Investment Focus

Are Emerging Market Foreign Currencies Finally Attractive?

Introduction

Emerging market foreign currencies (EMFX) have sold off dramatically in the past two years since the 2013 Taper Tantrum.[1] Accounts in the financial media often center on the role of the strong U.S. dollar, sensitivity to developed market (DM) monetary policy, or the fall in commodity prices. In this paper, we try to answer the question of whether or not, after the recent sell-off, are EMFX finally at attractive levels.[2] We do this by presenting our long-term and medium-term framework for analyzing currencies. We first apply it to EMFX as an aggregate, and argue that EMFX is beginning to look compellingly attractive by both long-term and medium-term valuation standards. On a long-term basis, EMFX real effective exchange rates (REERs)[3] have adjusted significantly, and are now well below long-term averages. Our medium-term framework shows EMFX to be 1.2 standard deviations cheap compared to "fair value", a level of undervaluation greater than that seen during the Global Financial Crisis. We gauge these findings against terms of trade, changing country fundamentals and global factors. Finally, we use our frameworks to identify potential winners and losers in the EMFX sell-off.

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[1] The Taper Tantrum refers to an episode of financial market volatility, between May and August of 2013, surrounding the approximately 100 basis point surge in U.S. Treasury yields following comments by then Federal Reserve Chairman Ben Bernanke about how the Fed might slow down, or taper, the rate of its bond purchases in its quantitative easing program.

[2] This paper is designed to explain our methodology for analyzing currencies as part of our investment process and is not meant as a solicitation to engage in currency trading.

[3] Real Effective Exchange Rate (REER) is a measure of the trade-weighted average exchange rate of a currency against a basket of currencies after adjusting for inflation differentials with regard to the countries concerned and expressed as an index number relative to a base year.

Frameworks for analyzing FX valuation

LONG TERM: PPP AND REER

To assess long-term equilibrium exchange rates, we looked at the deviation of the real effective exchange rate (REER) from its 10- and 20-year averages, as well as its 15-year trend. The Bank for International Settlements (BIS) calculates the most complete monthly series for the REER for 61 countries.[4] The REER is driven by the effective (trade-weighted) nominal exchange rate deflated by price levels. The intuition behind this tool is underlined by the theory of Purchasing Power Parity (PPP) derived from the Law of One Price, and postulates that an identical good in two different countries should sell at the same price when expressed in a common currency. Naturally, there are deviations from PPP in the short- and medium-term due to market frictions, transportation costs, and tariffs, among other factors. However, PPP is considered to be a good indicator of exchange rate in the long run, and as such, should provide a valuable insight into under/over-valuation of currencies. There are both sustainable and unsustainable drivers of REER appreciation and depreciation. For example, REER appreciation can be driven by high inflation, driving up prices in an economy compared to its trading partners. This will make the economy uncompetitive, and will likely lead to both nominal and real effective depreciation over time to restore the economy's external balance. On the other hand, the REER appreciation can be driven by increases in productivity, which would be more sustainable. In sum, our team considers deviations from long-term REER averages and trends to be a useful starting point for deeper discussions about long-term trends in an economy's overall competitiveness and exchange rate outlook.

MEDIUM TERM: FEER AND BEER

While considerable empirical evidence backs PPP-based approaches in the long term, economists have spent significant effort creating exchange rate models that assess equilibrium exchange rates over shorter intervals, with mixed success. The two main schools of these medium-term models are Fundamental Equilibrium Exchange Rate (FEER) models, and Behavioral Equilibrium Exchange Rate (BEER) models.[5] FEER models are based on current account reversion, and require the estimation of a sustainable level of current account, as well as other structural parameters that are difficult to ascertain, particularly in the context of emerging markets. We instead prefer to base our approach on BEER style models.

