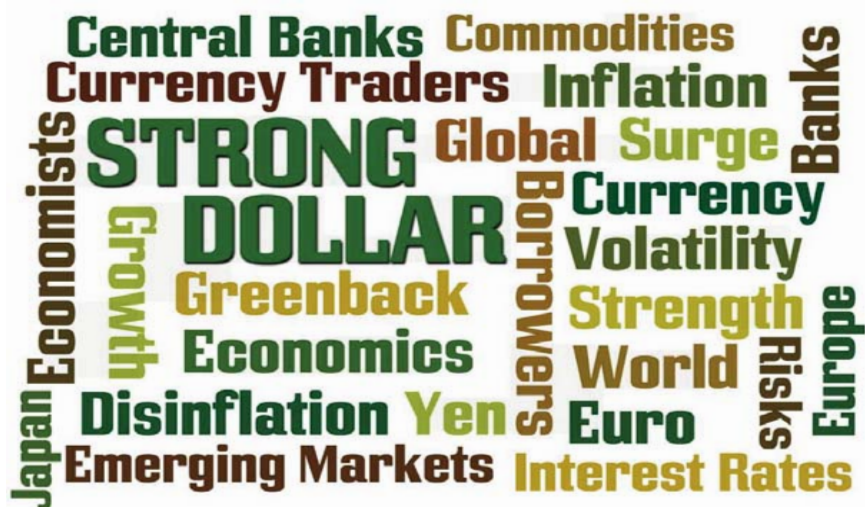


Currency Hedging—Panacea or Placebo?



Source: ©Rob Wilson, Dreamstime.com. Reprinted with permission.

A large cohort of US investors began to invest overseas at a time when the weak dollar provided a welcome boost to international returns. This trend has now reversed and the dollar is forecast to remain strong for the foreseeable future. Investors are now required to adjust to the complexities of exchange rate volatility, and to explore ways to protect portfolios from potential losses due to the strong dollar. The available options range along a continuum, from doing nothing and remaining fully exposed to currency movements, all the way to implementing proactive hedging strategies to enhance returns.

We will review the pros and cons of currency hedging and provide some guidance to investors on where hedging may make sense. Our discussion will focus mainly on hedging equities as most equity managers do not hedge their foreign currency exposure. We will concentrate on major G-20 currencies that have deep, liquid FX markets and where hedging costs are comparatively low. As we will discuss later, hedging emerging markets currencies can be expensive, difficult, or both and we can achieve the same goals in other ways.

Currency movements tend to be sharp and unpredictable, driven by economic factors such as changes in central bank policy, trade flows, balance of trade and inflation expectations, as well as factors such as political jawboning, changes in market psychology and not least, speculative trading. Crucially, currency movements have been largely uncorrelated to movements in equity markets. Thus, forex exposure can be an important tool for portfolio diversification as it can help to reduce correlations between US and non-US equities.

We will not spend much time discussing hedging fixed income exposure as bond managers are more likely to hedge their FX exposure for various reasons: One, most investors view bonds as their defensive assets and any type of volatility is undesirable. Two, currency is more volatile than bonds, so exchange rate fluctuations can have a far bigger impact on bond returns. Three, investors holding bonds for defined liquidity needs may have a shorter time horizon than equity investors and less tolerance for shortfalls.

