Meketa Investment Group Global Macroeconomic Research Series

The Dollar Rally

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Global Macroeconomic Investment Committee

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Currency movements have gained increasing attention lately, most significant of which has been the U.S. dollar's hyperbolic rise. Since April 2014, the U.S. Dollar Spot Index, or DXY, an index of the value of the U.S. dollar relative to a basket of foreign currencies, increased 26% from a level of $79.47 to $99.80 on November 25, 2015, near its highest value in over 11 years. When a currency appreciates, its value goes up relative to another country's currency. And while somewhat easy to ignore during benign environments, currency movements can have both positive and negative effects on the global economy and capital markets. In this paper, we will touch on the role of the dollar within global currency markets, frame the dollar's recent appreciation from a historical context, discuss opportunities and risks it presents for investors, and illustrate some reasons why from New York to Guangzhou the dollar has remained king.

Global Currency Markets

A country's exchange rate policy can exist in two primary forms, which, generally speaking, dictate the drivers of its relative value: a floating exchange rate system or a fixed exchange rate system. Under a floating exchange rate system, changes in the relative value of a currency are dictated by market forces. Market drivers can include interest rate differentials between countries, monetary policy, inflation rates, greater competitiveness of tradeable goods, risk sentiment, equity market performance, and foreign direct investment.

Within a fixed exchange rate system, however, like the Chinese yuan, the value of the currency is directly linked to a reference currency. As a result, the relative value of a currency within a fixed exchange rate regime is wholly dependent on the value of its reference currency and/or a devaluation or revaluation undertaken by the fixed rate regime's policymakers. Fixed rate exchange systems attempt to ensure the relative stability of a country's currency vis-à-vis another country's currency.

From an economic standpoint, and irrespective of its fixed or floating exchange rate regime, a domestic currency's relative value can have a positive or negative effect on the economy, with the most direct impact being its effect on trade with the rest of the world. The lower the value of the domestic currency, the more attractive its exports are relative to its competition. Conversely, the lower the value of a domestic currency, the more expensive its imports become, potentially leading to inflation problems.

In short, currencies matter. And no currency matters more than the U.S. dollar. Aside from being the legal tender for the United States, it is the most widely used currency in global trade, the most common currency for external debt issuance, and the standard unit of currency in the world's commodity markets. Said another way, the U.S. dollar is the medium of exchange for the global economy. By extension, the value (i.e., price) and availability of the U.S. dollar can greatly influence global economic conditions.

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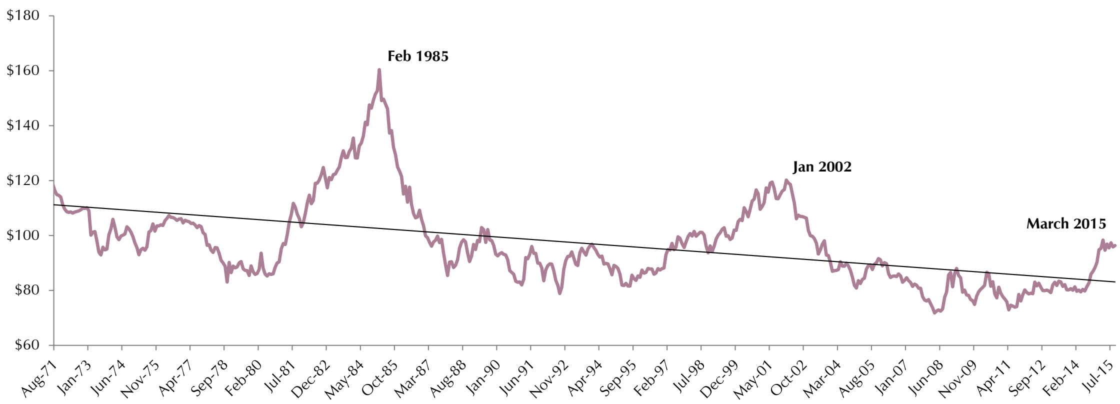
U.S. Dollar Index (DXY)



