4TH QUARTER ▪ 2019

INVESTMENT PUBLICATIONS HIGHLIGHTS

Fourth quarter's edition summarizes articles on FX markets:

- the first two articles take stock of the current and future state of currency manipulation and considers how the US/China trade dispute and/or a potential recession could influence currency policy;
- the third examines whether the currency carry trade is still a viable investment strategy given that it has generated weaker returns since the 2008 financial crisis;
- the fourth confirms that real exchange rates contain useful information about future currency excess returns but argues that controlling for certain macroeconomic variables improves their predictive ability; and
- the last article shows that investors can improve their currency hedging decisions by monitoring a broad set of variables including carry, valuations, and economic fundamentals that drive expected currency returns.

TRADE AND INVESTMENT POLICY WATCH: CURRENCY MANIPULATION CONTINUES TO DECLINE

Christopher G. Collins and Joseph E. Gagnon, *Peterson Institute for International Economics*, June 6, 2019: 1–6.

TOP OF MIND: CURRENCY WARS — INTERVIEW WITH JOSEPH GAGNON

David Groman and Allison Nathan, *Goldman Sachs Global Macro Research*, issue 82, September 12, 2019: 4–5.

Currency manipulation has ebbed and flowed throughout history but has recently receded despite rising trade tensions between the United States and China. In an interview with economist Joseph Gagnon, Goldman Sachs' Allison Nathan gets answers regarding the current and future state of currency manipulation and how the recent trade dispute between the United States and China could influence currency policy. Gagnon concludes that the most likely cause of a resurgence in currency manipulation is another recession. In such an event, he suggests that the United States respond by taking not trade tension but a more proactive approach to managing the US dollar.

Currency manipulation is the practice of countries acting to weaken the value of their currency to affect their trade balance. According to the criteria for manipulation put forth by Bergsten and Gagnon (2017) of the Peterson Institute for International Economics (PIIE), in 2018, currency manipulation fell to its lowest levels since 2001 (the only manipulators were Macao, Norway, and Singapore). This is in marked contrast to the peak years of currency manipulation from 2003 to 2013. During this decade of currency manipulation, an unprecedented number of countries led by China

purchased massive amounts of official foreign currency assets (sometimes greater than $1 trillion per year) to devalue their currencies and boost their countries' competitiveness. The resulting global imbalances in the form of trade surpluses in these countries helped strengthen the US dollar and weighed on US exports. While China was the largest currency manipulator during this time, China has reversed its practice of purchasing massive amounts of foreign assets since 2014 and today remains off Bergsten and Gagnon's list of manipulators.

The US Treasury recently designated China a currency manipulator even though China meets neither Bergsten and Gagnon's criteria nor their own criteria for manipulation. Gagnon is quick to note that the designation is merely symbolic, but he does acknowledge the increased potential for the United States to use currency manipulation as a policy tool as an extension of the US-China trade war. Gagnon outlines two strategies that the United States could adopt to initiate a currency war: direct foreign exchange intervention or a tax on foreign investors. Direct intervention would involve the US buying a foreign currency, such as the yuan, and investing it in Chinese government bonds. This strategy would be a challenge to sell politically since it may seem odd that the United States is fighting a "war" by lending money to China. A tax on foreign investors is more likely to gain public support if presented as a tool of "war," much like a tariff. However, a tax on foreign investors would likely face considerable pushback from Wall Street and its cost to the American consumer remains unknown, which decreases the likelihood of it getting adopted anytime soon.

Gagnon does not believe that the US-China trade war is likely to lead to a resurgence in currency manipulation, but it could quickly become the policy tool of choice for some countries during the next recession given monetary policy's limited effectiveness and the lack of political will for expansionary fiscal policy. Gagnon suggests that the United States take a more proactive approach to managing the US dollar by focusing on narrowing the trade balance to counteract any increase in manipulation. However, the United States' unsustainable fiscal position may impede any attempt to tame the US dollar. Thus, Gagnon believes that any currency management strategy must occur alongside an improvement in the US fiscal position.

CARRY ON

Megan Czasonis, Baykan Pamir, and David Turkington, *The Journal of Alternative Investments*, vol. 22, issue 2 (Fall 2019): 100–111.

