C | A

CAMBRIDGE ASSOCIATES LLC

GLOBAL MARKET COMMENTARY

WHITHER THE DOLLAR

September 2008

Sean McLaughlin
Kyle Anderson

Whither the Dollar

"One of the most extraordinary features of the past month is the extent to which the dollar has remained immune to a once-in-a-lifetime financial crisis. If the US were an emerging market country, its exchange rate would be plummeting and interest rates on government debt would be soaring. Instead, the dollar has actually strengthened modestly, while interest rates on three-month US Treasury Bills have now reached 64-year lows. It is almost as if the more the US messes up, the more the world loves it."—Kenneth Rogoff, a professor at Harvard University and former chief economist of the International Monetary Fund (IMF).[1]

If you had asked our opinion of the U.S. dollar in early September (and some of you did just that), we would have told you with some confidence that the euro had likely peaked, and that August's dramatic dollar rally versus the European currencies probably had legs.

By the third week of September, after the U.S. credit markets had arguably come within a hair's breadth of utter collapse and the dollar's lever-puller in chief had authorized the nationalization of AIG and promoted the creation of a $700 billion government mortgage bailout fund,[2] the strength of our conviction had waned considerably.

The market senses that *something big* is coming down the road for the dollar: the implied volatility of the euro/dollar, for example, is 15%,[3] which is quite high for currency.[4] But that "something" could be either a continuation of previous declines *or* a continuation of August's rally.

This commentary discusses in brief the primary factors that we believe may influence the U.S. dollar versus other major currencies in the short-to-intermediate term. The dollar faces considerable headwinds stemming from the serious fiscal implications of the myriad government bailout programs put into place in recent weeks (particularly the $700 billion pool to purchase troubled mortgage securities). At the same time, there are several factors that will likely provide *support* for the dollar: (1) the safe-haven bid and repatriation of U.S. investors' capital, (2) economic growth and interest rate differentials, and (3) the dollar's apparent undervaluation versus major European currencies. Our secular view of the dollar remains negative (versus Asian currencies in particular), as the United States' extreme reliance on non-U.S. central banks to fund government and consumer spending eventually unwinds, and as the dollar transitions from *the* reserve currency to *one among many*.[5] Secular moves, however, are often interrupted by rallies, some of them prolonged and powerful.

---

[1] Kenneth Rogoff, "America Will Need a $1,000bn Bail-Out," *Financial Times*, September 17, 2008.

[2] More precisely, $700 billion is the maximum amount the Treasury could invest, not their *market value* at the time of purchase. If the Treasury pays market prices as defined by the current bid, few if any banks would participate (they could sell now at market prices without the restrictions of the government program).

[3] The implied volatility is calculated by Bloomberg L.P. using the price of options on the Rydex CurrencyShares Euro Trust exchange-traded fund.

[4] Measured using an annualized, rolling 65-day standard deviation of exchange rate changes.

[5] Readers interested in a broader discussion of our secular view on the dollar should review our October 2007 Market Commentary *Does the "Buck" Stop Here?*

Stunning Summertime Dollar Rally

From the beginning of 2002 to the end of September, the dollar has fallen 32% versus a trade-weighted basket of currencies. Using an equity-weighted currency basket based on the currency weights in the MSCI EAFE Index of global ex U.S. developed markets equities, which unhedged global investors might find a more relevant yardstick, the dollar has fallen about 30% since the beginning of 2002, giving unhedged, US$-based investors a 30% tailwind over that period (Table A). In mid-July, that slide reversed, with the beleaguered buck engineering a stunning rally that continued through mid-September. August in particular delivered one of the strongest one-month dollar returns versus the euro and pound in many years (Table B). The dollar's burst of strength was disconcerting to some, given that the world's current financial crisis has its diseased roots in U.S. soil (the soil underneath American condo buildings and suburban homes, to be precise).

In truth, the dollar's gain in August was a function of others' fall (and of a blow-off in commodity prices), rather than a reflection of real optimism toward the U.S. economy, of course. The rapid meltdown of credit markets in September and the $700 billion bailout turned the summertime rally back on its head (Table C).

The economies of the Eurozone and the United Kingdom are beginning to look like lagged versions of the U.S. economy, with slowing or negative GDP growth and overheated home prices that have held up better than those in the United States but are now falling.[6] Overall economic health in the United States is not robust, of course, but it has been supported by robust exports as the dollar has weakened and wages have generally not kept up with inflation, while most of the rest of the exporting world faces a currency-induced pricing headwind. Few investors are of the illusion that the U.S. housing market has bottomed or that banks are finished with their necessary capital raising (with or without the recently passed bailout bill). The perception, though, is that the United States is somewhat farther along in the process than Europe.