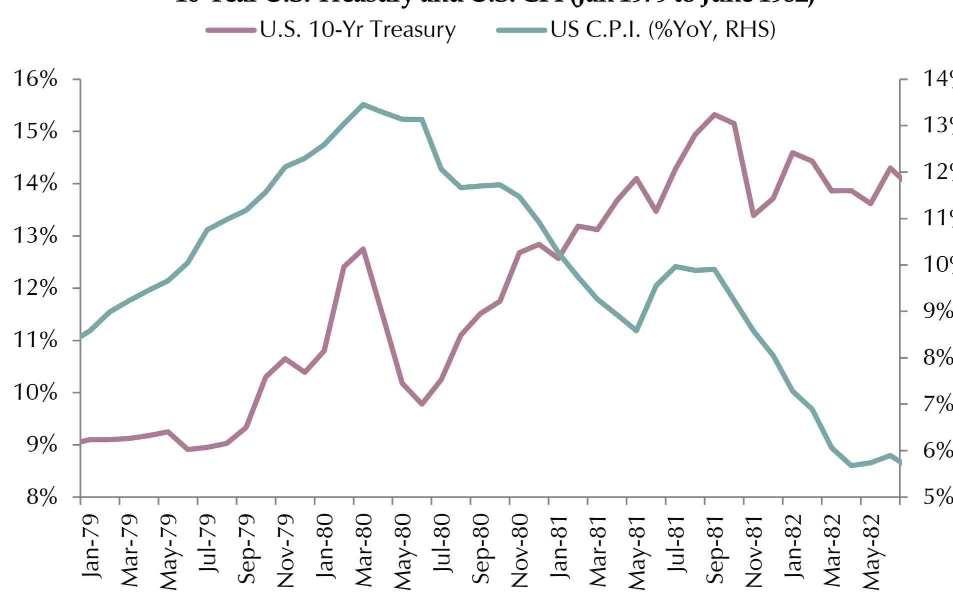
Source: Bloomberg

U.S. Dollar Strength: An Historical Perspective

Periods of dollar strength are not unusual. Although the U.S. dollar has experienced a long-term, downward trend since the inception of the U.S Dollar Index, the DXY, there have been two notable periods of extended dollar strength. An examination of these periods is helpful when evaluating the recent rally. As illustrated in the chart above, the first U.S dollar bull market was in the early 1980s during a period known as the "Volcker Disinflation."

During this period, the Federal Reserve, led by Chairman Paul Volcker, sought to combat persistently high inflation through tight monetary policy and a series of interest rate increases. Monetary tightening was so extreme that nominal 10-year U.S Treasury rates rose to a high of 15.3% in September 1981. Interest rates are essentially the "return" on a currency; therefore, rapidly rising interest rates increased demand for U.S. dollars, which resulted in a marked appreciation of the dollar versus other currencies that offered lower interest rates. Tighter monetary conditions did, however, tip the U.S. economy briefly into recession, and also put downward pressure on commodity prices.

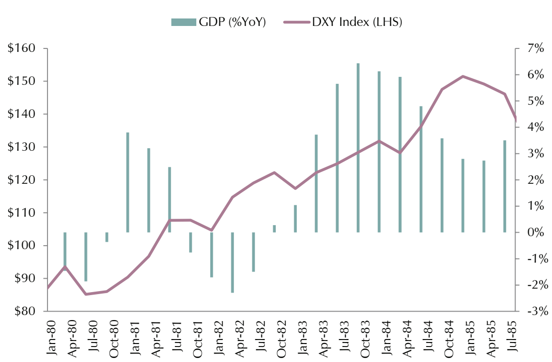
10-Year U.S. Treasury and U.S. CPI (Jan 1979 to June 1982)



Source: Federal Reserve Economic Data

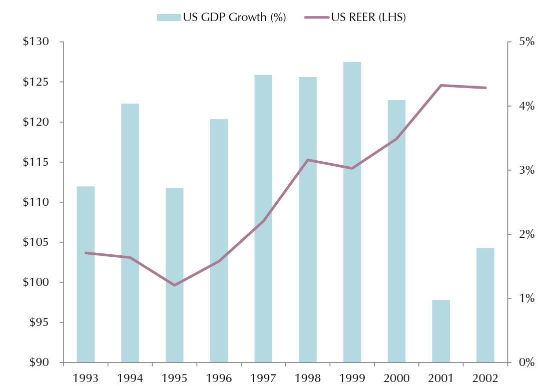
During the initial stages of the dollar bull market, U.S. economic growth underperformed the global economy and its major trading partners. This trend, however, reversed in the 1983 to 1984 period, but seemingly with no impact on the surging value of the U.S. dollar until its peak in 1985. Ultimately, Chairman Volcker's attack on rampant inflation proved successful. And despite a temporary recession, the economy moderated, which set the stage for a subsequent period of U.S. economic expansion.