Historical Perspective

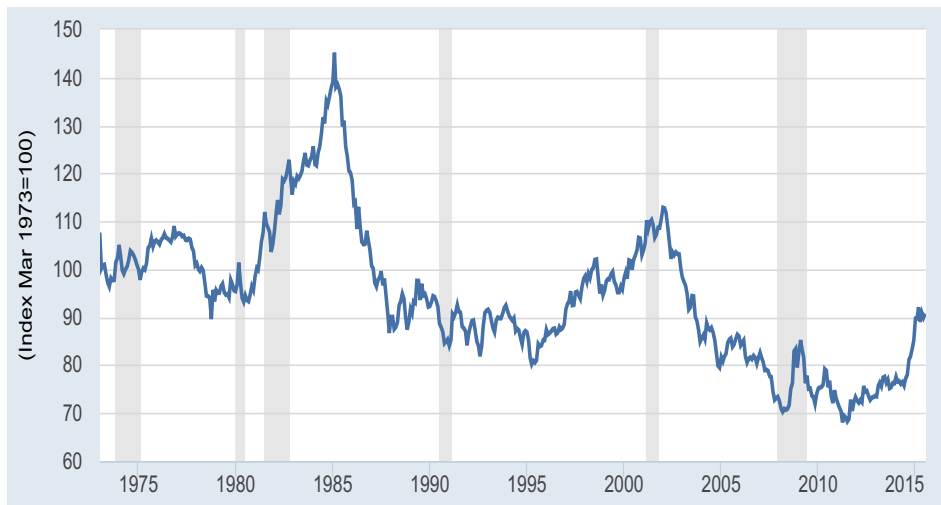
Historically, currencies were pegged to, and convertible into, gold. Exchange rates among currencies were fixed by treaties such as the 1944 Bretton Woods Agreement. In August 1971, when it became clear that the Nixon Administration's easy money policy was incompatible with the discipline imposed by the gold standard, the US went off the gold standard, ushering in an era of floating exchange rates. (For further background, refer to *Exorbitant Privilege*, our 2Q 2012 report on the dollar as the world's reserve currency.)

Chart 1 on the following page shows the trade-weighted value of the US dollar versus a basket of major global currencies from 1973 to the present, roughly corresponding to the era of floating exchange rates.

The chart shows two distinct cycles. First, we see the dollar appreciating in the early 1980s, when the Federal Reserve under Chairman Paul Volcker

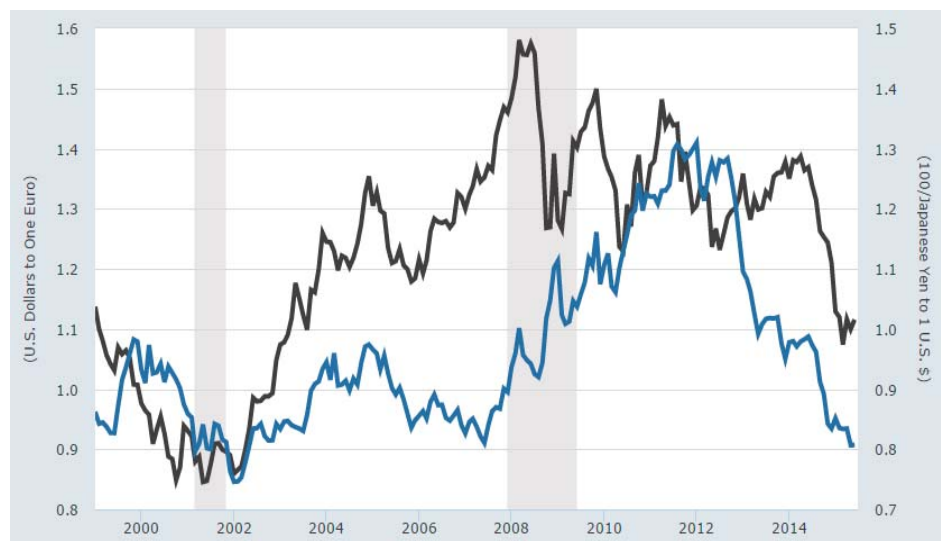
Currency Hedging—Panacea or Placebo?

Chart 1. Trade-Weighted US Dollar Index



Source: FRED Economic Data, Federal Reserve Bank of St. Louis. Data through July 3, 2015.

Chart 2. Relative Exchange Rates—Euro and Yen vs. US Dollar



Source: FRED Economic Data, Federal Reserve Bank of St. Louis. Data as of June 26, 2015.

demonstrated its resolve to tackle the stagflation (combination of stagnant growth and high inflation) dogging the US economy. However, the strong dollar made US exports uncompetitive and in the 1985 Plaza Accords, the US and its major trading partners agreed to work together to bring down the value of the dollar.

