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JULY 24, 2008

FX MARKET INSIGHTS

A MONTHLY REVIEW OF GLOBAL MACRO THEMES & CURRENCY INVESTMENT STRATEGIES

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Volume 3 No.3

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Overview

The Taylor Rule and the Determination of Exchange Rates

Introduction

The Federal Reserve is charged with the dual responsibility of maintaining price stability and achieving maximum sustainable employment for the U.S. economy. The key questions for the Fed are: (1) What level of the Fed Funds Rate (the Fed's main monetary policy tool) will meet both of these policy objectives? and (2) How much should the Fed Funds Rate rise or fall if the rate of inflation exceeds or falls short of the Fed's implicit inflation target or if the level of employment exceeds or falls short of the economy's maximum sustainable level?

Implicit in those questions is how much weight should the Fed give to its two policy objectives of price stability and maximum employment if and when they come into conflict with one another. For example, if inflation is rising above the Fed's inflation target but economic growth is weakening (as they are now), should the Fed respond by tightening monetary policy to contain incipient inflationary pressures, or should it ease monetary policy to promote faster economic growth?

Central banks in other countries face similar policy conflicts, of course, even if their legislated mandate is to focus solely on maintaining price stability. These central banks often behave as if they were not strictly inflation-targeters per se, and will therefore assign some weight to output stabilization and employment growth. Similar to the Federal Reserve, these central banks need to determine (1) What level of their policy rate will help them achieve their primary objective of price stability and their secondary objective of promoting economic growth? and (2) How should they respond when price stability and economic growth come into conflict with one another?

Economists have built everything from large-scale monetary-policy models to simple rules-of-thumb to answer these questions. Of all the models developed, the Taylor Rule has far and away become the most widely followed method to assess which variables policymakers should focus on and what weight policymakers should assign to those variables in setting official policy rates. Developed by Professor John B. Taylor of Stanford University, the Taylor Rule is widely used by academics, policymakers, and market practitioners to determine whether policy rates are moving in line with the trend in economic fundamentals.

Indeed, the Taylor Rule is often shown to FOMC members at their regular policy meetings. And in other countries, Taylor Rule estimates are sometimes used as a cross-check by central bankers to see how far their actual policy decisions might be deviating from that implied by the Taylor Rule.

Announcing TAYL <go>

Bloomberg's New Taylor Rule Model of the Fed Funds Rate

The Taylor Rule

What exactly is the Taylor Rule and how can it be used to both explain and predict the future path of policy rates? The Taylor Rule is a simple mathematical formula that describes the fundamental criteria that a central bank should consider when setting its policy rate—in order to achieve its medium-term goals of price stability and maximum sustainable employment.

The Taylor Rule breaks the central bank decision-making process into two parts. First, policymakers need to determine what constitutes a neutral setting for its policy rate. A neutral setting for the policy rate, by definition, is one that is neither stimulative nor restrictive in terms of its effect on the domestic economy. Policymakers would aim to keep its policy rate at a neutral level only if the actual rate of inflation were expected to be broadly equal to the central bank's implicit (or explicit) inflation target, and if the actual level of economic activity was expected to be broadly equal to the economy's potential level of output.

Second, policymakers need to determine under what conditions the thrust of monetary policy should deviate from its neutral setting. The policy rate would need to be raised above its neutral level if inflation threatened to exceed the central bank's inflation target or if the level of economic growth threatened to exceed the economy's potential level of output. Conversely, the policy rate would need to be lowered to a level below its neutral setting if inflation threatened to fall below the central bank's target inflation rate or if the level of economic activity threatened to fall short of the economy's potential level of output.

John Taylor's contribution was to show how the central bank's decision-making process, regarding the neutral policy rate and the deviations from that neutral setting, could be summarized in a simple mathematical formula. This formula, now known as the Taylor Rule[1], is shown in Equation 1.

Taylor Rule Prescribed Policy Rate	Neutral Rate Setting	Taylor Rule Recommended Deviation from Neutral Rate Setting

$$i = [r_n + \pi^*] + [(1+\alpha)(\pi - \pi^*) + \beta(y - y^*)] \quad (1)$$

where

i = the Taylor Rule prescribed central bank policy rate,
r_n = the neutral real policy rate,
π = the current inflation rate,
π^* = the central bank's target inflation rate
y = the current level of output,
y^* = the economy's potential/sustainable level of output.

According to Equation 1, a central bank must first determine the neutral policy-rate setting, assumed to be equal to an estimate of the economy's long-run equilibrium real policy rate (r_n) plus the target rate of inflation (π^*). In Taylor's original formulation, it was assumed that r_n equaled 2% and that the Fed's inflation target (π^*) was also 2%. Therefore, the neutral setting for the nominal Fed Funds Rate would be 4%.

[1] John Taylor's now-famous rule was originally formulated as:

$$i = r_n + \pi + \alpha(\pi - \pi^*) + \beta(y - y^*)$$

We have simply added and subtracted the target rate of inflation (π^*) to the right side of the equation to derive the equation shown in Equation 1.

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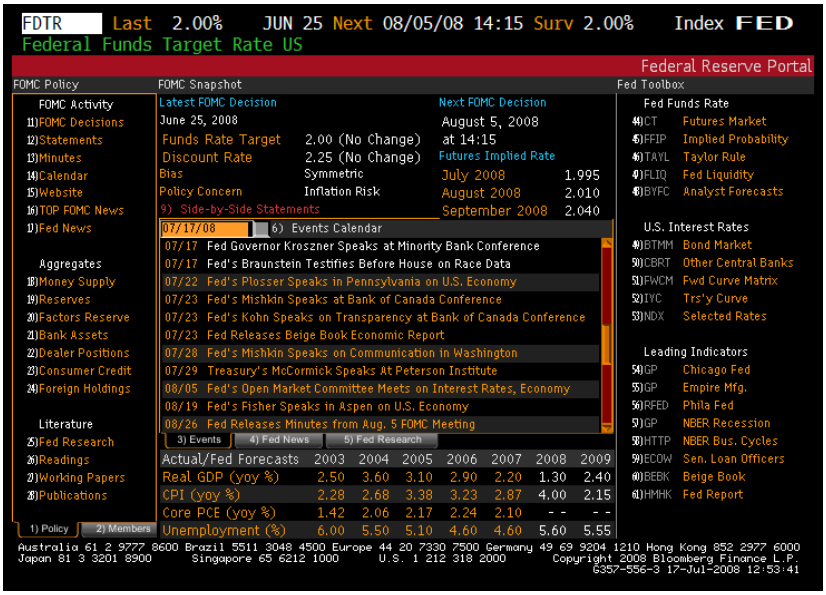
Bloomberg's New Fed Watching Information Platform



The central bank would deviate from this neutral setting only if the actual rate of inflation (π) deviated from the targeted inflation rate (π^*) and/or the actual level of output (y) deviated from the economy's potential level of output (y*). The magnitude of the policy-rate adjustment to changes in the inflation gap ($\pi - \pi^*$) and the output gap ($y - y^*$) would be dictated by the policy-response coefficients, alpha (α) and beta (β).

As long as alpha and beta both exceed zero—Taylor proposed that both alpha and beta equaled 0.5—the Taylor Rule prescribes that the policy rate should rise in real terms relative to its neutral setting in response to positive inflation and output gaps (and fall in response to negative inflation and output gaps).

Indeed, as shown in Equation 1, the nominal interest rate will adjust by more than one-for-one with changes in the inflation gap. That would insure that the real policy rate will rise when the actual inflation rate threatens to rise above the central bank's inflation target. Note that the larger the policy-gap coefficients (alpha and beta) are, the more aggressive the central bank will be in changing its policy rate in response to inflation-gap and output-gap deviations.

In Equation 1, the Taylor Rule-prescribed policy rate is assumed to move instantaneously when inflation threatens to rise above or fall below the central bank's target, or if the level of output threatens to rise above or below the economy's level of potential output. In practice, however, central banks tend to adjust policy rates more gradually in response to inflation-gap and output-gap deviations.

There are several reasons why policymakers might want to move more cautiously in adjusting their policy rate. First, economic data is subject to constant revisions. Initial economic data releases of inflation and output are often revised, sometimes significantly, at a later date as more accurate data becomes available. Second, policymakers need time to assess the cumulative effects of earlier policy moves. Third, by changing policy gradually, policymakers might hope to avoid a possible embarrassing policy-reversal at a later date.

This policy gradualism (or policy inertia) suggests that the level of the current policy rate would not only be a function of the inflation and output gaps, but also a function of the previous level of the policy rate itself. The Taylor Rule can therefore be modified to reflect this gradualism by including a lagged policy rate (i_{t-1}), with a weight (ρ) that varies between 0-1, as shown in Equation 2:

$$i_t = \rho i_{t-1} + (1-\rho)\{[r_n + \pi^*] + [(1+\alpha)(\pi - \pi^*)] + [\beta(y - y^*)]\} \quad (2)$$

Taylor Rule Performance

The Taylor Rule has done a reasonably good job of explaining the trend in the Fed Funds Rate over the Greenspan-Bernanke era, and has done a good job of explaining the trend in policy rates in other countries as well. As Figures 1-2 show, the actual Fed Funds rate has tended to move broadly in line with the recommendations of the originally formulated Taylor Rule, which made no allowance for policy gradualism.

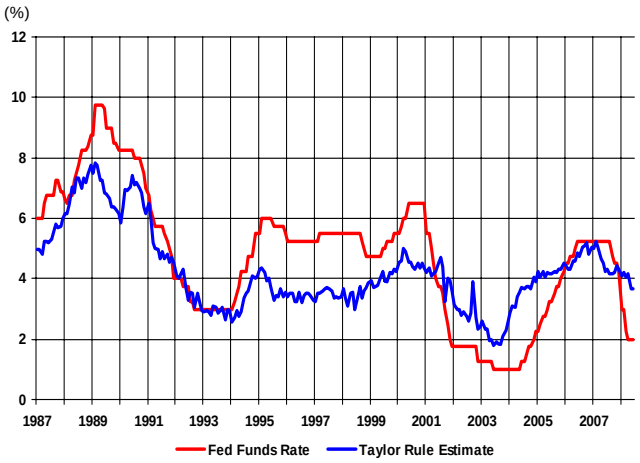
There have been a number of occasions when the actual Fed Funds Rate has deviated significantly from the Taylor Rule prescription. Most of these deviations have occurred during times of unique financial stress, when the Federal Reserve has felt compelled to move more aggressively than what the Taylor Rule would have suggested. This has led some observers to suggest that the neutral real rate (r_n), the policy-response coefficients (α and β), and the policy-inertia coefficient (ρ) might not, in fact, be constant over time.

Rather, it has been suggested that the Taylor Rule parameters might vary along with the business cycle. For

Figure 1

Taylor Rule Estimates of the U.S. Fed Funds Rate

(Fed Funds Rate as a Function of U.S. Inflation and Output Gaps)

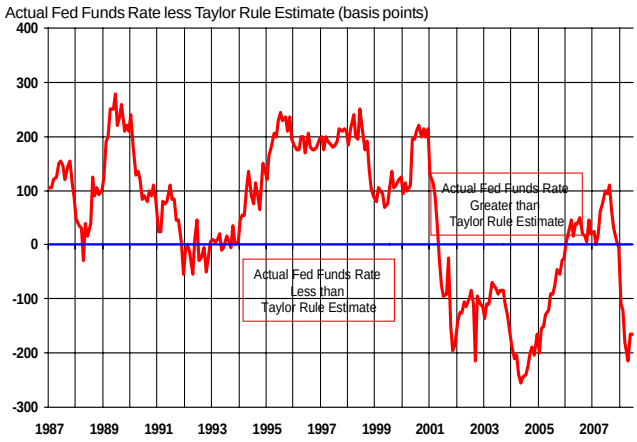


Source: Bloomberg

Figure 2

Taylor Rule Performance

(Actual Fed Funds Rate less Taylor Rule Estimates)



Source: Bloomberg

instance, during economic downturns, policymakers might feel compelled to assign less weight to inflation risks and more weight to the risks of a decline in economic growth. In such a case, the level assigned by policymakers to the real neutral rate (r_n) might decline, the policy-response coefficient on the inflation gap (α) might be adjusted downward, and the policy-response coefficient on the output gap (β) might be adjusted upward.

Hence, during times of economic or financial stress, policymakers might feel compelled to adjust the levels of the Taylor Rule parameters to minimize potential "tail" risk; that is reduce the probability of an extreme event such as a steep recession. This might explain the current situation, in which the Fed has cut the Funds Rate sharply below levels prescribed by the Taylor Rule in the 2007-08 cycle, in order to offset the sharp deterioration in U.S. financial conditions.

The Taylor Rule and Exchange Rates

While the Taylor Rule is used largely for explaining and predicting the future path of policy rates, recent research suggests that it might also provide valuable insights into the determination of exchange rates. To see this, let's consider the fundamental forces that typically drive the euro-dollar exchange rate over time.

We start the analysis by assuming that Fed and ECB policies can be described by Taylor Rules. Since real interest-rate differentials are an important determinant of exchange-rate trends, we can modify the Fed and ECB Taylor rules by solving for real policy rates in the U.S. and Euro-area. This can be done by subtracting the inflation rate (π) from both sides of Taylor's original formula. We show this in Equations 3-4.

$$r^{US}_t = \rho r^{US}_t + (1-\rho^{US}) \{[r_n^{US}] + [\alpha^{US} (\pi^{US} - \pi^{*US})] + [\beta^{US} (y^{US} - y^{*US})]\} \quad (3)$$

$$r^{EU}_t = \rho r^{EU}_t + (1-\rho^{EU}) \{[r_n^{EU}] + [\alpha^{EU} (\pi^{EU} - \pi^{*EU})] + [\beta^{EU} (y^{EU} - y^{*EU})]\} \quad (4)$$

A real interest-rate differential equation between the U.S. and the Euro-area can then be derived by subtracting Equation 4 from Equation 3. This is shown in Equation 5. The real interest-rate differential between the U.S. and the Euro-area reflects the difference in the respective real neutral policy rates, relative U.S./Euro-area inflation rates, relative output gaps, the relative size of the respective policy-response coefficients, and the degree of inertia exercised by the Fed and the ECB as measured by the respective partial-adjustment coefficients (see Equation 5).

$$r^{US}_t - r^{EU}_t = \{\rho r^{US}_{t-1} + (1-\rho^{US}) \{[r_n^{US}] + [\alpha^{US} (\pi^{US} - \pi^{*US})] + [\beta^{US} (y^{US} - y^{*US})]\} - \{\rho r^{EU}_{t-1} + (1-\rho^{EU}) \{[r_n^{EU}] + [\alpha^{EU} (\pi^{EU} - \pi^{*EU})] + [\beta^{EU} (y^{EU} - y^{*EU})]\} \quad (5)$$

Everything else being equal, real interest rates in the U.S. would be expected to be higher relative to those in the Euro-area:

1) the higher the neutral real rate in the U.S. (r_n^{US}) is relative to the Euro-area neutral real rate (r_n^{EU}),

2) the higher the U.S. inflation gap ($\pi^{US} - \pi^{*US}$) is relative to the Euro-area inflation gap ($\pi^{EU} - \pi^{*EU}$),

3) the higher the U.S. output gap ($y^{US} - y^{*US}$) is relative to the Euro-area output gap ($y^{EU} - y^{*EU}$), and

4) the higher the U.S. policy-response coefficients (α^{US} and β^{US}) are relative to the Euro-area policy-response coefficients (α^{EU} and β^{EU}).