U.S. GDP Growth and U.S. Dollar Index (Jan 1980 to July 1985)



Source: Federal Reserve Economic Data, Bloomberg

"The Tech Bubble"

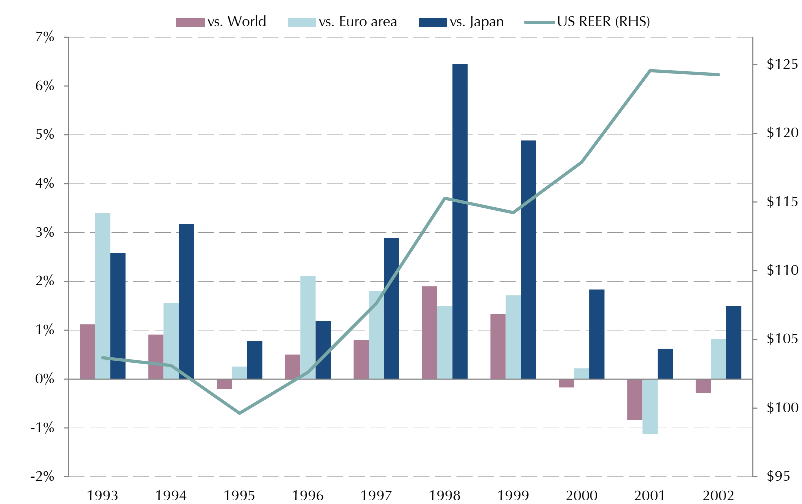


Source: The World Bank, Federal Reserve Economic Data

Although the U.S. economy was rapidly growing, this period of economic history also saw a shift in relative interest rates, particularly relative to the euro area and the newly formed European Union (circa November 1, 1993). During this period interest rates were falling in Europe while U.S. interest rates stayed range bound. The shift in relative interest rates increased demand for U.S. dollar denominated assets, specifically U.S. equities, and by extension supported the appreciation of the U.S. dollar.

The dollar trended precipitously lower until the second notable dollar bull market in the mid-1990s, at what was the beginning of the Technology Bubble. In contrast to the early 1980s, this dollar bull market cycle coincided with a period of exceptional and protracted U.S. economic growth in absolute terms and versus the rest of the world. Higher absolute and relative growth in the U.S. attracted foreign capital chasing higher returns, and pushed up the value of the U.S. dollar.

U.S. GDP Growth versus Other Economies and Real Effective Exchange Rate[1]



Source: The World Bank, Federal Reserve Economic Data

[1] US REER represents the "U.S. Real Effective Exchange Rate." A country's real effective exchange rate is the weighted average of a country's currency relative to an index or basket of other major currencies adjusted for the effects of inflation. The weights within the index are determined on a trade-weighted basis.

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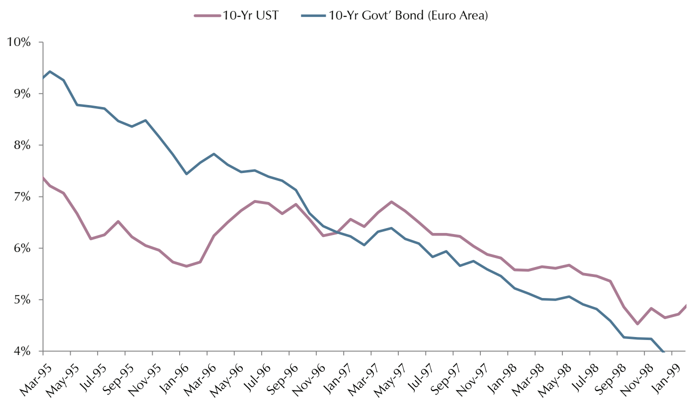
10-Year UST verus 10-Year Euro Area Gov't Bond (Mar 1995 to Jan 1999)



Source: Federal Reserve Economic Data

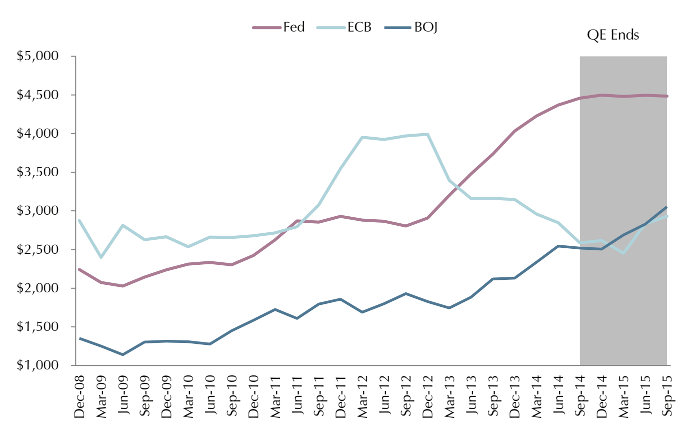
The dollar rally was not only fueled by what was happening in the U.S. In July 1997, the Asian Financial Crisis sent tremors through global capital markets, raising fears of financial contagion. Leading up to the crisis, many east Asian countries, most of which maintained fixed exchange rates pegged to the U.S. dollar, raised significant amounts of external debt. This dynamic created an abundance of foreign currency and a scarcity of local currency, causing an overvaluation of local currencies and making it increasingly difficult for governments to support their fixed exchange rates. East Asian countries suffering from financial over-extension and overvalued currencies were forced to abandon their dollar pegs, increasing their already extreme debt burdens. Abandoning the dollar peg forced up the value of the dollar, which was exacerbated by investors fleeing weakening east Asian currencies in search of safety. This self-fulfilling "flight to quality" buying continued to support U.S. dollar strength.