The dollar began rising again from about 1995 as productivity gains from US leadership in technology led to strong US economic growth. The dollar also benefited from its safe haven status in the turmoil following the 1997 Asian and 1998 Russian financial crises. With the bursting of the technology bubble and the Federal Reserve's decision to keep US interest rates low, the dollar resumed a downward trend. Aside from a blip during the global financial crisis, the US Federal Reserve's implementation of quantitative easing and near-zero interest rate policy kept the currency weak for a considerable period.

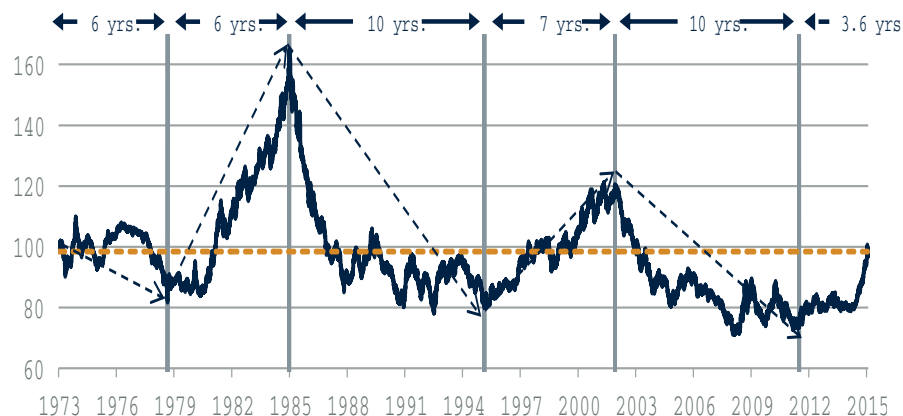
The dollar began to rise again when the Bank of Japan and European Central Bank embarked on their own quantitative easing programs in 2012 and 2014, respectively, to revive their moribund economies. By contrast, the Federal Reserve announced plans to start normalizing interest rates as US economic growth picked up, giving a further boost to the greenback. The dollar's trajectory can be seen in Chart 2, which tracks the relative value of the yen and euro against the dollar since 1999, when the euro was launched. It highlights how much the yen and the euro have weakened in response to the BoJ and ECB's quantitative easing programs.

Currency Cycles

As illustrated in Chart 3 on the following page, currency cycles tend to be fairly long-lived, in the order of 7 to 10 years. We expect the dollar to remain strong for the foreseeable future, due to the effect of policy divergence among the global central banks. Given the comparative strength of the US economy, the Federal Reserve intends to start raising US interest rates at a time when the European Central Bank, the Bank of Japan and other central banks need to

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Chart 3. Trade-Weighted Index, US Dollar vs. Major Currencies



Source: "ETF Market Outlook." Deutsche AWM, April 17, 2015.

remain highly accommodative, making the dollar more attractive relative to these other currencies. This pattern suggests the dollar will continue to strengthen for some time to come.

Why Does Currency Matter?

The charts on the following page compare the currency components of three major equity indexes—the MSCI All Countries World Index (ACWI, our global equity benchmark); the MSCI Europe, Australasia & Far East Index (EAFE, our developed international markets equity benchmark) and the MSCI Emerging Markets Index (EM, our emerging markets equity benchmark). At mid-year 2015, US dollar holdings represent 51% of the ACWI index, but only 0.03% of the EAFE index and 1.3% of the EM index, respectively. Thus, a US investor with any allocation to international equities will have foreign currency exposure across the non-US portion of the portfolio.