The partial-adjustment coefficients (ρ^{US} and ρ^{EU}), insure that the U.S./Euro-area real interest-rate differential will tend to rise and fall gradually over time, rather than rapidly in response to changes in the relative inflation and output gaps in the U.S. and Euro-area.

Since the real interest-rate differential is an important component of many exchange-rate determination models, the individual components of the Taylor Rule, by definition, should be important components of exchange-rate determination models as well. Consider the real interest-rate differential model of exchange-rate determination shown in Equation 6

$$q_\$ = q^*_\$ + (r^{US} - r^{EU}) - (\phi^{US} - \phi^{EU}) \quad (6)$$

Equation 6 posits that the dollar's real value ($q_\$$) is determined by the dollar's real long-term equilibrium value ($q^*_\$$), the real interest-rate differential between the U.S. and the Euro-area ($r^{US} - r^{EU}$) , and the risk premium demanded by investors to hold dollar-denominated assets rather than euro-denominated assets ($\phi^{US} - \phi^{EU}$). The dollar's real value would rise if the dollar's real long-run equilibrium value shifted upward (as it did during the tech boom of the mid-1990s), or if real interest rates in the U.S. rose higher relative to those in the Euro-area, or if the risk premium demanded by investors to hold dollar-denominated assets declined relative to the risk premium on euro-denominated assets.

Since the key determinants of the U.S./Euro-area real yield spread can be explained by the respective Taylor Rules of the Fed and the ECB, it should therefore be evident that the relative sizes of the real neutral rates in the U.S. and Euro-area, the relative sizes of the inflation gaps, output gaps, and policy-response coefficients would be important determinants of the euro-dollar exchange rate as well. Figure 3 summarizes what the expected impact the separate Taylor Rule components should have on the Euro-dollar exchange rate.

What is noteworthy in Figure 3 is that a rise in U.S. inflation relative to the Fed's target is shown to be positive for the dollar, although conventional wisdom assumes that higher U.S. inflation should be dollar-negative. But in the Taylor Rule framework, higher U.S. inflation would lead to a rise in U.S. real interest rates (relative to real interest rates in the Euro-area), which would push the real interest-rate differential in favor of the U.S. That, in turn, would be dollar-positive.

As implied by this summary table, the dollar's decline over the 2007-08 period likely reflects the combined impact of the following forces. First, the neutral real policy rate in the U.S. has likely been pushed downward relative to the Euro-area's neutral real rate.

Second, the present and expected future output gap (y-y*) in the U.S. is deteriorating at a more rapid pace than in Europe.

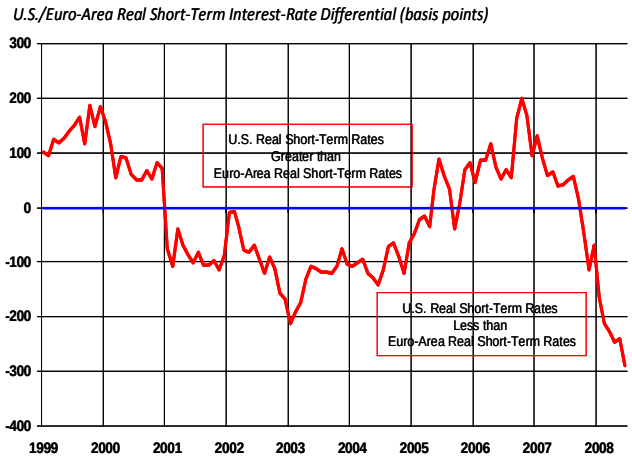
Third, U.S. policymakers appear to be placing greater weight on the weakness in the U.S. economy (beta is rising) and less weight on the rise in inflation (alpha is declining) in their policy deliberations.

Fourth, the Fed has shifted away from a gradualist approach to monetary policy and is aggressively adjusting its policy rate (i.e., ρ_{US} has declined) relative to the policy rate in the Euro-area.

The combination of these four factors has pushed U.S. real yields lower relative to those in the Euro-area (see Figure 4), and this has worked to drive the dollar's value lower.

Figure 4

U.S./Euro Real Short-Term Interest-Rate Differential
(Three-Month Euro-Deposit Rates less Headline Inflation)



Source: Bloomberg

Figure 3

Key Determinants of the Euro-Dollar Exhange Rate
According to the Real Interest-Rate Differential/Taylor Rule Model of Exchange-Rate Determination

Variable		Net Change	Impact on the Dollar's Real Value
Dollar's Real Long-Run Equilibrium Value	$q^*_{\$}$	Upward Revision	Appreciation
U.S. Neutral Real Policy Rate	r^{US}_n	Upward Revision	Appreciation
Euro-area Neutral Real Policy Rate	r^{EU}_n	Upward Revision	Depreciation
U.S. Inflation Gap	$\alpha^{US} (\pi^{US} - \pi^{US*})$	Upward Revision	Appreciation
Euro-area Inflation Gap	$\alpha^{EU} (\pi^{EU} - \pi^{EU*})$	Upward Revision	Depreciation
U.S. Output Gap	$\beta^{US} (y^{US} - y^{US*})$	Upward Revision	Appreciation
Euro-area Output Gap	$\beta^{EU} (y^{US} - y^{US*})$	Upward Revision	Depreciation
Risk Premium on U.S. Assets	ϕ^{US}	Upward Revision	Depreciation
Risk Premium on Euro-area Assets	ϕ^{EU}	Upward Revision	Appreciation

Source: Bloomberg

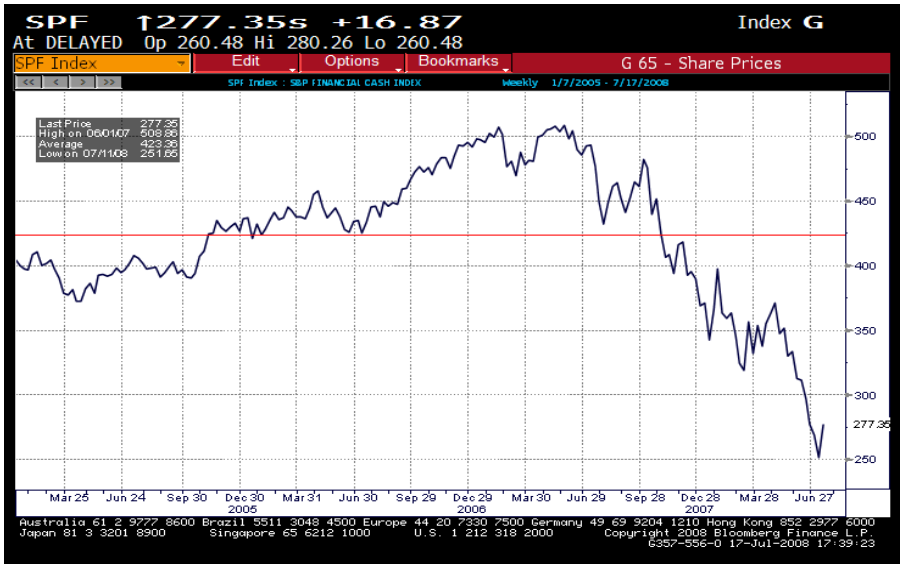
Adding to the dollar's woes is the concern over the health of the U.S. financial system, as reflected in the dramatic decline in U.S. financial-share prices (see Figure 5). Investors undoubtedly are demanding a relatively higher risk premium (ϕ^{US}) to hold dollar-denominated assets at the present time, and from Equation 6 above, this too is exerting downward pressure on the dollar.

The only thing working in the dollar's favor at the present time is that the dollar's real value ($q_{\$}$) has already fallen considerably below its long-run equilibrium value ($q^*_{\$}$). While that may be bullish for the dollar in the long run, the fact that the dollar is significantly undervalued will not offer much support in the short or medium term. Instead, in all likelihood, the dollar will not be able to stage a significant, sustained rally back to $q^*_{\$}$ until the forces driving U.S./Euro-area real interest-rate differentials and relative risk premia, begin to turn in the dollar's favor.

Figure 5

U.S. Financial Share Prices

(S&P Financial Cash Index)



Source: Bloomberg

The Taylor Rule and FX Carry Trades

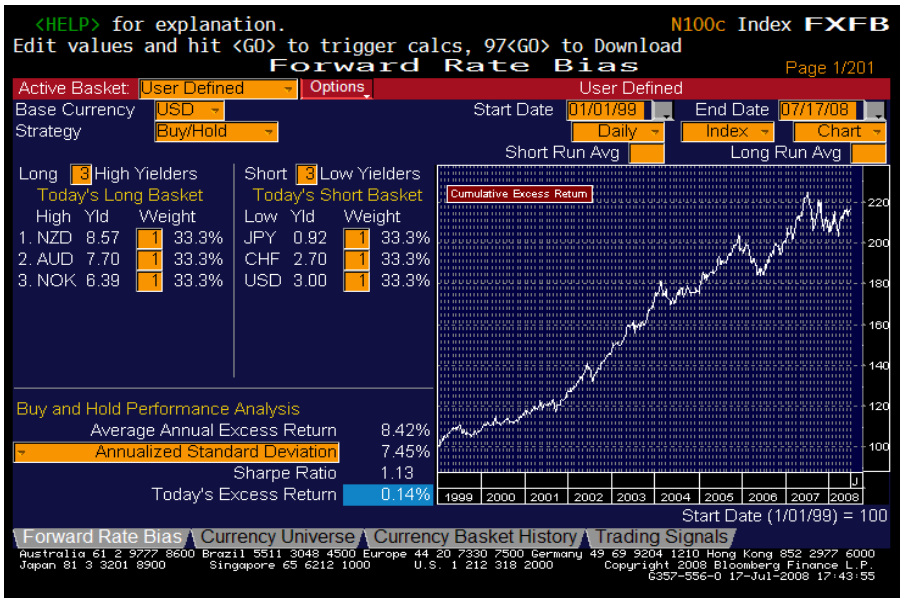
Finally, we conclude with a discussion of how the Taylor Rule can provide valuable insights into why FX carry-trade strategies have tended to generate persistent positive excess returns over time. Figures 6-7 show that diversified FX carry-trades strategies for both G-10 and emerging-market currencies have generated significant risk-adjusted, positive excess returns over long periods.

Equation 6 above sheds light on why high-yielding currencies might outperform low-yielding currencies over time. First, an inflation-prone country that wishes to bring inflation under control must not only push nominal interest rates higher, but its real interest rates must move higher as well. Indeed, as Figure 8 shows, in today's world, where many central banks have either explicitly or implicitly adopted an inflation target, high nominal interest rates have tended to be associated with high real interest rates. Hence, sustained high nominal yields in today's market now translate into sustained, wide real yield spreads. From Equation 6 above, this should exert upward pressure on the value of high-yield currencies.

Figure 6

Long-Term Performance of FX Carry Trades in the G-10

(Forward Rate Bias Strategy)

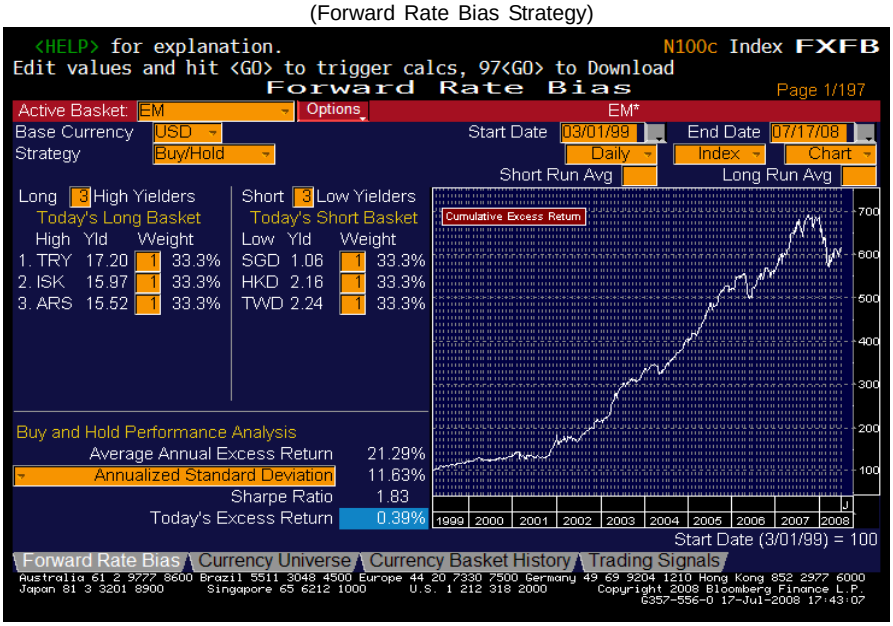


Source: Bloomberg

Figure 7

Long-Term Performance of FX Carry Trades in the Emerging Markets

(Forward Rate Bias Strategy)

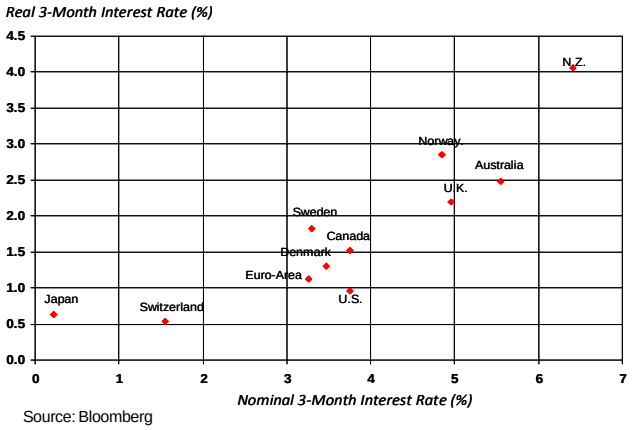


Source: Bloomberg

Figure 8

Nominal and Real Short-Term Interest Rates in the G-10

(as of April 18, 2008)



Source: Bloomberg

In many cases, the pursuit of tight monetary policies in inflation-prone countries is often accompanied by a wide-ranging set of government-supported structural changes and policy reforms. These reforms help reinforce the central bank's efforts on price stability and at the same time, boost the country's long-term growth prospects. Such policy steps, if sustained, should encourage an upward revision in the high-yield currency's long-run equilibrium value (q*). Furthermore, if the market views those policy steps as being credible, this should gradually lower the risk premium demanded by the market to hold the high-yield country's assets (ϕ), which should reinforce the upward pressure on the high-yield currency's real value.

Where the Taylor Rule fits in all of this is that since real yield spreads are a key driver of carry-trade performance, the Taylor Rule can point to the sources of wide real yield spreads. Consider Equation 5 above; real yield spreads would tend to favor high-yielders if the level of real neutral interest rates (r_n) in high-yield countries were higher than those in low-yielding countries. The reason that neutral real rates in high-yield markets tend to be higher is that the authorities in such countries tend to have less credibility than the inflation-fighter counterparts in low-yielding countries.

To establish credibility as inflation fighters, authorities in inflation-prone, high-yield countries need to demonstrate their vigilance by maintaining real interest rates at higher than normal levels. In a similar vein, policymakers in inflation-prone, high-yield countries face wider inflation gaps than their low-yielding counterparts. This requires that tight monetary policies in high-yield countries must be sustained longer than in low-yielding countries. To ensure that inflation gravitates toward the inflation target, the policy-response parameters (alpha and beta) are likely to be relatively higher in high-yield countries.