In particular, our approach expands upon the BEER methodology outlined in Clark and MacDonald (1998) and subsequent papers. This approach, in its simplest form, finds an equilibrium exchange rate given long-term statistical relationships with key fundamentals such as terms of trade, productivity and net foreign assets. From the perspective of EM market participants, a key weakness of most academic exchange rate literature is that it uses data that is available at low frequency and with significant lags. Cowan, Rappoport, and Selaive (2007), in a working paper for the Central Bank of Chile, created a high frequency empirical model for the Chilean peso as a policy tool to help the central bank understand and quantify the role of pension funds and central bank interventions in the foreign exchange market. This line of research is further explored and validated in an IMF working paper by Wu (2013).

Our proprietary Structural Exchange Rate Valuation (SERV) model is a medium-term FX model that seeks to provide a "fair value" for a currency, given its relationship with key structural variables over a multi-year period. Where possible, the model utilizes an interpolated monthly time series of Bloomberg consensus year-ahead forecasts for macroeconomic variables such as GDP growth, fiscal balance, inflation, and current account balance, in order to better capture expectations of market participants. The SERV model also controls for the effect of global variables such as U.S. Treasuries, VIX[6] and oil prices. This model allows the team to assess the medium-term SERV "fair value" based on consensus expectations of key macroeconomic factors, as well as providing the team with coefficients by which to assess the relative impact of these variables. In turn, when we hold an out-of-consensus view on a particular macroeconomic forecast or global variable, or when we want to test the potential impact of a variety of outcomes, we can plug these assumptions into the model and assess how it may change the SERV "fair value". Whereas the half-life of PPP has commonly been estimated as being three to five years, the half-life of the SERV model is approximately six months.[7]

Utilizing the same general methodological framework, we have also developed a short-term Tactical Exchange Rate Valuation (TERV) model, which uses high-frequency variables related to national financial markets, terms-of-trade, and global factors to help determine a short-term "fair value", with a half-life of approximately a week or two. While the TERV is not intended to provide insight into medium- and long-term FX valuations, we actively use this model to complement the medium-term analysis of the SERV and identify tactical opportunities.

[4] See Turner and Van't dack (1993), and Klau and Fung (2006) for a more detailed methodological discussion about the compilation and interpretation of the BIS effective exchange rate indices.

[5] See Driver and Westaway (2005) for a thorough review of the varieties of equilibrium exchange rate models.

[6] VIX is the ticker for the Chicago Board Options Exchange (CBOE) Volatility Index, which measures the implied 30-day implied volatility on S&P 500 options. VIX is often used as proxy for overall global forward looking expectations of financial market volatility.

[7] In this context, half-life is the time required for a currency misalignment to fall to half its initial value.

EMFX: After the Sell-Off, Are They Finally Attractive?

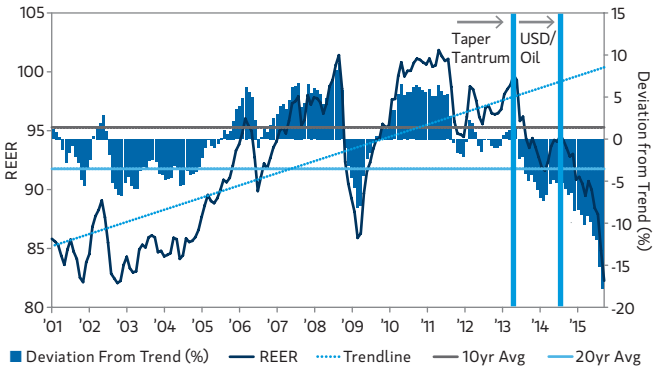
EMFX REER ADJUSTMENT

EMFX has adjusted significantly since the Taper Tantrum on a REER basis. We created an EMFX aggregate based on a EM local market bond index, the JPMorgan Government Bond Index – Emerging Markets Global Diversified Index (GBI-EMGD), weighting. This exercise yielded some interesting insights about EMFX. Following a significant correction during the global financial crisis, the beginning of unconventional monetary policy in developed markets sent money surging into EM assets and contributed to a rapid recovery in the EMFX REER. It reached levels significantly above both long-term averages and above trend, signaling that EMFX had become rich. REERs remained elevated above long-term averages until the Taper Tantrum beginning in May of 2013. Over the following two years, EMFX has adjusted significantly, falling below long-term averages, and significantly lower than its long-term trend.