Following the 2008 global financial crisis (GFC), basic currency carry trading strategies have not performed as well as they had prior to the GFC. In this article, the authors identify two fundamental indicators—valuations and investor crowding—that help explain carry trade performance. They discover that since the GFC only high-volatility currency pairs have exhibited strong fundamentals and continued to generate solid returns. Therefore, carry trades can still be profitable if they adequately compensate investors for the inherent risk associated with the currency carry factor.

Historically, the currency carry trade—borrowing in countries with low interest rates and investing in countries with high interest rates—has been a profitable investment strategy on average but has also suffered from occasional large losses. This strategy is

successful if the currency in the investing country does not depreciate by more than the interest rate differential in the borrowing country, which has typically been the case. Even though investors have observed and exploited this phenomenon, carry profits persisted, at least until the GFC. The carry trade has recently had its worst bout of performance since 1984, prompting the authors to explore the underlying sources of carry profits and assess whether it is still a viable trading strategy.

The authors analyze the spot exchange rates, forward rates, and implied interest rate differentials for each of the 45 currency pairs within a G10 currency universe for the period from 1984 to 2017. They build carry portfolios by taking long positions in the 27 pairs with the largest interest rate differentials. Interest rate differentials have compressed since the GFC, which, all else equal, should lead to diminished opportunities for carry profits. Yet, the authors find that interest rate differentials alone cannot explain the recent poor carry performance. The behavior of spot exchange rates has also changed. Spot returns were often positive prior to 2008. More recently, they have mostly been negative, suggesting that spot exchange rates have tended to depreciate by more than what forward markets expected since the GFC. The authors focus on the drivers of spot exchange rates including valuations and investor crowding to see if they can help explain the carry trade's recent underperformance.

To accomplish this task, they construct a relative valuation of carry, which is simply the weighted-average deviation of the actual spot exchange rate from the exchange rate implied by relative prices based on purchasing power parity for all the currency pairs in the carry portfolio. They find that an undervalued carry portfolio tends to lead to strong carry performance. Although there were periods when an overvalued carry portfolio generated strong returns, these periods were typically short-lived. The authors show that these periods are the result of investor crowding as speculative investors chase performance and increase their allocations after long periods of stable and attractive returns for the carry trade. As demand increases, the carry trade becomes overvalued and eventually crashes. The authors find that the carry portfolio has not consistently exhibited strong fundamentals (positive yield and attractive valuations) or investor crowding since the GFC, which could explain the strategy's poor performance over this period.

Given these developments, the authors consider whether the carry trade is still a viable investment strategy if it no longer exhibits the characteristics that made it profitable. By segmenting the carry portfolio into high- and low-volatility currency pairs, they show that the carry trade can be profitable if the currency pairs adequately compensate investors for currency risk factors. The high-volatility carry portfolio has higher interest rate differentials, is more frequently undervalued, and exhibits more overcrowding than the low-volatility carry portfolio. Most importantly, the high-volatility carry portfolio continued to perform well following the 2008 financial crisis, whereas the low-volatility carry portfolio did not. This outcome suggests that the low-volatility carry portfolio may have temporarily benefited from favorable fundamentals prior to the GFC, but this may no longer be the case today. If investors want to profit from the carry trade across all environments, then they should embrace the inherent risk of the carry trade.

CURRENCY VALUE

Robert C. Lukas Menkhoff et al., *Review of Financial Studies*, vol 30, issue 2 (Feburary 2017): 416–441.

The authors study the extent to which currency valuation metrics, such as the real exchange rate, provide information about future currency excess returns. They find that while real exchange rates are a statistically significant indicator of future currency excess returns, controlling for certain macroeconomic variables can enhance their predictive ability. Furthermore, macro–adjusted currency valuations are largely independent of other well-known currency factors, such as carry and momentum, indicating that the macro–adjusted value factor captures a unique aspect of future currency excess returns.

Measures of currency value are commonly used in exchange rate models, but their relationship with future currency excess returns is still not well understood. The authors show that value measures computed from real exchange rates have a statistically significant relationship with future currency excess returns. That is, currencies that appear cheap in real terms versus another currency tend to have higher excess returns going forward than currencies that appear expensive in real terms. They find that an investment strategy based on the currency value factor produces a sharpe ratio of 0.5. This outcome confirms the results of prior studies, but the authors look to build upon the existing literature by taking a closer look at the drivers of the present value of real exchange rates: expected excess returns, expected real interest rate differentials, and long-run expected real exchange rates.