Finally, to the extent that monetary authorities in both high-yield and low-yield countries adjust interest-rate policy gradually, rather than rapidly, then real yield spreads should adjust gradually rather than rapidly in response to inflation and output gap deviations. A gradual adjustment of real yield spreads toward their equilibrium value would tend to generate persistence in real interest-rate differentials, which from Equation 6 above would imply persistence in real exchange-rate trends over time. Therefore, long-high-yield/short-low-yield carry trade strategies should generate persistent positive excess returns over time.

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mrosenberg10@bloomberg.net

U.S. Economic Indicator Watch

United States	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08
National Accounts													
Real GDP (qoq % saar)	--	--	4.9	--	--	0.6	--	--	1.0	--	--		--
Real GDP (yoy %)	--	--	2.8	--	--	2.5	--	--	2.5	--	--		--
Nominal GDP (US$ bn)	--	--	13971	--	--	14074	--	--	14201	--	--		--
Personal Consumption (yoy %)	--	--	2.8	--	--	2.3	--	--	1.1	--	--		--
Private Investment (yoy %)	--	--	5.0	--	--	-14.6	--	--	-6.9	--	--		--
Gov't Spending (yoy %)	--	--	3.8	--	--	2.0	--	--	2.1	--	--		--
Inventories (change) (US$ bn)	--	--	35.4	--	--	-27.4	--	--	-30.4	--	--		--
GDP Price Deflator (qoq % saar)	--	--	1.0	--	--	2.4	--	--	2.7	--	--		--
Core PCE Deflator (qoq % saar)	--	--	2.0	--	--	2.5	--	--	2.3	--	--		--
Consumer Prices													
Consumer Price Index (yoy %)	2.4	2.0	2.8	3.5	4.3	4.1	4.3	4.0	4.0	3.9	4.2	5.0	
CPI less Food & Energy (yoy %)	2.2	2.1	2.1	2.2	2.3	2.4	2.5	2.3	2.4	2.3	2.3	2.4	
PCE Price Index (yoy %)	2.1	1.8	2.5	3.0	3.6	3.5	3.5	3.4	3.3	3.2	3.1		
Core PCE Index (yoy %)	2.0	1.9	1.9	2.0	2.1	2.2	2.0	2.0	2.1	2.1	2.1		
Consumer Price Index (mom %)	0.2	0.0	0.4	0.3	0.9	0.4	0.4	0.0	0.3	0.2	0.6	1.1	
CPI less Food & Energy (mom %)	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.0	0.2	0.1	0.2	0.3	
Producer Prices													
PPI (Finished Goods) (yoy %)	4.2	2.3	4.4	6.1	7.3	6.2	7.4	6.5	6.9	6.5	7.2	9.2	
PPI (Intermediate Goods) (yoy %)	4.2	2.4	4.1	5.7	7.9	7.1	8.9	9.0	10.5	10.5	12.6	14.5	
PPI (Crude Materials) (yoy %)	12.9	6.1	11.3	26.8	20.9	19.8	30.8	24.6	31.4	34.3	41.5	45.5	
PPI ex-Food & Energy (yoy %)	2.5	2.2	2.0	2.6	2.1	2.0	2.4	2.4	2.7	3.0	3.0	3.0	
Producer Price Index (mom %)	0.5	-0.8	0.5	0.5	2.6	-0.5	1.2	0.3	1.0	0.2	1.4	1.8	
PPI ex-Food & Energy (mom %)	0.2	0.1	0.1	0.1	0.3	0.1	0.6	0.4	0.3	0.4	0.2	0.2	
Labor Market													
Unemployment Rate (%)	4.7	4.7	4.7	4.8	4.7	5.0	4.9	4.8	5.1	5.0	5.5	5.5	
Initial Jobless Claims (Weekly Avg)	309	325	319	330	340	345	334	346	375	364	369	391	371
Continuing Claims (Weekly Avg)	2550	2583	2553	2571	2623	2694	2723	2780	2906	3002	3099	3126	3142
Chg. in NonFarm Payrolls (mom 000)	57	74	81	140	60	41	-76	-83	-88	-67	-62	-62	
Chg. in Mfg. Payrolls (mom 000)	-6.0	-40.0	-22.0	-25.0	-3.0	-22.0	-35.0	-47.0	-46.0	-52.0	-22.0	-33.0	
Average Weekly Hours	33.8	33.8	33.8	33.8	33.8	33.8	33.7	33.7	33.8	33.8	33.7	33.7	
Employment/Population Ratio	63.0	62.8	62.9	62.7	63.0	62.7	62.9	62.7	62.6	62.7	62.6	62.4	
Non-Farm Payroll Diffusion Index	52.2	56.4	54.6	54.6	48.5	48.5	45.4	41.4	47.4	45.6	45.6	46.9	
Household Employment													
Job Openings Rate (yoy %)	2.9	2.9	2.9	2.8	2.8	2.8	2.7	2.7	2.6	2.6	2.6		
Job Hires (yoy %)	3.5	3.5	3.4	3.6	3.4	3.4	3.4	3.3	3.3	3.4	3.1		
Job Separations (yoy %)	3.3	3.3	3.2	3.3	3.4	3.2	3.2	3.3	3.2	3.2	3.2		
Help Wanted Index	25	23	24	22	21	22	22	21	19	18	17		
Challenger Job Cut Announcements (yoy %)	15.4	21.7	-28.5	-8.8	-4.7	-18.7	19.1	-14.2	9.4	27.4	45.6	46.7	
ADP Employment Change (mom 000)	43	36	73	110	185	42	119	-18	3	13	25	-79	
Avg. Hourly Earnings (yoy %)	4.1	4.0	4.1	3.8	3.8	3.7	3.7	3.7	3.7	3.5	3.5	3.4	
Avg. Hourly Earnings (mom %)	0.3	0.2	0.3	0.1	0.3	0.3	0.3	0.3	0.3	0.1	0.3	0.3	
Employment Cost Index (yoy %)	--	--	3.3	--	--	3.3	--	--	3.3	--	--		--
Unit Labor Costs (qoq % saar)	--	--	-2.5	--	--	4.7	--	--	2.2	--	--		--
Non-Farm Productivity (qoq %)	--	--	6.0	--	--	1.8	--	--	2.6	--	--		--
Economic Activity													
Industrial Production (yoy %)	0.6	0.0	0.3	-0.4	0.4	0.1	0.2	-0.4	0.1	-0.7	-0.2	0.5	
Capacity Utilization (%)	81.4	81.2	81.3	80.8	81.1	81.0	81.0	80.3	80.5	79.9	79.6	79.9	
Factory Orders (mom %)	3.4	-3.5	-0.3	1.1	1.8	1.9	-2.4	-0.4	1.5	1.3	0.6		
Durable Goods Orders (mom %)	5.4	-4.6	-1.5	0.1	-0.3	4.1	-4.7	1.1	-0.2	-1.0	0.0		
Business Inventories (mom %)	0.5	0.3	0.5	0.2	0.4	0.6	1.0	0.4	0.2	0.5	0.3		
Wholesale Inventories (mom %)	0.3	0.5	0.8	0.0	0.7	1.0	1.3	0.9	0.1	1.4	0.8		
NBER Business Cycle Indicators													
Real Personal Income (index)	8449	8483	8501	8511	8501	8508	8515	8519	8515.1	8507.4	8505.2		
Non-Farm Employment (000s)	4.9	4.1	3.8	3.9	3.1	3.2	1.9	1.8	1.3	1.4	1.9	1.7	
Industrial Production (index)	112.0	112.0	112.3	111.8	112.3	112.4	112.6	112.2	112.2	111.4	111.2	111.7	
Real Mfg. & Trade Sales (mn)	973244	977926	977810	986580	974572	967797	973202	958611	957936	967256			
Business Conditions													
ISM Composite Index	52.3	51.2	50.5	50.4	50.0	48.4	50.7	48.3	48.6	48.6	49.6	50.2	
ISM Prices Paid Index	65.0	63.0	59.0	63.0	67.5	68.0	76.0	75.5	83.5	84.5	87.0	91.5	
Philly Fed Business Conditions Index	6.9	5.7	9.2	8.4	7.5	-1.6	-20.9	-24.0	-17.4	-24.9	-15.6	-17.1	
Empire Mfg. Business Conditions Index	25.7	25.2	15.9	27.3	24.1	9.8	9.0	-11.7	-22.2	0.6	-3.2	-8.7	
Richmond Fed Mfg. Index	4.0	7.0	14.0	-5.0	0.0	-4.0	-8.0	-5.0	6.0	0.0	-3.0	-12.0	
Chicago Purchasing Managers Index	53.4	54.5	53.2	50.9	53.6	56.4	51.5	44.5	48.2	48.3	49.1	49.6	
Milwaukee Purchasing Managers Index	57.0	63.0	70.0	63.0	60.0	62.0	58.0	53.0	47.0	48.0	45.0	39.0	
Fed Senior Loan Officer Survey													
Tighter Standards for C&I Loans for Large Fi	7.5	--	--	19.2	--	--	32.2	--	--	55.4	--	--	
Tighter Standards for C&I Loans for Small Fi	7.7	--	--	9.6	--	--	30.4	--	--	51.8	--	--	
Increasing Loan Rates over Cost of Funds to	-32.1	--	--	34.6	--	--	43.6	--	--	71.0	--	--	
Increasing Loan Rates over Cost of Funds to	-32.7	--	--	21.1	--	--	40.1	--	--	63.6	--	--	
Stronger Demand for C&I Loans by Large Fir	-19.2	--	--	-17.3	--	--	-16.4	--	--	0.0	--	--	
Stronger Demand for C&I Loans by Small Fir	-11.8	--	--	-7.7	--	--	-23.6	--	--	-16.1	--	--	
Stronger Demand for Consumer Loans Repo	-22.4	--	--	-26.5	--	--	-35.8	--	--	-18.1	--	--	
More Willingness to Lend to Consumers Rep	0.0	--	--	-4.0	--	--	-15.1	--	--	-22.6	--	--	

Source: Bloomberg

United States	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08
Leading Indicators													
OECD Leading Indicator for U.S. (index)	107.9	107.3	106.7	106.4	105.7	105.2	104.7	104.5	103.9	103.8	103.5		
OECD Leading Indicator for U.S. (6-mo %)	2.9	1.4	0.2	-0.5	-1.8	-2.6	-3.3	-3.6	-4.3	-4.2	-4.2		
Conference Board Leading Indicator (index)	104.6	103.6	103.7	103.2	102.8	102.6	102.1	101.9	101.9	102.0	101.8	101.7	
Conf. Board Lead. Ind. (yoy %)	0.9	0.3	0.0	-0.7	-1.0	-1.7	-1.8	-1.7	-2.1	-1.8	-2.1	-2.1	
Conf. Board Lead. Ind. (mom %)	0.7	-1.0	0.1	-0.5	-0.4	-0.2	-0.5	-0.2	0.0	0.1	-0.2	-0.1	
Leading Indicator Components													
Average Work Week (hours)	41.4	41.3	41.4	41.2	41.3	41.1	41.1	41.1	41.2	41.0	40.9	40.8	
Jobless Claims (000)	308.7	325.3	318.4	330.0	340.1	344.6	339.2	346.0	374.8	367.3	369.0	390.5	
New Orders -- Consumers (index)	146.1	144.4	141.9	142.7	141.2	143.6	141.0	139.5	138.4	137.2	134.2	134.7	
Vendor Delivery Performance (index)	51.7	50.3	51.7	50.7	51.5	52.6	52.8	50.1	53.6	54.0	53.7	55.1	
New Orders -- Capital (index)	54.2	47.7	50.1	48.8	51.2	52.1	48.5	49.1	49.7	48.3	48.5	48.3	
Buidling Permits (000)	1389	1322	1261	1182	1187	1111	1052	981	932	982	978	1091	
Stock Prices (index)	1521	1455	1497	1540	1463	1479	1379	1355	1317	1370	1403	1341	
M2 Money Supply (index)	6171	6216	6221	6224	6209	6219	6242	6321	6366	6365	6346	6298	
Yield Curve Spread (%)	-0.3	-0.4	-0.4	-0.2	-0.3	-0.1	-0.2	0.8	0.9	1.4	1.9	2.1	
Consumer Expectations (index)	81.5	73.7	74.1	70.1	66.2	65.6	68.1	62.4	60.1	53.3	51.1	49.2	
Housing Market													
Housing Starts (000)	1371	1337	1185	1275	1179	1000	1064	1107	988	1004	977	1066	
Building Permits (000)	1386	1343	1277	1182	1187	1111	1052	981	932	982	978	1091	
New Home Sales (000)	796	702	694	723	629	600	597	572	501	525	512		
Existing Home Sales (mn)	5.8	5.5	5.1	5.1	5.0	4.9	4.9	5.0	4.9	4.9	5.0		
Existing Home Sales (mom %)	0.2	-4.5	-7.1	-1.0	-0.8	-2.2	-0.4	2.9	-1.8	-1.0	2.0		
Pending Home Sales (mom %)	-8.5	-7.5	2.4	2.2	-3.1	-1.2	0.3	-2.8	-1.0	7.1	-4.7		
NAHB Housing Market Index	24	22	20	19	19	18	19	20	20	20	19	18	
MBA Mortgage Applications (avg weekly % c	-0.5	-1.2	0.6	1.7	4.8	-9.1	19.1	-10.2	3.7	-4.4	-6.2	-0.9	1.7
Mortgage Delinquencies (% of Total Loans)	--	--	5.6	--	--	5.8	--	--	6.4	--	--		--
S&P/Case-Shiller Composite Home Price Inc	-3.8	-4.3	-4.9	-6.1	-7.7	-9.0	-10.6	-12.7	-14.3	-15.3			
Retail Sales													
Retail Sales (yoy %)	0.2	0.2	0.7	0.0	1.2	-0.9	0.6	-0.5	0.5	0.2	0.8	0.1	
Retail Sales less Autos (yoy %)	0.9	-0.7	0.5	0.2	1.9	-0.8	0.6	-0.2	0.8	1.0	1.2	0.8	
ICSC Chain Store Sales (yoy %)	2.6	2.9	1.7	1.6	3.5	0.7	0.5	1.9	-0.5	3.5	2.9	4.3	
Total Vehicle Sales (mn)	15.3	16.3	16.2	16.1	16.2	16.3	15.2	15.3	15.1	14.4	14.3	13.6	
Domestic Vehicle Sales (mn)	11.6	12.7	12.5	12.2	12.4	12.5	11.7	11.7	11.1	10.6	10.5	9.9	
Consumer Confidence													
Conference Board Index	111.9	105.6	99.5	95.2	87.8	90.6	87.3	76.4	65.9	62.8	58.1	50.4	
U. of Michigan Confidence Index	90.4	83.4	83.4	80.9	76.1	75.5	78.4	70.8	69.5	62.6	59.8	56.4	
ABC Consumer Confidence Index	-8.0	-19.0	-11.0	-15.0	-21.0	-20.0	-27.0	-37.0	-33.0	-41.0	-51.0	-43.0	
Personal Sector													
Personal Income (yoy %)	6.3	6.4	6.4	6.2	6.2	5.9	5.1	4.8	4.3	4.9	6.4		
Personal Income (mom %)	0.5	0.4	0.4	0.4	0.4	0.5	0.2	0.5	0.3	0.3	1.9		
Pesonal Expenditure (yoy %)	2.5	3.2	3.2	2.7	2.8	2.2	2.0	1.6	2.1	1.9	2.2		
Pesonal Expenditure (mom %)	0.3	0.4	0.2	0.1	0.3	-0.1	0.2	-0.1	0.2	0.2	0.4		
Personal Savings Rate (%)	0.4	0.5	0.4	0.4	-0.1	0.2	0.2	0.6	0.5	0.4	5.0		
Consumer Credit (Net Change) (US$ bn)	15.9	21.4	12.7	5.4	17.1	1.6	11.9	6.9	12.6	7.8	7.8		
External Sector													
Current Account Bal. (US$ bn)	--	--	-173.0	--	--	-167.2	--	--	-176.4	--	--		--
Trade Balance (US$ bn)	-57.3	-55.3	-55.5	-56.3	-59.9	-57.6	-57.9	-60.6	-56.5	-60.5	-59.8		
Exports (yoy %)	16.3	15.3	15.1	14.7	14.1	14.6	17.1	20.9	15.7	19.6	17.8		--
Imports (yoy %)	5.4	3.9	5.5	9.3	11.4	8.5	11.4	15.2	7.6	13.6	12.5		--
Import Price Index (yoy %)	2.8	1.9	4.8	9.1	12.0	10.6	13.6	13.5	15.2	16.9	18.8	20.5	
Import Price Index (mom %)	1.3	-0.3	0.6	1.5	3.2	-0.2	1.5	0.2	3.1	2.8	2.6	2.6	
Net Long-Term TIC Flows (US$ bn)	11.2	-72.9	13.9	128.9	90.3	54.9	60.5	62.1	76.6	111.9	67.0		
Total Net TIC Flows (US$ bn)	100.8	-150.5	-29.0	102.6	136.3	82.4	34.9	47.0	-51.2	61.6	-2.5		
Government Sector													
Gov't Surplus/Deficit (US$ bn)	-36.4	-117.0	111.6	-55.6	-98.2	48.3	17.8	-175.6	-48.2	159.3	-165.9	50.7	
Monetary Sector													
M1 Money Supply (yoy %)	-0.2	-0.1	0.4	0.1	-0.4	0.0	-0.4	0.4	0.4	-0.5	-0.6	1.5	
M2 Money Supply (yoy %)	6.0	6.4	6.5	6.0	5.9	5.7	5.6	6.7	7.0	6.5	6.4	6.1	
M3 Money Supply (yoy %) (disc.)													
Financial Indicators													
Fed Funds Rate (%)	5.25	5.25	4.75	4.50	4.50	4.25	3.00	3.00	2.25	2.00	2.00	2.00	
3-Month T-Bill Rate (%)	4.94	4.11	3.80	3.91	3.14	3.24	1.94	1.84	1.32	1.38	1.88	1.73	
10-Year Treasury Yield (%)	4.74	4.53	4.59	4.47	3.94	4.02	3.59	3.51	3.41	3.73	4.06	3.97	
Stock Prices Index (S&P 500)	1455	1474	1527	1549	1481	1468	1379	1331	1323	1386	1400	1280	
US$ Major Currency Index	77.5	77.5	75.9	73.9	72.2	73.7	73.1	72.6	70.3	70.5	70.7	71.4	