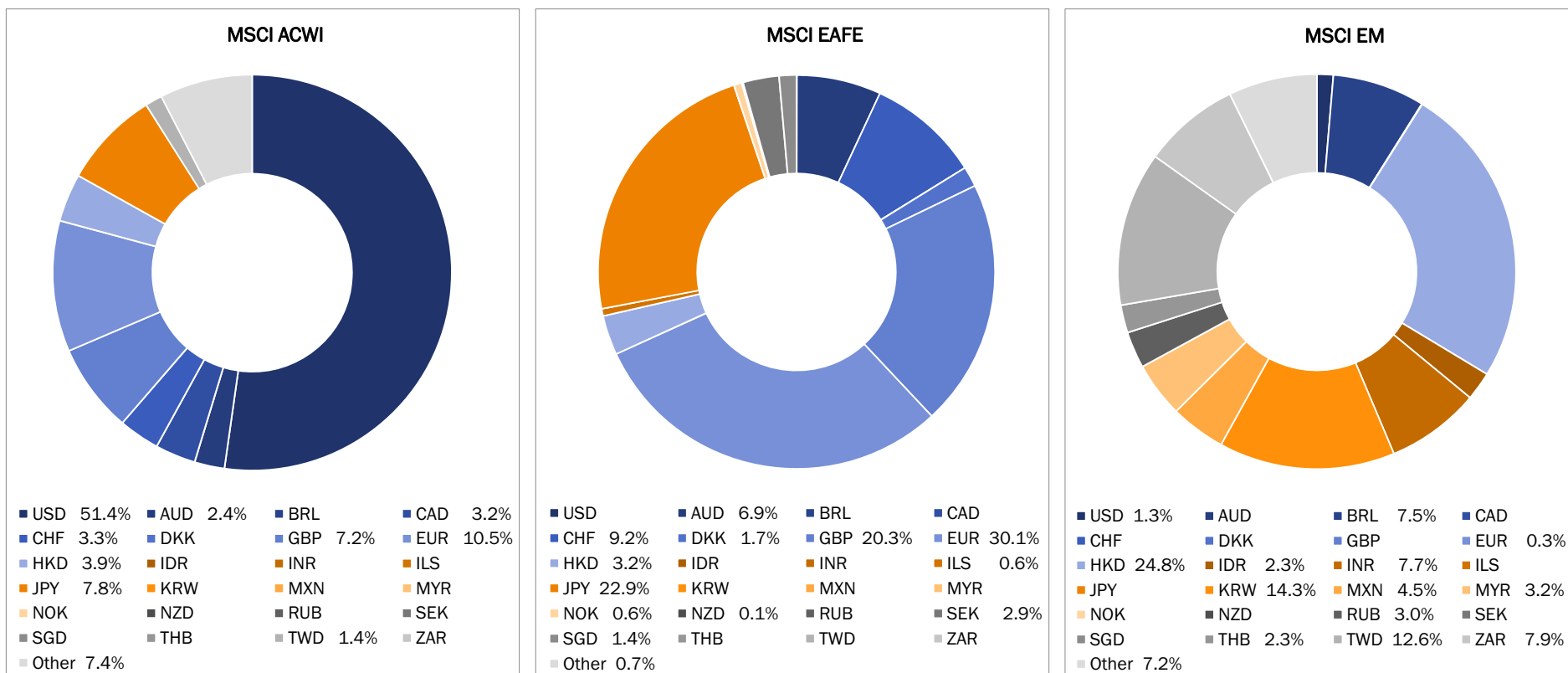
Some investors believe that they can obtain their international exposure and avoid foreign exchange risk by investing in US companies operating globally. However, investing in US multinationals is not the same as investing internationally: Even if these companies generate the majority of their revenues and profits overseas, their stocks will trade very much in line with the US stock market and will not provide the same diversification benefits as international stocks. Furthermore, this approach would lead investors to bypass the 75% of public companies with market capitalizations over \$1 billion that are domiciled outside the US. And finally, by restricting themselves to large multinationals, investors would forego the diversification benefits from investing in smaller and potentially more dynamic foreign companies.

Another common misperception among investors is the belief they can circumvent the risk of foreign markets by using American Depositary Receipts (ADRs). ADRs are baskets of foreign stocks that trade on US exchanges, with each ADR share equal to a specified ratio of local shares. As a matter of fact, the market value of an ADR is a function of both the local currency share price and the exchange rate. Also, the roughly 2,800 ADRs listed on the New York Stock Exchange represent just a fraction of the global equity universe.