We can disaggregate this adjustment into two separate episodes that are shown in *Display 1*. The first episode occurred during the Taper Tantrum and was driven by current account deficit countries. Where unconventional monetary policy had been a key factor driving money into assets of current account deficit countries and driving up REERs, the expectation of the winding down of these policies following Ben Bernanke's May 2013 speech drove a significant sell off in the assets of these economies, and a subsequent sharp REER correction. The second episode was driven by energy exporters following the fall in oil prices and the beginning of the USD rally in the summer of 2014.

Display 1: **EMFX REER has adjusted significantly since Taper Tantrum**

EMFX

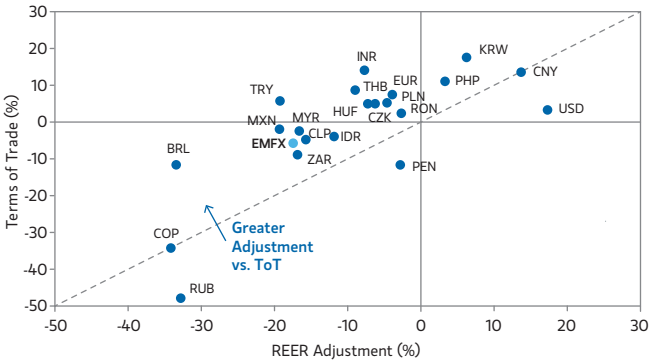


Past performance is no guarantee of future results. Source: Bloomberg, BIS, JPMorgan and MSIM. Data as of September 30, 2015.

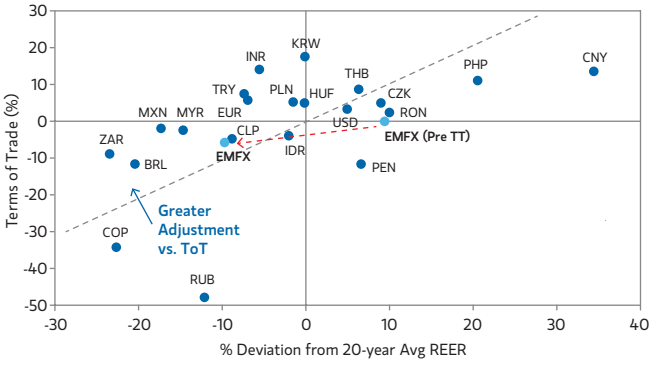
It is worth emphasizing that this REER adjustment means that EM currencies have adjusted significantly, not just against the US dollar, but against their trading partners as well. Furthermore, given the dramatic changes in commodity prices, we tested this REER adjustment against changes in an economy's terms of trade. We found out that for the majority of EM currencies, the REER adjustment was greater than change in the terms of trade, indicating that the adjustments have not simply been a reflection of changes in commodity prices. As an aggregate, EMFX has adjusted 17.5 percent, while the terms of trade have only fallen by 5.7 percent (see *Display 2*).

Display 2: **EMFX REER adjustment versus terms of trade**

Adjustment of REER vs. ToT since the Taper Tantrum



Deviation from 20-year Avg REER vs. ToT change since the Taper Tantrum



Past performance is no guarantee of future results. Source: Bloomberg, BIS, Citibank, JPMorgan, and MSIM. Data as of September 30, 2015.

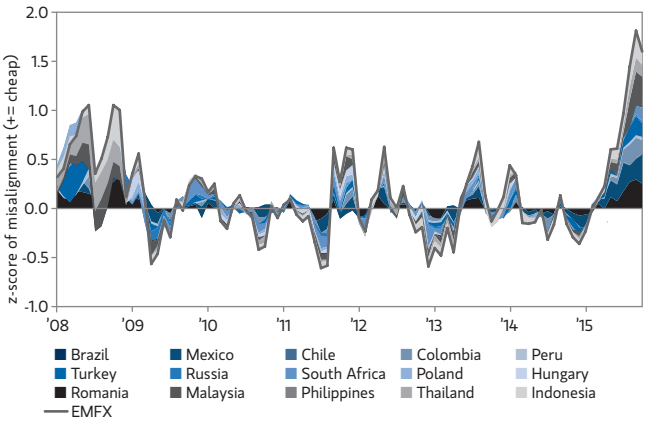
EMFX ADJUSTMENT THROUGH THE LENS OF THE SERV MODEL