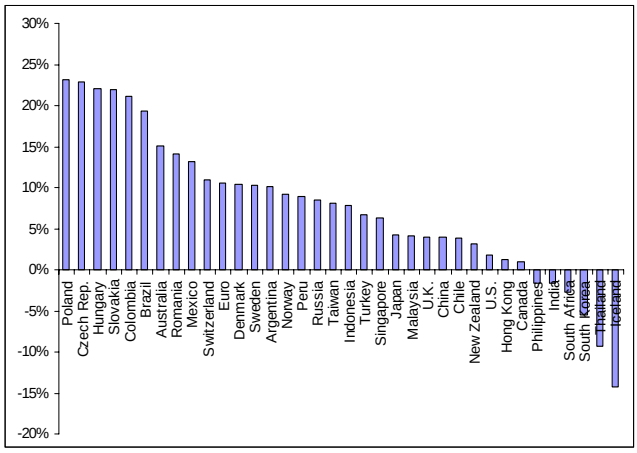
FX Total Return Analysis for 2008

The Reserve Bank of Australia has pushed interest rates consistently higher since 2002, and the A$ has trended upward as well. This has especially been the case over the past 12 months, with the RBA hiking rates from 6.25% to 7.25% and the A$ appreciating from 79 cents to over 96 cents today, making A$-denominated securities all the more attractive to investors in low-yield markets. But the market is expecting the A$ to fall to 91 cents by the end of the year, and then continue depreciating through 2012—along with the New Zealand dollar and the Canadian dollar—probably on concerns of a global economic downturn.

The Swiss franc and the Scandinavian currencies have held onto their gains over the past quarter, treading water along with the euro as the market looks for direction from the U.S. financial crisis, the global downturn, rising inflation, and the Fed's course of action. Although a Swiss franc investment would have returned 11% in U.S. dollar terms in the first half of the year, the market is not looking for any further gains in the second half of 2008.

The emerging European currencies had stellar returns in the first half of 2008, but the market is expecting losses for the rest of this year. Brazil's total return of 19.3% since the start of the year is far-and-away the leader among the BRICs, but the market is looking for a correction during the next five months of the year.

2008 Global FX Total Return Performance
(December 31, 2007-July 23, 2007)



G-10 2008 Currency Performance

December 31, 2007-July 23, 2008

	Currency Return	Interest Return	Total Return
Australia	10.1%	4.4%	15.0%
Switzerland	9.3%	1.6%	11.0%
Euro	7.7%	2.7%	10.5%
Denmark	7.6%	2.6%	10.4%
Sweden	7.4%	2.7%	10.2%
Norway	5.5%	3.5%	9.2%
Japan	3.7%	0.5%	4.2%
U.K.	0.7%	3.3%	4.0%
New Zealand	-1.9%	5.2%	3.2%
U.S.	0.0%	1.7%	1.7%
Canada	-1.0%	2.1%	1.0%

Asia 2008 Currency Performance

December 31, 2007-July 23, 2008

	Currency Return	Interest Return	Total Return
Taiwan	6.7%	1.2%	8.0%
Indonesia	2.8%	4.8%	7.8%
Singapore	5.5%	0.8%	6.4%
Malaysia	2.1%	2.0%	4.2%
China	6.8%	-2.7%	4.0%
Hong Kong	0.0%	1.3%	1.3%
Philippines	-6.1%	4.8%	-1.6%
India	-6.5%	5.1%	-1.7%
South Korea	-7.3%	2.0%	-5.4%
Thailand	-10.8%	1.7%	-9.3%

EMEA 2008 Currency Performance

December 31, 2007-July 23, 2008

	Currency Return	Interest Return	Total Return
Poland	19.1%	3.5%	23.2%
Czech Rep.	20.1%	2.3%	22.8%
Hungary	16.5%	4.7%	22.0%
Slovakia	19.1%	2.4%	22.0%
Romania	7.6%	6.1%	14.1%
Russia	5.5%	2.8%	8.5%
Turkey	-2.8%	9.8%	6.8%
South Africa	-8.9%	6.8%	-2.7%
Iceland	-21.1%	8.8%	-14.2%

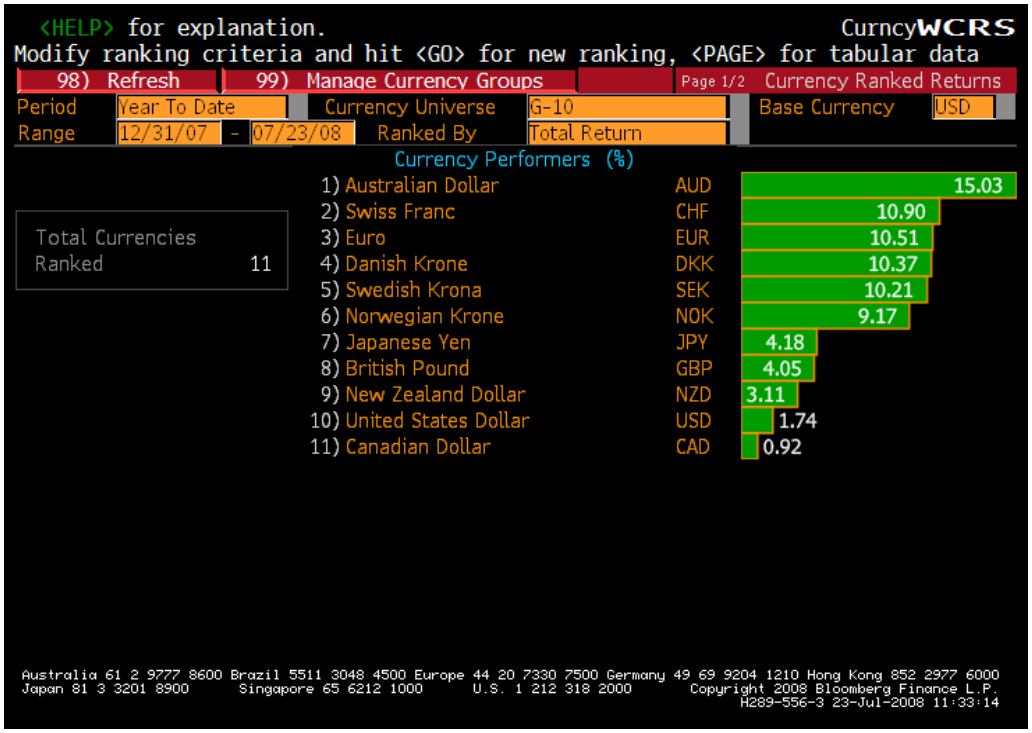
Latin America 2008 Currency Performance

December 31, 2007-July 23, 2008

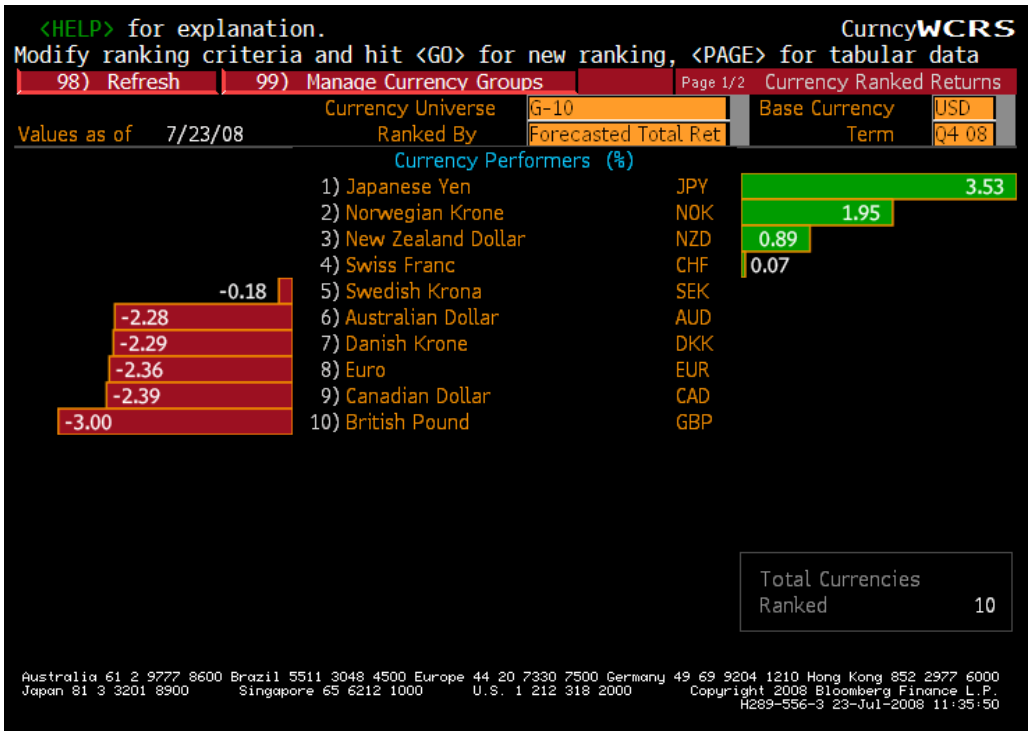
	Currency Return	Interest Return	Total Return
Colombia	14.2%	6.1%	21.1%
Brazil	12.3%	6.2%	19.3%
Mexico	8.5%	4.3%	13.1%
Argentina	4.2%	5.8%	10.2%
Peru	5.6%	3.1%	8.9%
Chile	0.7%	3.0%	3.8%

Monitoring FX Total Return on Bloomberg

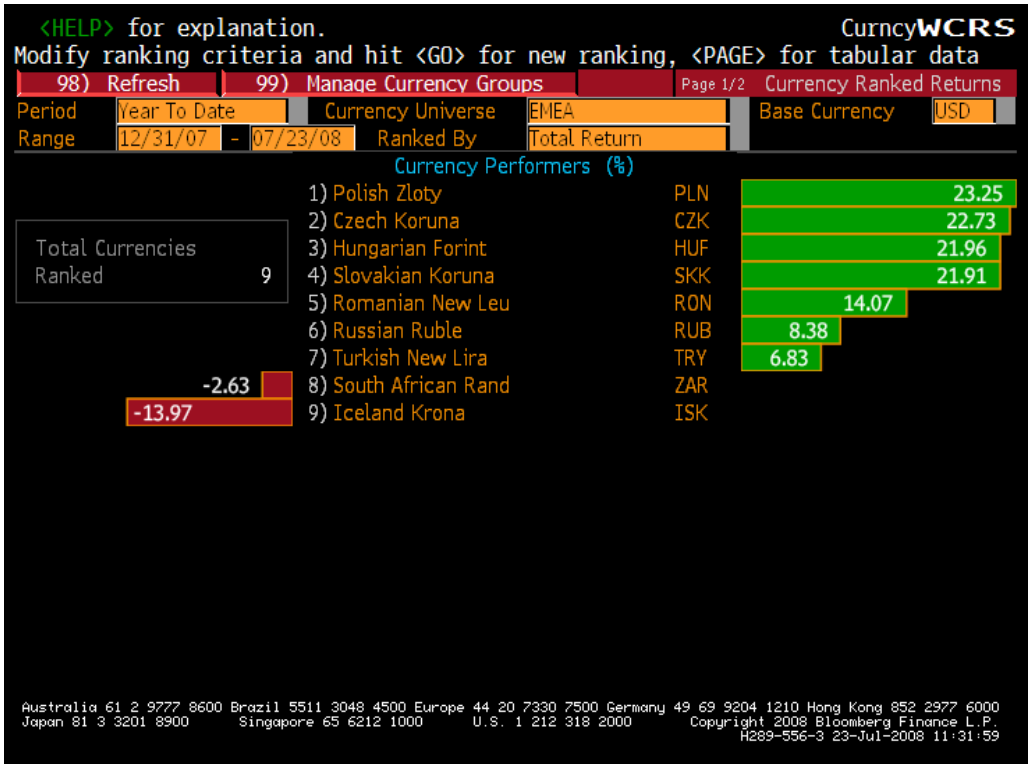
G-10 Year-to-Date Returns— Enter WCRS <go> and click on "Year To Date" in the *Period* button, "G10" in the *Currency Universe* button, and "Total Return" in the *Ranked By* button. Currency return is available by choosing "Spot Return" in the *Ranked By* button.



