

Strategies for Currency Insights

By Russell Thompson

A great deal of intelligence can be invested in ignorance when the need for illusion is deep.

—Saul Bellow

Currency is in many ways an overlooked asset class. A fixed income or equity investor investing in foreign assets is taking on a significant degree of incidental risk.¹ Often no consideration is paid to the relationship between the asset being purchased and the currency in which it is denominated.

Plenty of investors around the world do not view currency as an asset class and are skeptical of the ability of specialist managers to make long-term alpha in the currency markets. The efficient market hypothesis (EMT), proposed by Eugene Fama (1970, 412), contends that markets are informationally efficient and that long-term investment cannot outperform the market benchmark. EMT later was extended to currency markets in research by Giddy and Dufey (1975) with subsequent scholarship by Fieleke (1975) and Frenkel and Levich (1975). This suggests that long-term investment in currencies in the developed world effectively amounts to a nonperforming investment (Soenen 1979, 331). The long-term expected return of major developed-world currencies is therefore zero. Why bother to manage the risks in this environment? During the good times a nation's currency will become stronger relative to other currencies. As the cycle turns, these benefits will be lost and the returns will become negative.

Despite the large investment of intellectual capital in this phenomenon, however, the reality is quite different. Even if you believe in an efficient cur-

rency market, investors still will tend to act out of regret after large currency moves have taken place, which will exacerbate the moves in currencies and the underlying assets in a portfolio. Given this excess volatility, there is a strong need to manage the underlying currency exposure. Therefore the major element of portable alpha in foreign exchange comes from market timing, which is exploited in the methods outlined in this article. (This, however, leaves aside the potentially inefficient nature of foreign-exchange markets, which is demonstrated by the forward rate premium puzzle discussed below.)

Investors that accept the need to manage underlying currency exposures in foreign asset portfolios have tried to manage these risks by investing in passive or active overlay strategies or by mandating pure alpha strategies. In all cases the rationale is the hope that currency returns can help boost overall alpha, or at the very least reduce volatility and boost information ratios by diversifying the portfolio in a noncorrelated way.²

Based on my experience as a long-term currency manager, I can categorically say that any investor should consider currency as an asset class and that the risks involved in foreign asset purchases are real and imminent and should be hedged or managed. For fixed-income investors the currency risk actually overwhelms the credit and interest-rate risk, averaging 75 percent of the total since 1997. For equity investors, currency risk accounts for between 10 percent and 25 percent of total risk since 1997 (McCusker 2011).³ Plenty of academic studies support the fact that currency markets are actually inefficient. Cornell and Dietrich (1978),

for example, examined the efficiency of exchange rates in the floating exchange rate system. This was one of the earliest of many such examinations of the efficiency of foreign exchange markets, although they cite Poole (1967) who argued that trading system profits could be earned.

The Case for Currency

Horses for courses

—A. E. T. Watson

Like practitioners in all complex asset classes, currency practitioners employ different strategies to extract alpha. This article provides an overview of these various methodologies and the benefits and issues associated with each of them. The reality, however, is that different strategies often work in different market environments, and the best practitioners have the ability to combine them and allocate risk proactively to the strategies with higher probability of success in the prevailing market environment.

Many currency market participants are transacting nonrationally and are nonprofit maximizers.

Central Bank intervention, trade flows, foreign direct investment (FDI), option and overlay managers, and retail foreign-exchange flows are just a few examples. Psychology influences markets, and so does liquidity. In its extreme form this allows discretionary risk takers to trade against these market displacements profitably. I call this the market information strategy.

