Quarterly Update on Valuation Metrics in Emerging Debt

September 2018

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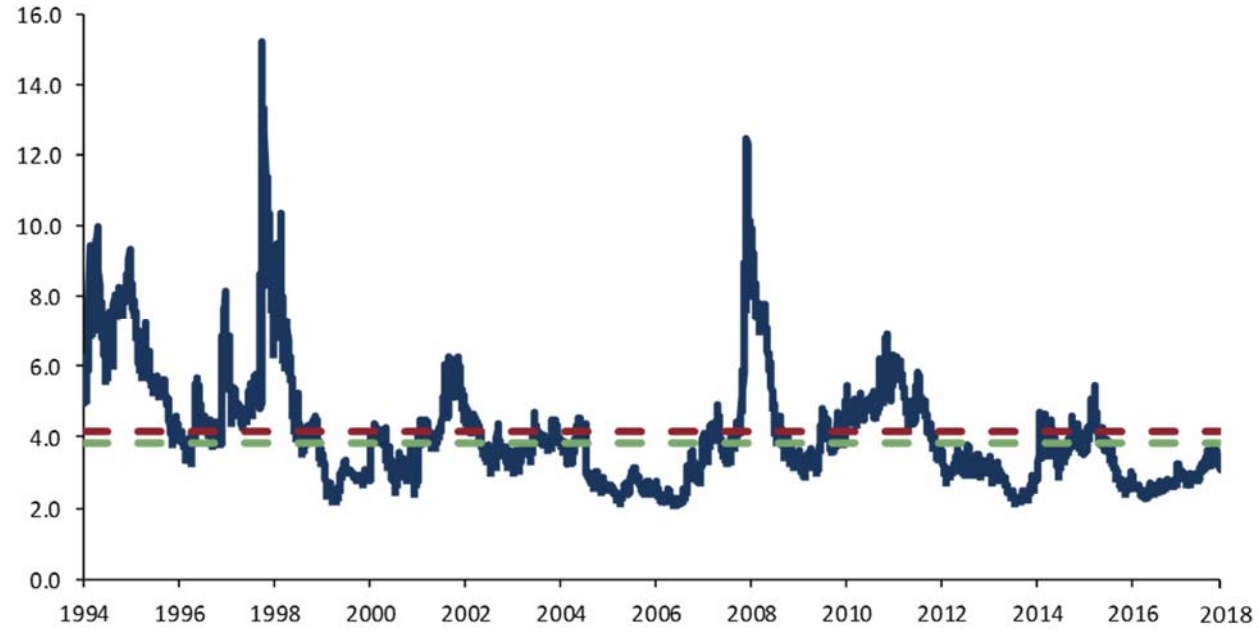
The punch line: Due to the 26-bp spread tightening in the third quarter (to 362 bps), USD external debt (EMBIG) valuations deteriorated and remain on the expensive side of historical valuations, as fundamentals didn't improve in a way that justified such tightening. In contrast, for local currency debt (GBI-EMGD), EM currencies declined 1.2% and the yield remained roughly unchanged (-4 bps to 6.62%). Valuation of EM currencies and rates remained mostly unchanged in the third quarter when compared to the second quarter. Our attractiveness measure for EM currencies remains above the historical average. Moreover, the USD remains in "rich" territory while the EUR moved from "cheap" to "rich" territory during the third quarter. Meanwhile, real yield differentials between EM local bonds and developed market bonds remain wide, above historical norms.

External Debt Valuation

As seen in Exhibit 1, the current multiple of the benchmark credit spread over the spread that would be required to compensate for credit losses fell in the third quarter. The multiple stood at 3.1x on September 28, 2018, lower than the 3.6x we saw on June 30, 2018 but still higher than the 2.9x observed at the beginning of the year and the end of the first quarter. The ratio remains below historical averages, but is well off its historical lows. The historical minimum ratio was 2.1 in April of 2007, when the spread on the EMBIG index was +161 bps over LIBOR and the 10-year Treasury yield was 5.0%, compared with +362 bps and 3.05%, respectively, at the end of the third quarter.

