

Dollar Measures And Relative Equity Returns

Basic measures and familiar concepts are the hardest to define. You may think you know what length is, but consider how the definition of a standard meter has changed from one ten-millionth of the distance between the pole and the equator to 1,579,800.762042 wavelengths of a helium-neon laser in a vacuum...followed by converting those wavelengths to air. Good enough for government work does not cut it here.

The same has gone for the U.S. dollar since the days when it was defined as something simple, such as one ounce of gold being 35 dollars, never mind the supply or demand of gold or of money in any form. Currencies have not had any neat or simple definitions since the Bretton Woods fixed-exchange rate collapsed more than forty years ago. Not so coincidentally, this is when the earliest tradable dollar index, the ICE dollar index (DXY), began. The Federal Reserve began compiling its trade-weighted real dollar indices for both major currencies and a broader array of trading partners at the same time.

The DXY's composition has been fixed with the sole exception of aggregating the legacy European currencies at their original weights into the euro in January 1999. The weights for the untradeable Federal Reserve indices change annually, but with a long lag. For example, 2012 weights were released in October 2013 and will apply until 2013 weights are released sometime in late 2014. We know trade weights have changed drastically over time with changes in the global economy, and this brings the DXY's fixed weights into suspicion and has invited various competitors over the years such as the *Bloomberg* correlation-weighted dollar index (BCWI) and the *Bloomberg* dollar index (BDXY, see "What's One More Dollar Index?," June 2015).

Purpose

What is a currency index supposed to measure? Unlike a standard meter or kilogram where the answers can be given as length or mass, we really have no criteria for comparing one currency index to another. We can state an index should have a simple and transparent construction methodology, liquid component currencies if it is to be tradable and a history long enough to study its relationship to macroeconomic conditions and to other financial markets. Beyond that, index creators are free to select whatever component currencies they wish and weight them however they choose without being in violation of any objective standards.

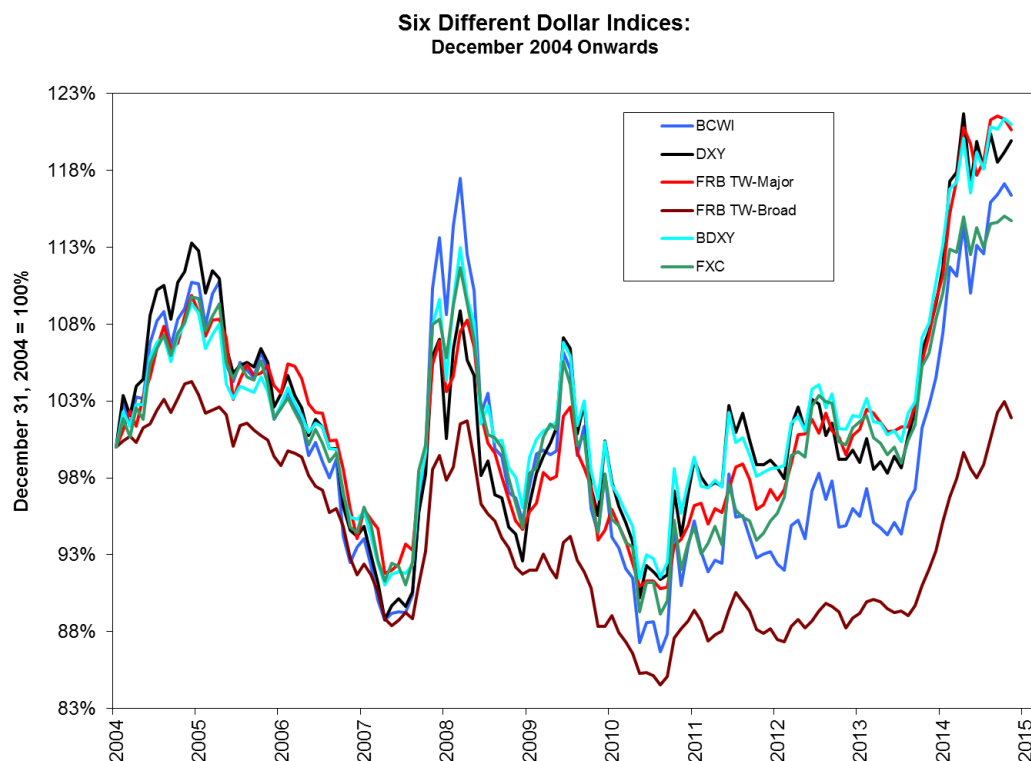
It is sort of a let a thousand flowers bloom approach. At the end of it all, we are left with a conundrum articulated so well by a market technician colleague more than thirty years ago: Does a trading approach beat a 14-day moving average? Here the question might as well be whether newer entrants on to the dollar indexation scene beat the DXY?

