

ACTIVE CURRENCY MANAGEMENT: THE UNEXPLOITED OPPORTUNITY

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All over the world, investors are catching on to the benefits of global investing, yet few effectively exploit the opportunities related to currency exposure arising from cross-border portfolios. In most cases, currency exposure is treated as a necessary evil, an additional source of risk for which there is no compensation. Many investors seem to have concluded that the best they can do is either to neutralize foreign currency exposure through hedging or do nothing.

TODAY, A US CITIZEN WHO TAKES A QUICK jaunt to London must pack a great deal of fortitude to handle the jaw-dropping prices. Between 2004 and 2007, the price of a weekend trip has gone up 40% (*Display 1, left*). Memories of the good old days may be dredged up as menus are perused. Why has everything changed? Because the dollar has fallen versus the pound. Travelers feel the impact most immediately.

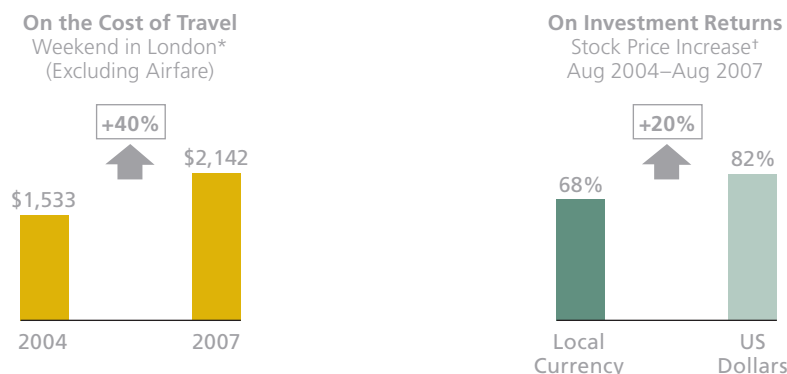
But in an increasingly global world, the effects of currency are unavoidable. Most US citizens view that as a negative, but the positive offset is that if you hold foreign assets in your investment portfolios, you receive a benefit from

the weakening dollar: increased investment returns. Over the same 2004–2007 period, returns for US investors were 20% more than for non-US investors (*Display 1, right*).

Of course, seeing the positives and negatives from a US point of view is looking at it from just one side of the fun-house mirror—if you switch to the other side, things look very different. For investors in other base currencies investing in the US, the falling dollar has meant smaller investment returns. So the distortion depends on where you stand—it either helps you or hurts you.

Display 1

In a global economy, currency movements can have a huge impact



*Two nights at Claridge's Hotel London, dinner for two at Restaurant Gordon Ramsay, Royal Hospital Road, and theater tickets

†Represented by the Morgan Stanley Capital International (MSCI) Index of Europe, Australasia, and the Far East (EAFE)

Source: MSCI, TripAdvisor, World Press, and AllianceBernstein

But we believe currency exposure can be managed to deliver benefits to global portfolios. In fact, our research suggests that a reliable risk premium is embedded in the currency market and can be systematically exploited to add value. In addition, this risk premium is particularly attractive because it is almost entirely uncorrelated to the risk premiums of stocks and bonds. Active currency returns are therefore an effective complement to multiple investment strategies. We'll explore where currency returns come from, detail our approach to active currency management, and suggest how active currency management can be used to engineer solutions to a broad range of investment challenges—from boosting returns without adding significantly to risk to reducing risk without sacrificing returns.

Currency Returns: The Sum of Two Parts

In most people's minds, currency returns are defined by changes in exchange rates. Assuming no change in underlying asset values, if a foreign currency rises in value against the home country currency over a defined period, the returns from a foreign equity or bond investment will exceed those in the local market by the amount that the foreign currency appreciates. That's because the foreign currency will buy more of the domestic currency when it is translated back into the home currency. Conversely, if a foreign currency falls in value against the home currency over the investment period, returns from the foreign investment will be less than those realized in the local asset market.

But returns from investing in currency are not based solely on exchange-rate changes. When you invest in a currency, you sell one currency in order to buy another. In doing so, you give up the interest rate on the currency that you sold and receive the interest rate on the currency that you bought.