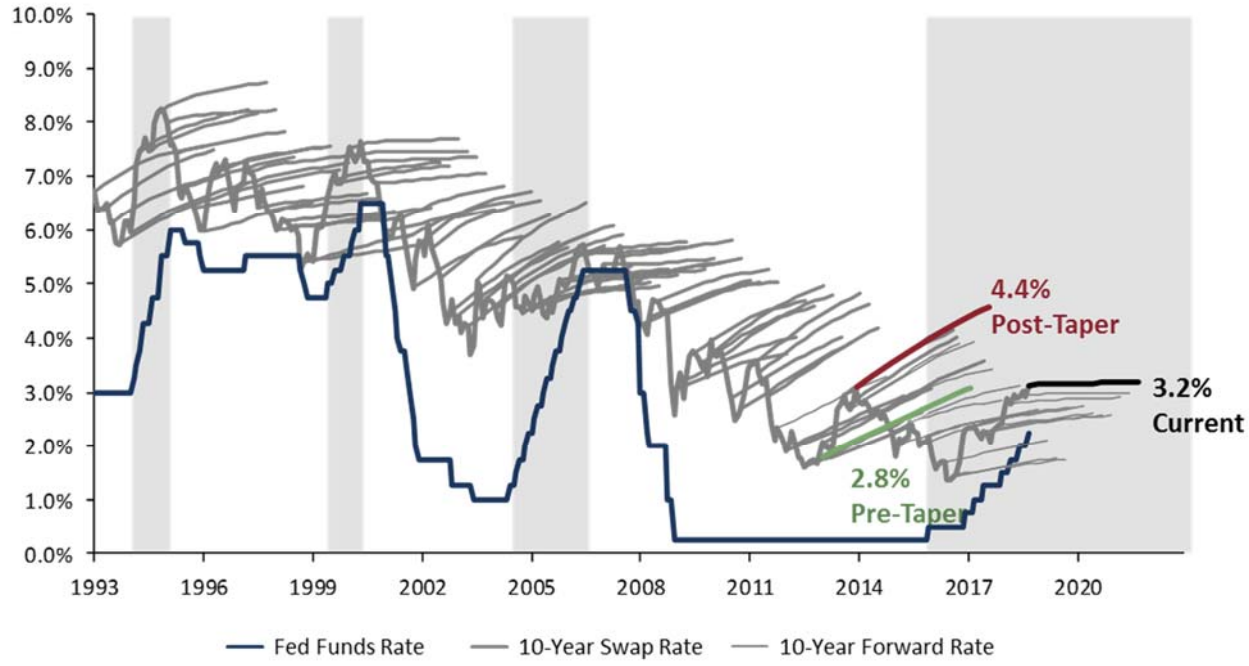
Exhibit 1 – Long-Term View of the "Fair Market Multiple" for Emerging External Debt



There were few rating changes during the quarter. The most significant was the downgrading of Turkey based on unfavorable political dynamics that could lead to a weakening in economic policy at a time when economic policy needs to become stronger and more orthodox. Argentina was also put on negative watch during the quarter. Due to those changes and other negative rating moves and weighting changes in the benchmark, **our updated calculation of the "fair value" spread of the EMBIG that would be required to compensate for expected credit losses increased slightly, from 110 bps at end-June to 119 bps by end-September 2018.**

The preceding was a discussion of the level of spreads, or credit cushion. Unfortunately, the interest rate cushion remains low, as the slope of the 10-year forward curve continued to flatten in the third quarter, even though very slightly this time around. It flattened from 6.5 bps (to the 3-year forward point) at the end of June to about 6.1 bps by the end of September. We have not seen a forward curve this flat since the 2006-07 period, when the 10-year Treasury was yielding around 5%, and the Fed, although it did not know it at the time, was nearing the end of its tightening cycle. Regardless of the reasons, a slope this flat indicates little to no cushion for a surprise rise in Treasury yields, and is relevant in the context of current macroeconomic policy in the US, which can be described as monetary tightening and fiscal loosening.

Exhibit 2 – 10-Year U.S. Treasury Swap Curves at Quarterly Intervals



Local Debt Markets Valuation

In the second quarter, we introduced a new concept for currency valuations along with our previous EM FX valuation graph. Exhibit 3 provides a snapshot of our new currency valuation methodology (for more information please see the Appendix). The underlying model analyzes trends in macroeconomic fundamentals such as balance of payment composition and flows, valuation of the currency, and the economic cycle, via an econometric analysis, to come up with an estimate of total expected FX returns for each country in the GBI-EMGD benchmark. These are then combined into a single value of total expected FX return using a weighted average of currencies in the GBI-EMGD. We then deduct the GBI-EMGD weighted carry from the estimated GBI-EMGD weighted value of total FX expected return. A value that is higher (lower) than the historical average or median could potentially indicate "cheap" ("rich") currencies. In other words, when the total expected FX return is higher (lower) than the overall carry, EM FX becomes more (less) attractive. Based on the new methodology, EM currencies seem to continue to offer some value when compared to the historical average or the median. Total returns from currencies are expected to be slightly higher than what is implied by the current interest rate differential of EM vs. the US, as was the case at the end of the second quarter.