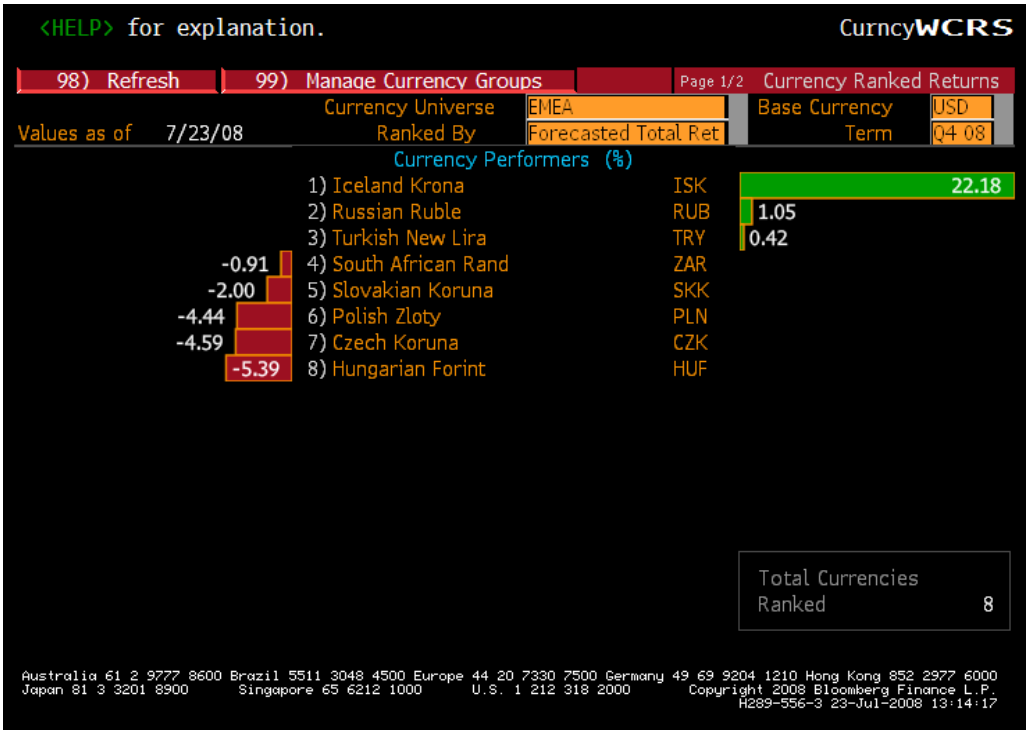
G-10 Expected Returns — Enter WCRS <go> and choose "G10" in the *Currency Universe* button and "Forecasted Total Return" in the *Ranked By* button. Currency return is available by choosing "Forecasted Spot Return" in the *Ranked By* button.



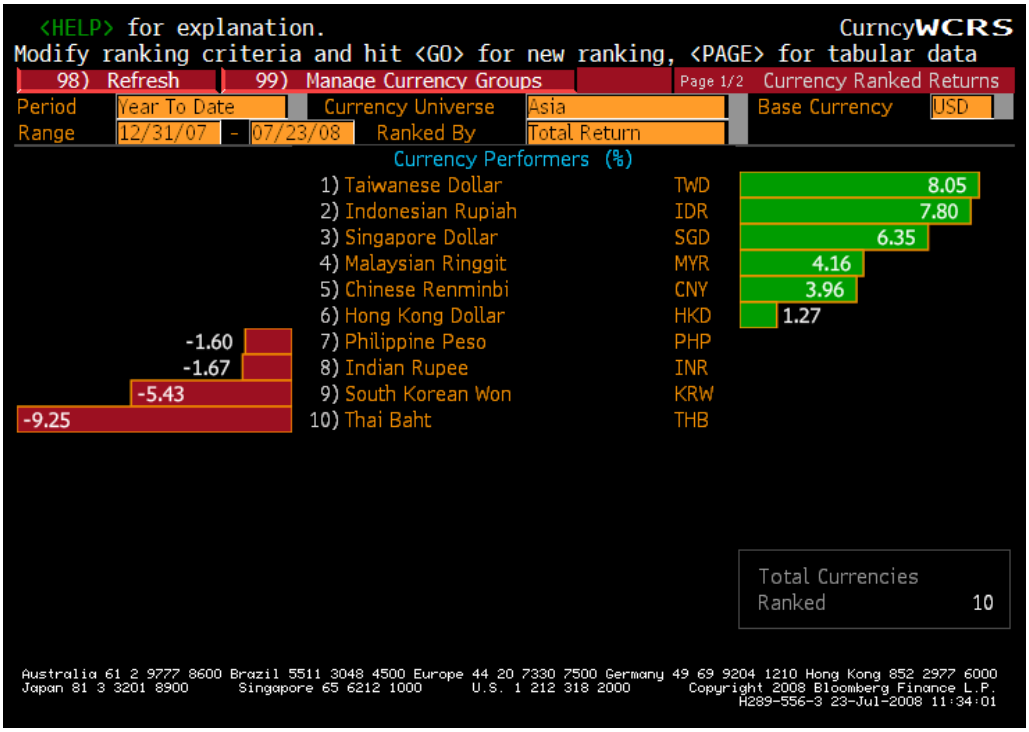
EMEA Year-to-Date Returns — Enter WCRS <go> and click on "Year To Date" in the *Period* button, "EMEA" in the *Currency Universe* button, and "Total Return" in the *Ranked By* button. Currency return is available by choosing "Spot Return" in the *Ranked By* button.



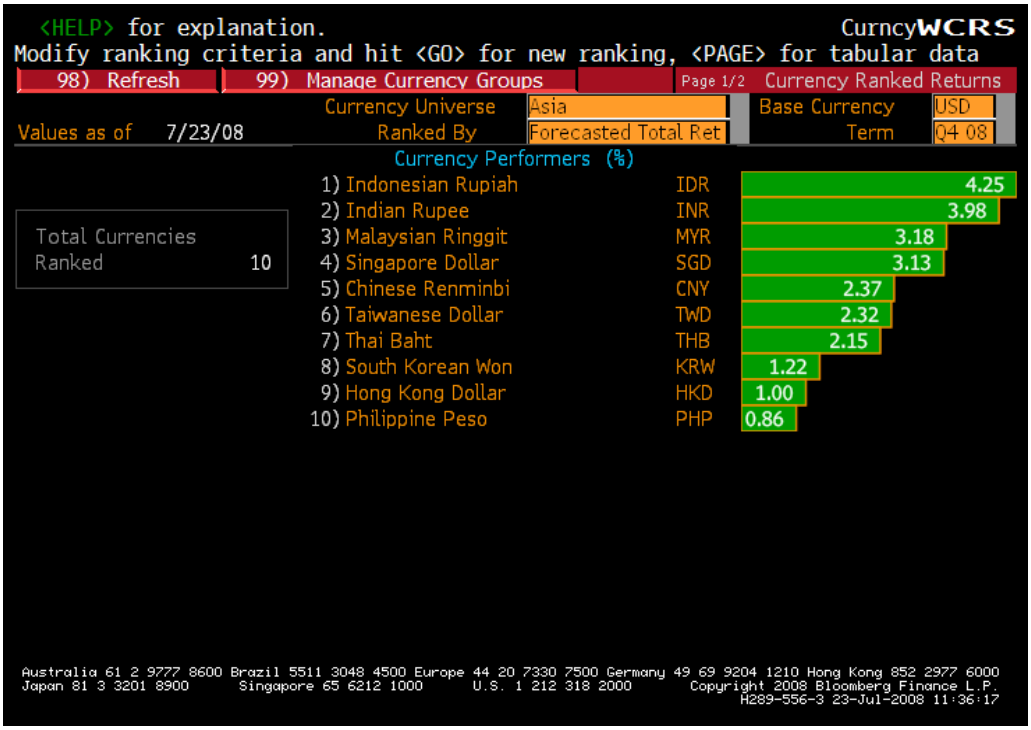
EMEA Expected Returns — Enter WCRS <go> and choose "EMEA" in the *Currency Universe* button and "Forecasted Total Return" in the *Ranked By* button. Currency return is available by choosing "Forecasted Spot Return" in the *Ranked By* button.



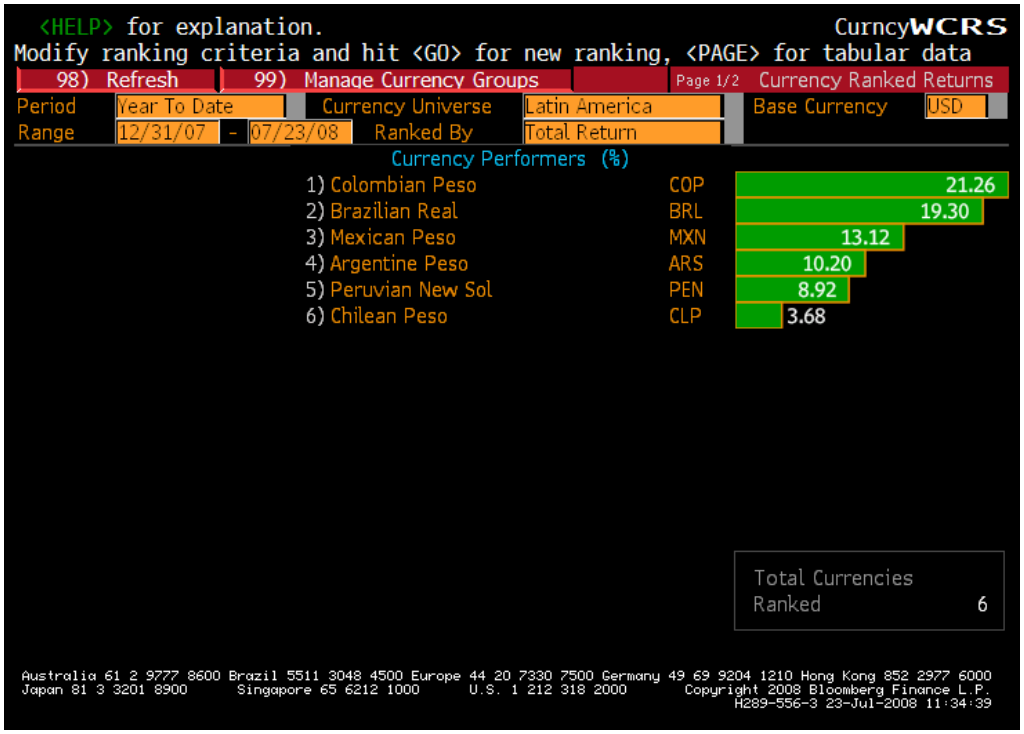
Asia Year-to-Date Returns — Enter WCRS <go> and click on "Year To Date" in the *Period* button, "Asia" in the *Currency Universe* button, and "Total Return" in the *Ranked By* button. Currency return is available by choosing "Spot Return" in the *Ranked By* button.



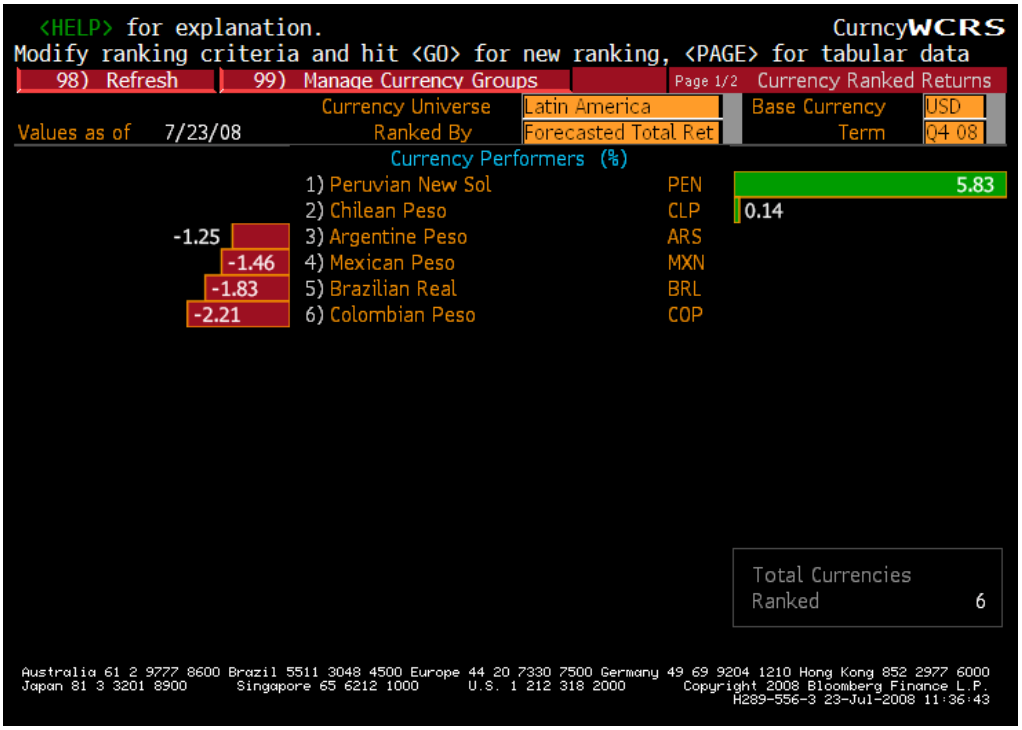
Asia Expected Returns— Enter WCRS <go> and choose "Asia" in the *Currency Universe* button and "Forecasted Total Return" in the *Ranked By* button. Currency return is available by choosing "Forecasted Spot Return" in the *Ranked By* button.



Latin America Year-to-Date Returns — Enter WCRS <go> and click on "Year To Date" in the *Period* button, "Latin America" in the *Currency Universe* button, and "Total Return" in the *Ranked By* button. Currency return is available by choosing "Spot Return" in the *Ranked By* button.

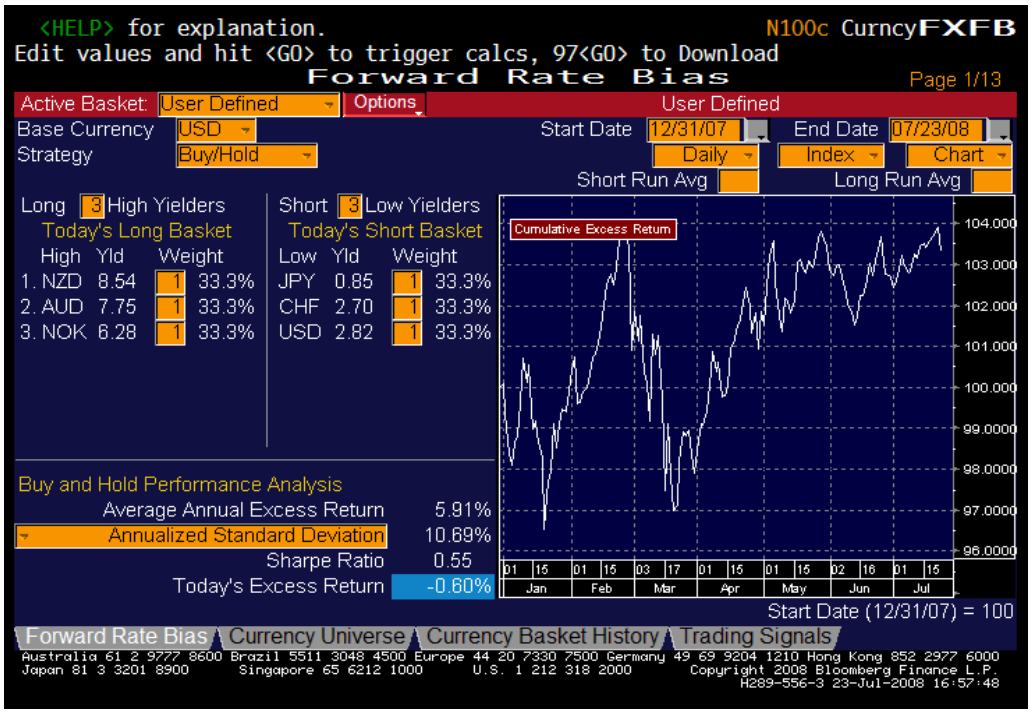


Latin America Expected Returns — Enter WCRS <go> and choose "Latin America" in the *Currency Universe* button and "Forecasted Total Return" in the *Ranked By* button. Currency return is available by choosing "Forecasted Spot Return" in the *Ranked By* button.