Implicit in both these alternative approaches is the idea that foreign markets and foreign currencies are risky and to be avoided. In fact, it has been shown conclusively that international exposure provides a valuable diversification benefit, and that global portfolios offer better risk-adjusted returns than stand-alone domestic or international portfolios. As for currency risk, we have seen over the last thirty years that when the dollar is weak, foreign currency gains can materially enhance portfolio returns. Equally, now that the dollar is strong, foreign currency weakness can erode gains associated with the underlying investments; hence the argument for hedging currency risk today.

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Chart 4. Currency Component of Major MSCI Indexes



USD: United States Dollar; AUD: Australian Dollar; BRL: Brazilian Real; CAD: Canadian Dollar
 CHF: Swiss Franc; DKK: Danish Krone; GBP: British Pound; EUR: Euro
 HKD: Hong Kong Dollar; IDR: Indonesian Rupiah; INR: Indian Rupee; ILS: Israeli Shekel
 JPY: Japanese Yen; KRW: South Korean Won; MXN: Mexican Peso; MYR: Malaysian Ringgit
 NOK: Norwegian Krone; NZD: New Zealand Dollar; RUB: Russian Ruble; SEK: Swedish Krona
 SGD: Singapore Dollar; THB: Thai Baht; TWD: Taiwan New Dollar; ZAR: South African Rand

Source: MSCI Index Factsheets, June 30, 2015.

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The Longer-Term Story on Hedging

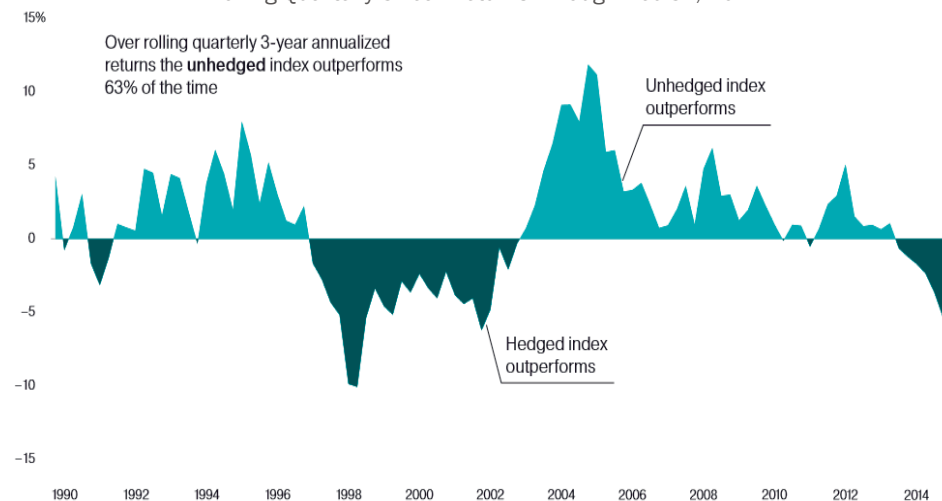
The concept of purchasing power parity is a key tenet of economic theory. It proposes that there is an equilibrium real exchange rate between two given currencies, and that in the long run, the price of an identical basket of goods and services in each country should converge to reflect this equilibrium. In turn, the equilibrium currency rate will reflect the respective economic growth, inflation, prevailing interest rates and current account balances in each country. The well-known Big Mac Index, which compares the price of a Big Mac burger around the world, was created by The Economist in 1986 as a way to illustrate this concept in lay terms.

According to purchasing power parity, currency hedging has an expected return of zero in the long term. Since exchange rates should revert to the equilibrium rate, forex gains in some years will be offset by losses in other years. While the theory appears to hold true in the long run, there is strong evidence that it breaks down in shorter time frames and that hedging may be beneficial during those intervals.

Looking at the longer-term impact, if we compare hedged and unhedged returns over extended periods, there is a case for long-term investors to remain unhedged. Using the MSCI EAFE Index, our benchmark for investing in developed non-US equity markets, we learn that the unhedged index has outperformed the hedged index 63% of the time over the last 25 years (Chart 5).