The significant adjustment in EMFX can also be seen in our medium-term SERV model as illustrated in greater detail in *Display 3*. The SERV model allows us to look at the effect of expectations of country specific fundamentals and global factors on medium-term equilibrium exchange rates. While we normally use the model to look at specific currency valuations, an examination of the GBI-EMGD weighted average provides useful insights. When we simply use the Bloomberg consensus forecasts EMFX, as an aggregate, is now 1.6 standard deviations undervalued, with a weighted average R square of .91. When we adjust for our analysts'

more bearish macroeconomic expectations, EMFX still looks 1.2 standard deviations undervalued.[8] As illustrated in *Display 3*, this is a relatively strong signal compared to recent history that EMFX is becoming cheap, controlling for both changing macro fundamentals, and global factors.

Display 3: **Using consensus forecasts, SERV indicates EMFX is looking undervalued**

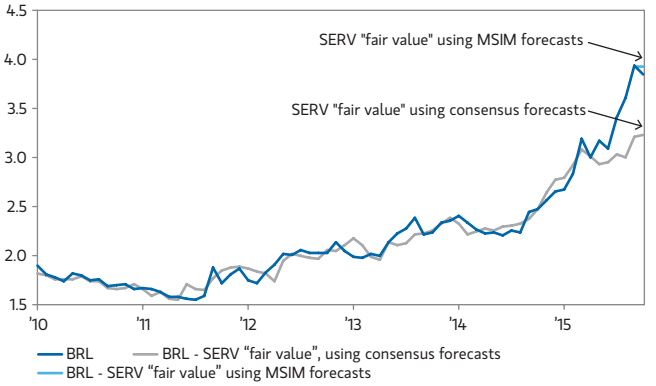
SERV Indicates EMFX is "cheap" by historical standards



Forecasts/estimates are based on current market conditions, subject to change, and may not necessarily come to pass. Source: Bloomberg, JPMorgan and MSIM. Data through October 30, 2015.

We use the initial model output as a starting point for analysis, but the SERV's structure allows us to put the model through a variety of scenarios. First, where possible, the model uses interpolated one-year-forward consensus forecasts of key macroeconomic variables such as fiscal balance, current account balance, and central bank rates provided by Bloomberg. However, if our team's analysts have strong convictions about a specific macro variable, they can plug in their own year-forward estimates. A recent example of this is the rapidly changing expectations about macroeconomic fundamentals in Brazil. The structure of the model allows us to plug in our own estimates as soon as new information becomes available, whereas the Bloomberg consensus forecasts may only reflect these new changes in expectations with a lag. For example, a 1 percent of GDP change in Brazil's year-forward fiscal deficit will impact the Brazilian real (BRL) SERV "fair value" by approximately 5 percent. Similarly, a 100 basis point (bp) change in the central bank policy rate will impact SERV "fair value" by approximately 5 percent. In total, when we plug in our analyst's year-forward macroeconomic forecasts, the Brazilian real's misalignment shrinks significantly from 19 percent undervalued to 2 percent overvalued, as shown in *Display 4*. Beyond expectations about macroeconomic data, we look at the elevated political risk in Brazil related to a high-level corruption scandal involving the ruling party, potential impeachment of the president, and the possible resignation of the finance minister as elements outside the model driving the currency. Importantly, while currently China and commodity prices are key drivers changing forward-looking expectations of macroeconomic fundamentals across EM, the actual macro fundamentals react more slowly and are unlikely to show the amount of contagion that financial variables would suggest. While the misalignment based on Bloomberg consensus estimates shows EM currencies as 1.6 standard deviations undervalued, our analyst-adjusted estimate is 1.2 standard deviations, which is still a relatively strong signal by historical standards, as illustrated in *Display 3*, but shows that we expect a worse set of macro data than consensus in a number of countries.