Let's ask this question of the BCWI and BDXY and of the Dow Jones-FXCM index (FXC). The FXC is an equal-weighted mix of the euro, British pound, Japanese yen and Australian dollar. The emphasis of this index is on trading liquidity as opposed to underlying trade or financial flows. The four member currencies' combined representation in the Federal Reserve's trade weights is only 27.7 percent as opposed to 42.1 percent for the six members of the DXY.

The two *Bloomberg* indices take very different approaches to the indexation problem. For the BCWI, the firm developed a set of correlation-weighted indices for ten major currencies, the USD, AUD, CAD, NZD, JPY, EUR, CHF, GBP, NOK and SEK. The BCWI is based on statistical measures designed to maximize the degree of variance explained for each currency. The resulting weights are updated daily and mercifully do not change very much.

The BDXY tracks the spot movement of a set of ten currencies whose weights change annually based on their share of global trade and financial liquidity. Not only do the weights change, so does membership; fourteen currencies have been represented in the BDXY since its December 31, 2004 starting date if you count the onshore and offshore Chinese yuan as separate currencies. The BDXY has had a constant 3% weight for the Chinese yuan. The in either incarnation presents a major problem for index creators. It represents the second largest economy and the yuan has overtaken the euro for the second spot in international trade finance, both of which argue for a greater weight than 3

percent, but it has low liquidity and lacks full convertibility despite its impending inclusion in the International Monetary Fund's Special Drawing Rights basket. As the BDXY's history begins at the end of December 2004, we will have to use this as a startdate even though longer histories are available for the other dollar indices. The four commercial dollar indices along with the major and broad Federal Reserve real trade-weighted indices are presented below over this period.