The currency markets exhibit forward rate bias. The reward or cost of holding currencies is dictated by the interest rate for each currency. The returns accrued form the basis of a

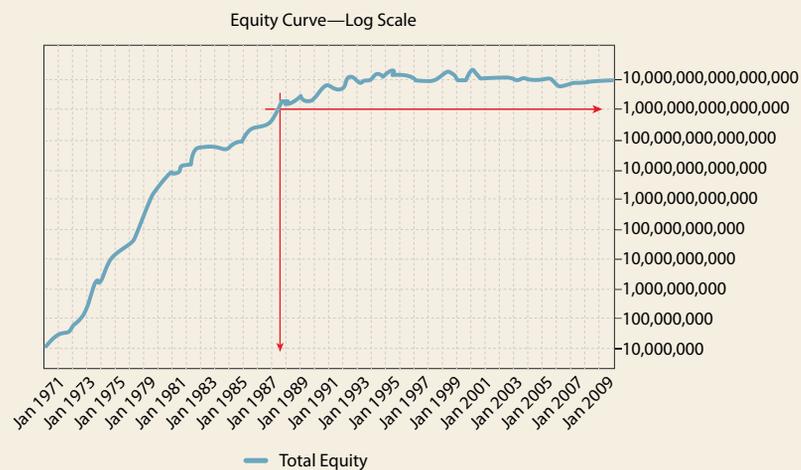
portfolio holding high-yielding currencies and hedging in low-yield currencies. These returns should in theory be compensated for by the decline in value of the higher-yielding currencies relative to the low-yielders. In practice the opposite is often true, and this is the so-called “carry trade.”

Sustainable information ratios can be produced by predicting the future direction of asset prices based solely on historical data. This is a complex area, but it generally involves quantitative modeling of multiple variables in the currency markets to predict movements based on either trend-following indicators (where there is a probability that today’s price movement is likely to be the same direction as yesterday’s), or mean-reverting indicators (where price movements tend to gravitate toward some form of equilibrium). These mathematical models are complex and must deal with issues such as sampling, curve fitting, and being able to adapt over time.

Trading in emerging markets can effectively utilize any of the above strategies, but the strategies are different enough to be considered separately. Strategies have been built around the expectation that emerging market currencies will outperform other developed currencies based on the superior growth characteristics in these markets. This can be exploited via fundamental valuation techniques that try to predict which currencies are likely to benefit from flows such as foreign direct investment and which therefore are more (or less) likely to appreciate or depreciate.

I shall look at these four strategies, each of which is supported by empirical evidence. This does not mean that a particular strategy is relevant or appropriate all of the time. Perhaps the most well-known “trend follower,” Richard Dennis saw his Turtles produce significant returns for five years, yet the original turtle system would have been flat for the next 20 (see figure 1).¹

FIGURE 1: EQUITY CURVE FOR UNOPTIMIZED TURTLE SYSTEM 1



Note: Calculated using the original turtle trading system, which has been well documented. It is important to realize that it is not optimized, and therefore may not reflect the true performance of this system over time. Many systematic systems are constantly optimized in various market conditions, and therefore performance can vary over time. <http://www.tradingblox.com/forum/viewtopic.php?p=35018#35018>.

Different approaches work better in different market environments because markets change and evolve. The trick is identifying which strategy has the greatest chance of extracting alpha given the prevailing market environment. Get on the right horse for your course, but more importantly, utilize a combination of all approaches over time.

Strategies for Currency Insights Systematic/Quantitative Systems

The genius of investing is recognizing the direction of a trend—not catching highs and lows.

—John Bogle

Systematic currency trading is complex and thousands of trading models have been built over the years to try to exploit market inefficiencies. These strategies look for predictive indicators for trend following and mean reversion. They use a series of historical factors and apply quantitative methods to predict future price movements. Simple trend-following systems have worked well since 1963, producing 11-percent average excess return, 14-percent volatility, and a Sharpe ratio of 0.8 (Ilmanen 2011, 297). The concept has many

advantages over the opposite methodology—discretionary or event-driven trading—for the following reasons.

- It is dispassionate. Typically trend-following systems will stay on a trend much longer than a discretionary system. They apply risk dispassionately and will never be second-guessed. In other words, they remove psychology from the trading decision.
- Many of these systems can be automated, which may (but does not always) increase efficiency (Kissell and Malamut 2005).
- It can look at multiple factors across multiple time periods in split seconds, allowing for more-informed decision making.
- It can be back tested. If the data are reliable and accurate this can be very valuable.
- It can adapt and self-optimize, e.g., neural networks or reinforcement learning (Cornuejols and Tutuncu 2006; Brabazon and O’Neill 2006).