Flight to Safety

Another proximate cause of the dollar's summer rally was likely investor flight from emerging markets securities and developed non-U.S. equities into U.S. Treasury securities. U.S.-based mutual fund investors, for example, redeemed about $16 billion net from their world stock funds in August, the largest such net outflow in more than a decade.[7] August's withdrawal was on top of July net redemptions of $7.7 billion. Reliable estimates of September flows are not yet available, but it seems likely that investor outflows

[6] Real GDP growth in the United Kingdom, for example, was flat for the second quarter and the OECD expects third and fourth quarter growth numbers to be negative. The Eurozone reported negative second quarter real GDP growth, and a survey of purchasing managers produced by Markit indicates that the Eurozone is likely to report an additional contraction for the third quarter (although the OECD expects third and fourth quarter growth to be slightly positive, in line with their expectations for the United States). Home prices are down about 10% year-over-year in the United Kingdom in real terms and are just starting to turn in Spain. By contrast, year-over-year house price declines are nearing 16% in the United States (and U.S. prices have been headed south for two years).

[7] Net flows for August are estimated by Lipper Inc. Other flow estimates are from the Investment Company Institute.

from equities and particularly non-U.S. equities continued.[8] The bid for Treasury securities was certainly strong.

What would be the potential impact if U.S. investors further pared back their exposure to non-U.S. equities? Consider that U.S. mutual fund shareholders have invested a net $442 billion in world equity funds since the beginning of 2004—over *seven times* their net investment in U.S. equity funds over the same time period (Table D). This investment in non-U.S. stock funds is also considerably more than was invested into U.S. equity funds during the frenzied two-year period prior to the Nasdaq's March 2000 peak—a time when individual investor sentiment was along the lines of, "the train is leaving the station; if there is ever a time to be fully invested in U.S. equities, that time is now." A sharp and/or prolonged reversal of this multi-year trend would provide considerable support for the dollar. The potential for repatriations by institutional investors outside of the mutual fund business is another possibility, although we would be surprised by any rapid move away from the process of global diversification that the institutional community has embraced in recent years.[9]

Plenty of Treasury Supply Coming on Line

The safe-haven bid for U.S. assets, and particularly Treasuries, may be tested by a rapid increase in the supply of those securities. Increased government spending and falling tax revenue was an accelerating problem *before* Treasury Secretary Henry Paulson and Fed Chairman Ben Bernanke moved to take America's two largest mortgage players, the world's third-largest insurer, and $700 billion in high-risk mortgage securities under the government's wing (the *net* cost of the package to taxpayers will probably be somewhat less than $700 billion, and it is possible the Treasury will make a profit from the program through the use of warrants or other equity stakes, but recouping value may take years). The federal budget deficit was 2.6% of GDP in August, before these initiatives were announced (publicly held federal debt is 37% of GDP). If we assume perhaps $500 billion of new spending in the near term to fund the initial installments of the bailout plan and related initiatives, the deficit would swell to about 6% of GDP (assuming no change in GDP).[10] It is widely believed that $700 billion will not be enough to bring order back to the financial markets, making it possible that other, not yet contemplated, government initiatives will be added to the current measures. An IMF working paper issued in October looked at 42 systemic banking crises that occurred from 1970 to 2007. The authors determined that major bank recapitalization programs were used to resolve 76% of the crises, with an average initial cost of 7.8% of GDP (or 6% of GDP net of eventual returns to the

[8] U.S. investors are also pulling assets out of *domestic* equity funds (and apparently putting the proceeds into money market funds, which saw a stunning $315 billion in net inflows during the first seven months of the year), but this process has no currency exchange rate impact, while the sale of non-US$ investments by U.S. investors is beneficial to the dollar.

[9] Of course the flip-side of this is also possible—non-U.S. investors that own U.S. equities could sell them, repatriating their own capital. Non-U.S. investors have purchased roughly the same amount of U.S. stocks as U.S. investors have of non-U.S. stocks.

[10] The deficit touched 5.7% of GDP in the early 1980s and 5.4% of GDP in the early 1990s, and sits at 2.6% as of the end of August.

government).[11] With both parties showing little appetite for either substantive tax increases or spending decreases, it appears that the funding for these initiatives will come via increased Treasury borrowing.

The rate of increase in outstanding Treasury debt decelerated from 2005 through 2007, but borrowing is now accelerating rapidly.[12] The dollar amount of Treasury securities outstanding is up 9.1% year-over-year, with $347 billion in issuance for the first eight months of 2008 (a 147% increase in year-over-year issuance). On September 24, the Treasury auctioned off the largest-ever issue of two-year notes, and Morgan Stanley estimates that overall Treasury issuance in 2009 will increase by more than $1 trillion over this year's issuance.

Will the U.S. government's fiscal profligacy eventually test the patience of foreign central banks and other owners of Treasury and agency securities? Will they move away from the dollar as *the* reserve currency to one among many any time soon? This transition, if it occurs, is likely to be gradual, due to what is at stake for the largest holders of Treasuries. Selling their holdings would be disastrous for the dollar and would boost Treasury yields by perhaps hundreds of basis points, delivering an immense hit to reserve portfolios. A more likely scenario is that foreign central banks would commit fewer and fewer bids to Treasury auctions.[13]

A legitimate question, however, is: in favor of what? The near future for the United Kingdom and the Eurozone appears to hold looser monetary policy, continued liquidity injections, and perhaps even U.S.-style bailouts (though probably not U.S. scale). What about emerging currencies? The bloom is off the rose there as well. In recent months, the governments of Brazil, India, Mexico, Pakistan, Russia, South Korea, and Thailand reportedly have all acted to try to prop up their currencies. Unlike in some previous emerging markets currency routs, many of the governments in these markets today have sizable reserves, but South Korea spent $21 billion, fully 8% of its reserves, in just five months battling the *won*'s depreciation.[14] Foreign investors have been decreasing their emerging markets exposure at a rapid pace, with roughly $31 billion in outflows from emerging markets equity funds so far in 2008, according to Emerging Portfolio Flows Research.