Exhibit 3 – GBI-EMGD Weighted Average of Expected Return Less GBI-EMGD Weighted Carry (bps)

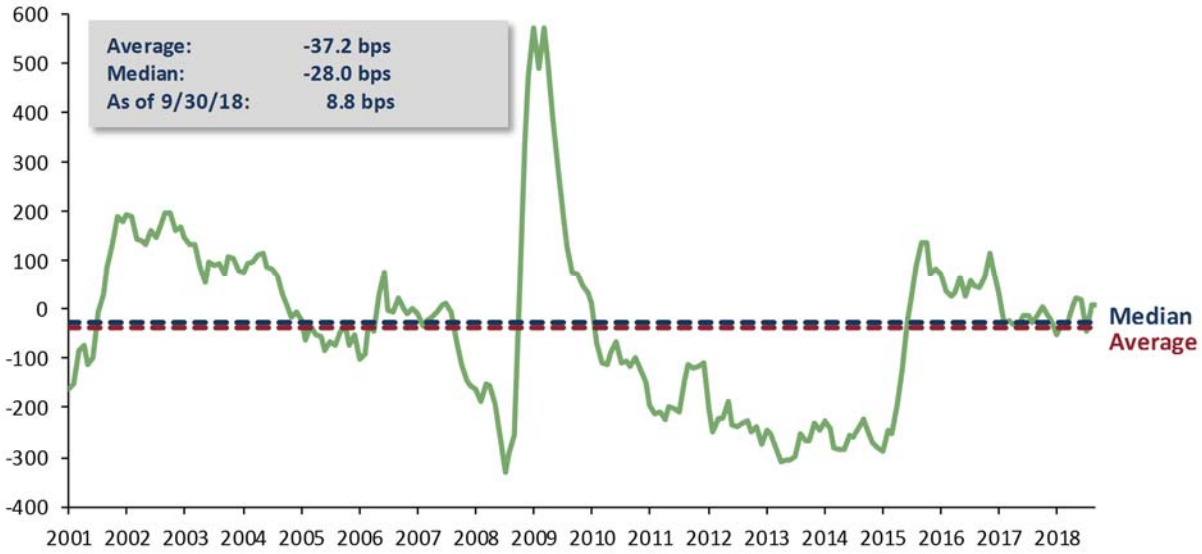
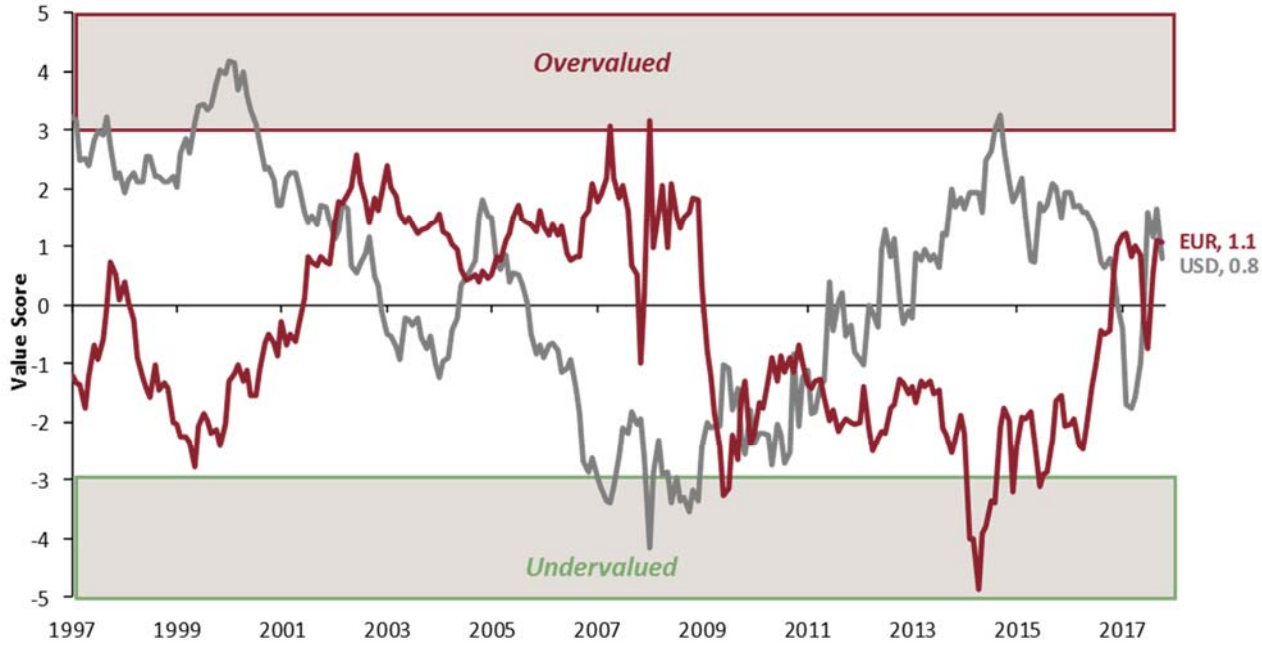