Display 4: **Brazilian real SERV "fair value" using consensus forecasts and analyst estimates**



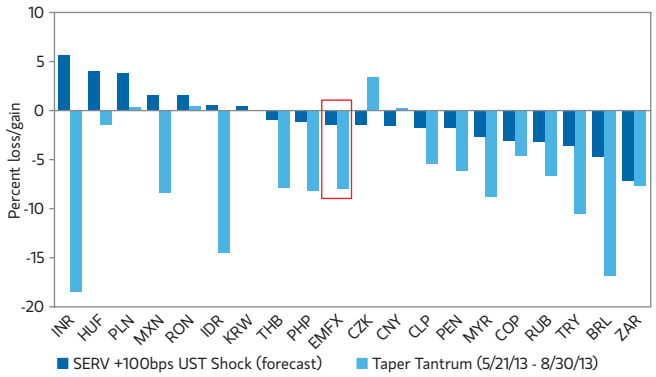
	MARKET FX	FV FX	Z-SCORE	% MISALIGN-MENT	R-SQUARE
Using consensus forecasts	3.86	3.24	2.54	19.04	0.95
Using MSIM forecasts	3.86	3.94	-0.31	-2.13	0.95

Forecasts/estimates are based on current market conditions, subject to change, and may not necessarily come to pass. Source: Bloomberg, JPMorgan and MSIM. Data through October 30, 2015.

We can use the SERV model to simulate shocks to global variables. In the context of monetary policy normalization in the U.S., for example, as shown in *Display 4*, we can use the SERV model to simulate what would likely happen now if we saw a 100 bp spike in U.S. 10-year Treasury yields, as happened during the Taper Tantrum. The change in the SERV "fair value" shows that a number of the most vulnerable currencies during the Taper Tantrum remained vulnerable, such as Turkish lira (TRY), Brazilian real, and South African rand (ZAR). Others should be less vulnerable, such as Indian rupee (INR), Mexican peso (MXN) and Indonesian rupiah (IDR). A GBI-EMGD weighted average of EMFX, however, helps illustrate that the asset class as a whole appears to be less vulnerable to such a shock.

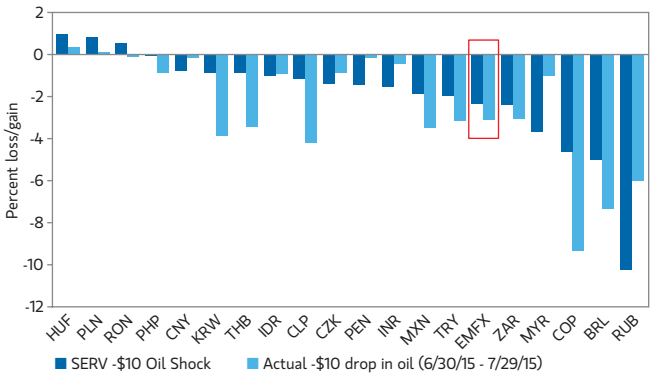
[8] Source: MSIM, Bloomberg, JPMorgan. Data as of October 30, 2015.

Display 5: **SERV model scenario: +100 BP U.S. 10-year Treasury yield shock vs. Taper Tantrum**



Forecasts/estimates are based on current market conditions, subject to change, and may not necessarily come to pass. Source: Bloomberg, JPMorgan and MSIM. Data through October 30, 2015.

Display 6: **SERV model scenario: -$10 shock to oil vs. period of actual -$10 drop**



Past performance is no guarantee of future results. Source: Bloomberg, JPMorgan and MSIM. Data through October 30, 2015.

We can also simulate the potential effect of both positive and negative oil shocks. Comparing the change to SERV "fair values" of a -$10 per barrel shock to July 2015, a month in which oil prices dropped by approximately $10, the model, as shown in *Display 5*, indicates that EMFX dropped by around 3 percent in both the model and in the period. While the fact that oil producers are particularly sensitive is not surprising, the model provides both a quantitative and qualitative indication of the relative sensitivity. The CEE[9] currencies of Hungarian forint (HUF), Polish zloty (PLN), and Romanian leu (RON) are the most likely to outperform with lower oil prices. One limitation of this model is that we are likely catching the effect of other un-modeled variables that are correlated with oil prices. The weakening of ZAR, for example, likely reflects the correlation of other commodities prices with oil, whereas the weakening of TRY may reflect the correlation of global risk appetite with falling oil prices.