Economic growth remains strong in many emerging countries (the IMF as of September pegged growth for their combined universe of emerging and developing economies to come in at 6.9% for 2008 and 6.1% in 2009). Inflation is the emerging markets bugaboo, however, due in part to currencies that are pegged to, or managed against, the U.S. dollar, thus mandating stimulative policy interest rates despite overheating internal conditions and significant allocations of consumer spending to food and fuel. The IMF estimates that consumer prices will grow at a 9.6% rate in these countries in 2008 and a still-high 7.4% rate next year.

---

[11] Luc Laeven and Fabian Valencia, "Systemic Banking Crises: A New Database," IMF Working Paper, October 2008.
[12] Off–balance sheet obligations are excluded from the deficit and debt figures. David Walker, former Comptroller General of the United States, noted in the *Financial Times* on September 22 that these obligations totaled $40 trillion as of September 30, 2007, including a $34 trillion Medicare deficit.
[13] We addressed the changing currency and asset class allocation of reserve funds in our June 2007 Market Commentary *Potential Implications of FX Reserve Diversification*.
[14] Joanna Slater, "States Play Currency Defense," *The Wall Street Journal*, September 11, 2008.

There are few obvious candidate currencies offering the prospect of sustained economic strength, low inflation prospects, and noninterventionist governments. It may be that the currencies that fare well in coming months and years are merely the least-bad alternative.

Is the Dollar a Good Value?

Purchasing power parity (PPP) and the law of one price postulate that if a country's currency is overly cheap relative to others, global purchasers in an efficient market will direct funds to that country, picking up bargains on goods and services. This process should direct more money to cheap-currency countries, increasing the value of those currencies and keeping valuations relatively uniform across currencies. There are problems with this approach, among them the difficulty in finding comparable baskets of goods and services across countries (baskets that are uniform in quality and that reflect consumption patterns in each market). Unsurprisingly, PPP analysis is meaningful, if it all, in broad strokes and over long time periods. Barclays Capital notes in a recent report that "the key lesson of the past 40 years is that [the] mean reversion process is an extremely slow one."[15] PPP-based valuations are shown in Table E (a longer-term perspective) and Table F (which zooms in on the past few years) for the U.S. dollar versus the euro, sterling, Swiss franc, and yen. These graphs are rather detailed and appear precise in their assessment, but we would caution that the effect of PPP on actual currency returns over the short and medium terms is more like the moon's gravity than like a tight leash.

More influential than PPP valuations over shorter periods are relative interest rate differentials. One reason for this is the "carry trade." The carry trade simply involves borrowing in a low-yielding currency and lending in a high-yielding currency. The theory of interest rate parity cautions that low-yielding currencies will appreciate sufficiently as to render this trade ineffective. That theory has not stopped speculators from entering the trade, or frankly from profiting from it for many years (albeit with periodic, deleveraging-induced hits during periods of uncertainty). The U.S. dollar is a funding currency for the carry trade, meaning that speculators are selling dollars to fund purchases of higher-yielding currencies (see Table G for the allocation to the dollar over time in one index that attempts to mimic the carry trade systematically). This trade tends to depress the dollar when it is being sold by carry traders, of course. It appears that real interest rate differentials are now beginning to turn a corner, however, and that is bullish for the dollar (Table H).

Conclusion

Ben Graham postulated that the market is a voting machine in the short run and a weighing machine in the long run. The votes are still being cast on the impact of the $700 billion bailout of the dollar, and early returns have been decidedly mixed for the dollar. On September 22, for example, the dollar had one of its steepest one-day falls in several years, while since that day the dollar has generally risen (though not as swiftly as the yen—credit the deleveraging that is unwinding carry trades for this strong yen bump).

[15] David Woo, "Is the USD Overvalued," Barclays Capital, September 4, 2008.

Funding a $700 billion bailout with new debt issuance is a negative for the dollar. However, if the bailout gets credit markets unstuck, that is a positive, and if the bailout is a dud, that ironically may be a short-term positive as well (due to the safe-haven bid). Morgan Stanley's Stephen Jen has described a "dollar smile" effect, where a U.S. surprise on the upside *or* on the downside may kick-start a dollar rally, while muddling through may be a negative for the dollar.[16] The trend in real interest rate differentials is positive, and that will provide support the dollar, if the differentials continue to improve. The longer-term weighing machine may place dollar undervaluation on the left side of the balance and challenged U.S. economic fundamentals on the right side.

Reading the "turn" in currency markets is notoriously difficult. The stakes are high, with market expectations for a dramatic move in one direction or the other. Investors should expect continued volatility as the balance of evidence tips the scales.

[16] See, for example, "Moving Up the Left Side of the Dollar Smile," by Stephen Jen and Spyros Andreopoulos of Morgan Stanley, August 29, 2008.

