Brazil: Inflation forecasts for 2023 year-end revised up

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According to the Brazilian Central Bank's (BCB) weekly survey (Focus), inflation expectations were stable for the whole forecast horizon, expect for 2023. Analysts' IPCA forecast for YE23 moved up to 4.90% (from 4.84% last week), following the fuel price adjustment of last week, and should continue to increase in the next week as market participants update their forecasts. Year-end inflation expectations remained stable at 3.86% for '24 and 3.50% for '25 and '26. Selic consensus was unchanged for the entire horizon (2023-2026) at 11.75% for YE23, 9.00% for YE24, 8.50% for YE25 and YE26. Median GDP growth forecast increased for 2024, now at 1.33% (from 1.30%), though stood still for 2023 (at 2.29%), 2025 (1.90%) and 2026 (2.00%). At last, exchange rate expectations compared to the previous week showed a slight depreciation for 2023 (R$4.95/US$1 from R$4.93/US$1) and 2026 (R$5.15/US$1 from R$5.10/US$1), while remained stable for 2024 at R$5.00/US$1 and 2025 at R$5.09/US$1.

- **To follow:** We continue to expect IPCA at 4.8% for 2023-end and of 3.70% for 2024-end. Consensus converged to our year-end Selic for 2023 at 11.75%, though analysts expect more rate cuts than us (Selic at 9.50% YE24). GDP consensus remained closer to our 2.3% growth expectation in 2023, while still considerably below our forecast of 1.8% in 2024 and 2.5% in 2025. Regarding the FX, market participant's expectation is more depreciated than our forecast for 2023 (R$4.90/US$1), though consensus has a more appreciated currency expectation for YE24 (we see it at R$5.10/US$1) and YE25 (we see it at R$5.20/US$1).

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