Exhibit 4 provides a snapshot of our traditional currency valuation methodology, which combines trends in the balance of payments and the real effective exchange rate, via a z-score analysis, and measures how far away current values are from their long-term averages. We keep our traditional valuation model to look at the valuation of the USD and EUR. The most important shift in the third quarter involved the EUR, which moved from undervalued territory to overvalued territory. The EUR appreciated significantly in real terms during the quarter. The USD seems to have cheapened but still remains in "rich" territory. Both USD and EUR are now in "rich" territory. For dollar-based and euro-based investors, investing in local currency emerging fixed income markets looks attractive from an outright valuation perspective as well.

Exhibit 4 –Value Score USD and EUR



As mentioned above, EM currencies fell against the US dollar in the third quarter, with the currency component of the GBI-EMGD index generating -2.1% of return. Most currencies in the GBI-EMGD benchmark registered negative spot returns. The worst performing currencies by far were the ARS and the TRY, which depreciated 26.9% and 22.7% respectively during the quarter as they both had to deal with idiosyncratic issues linked to their external vulnerabilities. Both countries have current account deficits and high external financing costs, which made them vulnerable. The UYU and the RUB also underperformed. The UYU depreciated 6% during the quarter as the depreciation of both the ARS and BRL put pressure on the currency. Among the outperformers, few currencies managed to register strong positive returns. The MXN was the best performing currency after the market came around to the newly elected President, Lopez Obrador, in July. The quarter also saw a meaningful event in the signing of a bilateral trade deal (a follow-on to the 1994 NAFTA agreement) between Mexico and the US that Canada also ultimately agreed to. Lower yielding currencies in the CEE3 and Thailand also outperformed.

As for emerging market local interest rates, we consider differentials in real yields to gauge the relative attractiveness of EM against developed markets (see Exhibit 5). In this regard, the story that has been in place for many quarters (years, actually) remains as we can still witness a substantial gap between developed and EM real yields, in favor of EM. Even though US real yields have increased steadily since the beginning of the year, emerging real yields continue to look attractive on a relative basis as the spread between EM and US real yields remains not only above the historical average, but also above the average spread since 2010, as shown in Exhibit 5. Real rates in the G-3 continue to be at or below zero. Japanese and Eurozone

real yields remain negative by our calculations. In the emerging world, real yields increased in the third quarter, finishing at 2.9% after peaking at 3.2% at the end of August (a level last seen at the end of 2015). Real yields in emerging markets remained well above the historical average and continued to be well above the tight range of 2.0% to 2.5%, which was established and has been in place since the beginning of 2017.