Table A

VALUE OF U.S. DOLLAR VERSUS EQUITY MARKET–WEIGHTED BASKET OF CURRENCIES

December 31, 1987 – September 30, 2008

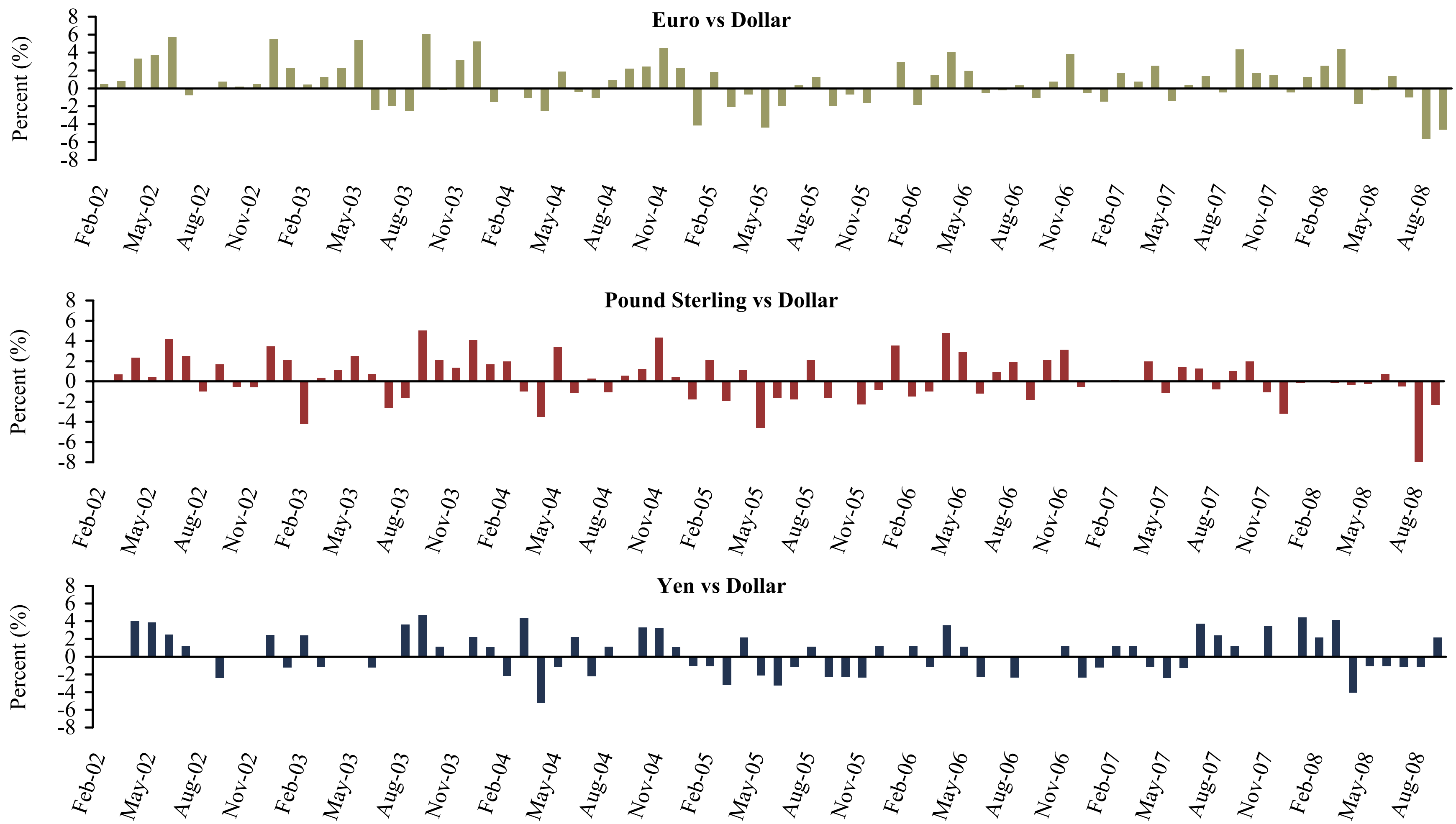
Source: Thomson Datastream.

Note: Data represent cumulative wealth of monthly difference between MSCI EAFE Index total returns in local currency terms and in U.S. dollar terms.

Table B

MONTHLY RETURNS OF MAJOR CURRENCIES VERSUS THE U.S. DOLLAR

February 1, 2002 – September 30, 2008



Source: Thomson Datastream.