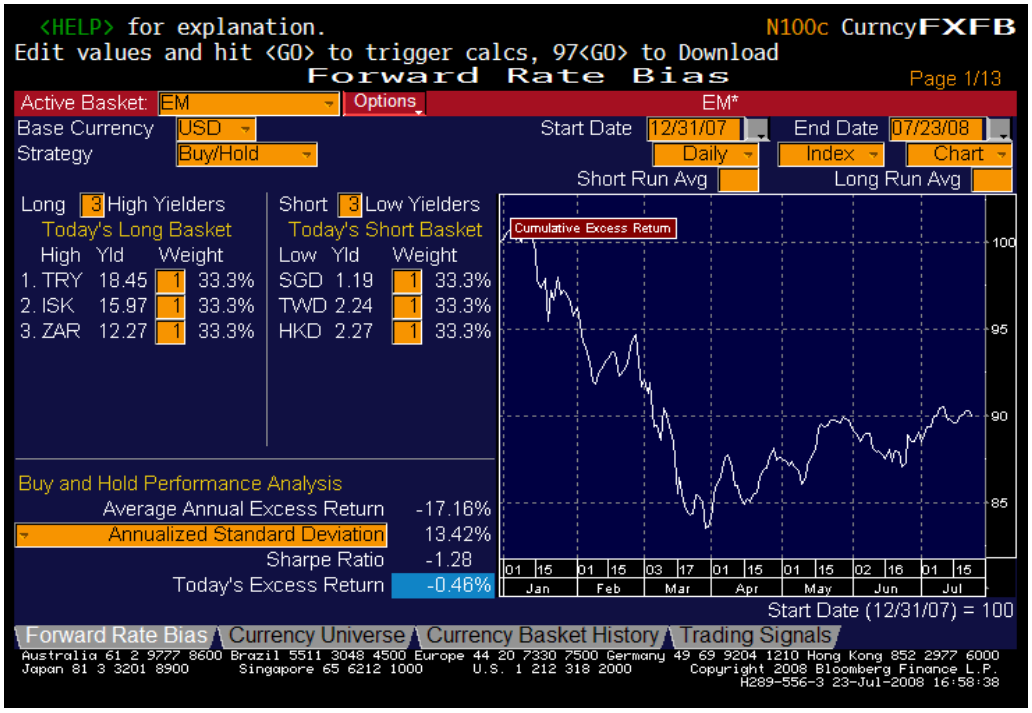


Monitoring Forward Rate Bias Trades on Bloomberg

G-10 Forward Rate Bias Strategy — Enter FXFB <go> and choose G-10 in the Currency Universe drop-down menu.
This strategy is fully funded—the long positions in the three highest-yielding G-10 currencies are funded by short positions in the three lowest-yielding G-10 currencies—therefore generating excess returns. Excess return calculations include the percentage change in the spot exchange rate plus the interest-rate spread between three-month money-market rates.

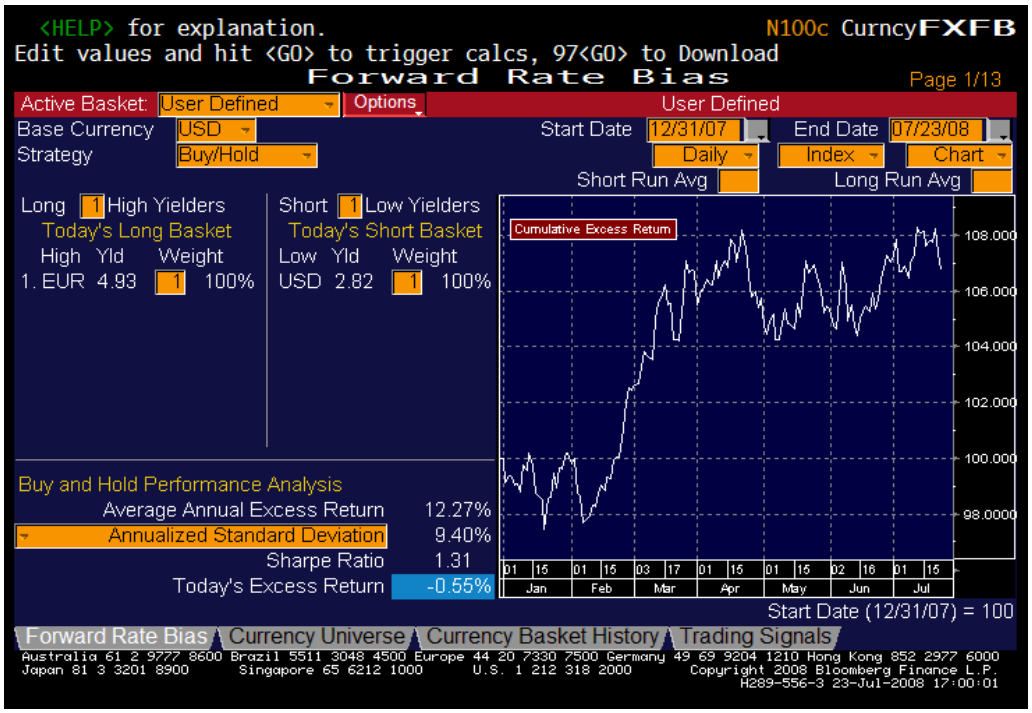


Emerging Market Forward Rate Bias Strategy — Enter FXFB <go>, click on the Currency Universe tab at the bottom of the screen, and then select EMEA, Asia, and Latin America in the Currency Universe menu. This strategy is fully funded—the long positions in the three highest-yielding EM currencies are funded by short positions in the three lowest-yielding EM currencies—therefore generating excess returns. Excess return calculations include the percentage change in the spot exchange rates plus the interest-rate spread between three-month money-market rates.

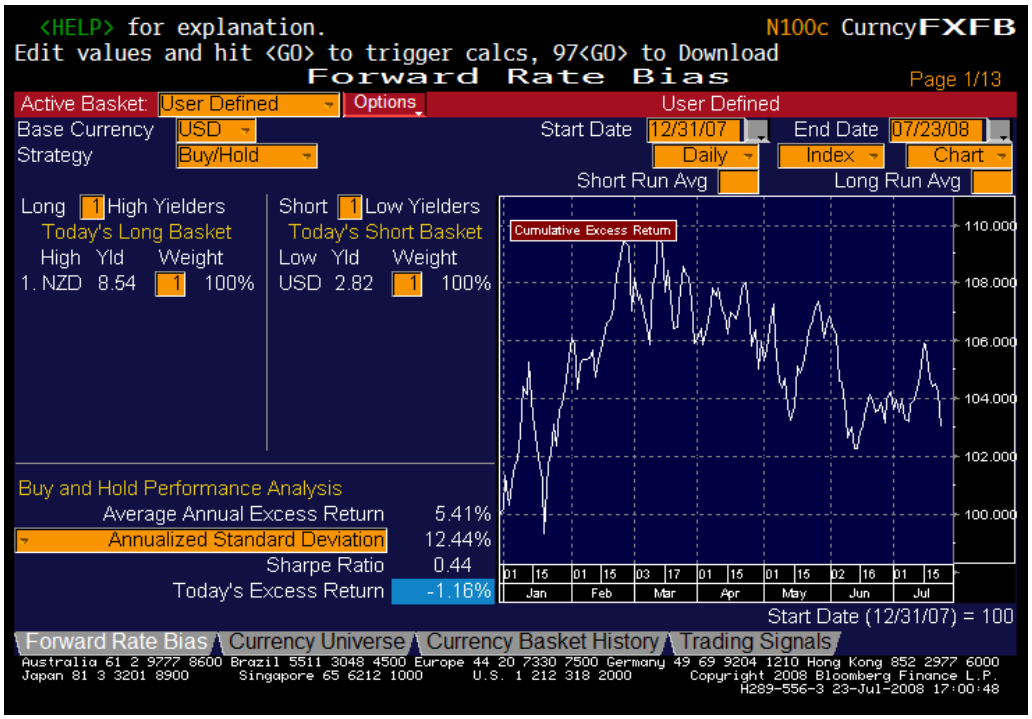


Excludes CNY and MYR

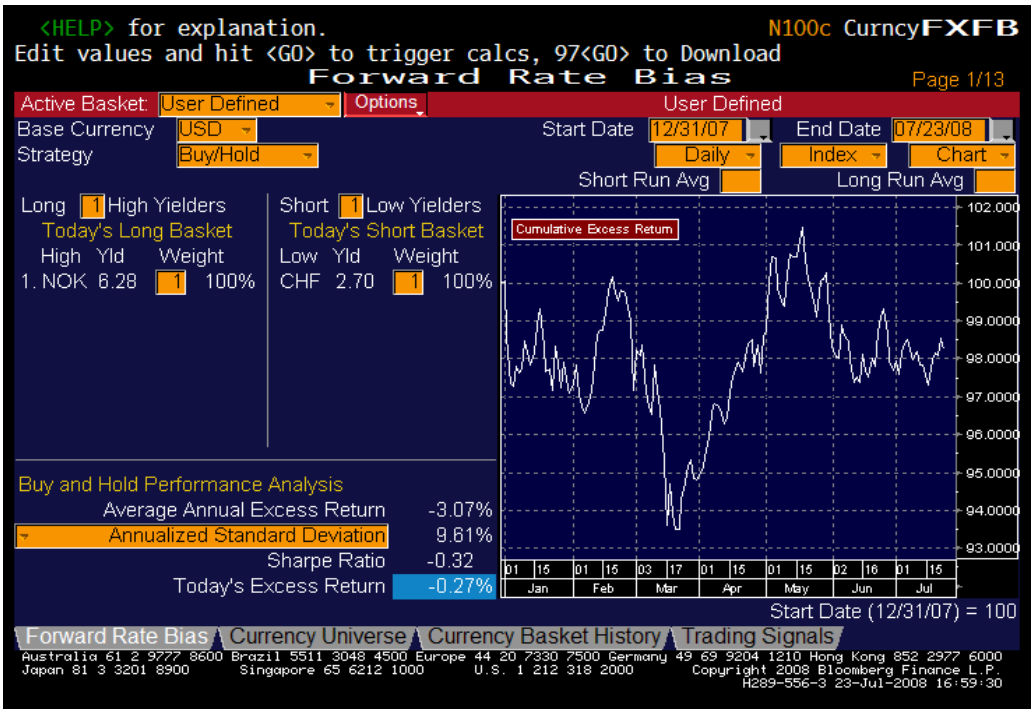
Euro-Dollar Forward Rate Bias Strategy — Enter FXFB <go>, click on the Currency Universe tab at the bottom of the screen, and then select U.S. and Euro in the Currency Universe menu. When US$-denominatd three-month deposit rates are higher than Euro-area rates, the strategy is long th dollar and short the euro. When Euro-areas rats are higher, the position is reversed, going long the euro and short the dollar. Excess return calculations include the percentage change in the spot exchange rate plus the interest-rate spread between three-month money-market rates.



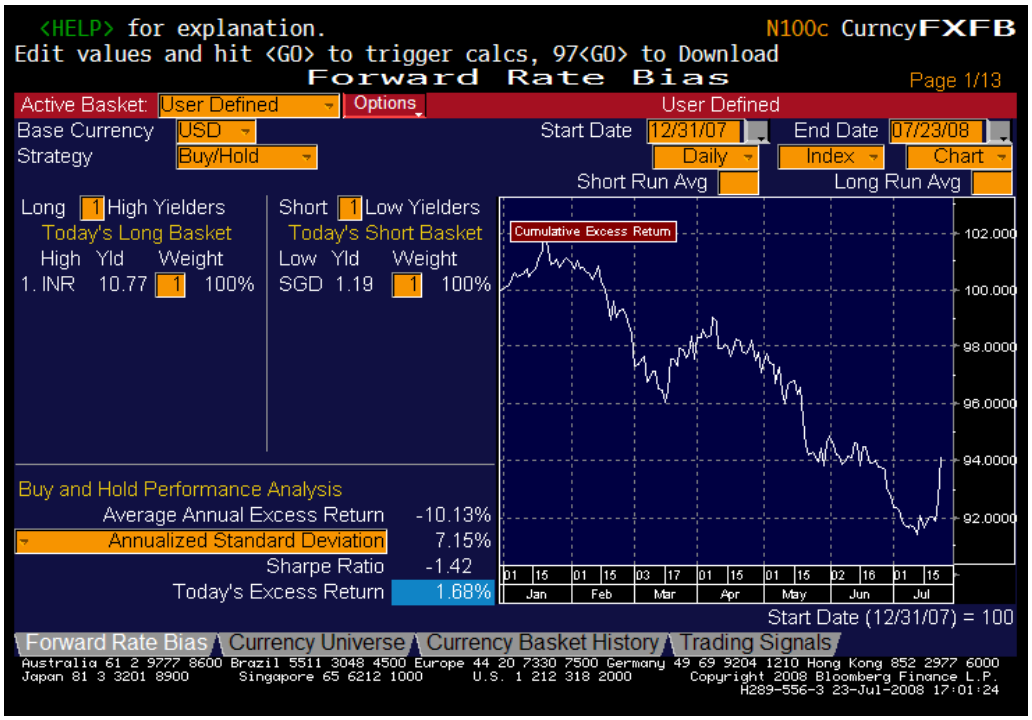
Dollar-Bloc Forward Rate Bias Strategy — Enter FXFB <go> and choose the U.S., Canadian, Australian, and New Zealand dollars in the Currency Universe menu. This strategy is fully funded—the long position in the highest-yielding Dollar-bloc currency is funded by short position in the lowest-yielding Dollar-bloc currency—therefore generating excess returns. Excess return calculations include the percentage change in the spot exchange rates plus the interest-rate spread between three-month money-market rates.



Western Europe Forward Rate Bias Strategy — Enter FXFB <go>, click on the Currency Universe tab at the bottom of the screen, and then select Euro, U.K., Switzerland, Denmark, Norway, and Sweden in the Currency Universe menu. This strategy is fully funded—the long position in the highest-yielding European currency is funded by short position in the lowest-yielding European currency—therefore generating excess returns. Excess return calculations include the percentage change in the spot exchange rate plus the interest-rate spread between three-month money-market rates.