What is interesting about these two distinct periods of secular dollar strength is that the domestic economic environment in which they occurred was decidedly different. While the first dollar cycle occurred during a period of mixed economic and stock market performance, rampant inflation, and unprecedented central bank tightening, the second dollar bull market occurred in parallel with strong economic growth, benign inflation, shifting interest rate differentials, and stock market outperformance. The mixed economic circumstances of these two prominent dollar cycles demonstrate the fact that there is not necessarily a singular recipe for dollar appreciation.

The Recent Dollar Rally

Amongst the historical dollar bull markets thus far, there has been at least one common element: interest rate differentials. Interest rate differentials, and divergent monetary policy, are where the recent dollar story begins. By now, it is well-known that coming out of the Global Financial Crisis in 2009, the U.S. Federal Reserve undertook extreme monetary measures in the form of Quantitative Easing (QE) and a Zero Interest Rate Policy (ZIRP). These measures expanded the Federal Reserve balance sheet by historical proportions and lowered short-term U.S. interest rates to 0%, effectively lowering the cost of capital for U.S. dollar-denominated assets, but also reducing the risk premium globally. The chart below shows the magnitude of Federal Reserve balance sheet expansion during this period.

Diverging Monetary Paths: Central Bank Total Assets ($ bn)



Source: Bloomberg

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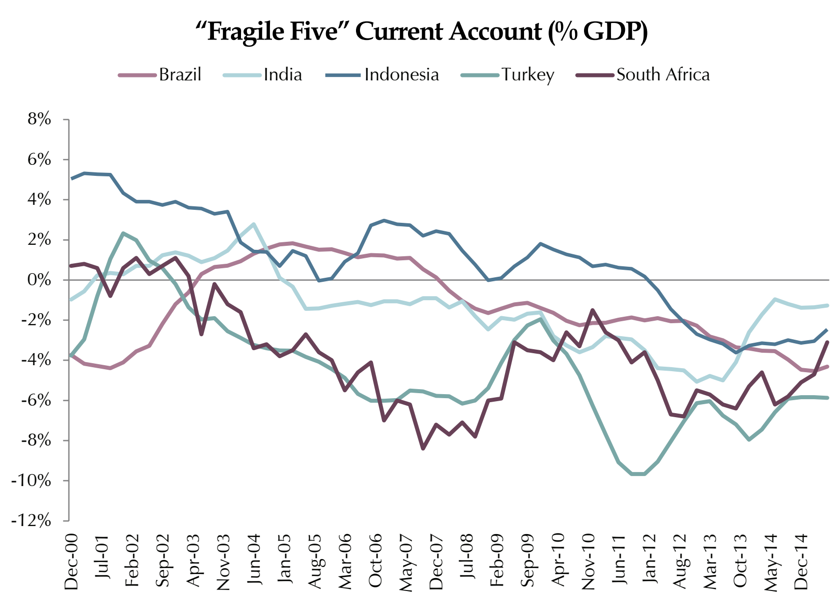
This led to widening interest rate differentials between the United States and much of the world. In particular, the "carry trade" between the U.S. dollar and other large, liquid currencies, like the euro, for example, became more attractive. Investors were keen to sell U.S. dollars in exchange for non-U.S. denominated assets to collect the spread (i.e., carry) between the two assets, since holding U.S. dollars paid a 0% return. Alongside dollar liquidity being supplied to the market via QE (i.e., bond-buying), the "carry trade" served to suppress the value of the U.S. dollar, as massive selling pressure proved self-fulfilling.

In particular, cheap and abundant U.S. dollars moved into emerging markets, where economies recovered faster from the Global Financial Crisis, largely due to massive China stimulus. Since many emerging markets are capital importing countries, the flood of dollar liquidity had a particularly acute impact on local credit conditions, given that growth was strong and credit worthiness ostensibly improved. The cost of capital (i.e., interest rates), therefore, became cheaper in these markets. As a result, credit growth in these markets increased, and as the lifeblood for any economy led to an extended period of virtuous economic activity.