Systematic/quantitative strategies need careful evaluation, however. The vast majority of real-world practitioners do not exhibit long-run Sharpe ratios

that are like the ones quoted. The data inputs must be clean and reliable, and fitting the model to the data often is problematic. In-sample and out-of-sample testing are a must, and transaction costs must be carefully evaluated. These are all fairly standard considerations and most people are aware of them. However, two other major issues are rarely considered:

1. Far too much effort is spent optimizing or over-optimizing these systems. A mechanism must be in place to tell the system the type of market environment it is operating in. Is the market trending or not? There is very little point trying to catch the start of the trend, and getting a hit rate of 58-percent winners to 42-percent losers is not much good if you can't recognize the direction of the trend and stay on it.
2. These systems often do not adequately address risk management. Placing stops in the market is just not good enough. Advances in risk management theory now allow risk management to be a source of active alpha. Too many systems do not take into account nonnormal distributions of return, tail risk, liquidity risk, or even credit risk. Statistics utilizing extreme value theory, conditional Value-at-Risk, omega functions, etc. are vital for dealing with asset classes and currency pairs that have significantly nonnormal distributions of return. Leverage is commonly quoted as a core risk management statistic to investors. Run as far and as fast as possible from any currency manager who utilizes leverage to manage underlying currency risk.

Currency Forward Rate Bias

In investing money the amount of interest you want should depend on whether you want to eat well or sleep well.

—Kenfield Morely

The currency forward rate bias strategy (FRB)—the carry trade—is probably

the best-known of all foreign-exchange strategies. The basic premise is that you invest in high-yielding currencies and hedge in low-yielding ones. Simplicity seems to work. Carry strategies between 1983 and 2009 yielded 6.1-percent annual excess return, 10.5-percent volatility, and a Sharpe ratio of 0.61, with a Sharpe ratio of 0.51 for 1953–1982 (Ilmanen 2011, 273). Contrary to the academic theory of uncovered interest parity,⁵ the forward rate bias does not often get removed by currency movements. In fact, often the opposite—the so-called forward premium puzzle⁶—occurs. In this case the macroeconomic conditions that are in place for a high-yielding currency actively encourage foreign investment, which leads to currency appreciation in the high-yielding currency relative to the low-yielding one. Many specialist currency managers have traded this system successfully for long periods of time, and the long-term information ratios of this type of strategy can confidently predict significant positive expected returns over the medium to long term.

Of course, there is a catch—and it's a big one. First, this strategy tends to be negatively correlated to global foreign-exchange volatility (Menkhoff et al. 2009). It can deliver losses at higher levels of global volatility, and therefore it is important to understand the volatility regime that you are operating in (Thompson 2008a). This is compounded by the fact that this type of strategy exhibits strong negative skew (i.e., lots of small positive returns and a few large to very large draw-downs). The return profile can be very disconcerting to an investor because when the flows that support the forward rate bias reverse, the hedges rise in value and the investments fall, creating a double whammy. Therefore exposure in forward rate bias strategies must be proactively monitored and managed and risk must be reduced in environments where the performance

of this strategy may be problematic.⁷

This must be combined with sophisticated tail-risk management techniques that can highlight rises in tail risk in the portfolio. The allocation of risk to this strategy must strike the delicate balance of producing return yet allowing an investor a sound night's sleep.

Emerging Markets and Value Investing

And the day came when the risk to remain tight in a bud was more painful than the risk it took to bloom.