Table C

COMPARATIVE CURRENCY PERFORMANCE VS THE U.S. DOLLAR

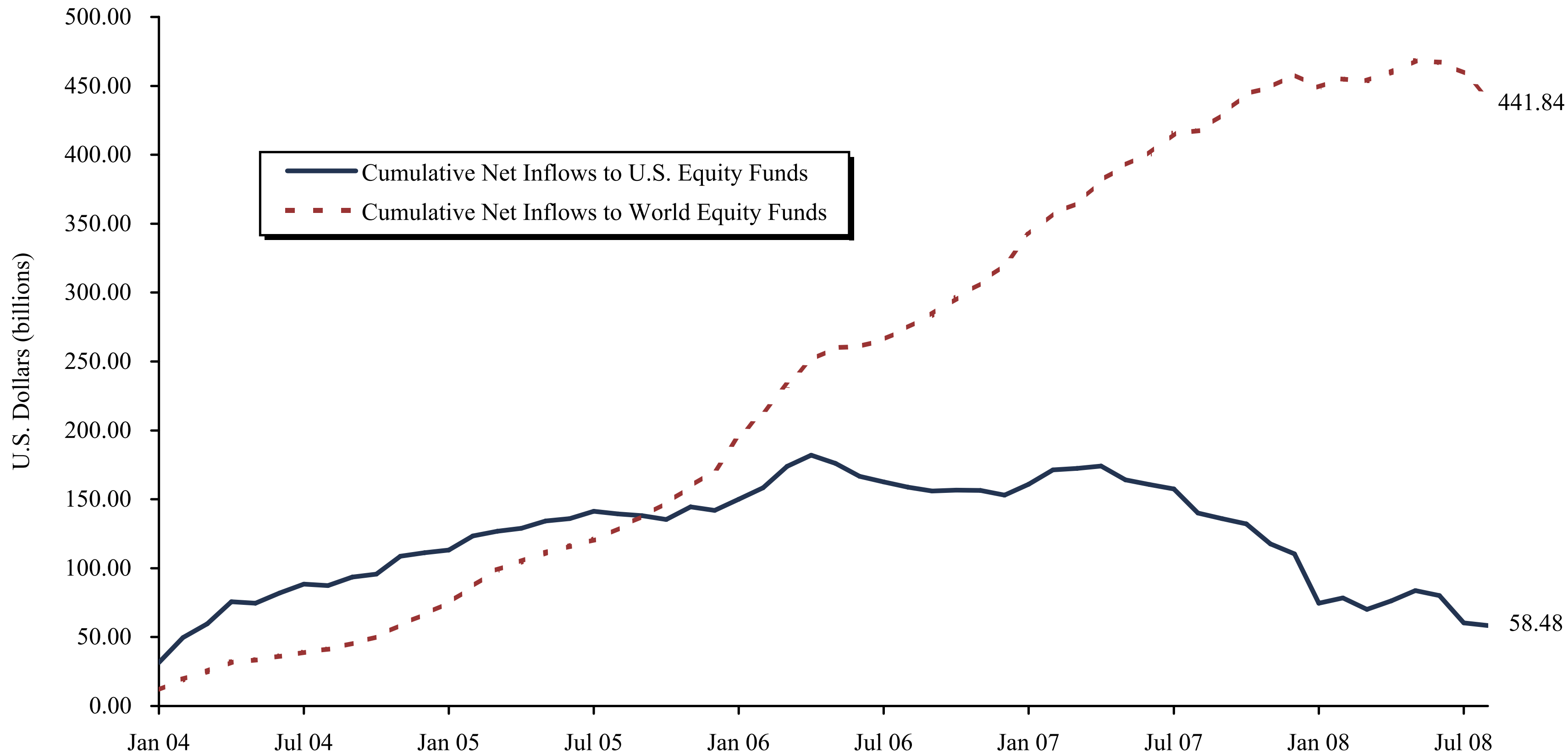
	12/31/01–8/31/08	7/15/07–9/11/08	9/11/08–9/30/08
Euro	71.0	-12.8	0.9
Australian Dollar	69.1	-17.5	-1.6
Swedish Krona	65.7	-13.2	-1.7
Swiss Franc	55.9	-11.9	1.7
Canadian Dollar	50.0	-7.4	1.4
Brazilian Real	47.7	-12.5	-5.6
Singapore Dollar	29.8	-6.9	1.1
Thai Baht	28.6	-3.8	2.8
U.K. Sterling	25.3	-12.7	-1.8
Russian Ruble	25.0	-10.4	0.5
Japanese Yen	23.3	-2.0	0.3
Chinese Renminbi	21.1	-0.4	0.0
South Korean Won	20.7	-9.1	-8.1
Indonesian Rupiah	12.7	-3.0	-0.1
Philippine Peso	11.6	-3.5	0.1
Taiwanese Dollar	10.9	-5.2	-0.3
Indian Rupee	10.4	-5.1	-3.0
Hong Kong Dollar	-0.1	0.0	0.4
Mexican Peso	-11.0	-3.2	-2.9
Argentine Peso	-34.7	-2.4	-1.0
Venezuelan Bolivar	-64.4	0.0	0.0

Source: Thomson Datastream.