It is important to note, however, that the significant adjustment in EMFX since the Taper Tantrum suggests that starting valuations are already at "cheap" levels. On a z-score basis,[10] using our more bearish macro forecasts, EMFX is 1.2 standard deviations cheap to SERV "fair value", and with the U.S. Treasury shock, it would still remain 1.0 standard deviation cheap.[11] Hence, the moves, even if less than during the Taper Tantrum, would likely be even less in actuality given the already lower valuations. As we have written about elsewhere, we believe that a "Taper Tantrum 2" is unlikely not only because of lower valuations, but because of better positioning, and the fact that Fed lift-off is not a signal of concerted monetary tightening elsewhere.[12]

Likely outperformers and underperformers in EMFX

EM currencies as an aggregate are undervalued relative to its historical trend, but not always when compared to fundamentals and terms of trade. Our process for assessing possible outperformers and underperformers combines the long-term and medium-term valuations described above, as well as our team analysts' knowledge of specific country nuances that may affect currency valuation.

We begin by creating a chart to visualize the synthesis of our long-term and medium-term analysis. On the horizontal axis in *Display 7*, we created a measure of long-term attractiveness by looking at the REER deviation from long-run averages adjusted by the terms of trade. We did this by taking the change in the terms of trade since the Taper Tantrum, and subtracting the currency's deviation from its 20 year

[9] Central and Eastern European (CEE) countries is an OECD term for the group of countries comprising Albania, Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Romania, the Slovak Republic, Slovenia, and the three Baltic States: Estonia, Latvia and Lithuania.

[10] A z-score is a statistical measurement of a score's relationship to the mean in a group of scores. A z-score of 0 means the score is the same as the mean. A z-score can also be positive or negative, indicating whether it is above or below the mean and by how many standard deviations.

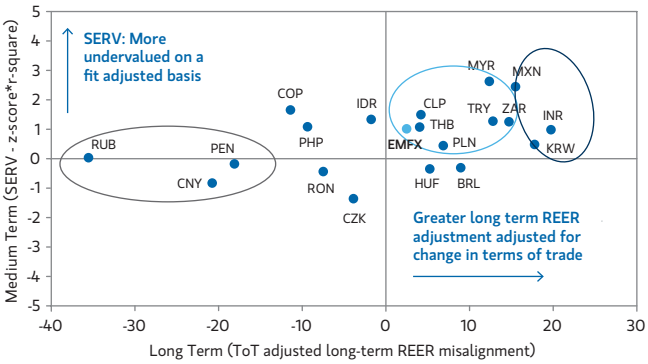
[11] Source: MSIM, Bloomberg, JPMorgan. Data as of October 30, 2015.

[12] See *Market Pulse*: "Will There be a Taper Tantrum 2 For Emerging Markets Fixed Income" (2015)

average REER. The Korean won (KRW) has had an 18 percent improvement in its terms of trade, while its REER is approximately equal to its 20-year average REER, so it has a highly positive score that puts it on the right side of the chart, indicating it is attractive on a long-term basis. On the other hand, the Peruvian nuevo sol (PEN) REER is 7 percent above its 20-year average, while its terms of trade have deteriorated by 12 percent, placing it on the left side of the chart, indicating it has not yet sufficiently adjusted on a long-term basis. In sum, the further to the right the currency falls on the chart, the more adjustment it has seen of its REER versus its terms of trade. On the vertical axis, we look at medium-term valuation using the SERV model. We use the fit-adjusted z-score (This is the z-score multiplied by r-square. For more specifics, please see the table in the Appendix.) On this fit-adjusted z-score basis, the MXN at 2.5, and the Malaysian ringgit (MYR) at 2.7 stand out as the most undervalued currencies, whereas the Czech koruna (CZK) is the most overvalued at -1.3. The higher up in the chart the currency is, the greater the undervaluation by our medium term measure.