Exhibit 5 – Inflation-Adjusted Bond Yields

Performance of EM local bonds within the benchmark was slightly positive in the third quarter, with 10-year US yields rising 20 bps in the same period and 65 bps year-to-date. The best performing local markets included a mix of high yielders like Brazil (+2.1%), Uruguay (+3.5%), and Indonesia (+1.5%) and lower yielders like Romania (2.9%) and Malaysia (1.7%). In Brazil, election uncertainty that accompanied higher yields in July and August appeared to abate in September, with the sub-index yield reaching a high of 10.7% in early September only to end the quarter at 10.1%. Not surprisingly, the worst performing local interest rate markets were Argentina (-8.2%) and Turkey (-4.5%). Both countries had to hike interest rates aggressively to shore up the currency as inflation increased substantially. Russia (-1.7%) and the Philippines (-1.7%) were also among the underperformers during the quarter. Russia's underperformance seems linked mostly to sanctions risk, because rising oil prices are shoring up the country's finances, creating external and fiscal surpluses. Moreover, the Central Bank unexpectedly decided to hike the policy rate in September. In the Philippines, the central bank also began its hiking cycle as inflationary pressures increased.

Appendix

Explanation of the Methodology

External Debt Valuation

Exhibit 1 is created by first calculating a "fair" spread of the EMBIG over US Treasuries, accounting for the credit rating profile of the EMBIG, default probabilities, and recovery values under default scenarios, based on rating agency studies of the historical default experience. In this way, the fair value spread of the EMBIG can move with time, depending on upgrades and downgrades of sovereigns and their relative weightings within the index, ensuring that we are not biasing our measurement due to "rating creep." This fair value spread is the spread on a portfolio represented by the EMBIG that would be needed to compensate for expected credit losses, ignoring risk aversion, liquidity, and other considerations. We then take the ratio of the actual EMBIG spread to the fair value spread and compare it to the historical norm, to try to gauge the premium that the market has historically demanded on a sovereign debt portfolio that is over and above that required to compensate for credit losses. With some assumptions, such as a long-term investment horizon, mean-reversion, and little or no structural change in the market, the chart suggests that the market shows a signal of being attractive when the fair value multiple is above the long-run average and median lines, and unattractive when it lies below.

Whereas Exhibit 1 deals with credit spreads, **Exhibit 2** deals with the *level* of the underlying risk-free rate (in this case, US Treasuries). In our hard currency portfolios, we manage the interest rate duration to be neutral to the EMBIG benchmark (duration of approximately 7). We do not take directional bets on US rates in this portfolio, but we recognize it is an important determinant in the portfolio's total return. Exhibit 2 shows the history of the 10-year US Treasury swap rate (heavy solid line), along with the forward curve (going out 3 years) for the 10-year swap rate (lighter lines) at each point in time (quarterly). In effect, it tries to show three dimensions in a two-dimensional chart. Note that it also shows the path of the Fed funds target rate for a sense of where the Federal Reserve is in its policy cycle. We highlight two things in this chart. First, the level of the 10-year swap rate gives us an idea of the overall interest rate cycle relative to one's view of the natural rate of interest. If this number is very low, there may be more risk of higher rates over a medium-term horizon. The second is the market's pricing of the 3-year forward rate for the same swap. If this forward curve is very flat, there is also less cushion for a negative surprise (i.e., higher rates) on term rates. If there is some positive slope to the forward curve, it is an indication that the market has at least priced in some higher drift in term rates.

In **Exhibit 3**, we introduce a new framework to look at currency valuation for local currency debt. We use econometric models to estimate total expected returns for each country in the GBI-EMGD benchmark. We estimate two different models depending on whether the currencies are allowed to float freely or are more "managed." All regressions are estimated with country fixed effects. Expected total returns are a function of interest rate differentials and the underlying fundamentals of each economy. In determining the direction and magnitude of total returns, we find the following factors significant: balance of payment flows and

composition; where a country stands within its economic cycle; and the over/undervaluation of the currency. The table below shows the fundamental variables included in the models.

"Floating" and "Peg" Currency Model Variables

Currency Overvaluation	Balance of Payments Flows	Economic Cycle
■ Real exchange rate estimate ■ Terms of trade	■ Current Account ■ Foreign direct investment ■ FX Reserves ■ Short-term External Debt	■ Growth ■ Inflation ■ Credit

After estimating total expected return for each country, we aggregate those returns by the weight each country has in the GBI-EMGD. We then compare this aggregate total expected return to a GBI-EM weighted value for carry by subtracting the two. With some assumptions, such as a long-term investment horizon, mean-reversion, and little or no structural change in the market, the chart in **Exhibit 3** suggests that the market shows a signal of being attractive when the difference between total expected return and carry is above the long-run average and median lines, and unattractive when it lies below.

Sources for charts: Bloomberg, J.P. Morgan, GMO