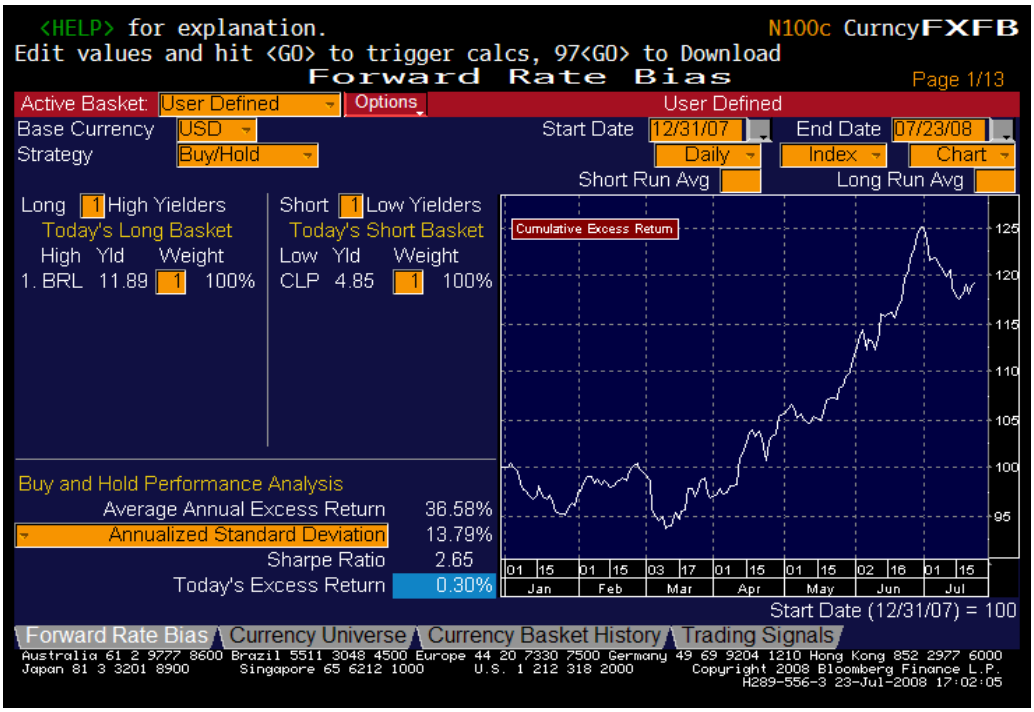


Asia Forward Rate Bias Strategy — Enter FXFB <go> and choose Asia in the Currency Universe drop-down menu. (Note for analysis prior to 2006, do not include the CNY or MYR.) This strategy is fully funded—the long position in the highest-yielding Asian currency is funded by a short position in the lowest-yielding Asian currency—therefore generating excess returns. Excess return calculations include the percentage change in the spot exchange rates plus the interest-rate spread between three-month money-market rates.

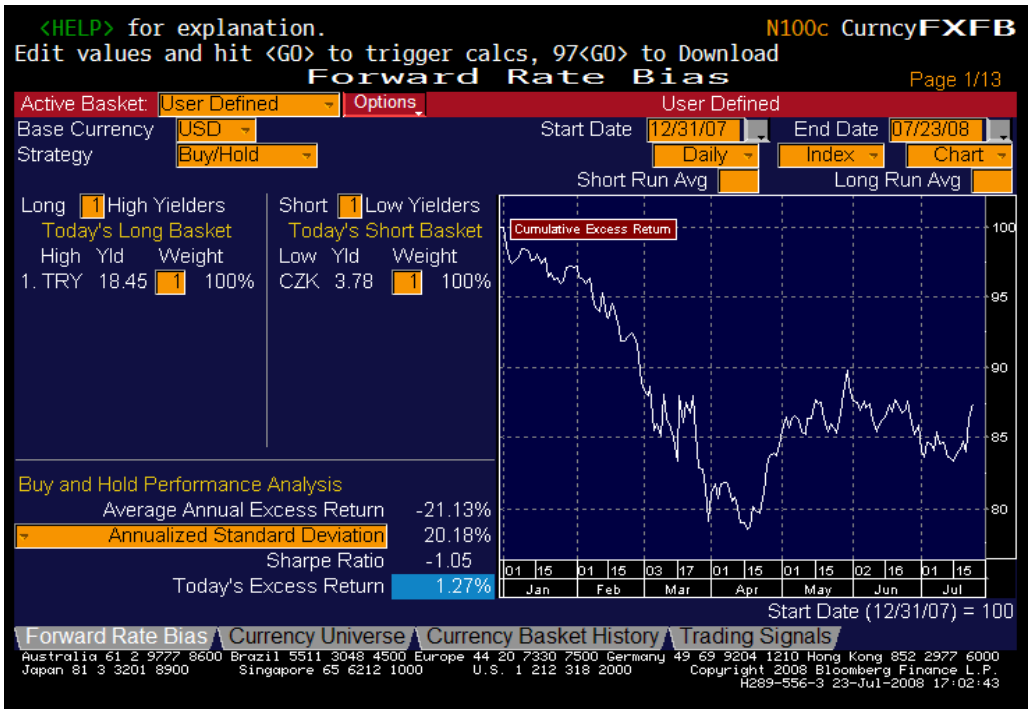


Excludes CNY and MYR

Latin America Forward Rate Bias Strategy — Enter FXFB <go> and choose Latin America in the Currency Universe drop-down menu. This strategy is fully funded—the long position in the highest-yielding Latin American currency is funded by a short position in the lowest-yielding Latin American currency—therefore generating excess returns. Excess return calculations include the percentage change in the spot exchange rates plus the interest-rate spread between three-month money-market rates.



EMEA Forward Rate Bias Strategy — Enter FXFB <go> and choose EMEA in the Currency Universe drop-down menu. (Note for analysis prior to 2003, do not include the ISK or SKK.) This strategy is fully funded—the long position in the highest-yielding Asian currency is funded by a short position in the lowest-yielding Asian currency—therefore generating excess returns. Excess return calculations include the percentage change in the spot exchange rates plus the interest-rate spread between three-month money-market rates.



FX Investment Style Performance

Trend-following FX strategies would have generated losses in the second quarter, according to simulations by James Binny of ABN Amro. As the dollar whipsawed within recent trading ranges, an FX trend-following trading strategy would have lost -1.4%, -1.1%, and -4.0% in April-June, with June's the worst performance in two years.

Simulated carry trades (yield-based strategies) were successful, however, as the high-yielding Australian dollar benefited from the surge in energy prices. Carry trades in the first quarter generated positive returns of 2.9%, 1.2%, and 1.7% in April-June, reversing the lackluster performance of the previous three quarters.

Volatility returned to the market early into the quarter, and then took leave again as the market stuck to its recent ranges. So simulated volatility-based strategies, earned 2.7% in April and a whooping 7.4% in May, which was then followed by only a 0.3% return in June.

Valuation-based strategies generated negative returns in each month of the second quarter. The Australian dollar is 30% overvalued on a PPP basis, but continues to climb. The euro is 35% overvalued, but continues to hold its own versus the dollar. The Swiss franc was overvalued by 22% at the start of the quarter, but remains 19% overvalued at the end of June. In fact, valuation/PPP strategies have generated losses in 13 of the past 18 months, according to the ABN Amro simulations.

Seven-Year Performance of Simulated FX Invesment Styles vs. a Risk-Free Investment
(January 2001-June 2008)

Investment Style	Average Annual Return	Annualized Std. Dev. of Monthly Return	Sharpe Ratio
Value/PPP	3.9%	8.6%	0.45
Trend-Following	-1.1%	11.1%	-0.10
Carry/Yield	9.2%	8.0%	1.14
Volatility Capture	4.4%	9.9%	0.44
Average	4.4%	5.2%	0.83
US$ 3-Mo. Deposit	3.2%	5.6%	0.57

Note: Annualized standard deviation of monthly returns since January 2001.

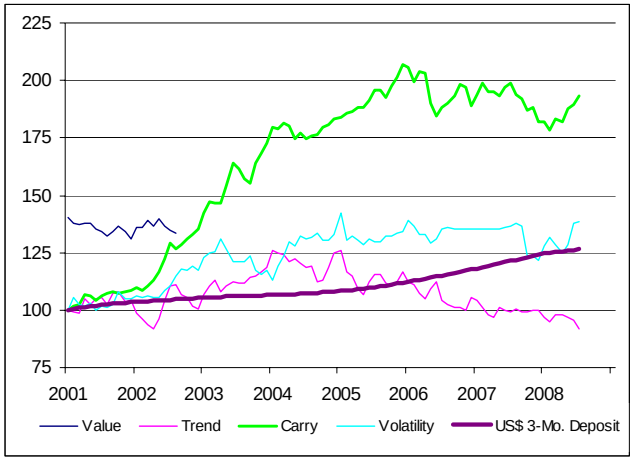
2008 Performance of Simulated FX Invesment Styles vs. a Risk-Free Investment
(January-June 2008)

Investment Style	Year-to-Date Return	Latest 12 Months Return	Annualized Std. Dev. Monthly Return	Sharpe Ratio
Value/PPP	-2.0%	-2.5%	8.6%	-0.29
Trend-Following	-5.4%	-4.1%	11.1%	-0.37
Carry/Yield	5.9%	-0.9%	8.0%	-0.11
Volatility Capture	8.2%	1.5%	9.9%	0.15
Average	1.7%	-1.2%	5.2%	-0.23
US$ 3-Mo. Deposit	1.5%	4.2%	5.6%	0.74

Note: Annualized standard deviation of monthly returns since January 2001.

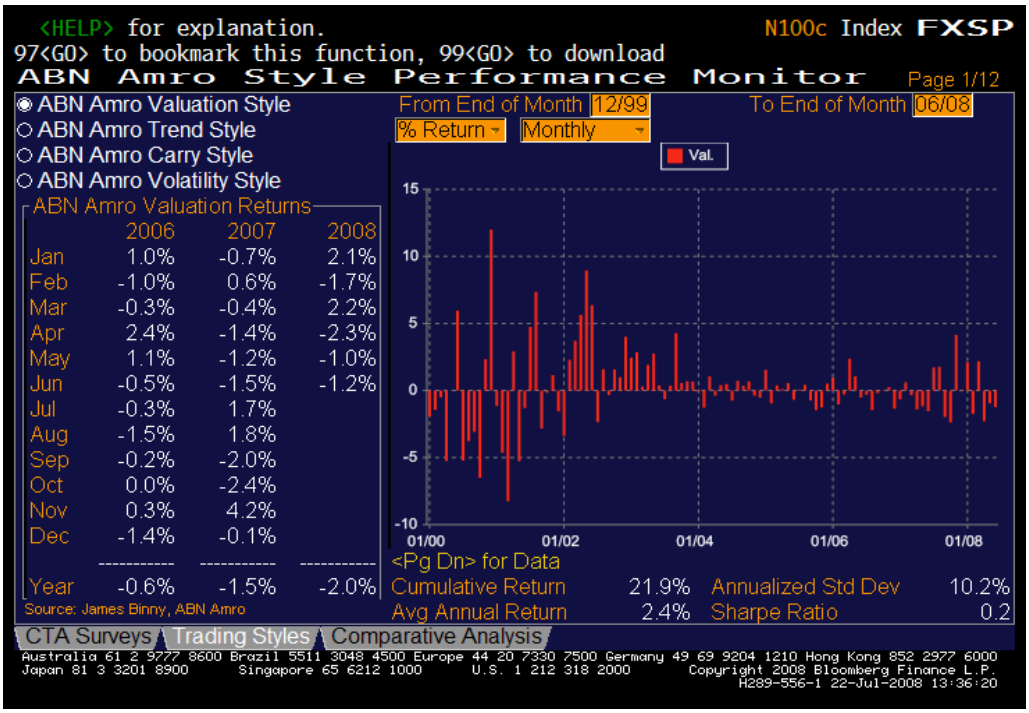
ABN Amro FX Investment Style Performance since 2001
(vs. a US$-Denominated Money-Market Security)

Cumulative Return Indices (Jan.1 ,2001 = 100)

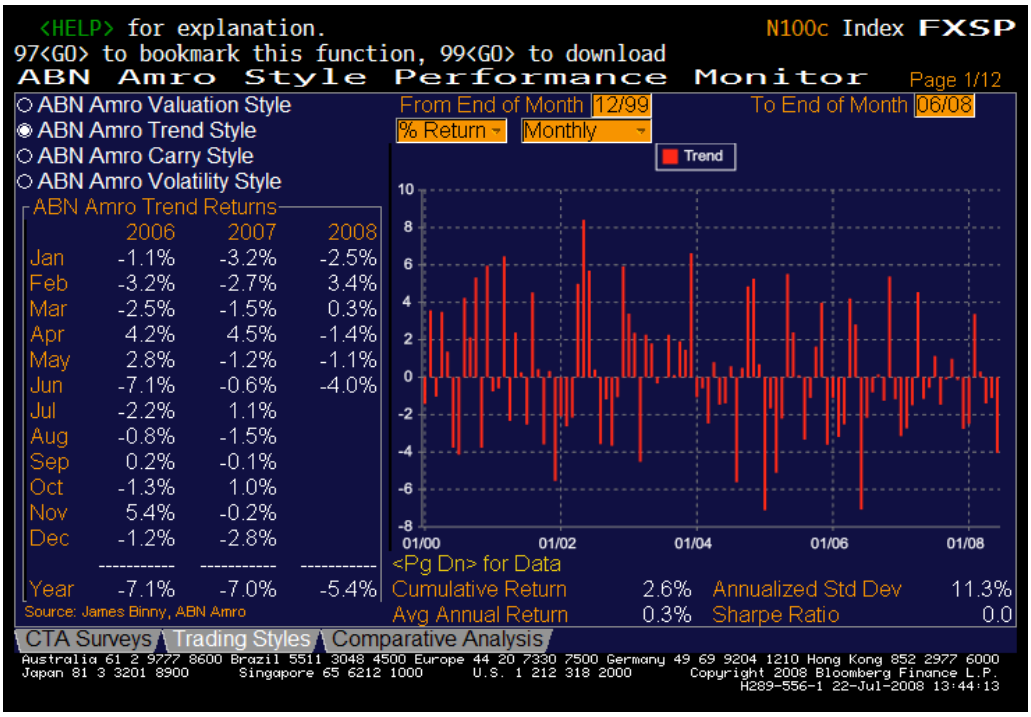


Monitoring FX Investment-Style Performance on Bloomberg

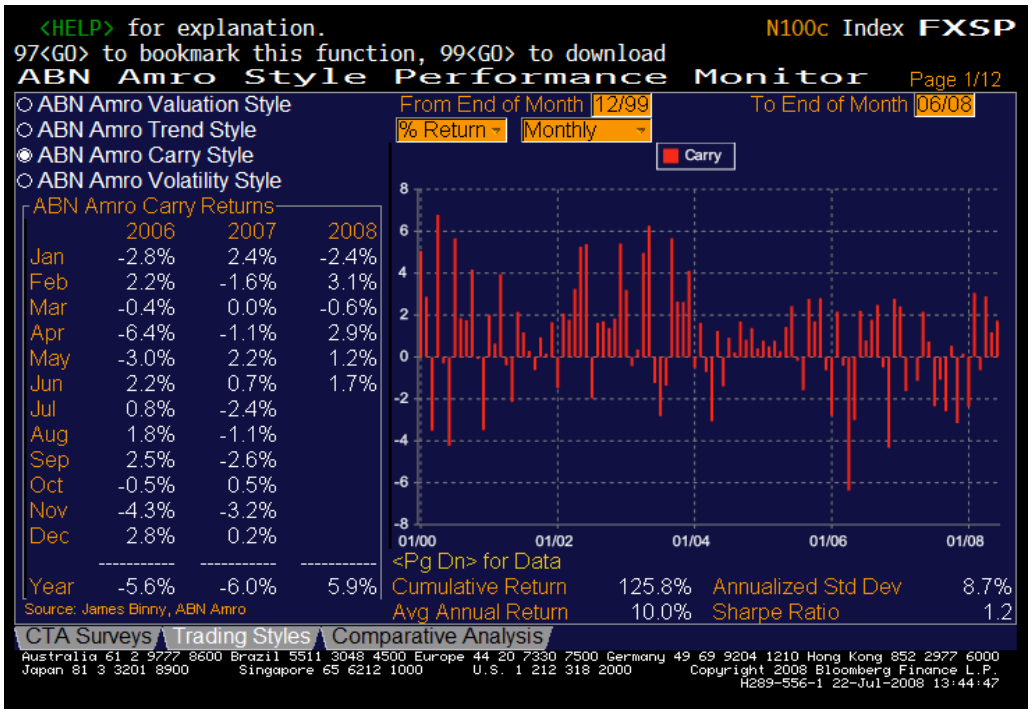
Valuation Style — Enter FXSP <go> and click on the ABN Amro Valuation Style button.
The Value/PPP investment style looks at a simple fair value for currencies (typically rather a long time horizon), with position size proportional to under/overvaluation according to the evolution of CPI in each country.