Table D

NET INFLOWS TO U.S. AND WORLD EQUITY FUNDS

January 1, 2002 – August 31, 2008

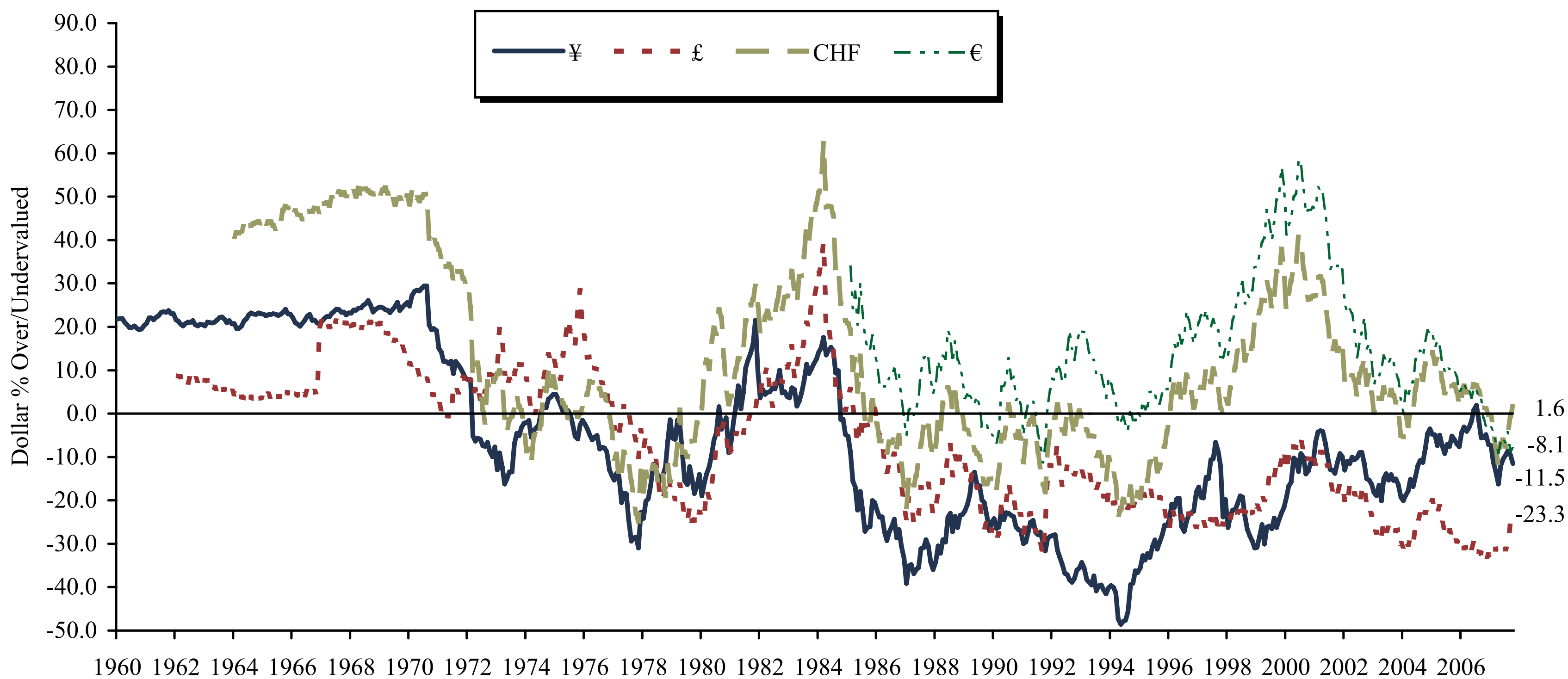


Source: Investment Company Institute.

Table E

PURCHASING POWER PARITY VS VARIOUS U.S. DOLLAR EXCHANGE RATES

December 31, 1960 – September 30, 2008



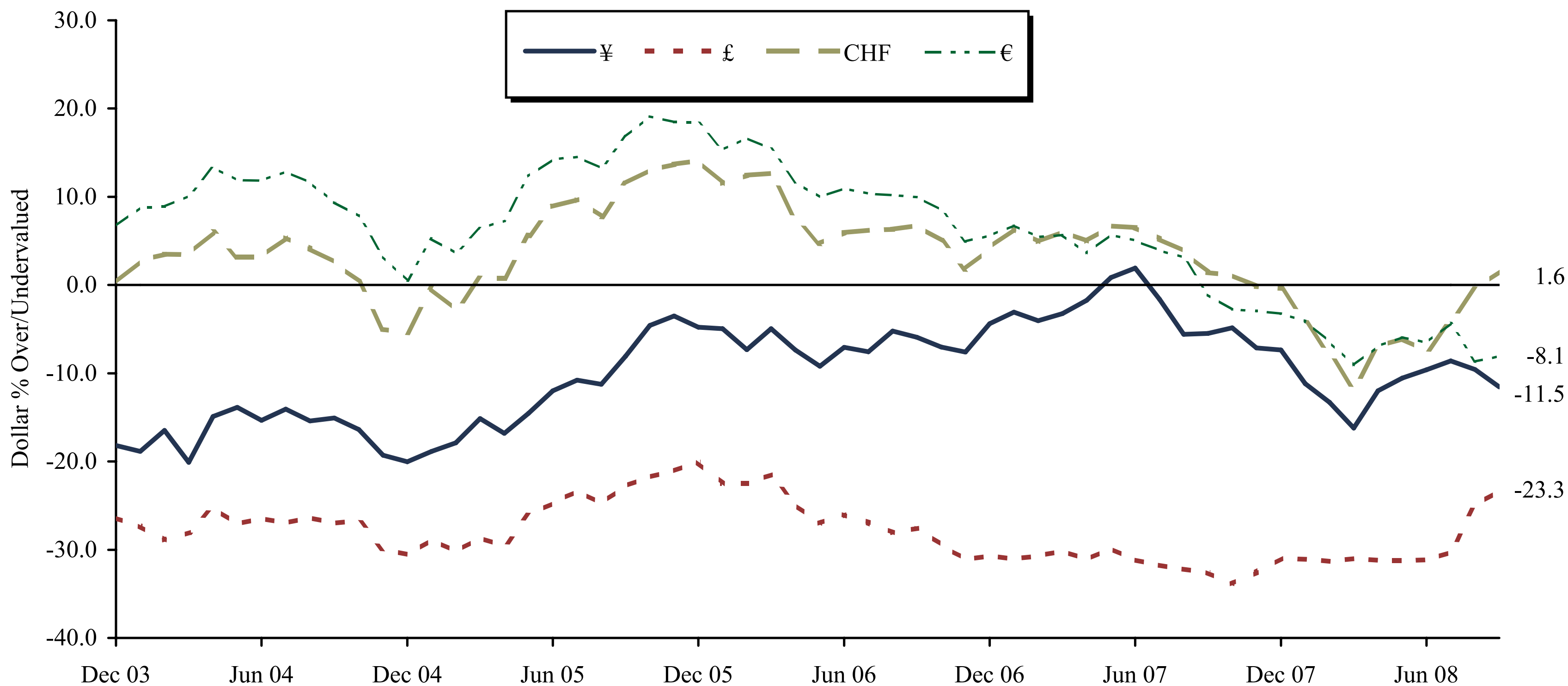
Sources: Ned Davis Research and Thomson Datastream.