With dollar liquidity spilling into foreign countries, the dollar continued to weaken, and emerging markets central banks amassed huge amounts of U.S. dollar reserves. As U.S. dollars accumulated abroad, foreign central banks were left to exchange (i.e., sell) local currency for U.S. dollars in order to maintain the relative stability of their home currencies vis-à-vis the U.S. dollar. The effects from this action are two-fold. First, the selling of local currencies caused them to depreciate versus the dollar such that their relative values were stable, but secondly, the increased supply of local currency also provided stimulation to the local economy. Monetary stimulation in what were already rapidly growing economies created a virtuous, self-reinforcing feedback loop of further yield-chasing, reserve accumulation, and monetary stimulation.

As the Federal Reserve began hinting about the end of QE, however, the market began pricing in tighter dollar liquidity conditions. In the same way that loose dollar liquidity enabled less restrictive monetary conditions the world over, especially in emerging markets, as markets priced in tighter monetary conditions globally, this led to a shakeout of some emerging markets countries with fiscal and current account deficits, particularly the Fragile Five (India, Indonesia, South Africa, Brazil, and Turkey). This led to an uptick in the value of the U.S. dollar, which too resulted in increased selling of emerging markets assets, causing an opposite, but somewhat equal, self-reinforcing vicious feedback loop of dollar strength and emerging markets weakness.



Source: Bloomberg

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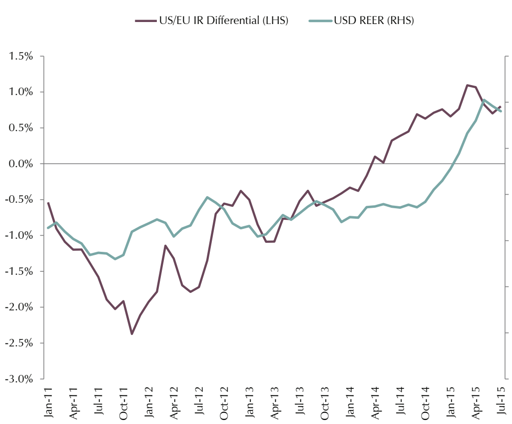
The recent dollar rally did not begin in earnest until the U.S. Federal Reserve officially ended QE in October 2014, and attention shifted to eventual interest rate hikes. As illustrated in the chart below, this flipped the interest rate differential between the U.S. and European Union, which increased the attractiveness of dollar assets, leading to a surge in the U.S. dollar exchange rate as the supply of dollar liquidity decreased at the same time as demand for U.S. dollars increased due, in part, to negative interest rates in the Eurozone.

US/EU Interest Rate Differential and USD Real Effective Exchange Rate

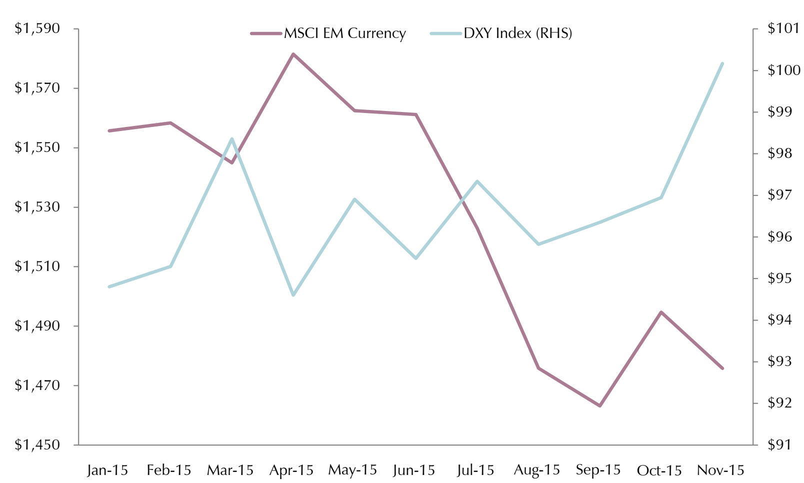


Source: Federal Reserve Economic Data

However, there may have been other forces in play, aside from relative interest rate differentials, that led to the rapid change in the value of the U.S. dollar. While China has been growing, albeit at a decreasing pace, other emerging markets, and the Eurozone have slowed, making the U.S. economy appear reasonably healthy. Part of this can be attributed to the positive effects born from the U.S. shale patch, leading to the renaissance of the U.S. energy sector. This effectively shifted some energy production "home" and helped improve the United States' chronic trade deficit. A smaller trade deficit means less U.S. dollars available for the rest of the world, since the U.S. is importing less energy and supplying less U.S. dollars to the global economy. All else equal, an improving balance of trade (i.e., less imports relative to exports) supports a stronger domestic currency.