—Anais Nin

Multiple strategies apply to emerging markets, because they can be included in systematic models, are often the foundation of forward rate bias models, and are actively traded by event-driven and proprietary trading desks the world over. I am an unashamed advocate of investing (and disinvesting) in emerging markets, and our firm has an allocation to emerging markets in every asset program that we run. However, in this context I am referring to value investing: looking at the fundamentals in a given country and trying to ascertain how these fundamentals may affect the future direction of a currency. Many investors understand this in terms of purchasing power parity (PPP) or the desired equilibrium exchange rate (DEER), but it is much more than that. The macroeconomic fundamentals should over time exert an influence on currency, and many currency strategies focus on this as a source of alpha. This leads us to the following points:

- This type of strategy tends to be longer-term in nature. It can fit into an overall currency strategy with other elements, but it would require commitment to follow on its own.
- The return profile can be similar to the forward rate bias strategy. It tends to work when global volatility is lower and investors are actively seeking risk. Therefore, as with FRB, risk management is very important. Often this



strategy is combined with the FRB model, with rates being merely an input into the overall model.

- Data can be problematic. Data generally need to be purchased from specialist providers such as Thomson Reuters DataStream and will require significant work and resources to isolate which input factors are actively and valuably predictive.

Nevertheless, considerable empirical evidence exists that demonstrates that these types of fundamental strategies are very valuable in predicting currency movements. Such strategies can be genuinely forward looking: A savvy investor can stand in front of significant investor inflows (or outflows—look at Thailand in 1997) if they can pick up and act on predictive leading indicators. Knowing when the flower is about to bloom can produce significant currency alpha benefits.

Market Information Trading

It seems to me that people have vast potential. Most people can do extraordinary things if they have the confidence or take the risks. Yet most people don't. They sit in front of the telly and treat life as if it goes on forever.

—Philip Adams

The strategies described above generally have one significant disadvantage: They do not deal well with event risk, credit risk, liquidity risk, and the like. There are changes to market and relationship structures that cannot be perceived by any type of model. In its simplest form, psychology can drive markets. Psychologically driven effects can be perceived in various indicators *ex ante*, but the exploitation of the instantaneous changes in these relationships can produce very powerful results. Trying to compensate for these exogenous factors in technical models can be counterproductive. This is market information. In the hands of experienced practitioners it can be very valuable.

BarclayHedge's Discretionary Traders Index has returned a compound annual return of 8.99 percent with a Sharpe ratio of 0.63.⁸ Discretionary trading can be even more powerful when combined with the other strategies, and thus it becomes a source of incremental alpha and—more importantly—risk mitigation. For example, a systematic trading model might be oblivious to the fact that liquidity is drying up in the South African rand market. The intervention of an experienced market professional can prevent the model from executing positions that may be hard to exit.

Market information professionals also can help reduce transaction costs, especially when trading in less-liquid currencies, by finding market participants that may trade inside the spreads because they have interests the opposite way.

These strategies however, have several disadvantages:

- It is very hard to back-test discretionary strategies. It is therefore difficult (but not impossible) to allocate risk to them and to integrate this type of strategy into volatility-targeting frameworks.
- Data are notoriously unreliable, especially when discretionary performance is combined with systematic performance and portfolio managers have some discretion around the implementation of systematic strategies.
- The psychology of trading can be difficult to manage. It is important to have a robust, systematic risk-taking framework surrounding the individuals that trade on market information.
- Results can be very inconsistent, depending on the market environment.

People are underrated in the execution and management of foreign-exchange strategies. Despite the downsides, a robust, disciplined risk-taking and compliance framework surrounding discretionary risk takers can add

significant incremental returns to those generated by other types of strategies.

Risk Management in Currency Strategies

Human beings, who are almost unique in having the ability to learn from the experience of others, are also remarkable for their apparent disinclination to do so.

—Douglas Adams

When models turn on, brains turn off.

—Till Schuermann

I have written about this topic before (Thompson 2008b). Let me summarize here by saying that it is vitally important that risk in all different types of currency strategies be managed competently.