Source: Bloomberg

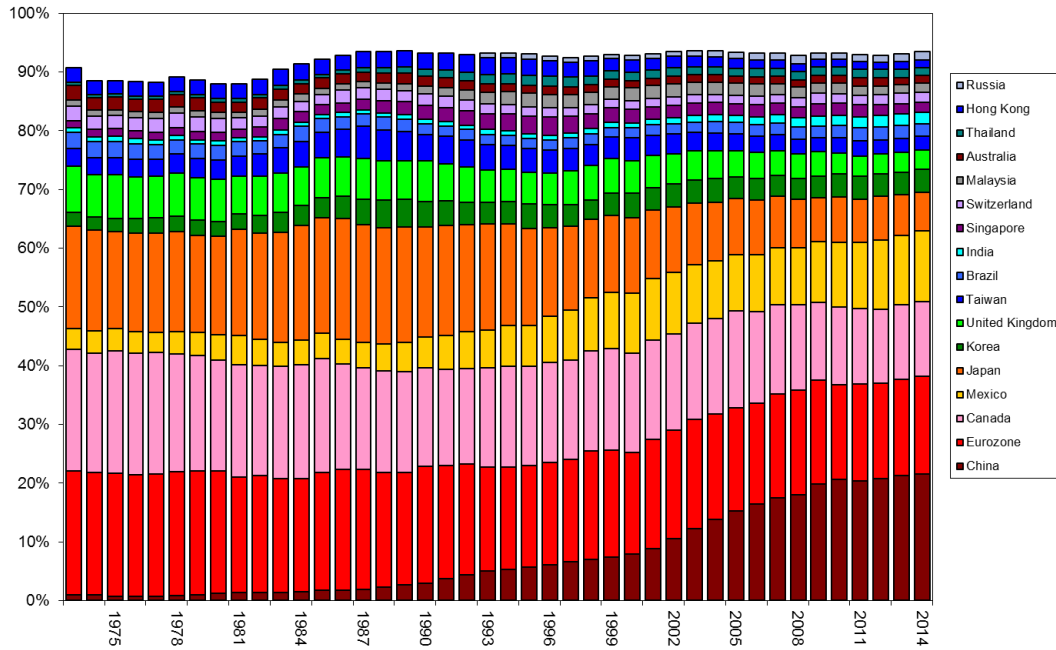
Note On Trade Weights

A dollar index based on changing trade weights is backward-looking by definition. It also would have to accommodate a large number of relatively illiquid currencies and it would have to ignore the question of which currency was being used to price transactions, a major consideration for the world's exporters of petroleum and metals.

Please note the ascent of China and Mexico in the history of Federal Reserve trade weights since 1973. The two countries 2014 weights in total U.S. trade – there are different import and export weights – were 21.6 and 12.1 percent, respectively. The impracticality of including either currency in a tradable index assures us any dollar index created will be unrepresentative of U.S. trade patterns.

On the other side of the coin, no pun intended, some very liquid currencies such as the AUD, CHF and GBP have surprisingly small weights in the U.S. trade picture at 1.2, 1.8 and 3.3 percent, respectively. You can borrow and lend freely in all of these currencies, all are considered majors and no one would think twice about including any of them in a dollar index, but they are financial as opposed to economic representations of what the dollar should represent in global markets.

Total Trade Weights For U.S. Dollar
(2014 Weight Greater Than 1.25%)

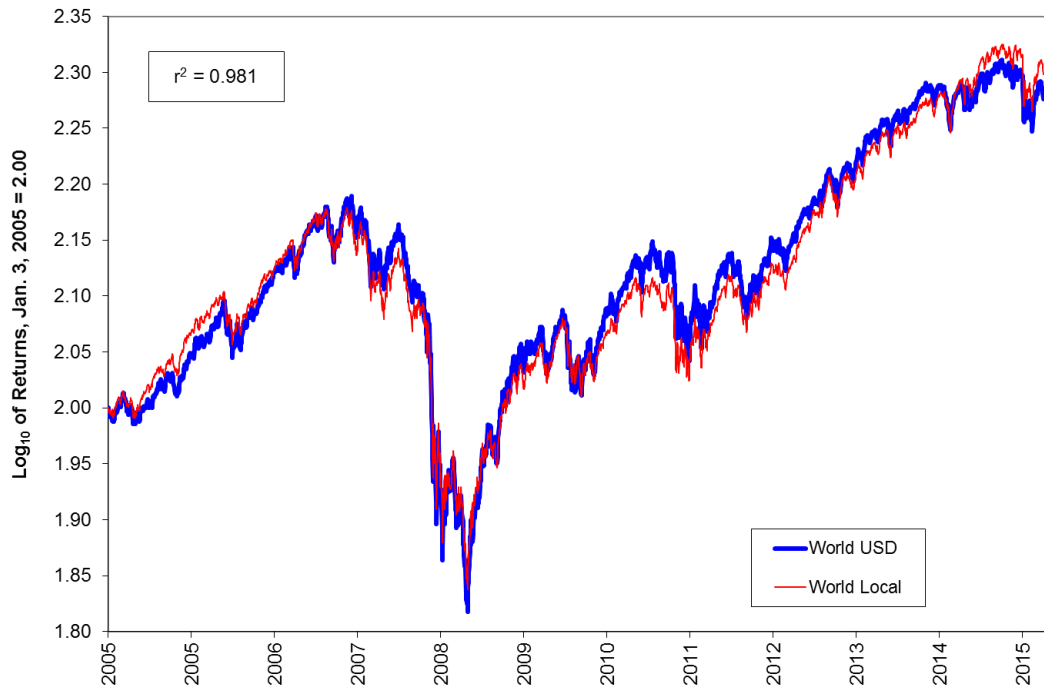


Source: Federal Reserve

The Equity Standard

Can we measure dollar indices by their descriptive power over comparative equity indices instead of a commodity such as gold? If the relative returns of a global equity index such as the MSCI-Barra World Free index in local and USD terms are close to equivalent, as they should be given the globalization of business and the increasing irrelevance of a company's domicile, then their relative return paths should be a function of currency fluctuations. The r-squared or percentage of variance explained between the two indices is 0.981, which certainly indicates a great deal of commonality.