Moreover, with heightened geopolitical risks in Eastern Europe and the Middle East, sentiment and safe haven effects contributed to demand for U.S. dollars. On balance, however, global central bank policy, and the pricing of interest rate differentials, was likely the primary driver of the recent appreciation of the U.S. dollar. This continues to drive the U.S. dollar index, and the value of the U.S. dollar, which is evident from the price movement of the MSCI Emerging Markets Currency index, which has continued to decline versus the U.S. dollar. While the U.S. dollar has stabilized versus other developed countries (i.e., DXY Index), it has continued to strengthen versus emerging markets currencies.

MSCI EM Currency Index vs. U.S. Dollar Index (Jan 2015 to Nov 2015)



Source: Bloomberg

The Dollar Rally

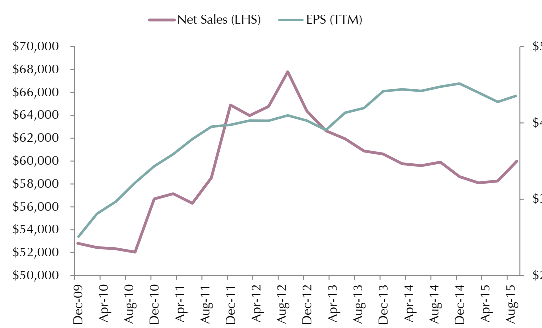
Dollar Strength: The Good and the Bad

What are the implications of this dollar strength? As mentioned, because of its unique qualities, the value of the U.S. dollar can have profound impacts on the global economy, and these effects can be positive and negative.

Starting with the benefits, from the viewpoint of the U.S. economy, the purchasing power of the U.S. consumer has increased meaningfully relative to where it was just twelve months ago. As a result, the price of imported goods from the rest of the world declines for U.S. consumers. This can put downward pressure on inflation for the U.S. economy, which is, of course, good for creditors, but bad for debtors. Additionally, the value of U.S. dollar-denominated assets increases with a stronger dollar. As an example, U.S. equity market performance for foreign investors has been relatively good; this could attract foreign capital and continue to be supportive for U.S. equities. Also, as long as economic circumstances are favorable, a strong U.S. dollar can result in an increase in living standards in the United States.

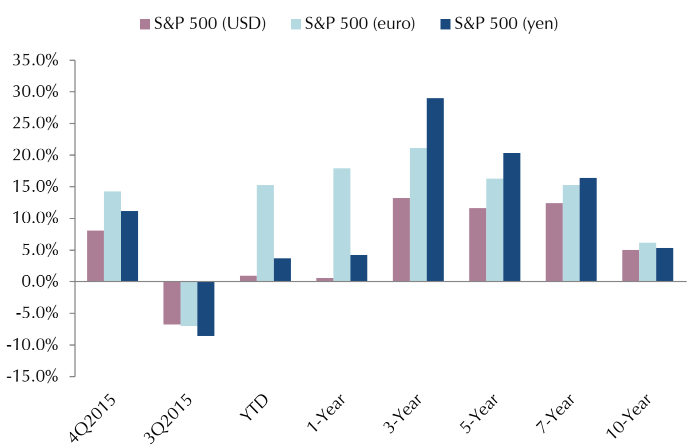
Despite its potential benefits, dollar strength is not without potential drawbacks. The first of these drawbacks is manifested at the corporate and capital markets level. At the corporate level, dollar strength presents a headwind due to the accounting effects from foreign currency translation. A strong dollar has the effect of suppressing foreign sales and earnings for U.S. multinational companies. With 48% of S&P 500 revenues coming from overseas[1], the effect of a strong U.S. dollar on corporate earnings is significant. This is especially true in an environment where revenue growth has been sluggish, even though earnings per share appears to continue to increase, as shown in the chart below.

S&P 500 Sales ($ mm) and Earnings Per Share



Source: Thomson Reuters

S&P 500 Returns (as of October 31, 2015)



Source: Bloomberg

Aside from weighing on corporate performance, the strong U.S. dollar has a more immediate impact for U.S.-based investors holding overseas investments. For similar reasons, when investors invest abroad, they are exposed to both asset risk (e.g., equity and fixed income assets) and currency risk. Consequently, total realized investment returns are a function of both asset returns and currency fluctuations. History shows, however, that the impact of currency returns can be ephemeral and has generally washed out over the long-term.

[1] Source: Compiled by S&P Dow Jones Indices LLC from data provided by S&P 500 Capital IQ.