Notes: A negative percentage represents the dollar as undervalued, while a positive percentage represents the dollar as overvalued. Zero represents fairly valued. Purchase power parity ratio as of August 31, 2008. Data for the pound begin January 1963. Data for the Swiss franc begin December 1964. Data for the Euro begin January 1986.

Table F

PURCHASING POWER PARITY VS VARIOUS U.S. DOLLAR EXCHANGE RATES

December 31, 2003 – September 30, 2008



Sources: Ned Davis Research and Thomson Datastream.

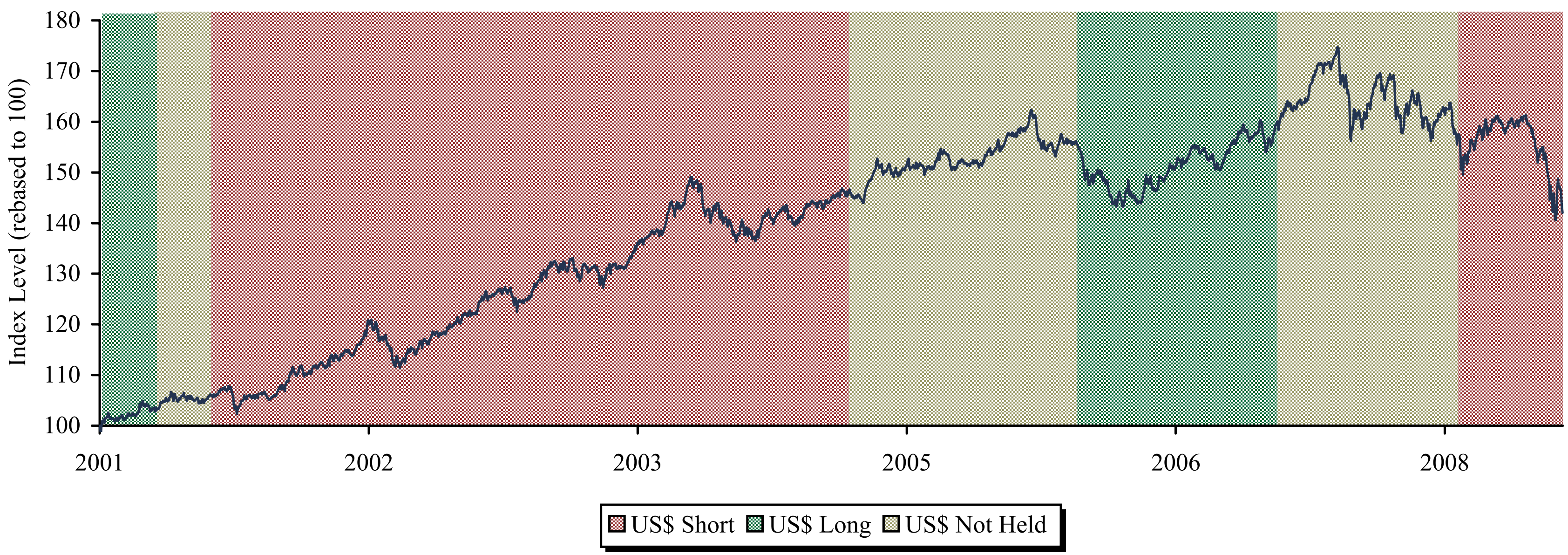
Notes: A negative percentage represents the dollar as undervalued, while a positive percentage represents the dollar as overvalued. Zero represents fairly valued. Purchase power parity ratio as of August 31, 2008.