This risk management should consider the points of Douglas Adams and of Till Schuermann, quoted above. When done well, such risk management can significantly improve risk-adjusted returns. In fact, risk management should 1) sit at the heart of the investment process and 2) be viewed as a provider of incremental alpha. It essentially needs to perform the following functions:

- Risk management needs to minimize losses. This is fundamental.
- It needs to provide concise, accurate, and timely information to models or practitioners, so they can act to minimize losses.
- Risk management process must be tailored for the product managed. It is pointless to manage currency risk through leverage limits or to manage fixed income risk without credit risk ladders.
- Risk management must be understandable but sophisticated. It should encompass tail risk, extreme value theory, and coping with nonnormal distributions of return (e.g., Strub and Udy 2010; Thompson 2008b). A risk management program that uses a two-sigma Value-at-Risk confidence level for a nonnormal distribution underestimates loss potential and is inappropriate for managing strategies such as FRB.⁹

“ Risk must be managed by people. Systems can place stop losses, produce risk reports, and show where and when limits are being tested or broken. ”

- Risk is not just about monetary risk. Liquidity limits, particularly in illiquid currency pairs, must be considered. So must credit risk, not just with liquidity providers but with prime brokers and other counterparties as well (Baker and Colehan 2010).
- Risk must be managed by people. Systems can place stop losses, produce risk reports, and show where and when limits are being tested or broken. It is possible to even automate trade stops, but management always must understand and act on the implications (Tett and Gangahar 2007).
- The implications of the systems' own trading must be considered. Often event-risks are underestimated because price feeds and data feeds affect the model and risk system outputs. An obvious example is Amaranth, where the size of the calendar gas spreads being conducted was influencing the dynamics of the market (Tett and Gangahar 2007). Long-Term Capital Management is another obvious example.

All the currency strategies considered in this article need competent risk management to succeed. It is perfectly possible for a strategy with more losing than winning trades to ultimately make money if the risk management is strong. Often the currency manager focuses on optimizing the win/loss ratio and does not pay enough attention to the underlying risk in the investment process.

Conclusion: Gaining Currency Insights

Investment professionals often ignore currency in investment decisions, when in fact a large proportion of the

underlying risk is driven by currency risk. This risk should be managed and appreciated. Aside from this consideration, currency often can be a better proactive choice than other asset classes such as equity and debt. In emerging markets, for example, there is little empirical evidence that suggests that investing in equities is a successful way to profit from a growing economy. In contrast when inflationary pressures build in emerging market economies, investing in fixed income securities and the consequent duration risk is probably inappropriate.

When investing in currencies there are many strategies to choose from, but it is important to be circumspect about the strategy used. Markets change, as do models. The most successful long-term way of trading the asset class called currency is to implement the various strategies outlined above, use disciplined ways of allocating risk among the strategies, and monitor and measure the overall risk taken.

Investing in currency is relatively straightforward. Sophisticated investors invest directly in currency managers who employ differentiated strategies via both traditional offshore and onshore fund structures, segregated managed accounts held with designated prime brokers, and third-party single-manager platforms offered by such institutions as Morgan Stanley Smith Barney, Innocap, and Alphamatrix. These managers will utilize some or all of the techniques outlined in this article to extract alpha. It is also possible to increase diversification across a number of managers by investing in foreign-exchange indexes where the underlying exposure is to a basket of managers rather than just one

manager. Examples of these types of products are the Gateway PGS FX Alpha Advantage Index offered by Parker Global Strategies/Morgan Stanley Smith Barney and Citibank's CitiFX Access investible indexes. Passive exposure to currencies and currency sectors is also possible through currency exchange-traded funds (ETFs) and currency exchange-traded notes (CETNs). A CETF holds one or more currencies, often leveraged, through foreign bank deposits and/or futures contracts; a management fee is deducted from the interest on those assets. A CETN is a non-interest debt instrument fixed to an underlying currency exchange rate that will be fully repaid upon maturity. However, a CETN involves exposure to the creditworthiness of the issuer as well as the underlying currency. Both retail and institutional investors can invest in CETFs and CETNs. CETFs and CETNs generally give simple exposure to the underlying currency or currency region/sector and the management is generally passive, so they do not benefit from many of the alpha generation techniques outlined in this article. 

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Endnotes

- 1 Investments made in foreign equities bonds and via direct investments often are looked at from the asset point of view, i.e., the currency risk is embedded in the asset.
- 2 The addition of unmanaged currency risk counterintuitively adds volatility to a portfolio with no underlying return benefits. For unhedged developed equity, currency