Since interest rates differ across countries, returns will depend on whether the interest-rate gap is positive or negative. Provided the exchange rate is constant, if foreign interest rates are higher than domestic rates, returns will exceed those in the domestic market by the amount of the interest-rate differential. But if foreign rates are lower than domestic rates, returns will fall short of those in the domestic market. Thus, currency returns comprise the sum of an interest-rate differential, which is known at the beginning of the investment period, and an exchange-rate change, which is inherently uncertain (*Display 2*).

Display 2

Currency returns have two elements

Currency Investing

> Borrow (go short) in one currency to lend (long) in the currency of another country. You pay the interest rate on what you borrow and earn the interest rate on what you lend.

Currency Return =

$$\text{Interest-Rate Differential} + \text{Exchange-Rate Change}$$

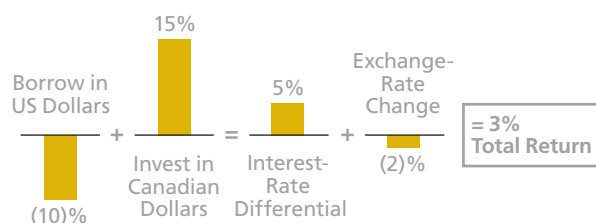
Efficient Market Theory Versus Market Reality

Returns on currency investments always reflect the interplay of exchange-rate movements and interest-rate differentials. In fact, one of the longest-standing theories of exchange-rate behavior—the theory of uncovered interest-rate parity—holds that in an efficient market, these two components of currency returns on average perfectly offset each other. According to this theory, the difference in the interest rates is compensation to investors for the expected change in exchange rates between the two currencies. Therefore, in theory, the expected return associated with a particular currency exposure should be zero, regardless of the interest-rate differential between the currencies.

For example, assume that the interest rate in the US is 10%, and the interest rate in Canada is 15%. According to uncovered interest-rate parity, the Canadian dollar is expected to depreciate against the US dollar by about 5%. Put another way, the higher Canadian interest rate compensates investors for what they expect to lose from a depreciation of the Canadian dollar versus the US dollar. However, if the Canadian dollar depreciated by less than 5% (or appreciated in value), there would be an opportunity to make a profit from borrowing in US dollars and simultaneously lending in Canadian dollars (*Display 3*).

Display 3

How the "carry trade" works



Source: AllianceBernstein

In reality, this is exactly what happens. Actual currency moves do not tend to fully offset the premium that investors earn by borrowing in low-interest-rate currencies to lend in high-interest-rate ones; in our example, the exchange rate depreciated by just 2%, providing a 3% return. This phenomenon, known as the forward premium puzzle, leads to the existence of profitable return opportunities that are widely exploited in the global financial markets. Thus, on Wall Street, in London, and in other financial centers around the globe, there are armies of investors, from the largest hedge funds to the smallest retail speculators, profiting from borrowing in low-yielding currencies and lending in high-yielding ones—so-called carry trades.

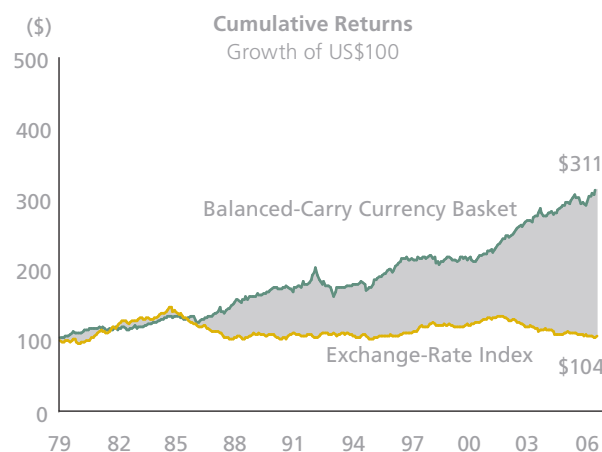
Why Do Carry-Trade Returns Persist?

The reason that currency investors are able to exploit interest-rate differentials is a subject of debate. Some experts argue that carry-based investment returns are a market anomaly. This contradicts the efficient market hypothesis, which holds that, at any given time, security prices fully reflect all available information. If it is an anomaly, however, it seems likely that the very existence of such a widely known irregularity would lead to more and more investors trying to exploit it to earn superior returns. Over time, one would expect the wall of money flowing into carry strategies to erode the return premium that they have historically commanded, in the same way that once-profitable convertible bond arbitrage trades have diminished now that so many investors have become wise to the strategy.