Table G

RETURN AND DOLLAR EXPOSURE OF A CARRY TRADE PROXY INDEX

U.S. Dollars

January 2, 2001 – September 30, 2008



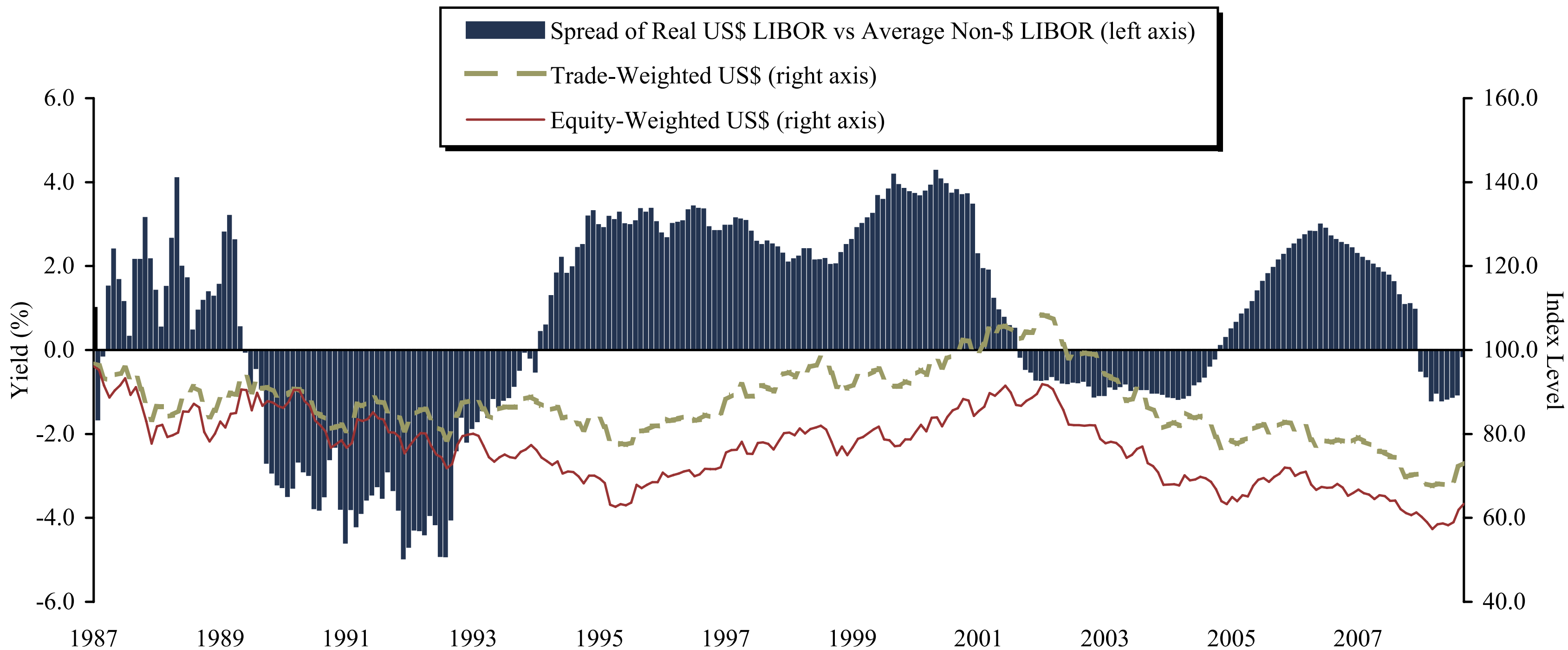
Source: Deutsche Bank AG.

Notes: When the U.S. dollar is neither long or short, it is not carried by the index. The G10 Currency Harvest Index ranks the US$, EUR, GBP, JPY, CHF, AUD, NZD, CAD, SEK, and NOK currencies by three-month LIBOR rates. Index consists of long the three highest-yielding currencies against short the three lowest-yielding currencies, all equally weighted. Every quarter the currencies are reranked according to their current three-month LIBOR. The G10 Currency Harvest Index rebased to 100 as of January 2, 2001.

Table H

VALUE OF U.S. DOLLAR AND REAL INTEREST RATE DIFFERENTIAL

January 1, 1987 – September 30, 2008



Sources: British Bankers' Association, MSCI Inc., OECD, Thomson Datastream, and U.S. Department of Labor - Bureau of Labor Statistics. MSCI data provided "as is" without any express or implied warranties.

Notes: Trade-Weighted U.S. Dollar Index is the nominal trade-weighted dollar versus the major currencies. Equity-Weighted U.S. Dollar Index represents cumulative wealth of monthly difference between MSCI EAFE Index total returns in local currency terms and in U.S. dollar terms. The Equity-Weighted U.S. Dollar Index and Trade-Weighted U.S. Dollar Index are rebased to 100 as of December 31, 1986. LIBOR $ three-month differential is calculated as the difference between inflation-adjusted three-month LIBOR $ and the average of the inflation-adjusted three-month LIBOR ¥, LIBOR €, and LIBOR £. The three-month LIBOR $ is inflation-adjusted using the CPI-U as of August 31, 2008. The three-month LIBOR ¥ is inflation-adjusted using the CPI Japan as of August 31, 2008. The three-month LIBOR € begins December 31, 1998, and is inflation-adjusted using the CPI Europe 12 as of August 31, 2008. The three-month LIBOR £ is inflation-adjusted using the U.K. RPI as of August 31, 2008.