World Equity Returns In USD And Local Currency Terms

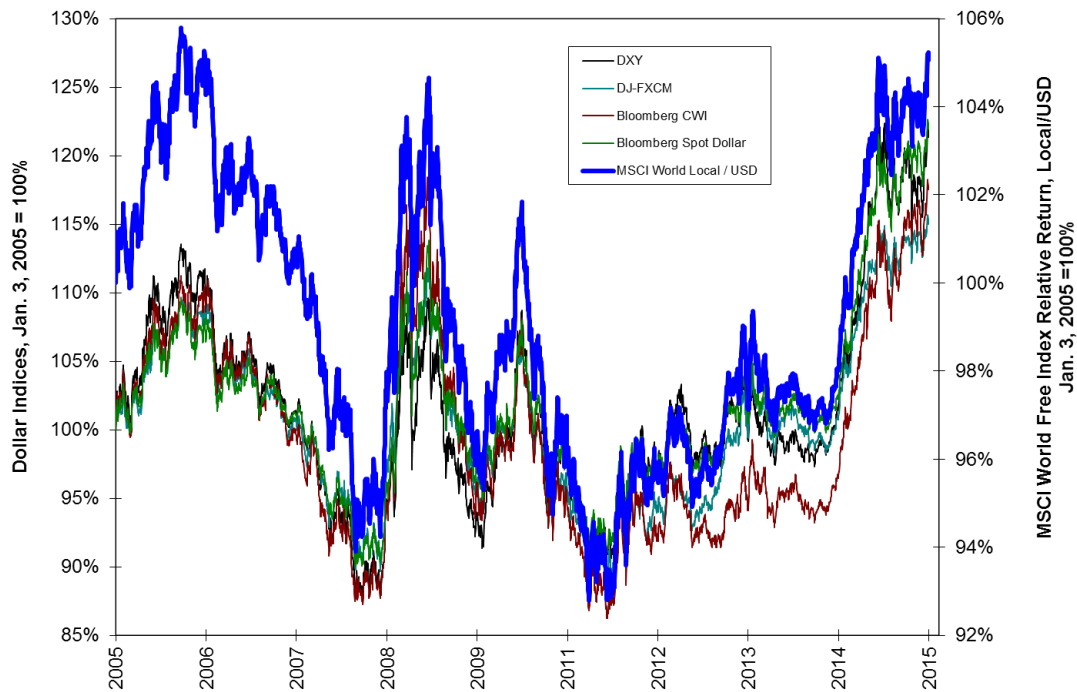


Source: Bloomberg

Comparative equity index returns, unlike trade flows, can be compiled on a daily basis at the close of business; there will be some unavoidable measure of residual noise produced by the different closing times of equity markets around the world. Unlike short-term interest rate arbitrage, equity returns reflect expectations for future economic health in national economies and often precede the flows of short-term funds that drive both short-term interest rates and currencies. These properties are forward-looking unlike backward-looking trade flows.

Now let's re-index the four commercial dollar indices to January 3, 2005 and map them against the relative returns of the MSCI-Barra World Free index in local currency versus USD terms.

Dollar Indices And World Equity Returns



Source: Bloomberg

The results are both conclusive and inconclusive. The BCWI and DXY fails to match the relative equity return index after September 2012, but the other two dollar indices appear to track the relative performance index well. The r-squared levels of the FXC and BDXY indices have been 0.877 and 0.905, respectively. All three single-variable models exhibit a high degree of serial correlation, a telltale sign of missing independent variables; this also means each of their r-squared levels is highly sensitive to the time period over which it is being measured. This means their descriptive powers will switch places according to the vagaries of individual currency movements. Finally, if the essentially ad hoc nature of currency indexation is what it appears to be, why not replace competing methodologies with relative equity performance for indicative purposes, not for trading purposes?