But that hasn't happened. *Display 4* shows returns to a portfolio that dynamically purchases the three highest-yielding global currencies and short-sells the three lowest-yielding

Display 4

Returns from a balanced-carry basket are positive



From July 1979 through December 2006

The balanced-carry strategy represents a portfolio that takes long positions in currencies with the top three positive interest-rate differentials and short positions in currencies with the bottom three negative interest-rate differentials, with net currency exposure kept at zero; the portfolio is rebalanced monthly, and volatility scaled to 5%. This is not intended to represent the performance of any AllianceBernstein managed portfolio.

Source: Bloomberg L.P., Datastream, JPMorgan Chase, and AllianceBernstein

(balanced-carry currency basket) versus the exchange-rate index. These returns vary over time, as would be true for equities and fixed income returns as well. However, there is no evidence to suggest that the return premium is being systematically eroded over time—i.e., no long-term downward trend in returns is evident—as we would expect to see if such a simple and well-known phenomenon was an anomaly that could be easily arbitrated away.

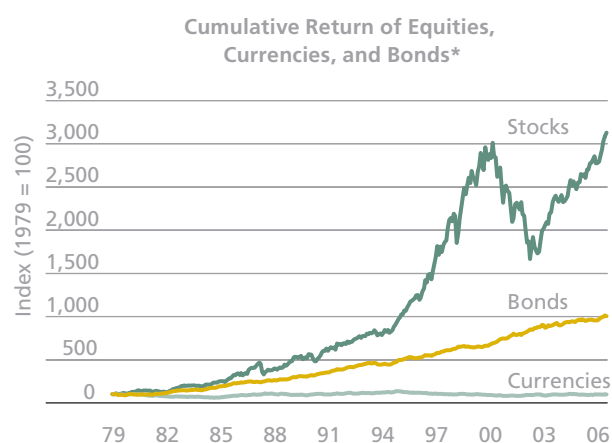
Why, then, do returns from carry trades persist? In our view, the most plausible explanation for this phenomenon is that embedded in the interest-rate differentials is extra compensation for investors who tolerate the extra risk of investing in a particular country. That risk premium varies over time and rewards investors for taking exposure to a country's inflation or cyclical economic risks or other risks more directly related to exchange rates, such as current account imbalances and misvaluations relative to purchasing power parity. Given the long lags between changes in interest rates and their impact on a country's real economy, the effectiveness and timing of the use of the interest-rate weapon is highly uncertain. But as with equity or bond risk premiums, the risk premium embedded in the currencies of countries is one that investors can exploit.

Extracting the Risk Premium from the Currency Market

Equity or fixed income managers extract their market risk premiums simply by being fully invested in stocks or bonds at all times. However, currency managers cannot invest in the same way because passive exposure to all currencies at all times tends to result in long-term returns close to zero. *Display 5* compares the returns from passive investment in baskets of stocks, bonds, and currencies.

Display 5

Returns from passive currency exposure are flat



Through December 31, 2006

*Stocks are represented by the S&P 500, bonds by the Lehman Brothers US Aggregate Index, and currencies by a basket that corresponds to the MSCI World ex-US.

Source: Datastream, International Monetary Fund, Lehman Brothers, MSCI, and AllianceBernstein

Unlike the clear upward trend for bonds and stocks, the profile for a passive basket of developed country currency returns is essentially flat, reflecting the fact that currencies tend to move in long cyclical swings with little overall direction. In practice, over time interest-rate differentials between economies with similar economic structures are small and are partially offset by exchange-rate changes.

The key word here, though, is *passive*. To build stock, bond, or even pure currency portfolios that capitalize on opportunities in currency returns based on interest-rate differentials and the factors known to predict exchange-rate changes, investors have to adopt an active approach to currency investing. Unlike the risk premium for a bond or stock, which is embedded in the price of the bond or stock, the currency risk premium is embedded in the relationship between different currencies. That relationship is dynamic, and, as such, currency positions need regular rebalancing to capture the risk premium.

Adding Value with Currency Management

Investors can earn additional return from currency in a number of ways. Value can be added by adopting simple carry-based strategies that capture a portion of the currency return available: For instance, an approach that invests in the euro versus the US dollar whenever interest rates in the Eurozone are above those in the US and sells short the euro versus the US dollar whenever they are lower results in consistently positive risk-adjusted returns. The same calculation is true for all the major and sub-major currencies. And while the risk-adjusted returns differ, they are positive for all base currencies, not just for the US dollar.