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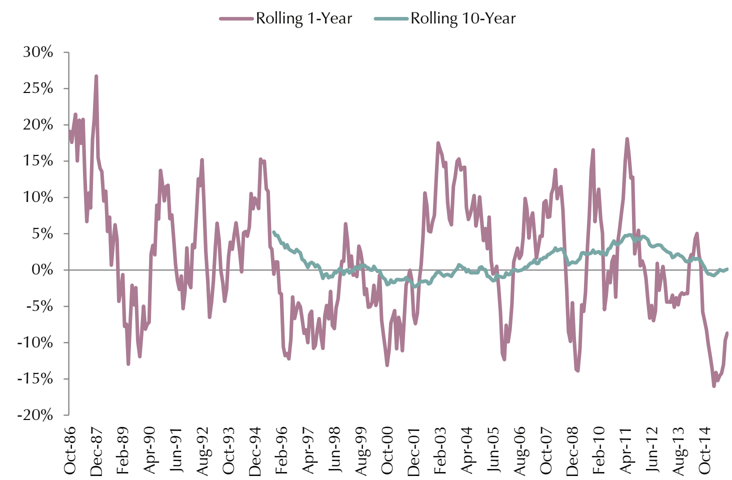
MSCI EAFE - MSCI EAFE (Local), November 1985 to October 2015



Source: MSCI Barra

Lastly, there are clear macroeconomic drawbacks from a strong U.S. dollar. For the U.S. economy, U.S. exports falter from the strength of the U.S. dollar, as exported goods become increasingly expensive for the rest of the world to purchase.

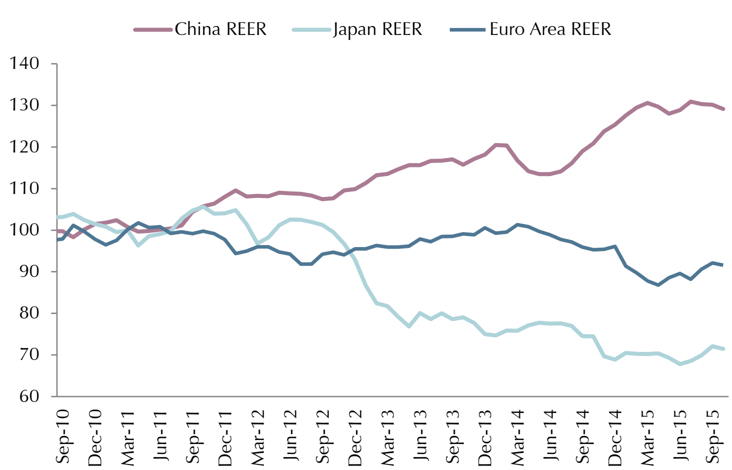
In fact, this has been the case in China. Due to its U.S. dollar peg, dollar strength translates into Chinese yuan strength, with the effect being a tightening of Chinese monetary conditions. Tighter monetary conditions at a time when monetary easing is needed due to a slowing economy has negatively impacted China's export sector. This issue has been further compounded by extraordinary monetary easing in Japan, a common export competitor, and a markedly depreciating yen. The relative strength of the yuan versus the yen has played in Japan's favor by making Japan's export sector more globally competitive.

To mitigate the destabilizing effects of a stronger yuan (via a stronger U.S. dollar), the People's Bank of China announced a devaluation of the currency in August 2015. Although it was announced that this move was to appease the IMF in hopes of admittance into the IMF Special Drawing Rights basket and move China towards a more market-oriented exchange rate regime, it no doubt served to ease the pain of the country's troubled industrial sector, and perhaps staved off the social risks of increased unemployment.

As highlighted in our April 2013 Macroeconomic Newsletter titled "Currency Wars," protectionist monetary action through the explicit depreciation of one's currency is a common feature of what is often described as "Currency Wars." Although currency devaluations can provide a marginal boost to a country's exports, they can have destabilizing effects and contract aggregate global demand, as they create uncertainty that permeates global value chains.

The U.S. dollar's role as a major global currency for external debt is also of critical importance. Commonly, when a country or a company issues debt in a foreign currency, that currency is most often the U.S. dollar. This has been particularly true since U.S.