Certain macroeconomic fundamentals—productivity, export quality, net foreign assets, and output gaps—have a strong relationship with real interest rates and/or long-run real exchange rates. Therefore, the authors hypothesize that they can enhance the predictive power between the currency value factor and future currency excess returns by adjusting real exchange rates for these macroeconomic fundamentals. They find that an investment strategy based on a macro–adjusted currency value factor is more profitable than a strategy that relies on a basic currency value factor—the Sharpe ratio increases from 0.5 to 0.8–0.9, depending on the specific method employed.

Given these findings, the authors test whether the macro–adjusted currency value factor relates to other common currency factors, such as carry and momentum, to determine if the results are truly driven by the value factor. They regress the returns from macro–adjusted currency value investment strategy versus the other factor returns and find that the macro–adjusted value factor delivered significant value-added returns across all model specifications studied. Thus, the authors conclude that the currency value factor is largely independent of other factors and captures a unique aspect of future currency excess returns.

BEYOND CURRENCY HEDGING

Josh Davis, Helen Guo, Aaditya Thakur, *PIMCO, The Journal of Alternative Investments*, vol 22, issue 2 (Fall 2019): 100–111.

Institutional investors employ a variety of currency hedging strategies to reduce foreign currency exposure in their portfolios. The authors contend that simple hedging strategies ignore the potential differences in the risk/return implications of different currencies. Therefore, it is more efficient to use a flexible strategy that determines hedging ratios on a currency-by-currency basis. They find that investors can improve their currency-hedging decisions by monitoring a broad set of variables including carry, valuations, and economic fundamentals that drive expected currency returns.

Many institutional investors use static hedging rules (e.g., a 50% uniform hedge ratio across all currencies, or fully hedging less volatile asset classes, such as fixed income) to determine the level of currency exposure in their portfolios. But, these simple strategies ignore differences in the characteristics of different currencies that could lead to suboptimal hedging ratios. Consider that both an AUD-based investor and JPY-based investor could have the same assets in their portfolios, but their optimal hedging ratios may differ based on the inter-relationship between the base currency, foreign currency, and the assets in the portfolio. The Australian dollar is highly correlated with global equities but uncorrelated with the US dollar, while the Japanese yen is not as correlated with global equities but has a positive correlation with the US dollar. Therefore, the optimal USD exposure may differ between an AUD-based investor and JPY-based investor, because more USD exposure may provide additional diversification benefits (i.e., it reduces the overall volatility of the portfolio) for an AUD-based investor versus a JPY-based investor.

Understanding differences in the characteristics of different currencies is key to developing a dynamic currency hedging strategy, but the authors posit that one can improve currency hedging decisions by developing a better understanding of expected currency returns. They develop a framework for understanding expected currency returns using not only the well-known currency carry factor (i.e., positive real interest rate differentials), but also measures of currency value (i.e., real exchange rates) and macroeconomic fundamentals (e.g., productivity differentials, terms of trade, quality of a country's exports, output gaps, etc.). The authors use their model of expected currency return estimates to simulate the impact currency exposure has on the risk/return profile of multi-asset investors with varying base currencies.

The authors consider four base currencies (Australian dollar, US dollar, Japanese yen, and the euro) and construct a global 60/40 portfolio with 30% global equities, 30% domestic equities, 20% global bonds, and 20% domestic bonds. Their portfolio has exposure to seven major currencies: US dollar, euro, Japanese yen, pound sterling, Canadian dollar, Australian dollar, and Swiss franc. They develop an optimal currency exposure strategy that adjusts the portfolio's exposure to each currency monthly, while never exceeding the "risk" of a simple currency-hedging strategy. They determine the optimal currency exposure each month by maximizing the expected ex ante currency return estimates for any given level of risk. To constrain the amount

of risk the strategy adds to the portfolio, the authors control for portfolio volatility, currency risk, and equity beta risk. They compare the results of their strategy against a simple currency-hedging strategy typical to an investor in each base currency.

The authors find that a dynamic hedging strategy—based on a model that incorporates carry, value, and macroeconomic fundamentals to estimate expected currency returns—consistently outperforms a simple hedging strategy in both absolute and risk-adjusted terms across all four base currencies. However, a dynamic hedging strategy that only considers carry to estimate expected currency returns underperforms a simple hedging strategy for USD- and JPY-based investors. These results highlight the importance of including valuations and macroeconomic fundamentals in ex ante estimates of expected currency returns and adopting a more holistic approach to currency-hedging decisions. ■