However, by incorporating other fundamental elements into the active currency exposure decision, we believe that it's possible to improve markedly on the returns from the simple carry-based approach. Mechanistically going long high-yielding currencies and short low-yielding currencies can be profitable, but using research to gain predictability over exchange-rate fundamentals can potentially achieve even more powerful results.

As we argued above, interest-rate differentials partly compensate investors for underlying macroeconomic and financial risk. Therefore, weighing these risks against the returns available in carry trades should enhance an investor's ability to identify pricing anomalies and enhance risk-adjusted returns. This is what our active currency strategies seek to do. *Display 6* shows the results of a simulation of our active strategy incorporating expected currency returns based on the econometric model that we have developed over the past 15 years and the currency risk model that we use to optimize those expected returns. The results show that this approach has produced a higher return than balanced-carry strategies have produced on their own.

Currency's Full Complement of Attractions

Other features also make currency investing enticing: It is extremely capital efficient, and because currencies are traded in the foreign exchange market, the world's most liquid financial market, transaction costs are very modest.

Approaches to Currency Management

Currency management comes in several styles. Passive hedging strategies are usually targeted toward risk reduction, seeking to avoid losses that would be generated by adverse movements in exchange rates. An example would be a strategy that maintains a full hedge of the foreign currency exposure in a global bond portfolio. Passive hedges may also be partial, such as a half- or three-quarters-hedged target.

Defensive hedging strategies are used to maintain a variable exposure to currency—ranging from 0 to 100% of the non-US portion of the portfolio—depending on the opportunities or hazards the manager sees in the currency environment.

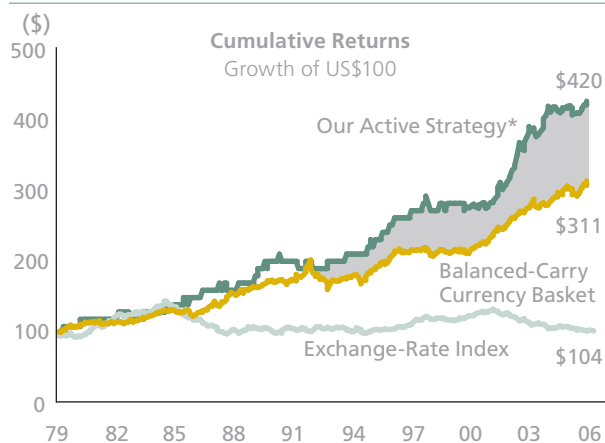
Active currency overlay strategies seek to manage the currency exposure that is derived

from a portfolio that has exposure to international asset markets. For example, some global equity or fixed income mandates give the asset manager or a currency specialist the freedom to decrease or increase the foreign currency exposure stemming from the underlying assets—thereby earning currency returns outside of the portfolio.

Currency alpha investing involves taking long and short positions in various currencies in order to generate positive active returns. The manager need not have any exposures in global equities or bonds—the mandate is purely to extract alpha from currency positions. Leverage is often used in this approach, and shorting of specific currencies is permitted as well. ■

Display 6

Our active strategy earns additional return



From July 1979 through December 2006

*Our active strategy shows the results of a simulation incorporating expected currency returns based on our econometric model and the currency risk model we use to optimize those expected returns.

Source: Bloomberg L.P., Datastream, and AllianceBernstein

The limited capital requirements of currency investing stem from the fact that currency forward contracts, the main instrument used in active strategies, require cash only if the contract settles at a loss at the end of the term. In the interim, the cash reserved for the currency strategy can be held in another source of return.