Using this analysis, we identify potential outperformers, underperformers, and currencies to watch. For example, the Russian ruble's (RUB) REER has not yet sufficiently adjusted to its massive terms of trade shock, so it shows up on the far left of the chart. Given that the SERV model shows it as being only slightly cheap (near the middle on the Y axis), no compelling medium-term case can be made for the RUB.

Display 7: **Finding value in EMFX**



Forecasts/estimates are based on current market conditions, subject to change, and may not necessarily come to pass. Source: Bloomberg, JPMorgan and MSIM. Data through October 30, 2015. Latest BIS REER data available as of September 30, 2015.

Potential Outperformers

FLEXIBLE REFORMERS: MXN AND INR

MXN and INR have adjusted significantly on a terms of trade adjusted REER basis, as show in *Display 7*. Furthermore, while market participants' initial overenthusiasm has moderated, both Mexico and India continue to push through structural reforms. Though Mexico is an oil producer, the country also imports significant amounts of refined petroleum products, meaning that its terms of trade are not significantly affected by the oil price drop.[13] Meanwhile, it has seen a significant REER depreciation, which makes its manufacturing exports more competitive. Furthermore, assuming that a Federal Reserve liftoff is associated with growing confidence in U.S. growth, Mexico's role as a manufacturing platform for the U.S. means that it will benefit directly from that growth. India has taken policy measures that have helped move it out of the most vulnerable EM economies. For instance, under the guidance of Reserve Bank of India Governor Rajan, monetary policy has gained credibility. Also, as an energy importer, its terms trade have improved significantly. The government of Prime Minister Modi has been implementing structural reforms that increase the flexibility and potential growth of the economy. For these reasons, we believe that both MXN and INR have room to appreciate.

TERMS OF TRADE WINNER? KRW

The KRW has seen the largest positive terms of trade shock of any currency in our sample, as seen in *Display 2*. KRW's REER is in line with its long-term average, meaning that on a terms trade-adjusted basis, it stands out from its East Asian peers. While Korea will face the same headwinds as other East Asian economies in terms of slowing Chinese growth, and the slowing growth in global trade, we believe it will outperform relative to its peers given its significant long-term adjustment. We believe that KRW may appreciate in the medium term, if left to its own devices, i.e., without significant intervention or further weakness in the Chinese yuan (CNY) and Japanese yen (JPY).

Underperformers

PEGGERS AND INTERVENERS: CNY AND PEN

Currency policies in both China and Peru have led to CNY and PEN becoming significantly expensive on a long-term basis. While, as a commodity importer, China has benefited from the fall in commodity prices,[14] its effective peg to the USD in a period of dollar strength has led to a dramatic appreciation in its REER. While the adverse global reaction to the PBOC's change in CNY fixing mechanism in August, along with a fear of capital outflows, will likely mean that the China will continue to keep the CNY stable in the short to medium term, in the long term, the CNY will need to

[13] While this means that the oil price is roughly neutral for the terms of trade, oil revenues are important for the federal budget.

[14] In our view, a significant part of the weakness in global commodity prices can be explained by the disappointment in the Chinese growth outlook.

correct this overvaluation. Meanwhile, Peru's elevated level dollarization in the financial system has prompted its central bank to intervene heavily to smooth the path of the PEN to mitigate the balance sheet effects of a weaker currency. As the price of Peru's main exports have been hit hard, this has meant that the currency has not been able to adjust sufficiently, like it has for neighboring Chile, where the peso (CLP) has been allowed to adjust significantly faster. Both PEN and CNY also look overvalued on a medium-term basis.

OIL, ADJUSTMENT, AND POLITICS: RUB

While Russia's REER has adjusted dramatically, it is still smaller than the shock to its terms of trade, meaning that further adjustment is needed. The Central Bank of Russia's continued easing should also put downward pressure on the ruble. Finally, aside from oil prices, the RUB is vulnerable to significant political risk related to Putin's potential erratic behavior in the international sphere.