China REER vs. Japan and Euro Area



Source: Bloomberg

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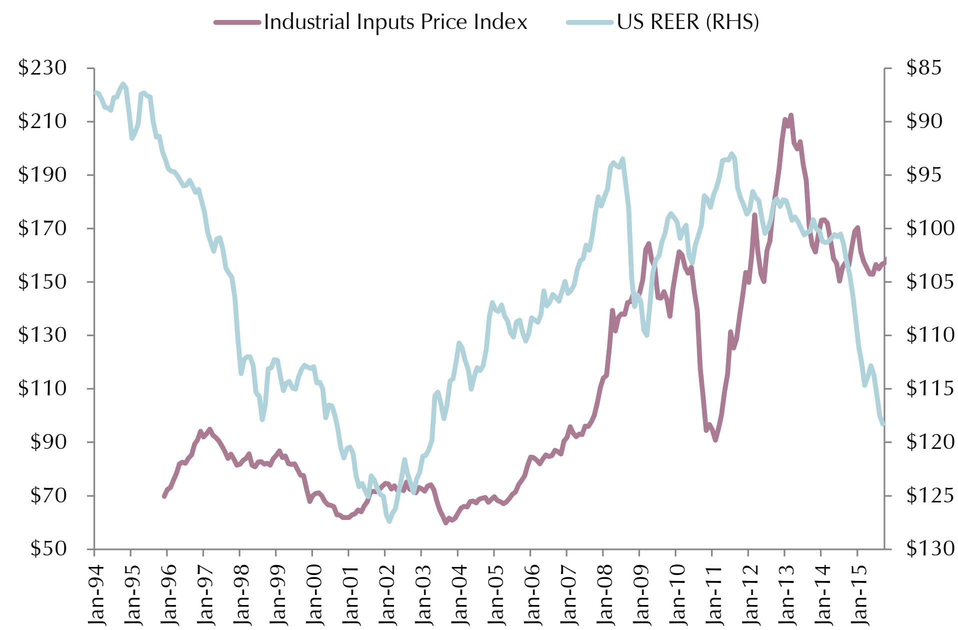
U.S. Dollar and Commodity Prices



Source: IMF, The World Bank

rates have been at zero and the temptation to piggyback on the low cost of capital for U.S.-denominated assets has proved too great for many foreign companies, especially in emerging markets. The level of U.S. dollar-denominated corporate debt has increased significantly, particularly for offshore Chinese corporations. For these debtors, the currency impact on external debt could create a wave of defaults.

Lastly, for countries with incomes closely tied to commodity production, their sources of revenues are closely tied to the dollar. U.S. dollar strength puts stress on the incomes of these countries, which also impacts their credit worthiness and cost of capital. Consequently, as the U.S. dollar strengthens, debt burdens in these countries also increase, even with no new borrowing.

Where Does the Dollar Go from Here?

Currency fluctuations are notoriously difficult to predict, but it does appear that economic and monetary conditions signal that the potential for continued U.S. dollar strength exists. Assuming central banks continue on the path they have communicated to the market (i.e., BOJ/ECB easing and Fed tightening), the dollar is likely to continue strengthening. The impact on capital markets may be muted, however, unless the movement of the dollar is extreme in either direction.

On one extreme, if the dollar continues to strengthen significantly, corporate earnings could continue to come under pressure and capital flight from emerging markets could continue to persist. This could set into motion a self-fulfilling feedback loop that further strengthens the dollar, as investors seek out the safe haven effects of the currency. This would cause the pressures from deflation to mount and economic activity to slow. In this scenario, it would seem plausible that the Fed could undertake a fresh round of stimulus in the form of QE4.

At the other end of the spectrum, a substantially weaker dollar could cause higher than expected inflation, a surprise markets are not currently prepared for. This would make all risk assets vulnerable. With the Fed "behind the curve," markets could adjust violently as they price in a steeper rate hike cycle.

Conclusion

The dollar has experienced a rapid rise to its highest level in over a decade. Both the U.S. dollar's value and its pace of appreciation have been notable. As the medium of exchange for global trade, currencies matter, and because of its role as the world's reserve currency, no currency matters more than the U.S. dollar.

There are, of course, both positives and negatives that can result from currency movements. In the case of an appreciating currency, like the recent U.S. dollar bull market, corporate earnings for multinational companies can come under pressure due to the negative impact from foreign currency translation. Additionally, excessive currency appreciation weighs on U.S. exports and can cause overall economic activity to slow if the effects of deflation prove much too strong, causing purchasing decisions to become delayed.

A stronger U.S. dollar can also present a number of global opportunities. Countries with robust export sectors, like Japan and Germany, and developing countries, could see the competiveness of their products and services increase. Ultimately, this could allow them to increase their market share and boost economic growth. Additionally, a strong U.S. dollar means stronger purchasing power for U.S. consumers, which bolsters the spending power of the U.S. consumer base, and could effectively serve to export much needed dollar liquidity to the developing world. Also, due to its linkages with commodity prices, a stronger U.S. dollar and weaker commodity prices are positives for countries that are net importers of commodities, like India, for example.

We believe the recent trend can mainly be attributed to diverging interest rate policy and economic conditions. Given the dollar's unique role as the world's reserve currency, we believe that the persistence of these conditions will continue to support the value of the U.S. dollar.

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