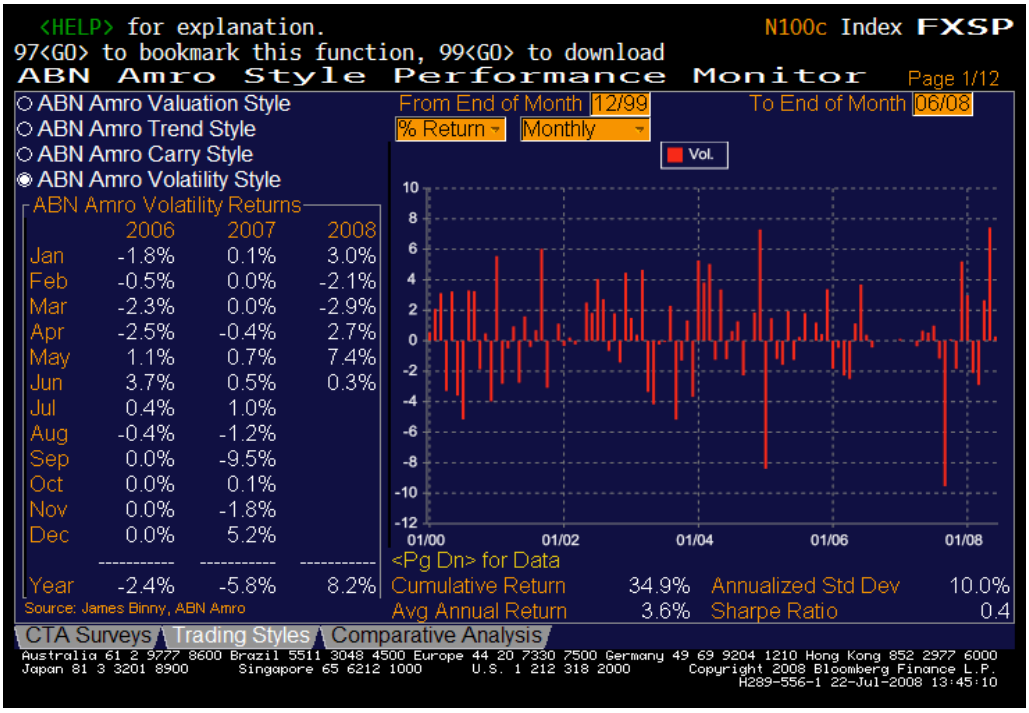
Trend Style — Enter FXSP <go> and click on the ABN Amro Trend Style button.
The Trend investment style is a moving-average strategy, combined with a simple rule to reduce whipsaw.



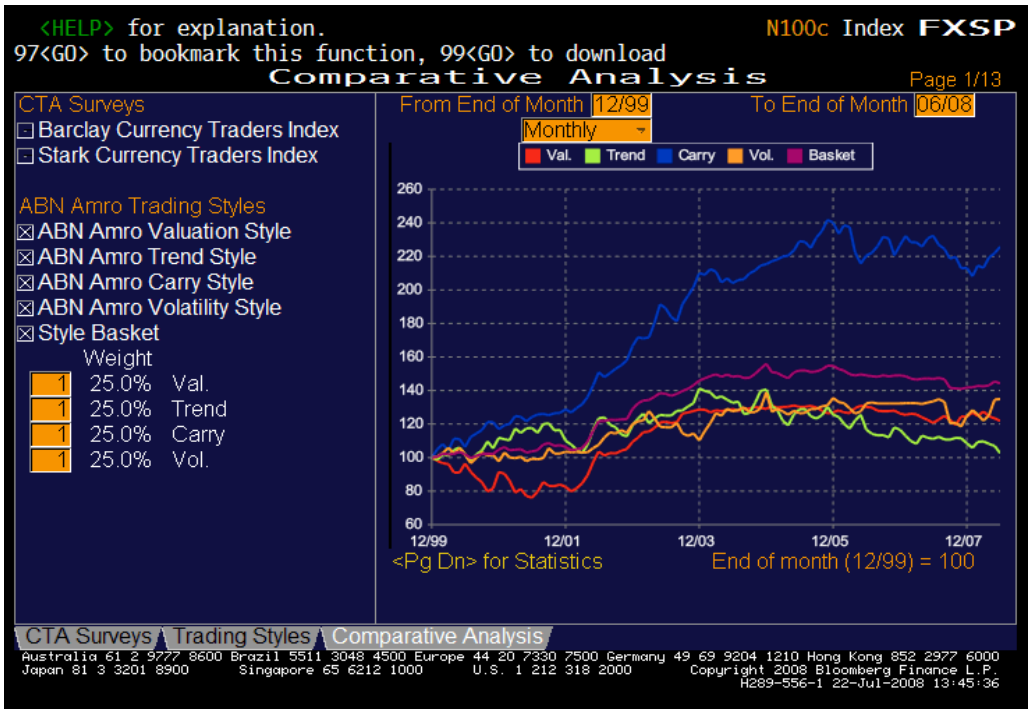
Carry Investment Style — Enter FXSP <go> and click on the ABN Amro Carry Style button.
Carry-trade (Yield) investment style buys higher yielding currencies and sells lower yielding currencies (with the position size proportional to yield relative to average).



Volatility Investment Style — Enter FXSP <go> and click on the ABN Amro Volatility Style button.
The Short Volatility Invesment style sells an at-the-money-forward straddle for each currency at the start of each month if implied volatility is above its one-year average for that currency.



Style Basket — Enter FXSP <go> and click on the Comparative Analysis tab at the bottom of the screen.
Clicking on the Style Basket will create a portfolio consisting of a weighted average of the monthly returns of the four simulated investment styles.



The ABN AMRO currency style indices are designed as simple representations of some of the techniques used by currency managers to seek profit from the foreign exchange market.

All strategies are equally weighted between USD, EUR, JPY, CHF, GBP, AUD, CAD, SEK, and NOK.

None of the strategies is intended to be "optimal" and there is no risk control/stops etc. This is because the strategies are meant to be indicative rather than some fantastic insight as to how currencies should be traded.

The returns represent "pure alpha"—i.e., no underlying cash return has been added. They include reasonable estimates of transaction costs, but exclude any management or performance fees. All returns have been rescaled to give 10% volatility over the long term. The style indices were described in detail by James Binny in *Journal of Alternative Investments*, Volume 8, Number 3, Winter 2005, "Currency Management Style through the Ages".

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james.binny@uk.abnamro.com

FX Trader Performance

FX traders at the half-way mark for 2008 appear to be on track to surpass the performance of the last two less-than-stellar years. The Stark survey of the CTA community suggests that FX traders have generated year-to-date returns of 8.2% through June, with the bulk of the those positive returns occurring with the euro's big upmove in February-March. The survey suggests that FX trader performance returned to earth in the second quarter, but is tooling along at a decent clip of 0.7%-0.9% in May and June.

The Barclay Group survey of the FX trader community shows a similar pattern of performance, but at more moderate levels than the Stark survey. The Barclay Group survey suggests that the FX traders generated positive returns of 0.9% in February and March, versus the Stark survey, which indicated gains of 4.25%-4.50% in those same months. (Note that the Barclay Group Survey for June was not available at the time of this publication.)

Average Annual Return Performance of CTA FX Traders (vs. a Risk-Free Investment)
(January 2001-May/June 2008)

Survey	Average Annual Return	Annualized Std. Dev. of Monthly Return	Sharpe Ratio
Barclay Group*	**3.3%**	**5.5%**	**0.60**
Daniel B. Stark & Co.	**4.5%**	**5.5%**	**0.82**
U.S. 3-Mo. Deposit	**3.2%**	**5.6%**	**0.57**

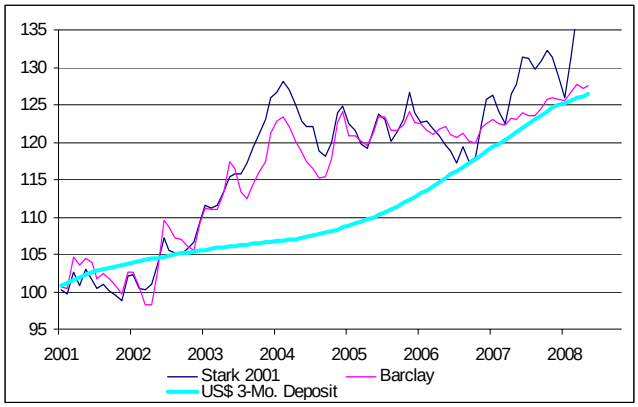
Note: Annualized standard deviation of monthly returns since January 2001.
*Barclay Group Survey through May 2008 / Stark Survey through June 2008.

Recent Performance of CTA FX Traders (vs. a Risk-Free Investment)
(January 2008-May/June 2008)

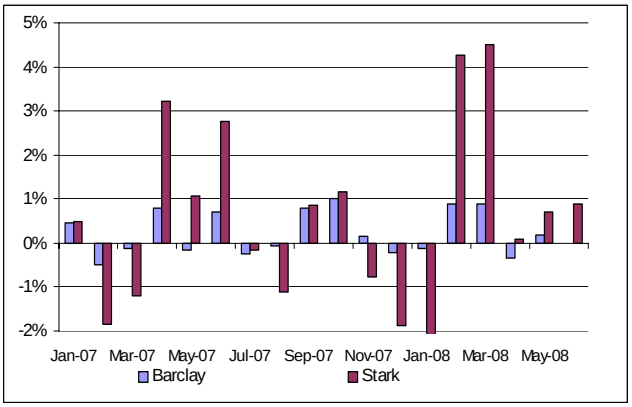
Survey	Year-to-Date Return	Latest 12 Months Return	Annualized Std. Dev. Monthly Return	Sharpe Ratio
Barclay Group*	**1.4%**	**3.6%**	**5.5%**	**0.65**
Daniel B. Stark & Co.	**8.2%**	**6.2%**	**5.5%**	**1.11**
U.S. 3-Mo. Deposit	**1.5%**	**4.2%**	**5.6%**	**0.74**

Note: Annualized standard deviation of monthly returns since January 2001.
*Barclay Group Survey through May 2008 / Stark Survey through June 2008.

CTA FX Trader Performance since 2001
(vs. a US$-Denominated Money-Market Security)
Cumulative Return Indices (Jan.1 ,2001 = 100)



Jan.2007-May/June 2008 CTA FX Trader Performance
Monthly Return



FXTP shows the monthly total returns of Commodity Trading Advisors (CTAs) as surveyed by The Barclay Group and Daniel B. Stark & Company. Each of the surveys compiles the monthly total returns reported by various fund managers. The average of these monthly returns is shown as a cumulative total return performance index for the FX industry.

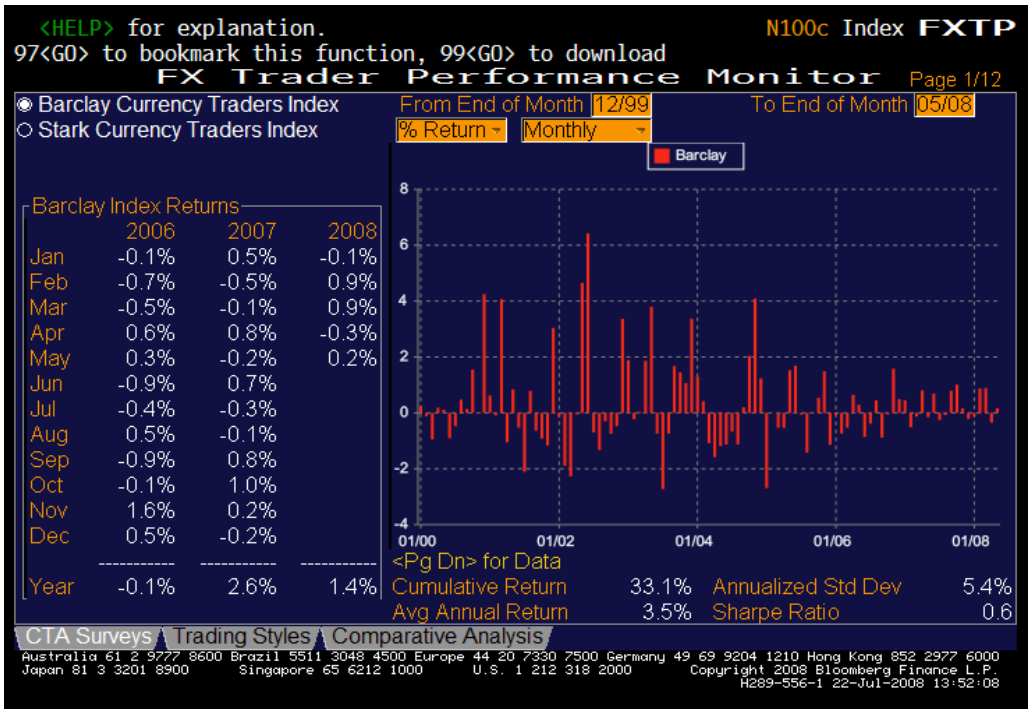
The Barclay Currency Traders Index is net of management fees and, depending on the surveyed fund, may or may not include interest income (which in most likelihood is less than Libor or T-bill rates).

The Barclay CTA Currency Index is courtesy of The Barclay Group (http://www.barclaygrp.com/indices/cta/sub/cta.html). Please contact Sol Waxman at sol@barclaygrp.com or (641) 209-5731. The index is available on the Bloomberg ticker, BARCCURR <index> <go>.

The Stark Currency Trader Index is courtesy of Daniel B. Stark & Company, (http://www.starkresearch.com/) and is available on the Bloomberg ticker, STKCURRV <index> <go>.

Monitoring FX Trader Performance on Bloomberg

Barclay Group Currency Trader Index — Enter FXTP <go> and click on the Barclay Currency Traders Index button.



Stark Currency Traders Index — Enter FXTP <go> and click on the Stark Currency Traders Index button.