Currency returns are a particularly attractive source of added value because returns are uncorrelated to those of other assets and volatility can be controlled simply by varying the amount of leverage employed in the strategy. *Display 7* shows the correlation of excess returns between various stock, bond, and commodity indexes and our currency portfolio simulation over a period of almost 30 years. If both move in the same direction at the same time to the same degree, they are perfectly correlated, with a measure of 1.0. If their movements show no relationship to one another, their correlation is 0.0. A perfect negative correlation of 1.0 indicates that the two values move in opposite directions to the same degree. Here we see that the correlation between the movement of our currency

Display 7

Currency returns are uncorrelated to those of other asset classes

Equities	US	(0.03)
	EAFE	0.00
	Emerging Markets	(0.02)
Fixed Income	Global	0.22
	US Aggregate	(0.13)
Other	Commodities	0.02
	Passive Currency*	0.14

Simulation returns include the return on cash. Simulation period is July 1979–December 2006. Simulation developed using AllianceBernstein's proprietary currency model. Factors that influence our currency expected-return forecasts include, but are not limited to, autocorrelation, interest-rate differentials, current account, purchasing power parity, and state probability. Estimates involve a number of assumptions that may not prove valid and may be changed without notice. Simulation guidelines include limitations on individual currency weights. Please note that simulated results have certain inherent limitations. The optimal currency weights and performance results may not reflect the impact that certain material economic and market factors might have had on an investment advisor's actual decision making if they were reflective of a managed account. No representation is being made that any account will, or is likely to, achieve profits or incur losses similar to those described herein.

*Currency basket embedded in US dollar-based MSCI EAFE

Source: Goldman Sachs, Lehman Brothers, MSCI, Standard & Poor's, and AllianceBernstein

returns to stock and bond markets is relatively low. In most cases, the correlations are very close to zero, demonstrating that active currency strategies can be a very effective complement to exposure in other markets.

How Does the AllianceBernstein Model Work?

Our currency model produces expected returns for 10 developed market currencies by analyzing elements such as current account-to-GDP ratios, purchasing power parity, and short-term trends in currency movements (*Display 8, following page*). The most important factors in our model are the state probability factor, which estimates the probability that a currency is in a strong or a weak state versus the base currency—often for prolonged periods of time—and interest-rate differentials, which compensate investors for bearing macro-economic risk. The probable strength or

weakness of a currency is determined by the sign of the interest-rate differential, which is a particularly powerful signal of future currency returns when it is close to zero.

We couple our expected-returns model with a quantitative approach to forecasting risk in currency returns. Our approach recognizes that there are two types of risk inherent in currency investing—fundamental risk and risk associated with forecasting errors in our returns model—and balances them carefully. In order to estimate fundamental risk, we combine estimates of correlations across currencies obtained through a statistical factor analysis of currency returns together with separate estimates of volatility. These are computed through a process that incorporates reversion to long-term means and the fact that deviations from these means tend to be somewhat persistent.

Throughout the process, we use a Bayesian approach to statistical analysis, which starts with a prior view (What do we think influences currency returns?), analyzes the data (What has influenced currency returns in the past?), and combines the two to come up with our expected return estimates (Based on our prior belief and what actually happened in the past, what do we think will influence currency returns in the future?). Our central prior belief

is that markets are approximately efficient and that huge risk-adjusted returns are not likely. We are, therefore, conditioned to be skeptical of the data that our model analyzes. This cautious approach results in conservative estimates of currency market returns given the available information; this serves to produce portfolios that are more stable than if we had placed complete faith in the data.

Conclusion

As investors increase their strategic allocations to markets outside their home countries, they are beginning to focus more on the currency aspect of their portfolios. In addition, a greater familiarity with return opportunities in the currency market is attracting interest in active currency strategies. Like equities and bonds, currencies present an opportunity to generate both a market-like return from systematically deploying simple carry-trade strategies and alpha from balancing returns from carry trades against exchange-rate fundamentals. Therefore, we believe that active currency returns can be harnessed to great advantage in a variety of different strategies. Moreover, active currency strategies can be tailored to the specific needs of investors with very different risk tolerances and with any underlying base currency exposure defining their liabilities. ■

Display 8

Elements of the AllianceBernstein Currency Return Model

State Probability	An estimate of the probability that a currency is in its strong or weak state. The sign of the interest-rate differential is a key driver of the probability estimate.
Interest-Rate Differential	High-interest-rate currencies embed a risk premium and also attract short-term capital flows.
Current Account	Relative current account-to-GDP ratios capture an important component of countries' external debt dynamics, which influence exchange-rate movements over the long term.
Purchasing Power Parity	The deviation between market and PPP. PPP exchange rates reflect domestic pricing imbalances that trigger exchange-rate movements toward PPP in the long term.
Momentum (Trend)	Positive momentum in the short term may reflect positive surprises to economic fundamentals and other favorable market conditions that are not immediately captured by other factors in the model.