Currencies to watch: MYR, THB, ZAR, TRY, CLP and PLN

Each of these currencies has specific idiosyncratic risks, however as a whole, they have begun screening as cheap both on a medium- and long-term basis. While the long-term adjustment is less than our "winners" and the policy narratives are less positive, we believe that there is the potential for value in some of these currencies. Analyst knowledge of country-specific political, economic, and financial risks act as a complement to our valuation tools in assessing where there is real value. Our short-term valuation tools can also help identify opportune tactical entry points in these currencies. We use the fit-adjusted z-score of our short-term valuation models as a key signal to help us identify when a currency may have under- or over-shot its key short-term drivers.

Conclusion

In this paper we have attempted to answer the question of whether, after the sell-off since the start of the 2013 Taper Tantrum, EM currencies are finally attractive. We conclude that EM currencies have started to become compellingly cheap on both a long-term and medium-term basis. Long-term, EMFX REERs have adjusted significantly, and are now well below long-term averages, but in some cases this depreciation is not yet enough to catch up with even more significant terms of trade deterioration. Hence, it is very important to separate potential winners from losers. Winners, in our opinion, are currencies that have seen significant adjustment to their REERs on a terms-of-trade adjusted basis, and whose SERV "fair value" is sufficiently attractive on a medium term basis. We identify MXN and INR as currencies that we think will appreciate in the medium and long term. Conversely, we find the losers to be currencies where monetary authorities have not let the currency properly adjust, such as CNY and PEN, or currencies that have not adjusted sufficiently to compensate for a significant deterioration of terms of trade, like the RUB.

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Teal is a member of the Emerging Markets Debt team. He joined Morgan Stanley in 2012 and has six of industry experience. Prior to this role, Teal was an intern at Morgan Stanley, working on country risk, and at the U.S. Department of the Treasury, in their Office of International Banking and Securities Markets. Previously, he was a paralegal at Cleary Gottlieb Steen & Hamilton LLP. Teal received a B.A. in political economy and Latin American studies from Hampshire College and a Master of International Affairs from Columbia University.

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Appendix

SERV Fair Values

	SPOT	SERV FAIR VALUE	Z SCORE	MISALIGNMENT (%)	R SQUARE	FIT ADJUSTED Z-SCORE	FIT ADJUSTED MISALIGNMENT (%)
MYR	4.30	3.79	2.98	13.38	0.89	2.65	11.90
MXN	16.50	15.20	2.82	8.57	0.87	2.46	7.47
COP	2896.60	2634.98	1.86	9.93	0.90	1.68	8.98
CLP	691.41	624.99	1.64	10.63	0.92	1.51	9.76
IDR	13684.00	12858.74	1.41	6.42	0.95	1.34	6.13
THB	35.62	32.94	1.34	8.16	0.76	1.02	6.22
TRY	2.92	2.62	1.34	11.39	0.96	1.29	10.96
ZAR	13.82	12.94	1.32	6.81	0.96	1.27	6.55
PHP	46.85	44.39	1.31	5.53	0.83	1.09	4.61
INR	65.27	60.47	1.24	7.93	0.80	0.99	6.35
EMFX			1.19	5.95	0.91	1.08	5.44
KRW	1140.54	1105.95	0.61	3.13	0.80	0.49	2.51
PLN	3.86	3.72	0.48	3.70	0.92	0.44	3.40
RUB	63.95	63.39	0.07	0.90	0.92	0.06	0.82
PEN	3.29	3.30	-0.18	-0.53	0.87	-0.15	-0.46
BRL	3.86	3.94	-0.31	-2.13	0.95	-0.30	-2.02
HUF	282.16	286.68	-0.37	-1.58	0.94	-0.35	-1.48
RON	4.03	4.12	-0.44	-2.11	0.98	-0.43	-2.06
CNY	6.32	6.54	-1.19	-3.36	0.68	-0.81	-2.29
CZK	24.62	25.56	-1.42	-3.68	0.95	-1.34	-3.48

Source: MSIM, Bloomberg, JPMorgan. Data as of October 30, 2015.

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