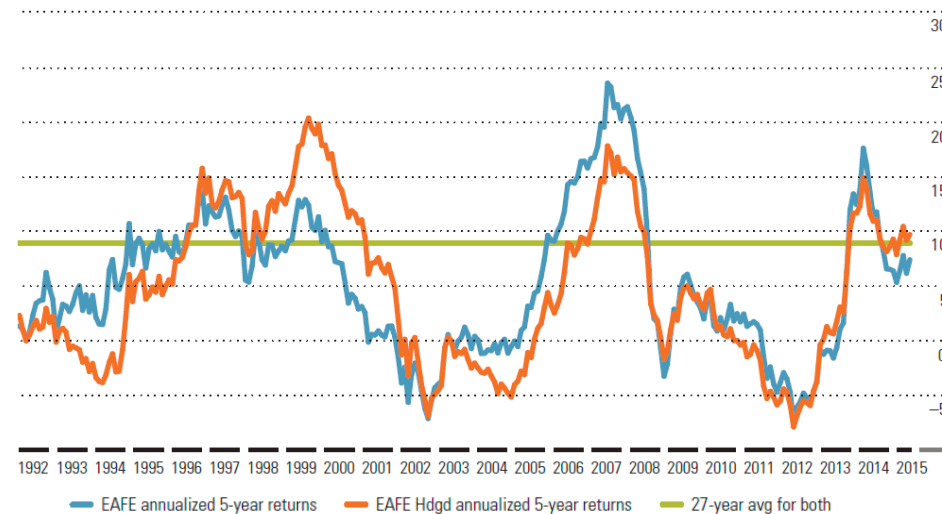
For further evidence, we turn to a comprehensive review of the impact of currency hedging from Morningstar. The study analyzed both return and risk, again using hedged and unhedged performance of the MSCI EAFE index from the inception of the hedged index in 1988 to the present. As we might expect, the data showed material differences between hedged and unhedged returns over shorter time periods, but these differences converged and became negligible over longer periods. Let us start by comparing the hedged and unhedged returns in the Morningstar study (Chart 6).

Chart 5. MSCI EAFE Index—Hedged vs. Unhedged Returns
Rolling Quarterly 3-Year Returns Through Dec 31, 2014



Source: Q3 2015 "Compelling Wealth Management Conversations." Oppenheimer Funds, June 11, 2016.

Chart 6. MSCI EAFE Index—Comparison of Hedged vs. Unhedged Returns



Source: "The Impact of Foreign Currency Movements on Equity Portfolios." Morningstar Manager Research, June 2015.

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Chart 7. MSCI EAFE Index—Comparison of Hedged vs. Unhedged Risk/Returns

	1-Yr	5-Yr	10-Yr	15-Yr	20-Yr	25-Yr
Return						
Unhedged	8.8%	11.7%	7.4%	4.2%	7.8%	8.4%
Hedged	15.0%	12.6%	8.0%	3.9%	8.4%	8.2%
Sortino Ratio						
Unhedged	2.24	1.38	0.52	0.21	0.50	0.59
Hedged	9.26	1.75	0.64	0.19	0.54	0.58
Sharpe Ratio						
Unhedged	1.03	0.86	0.45	0.23	0.40	0.41
Hedged	1.98	1.04	0.51	0.21	0.46	0.41

Source: “The Impact of Foreign Currency Movements on Equity Portfolios.” Morningstar Manager Research, June 2015.

Next, let us look at the same data broken out by return, downside risk (Sortino Ratio) and risk-adjusted return (Sharpe Ratio) over short, medium and longer-term timeframes. The Sortino Ratio is a measure of the downside volatility associated with an investment, while the Sharpe ratio quantifies the return of the investment relative to its risk.

With hedged and unhedged indexes offering comparable risk-adjusted returns longer term, the Morningstar study concluded that long-term investors should be indifferent between the two approaches, but that investors with shorter time frames would benefit from hedging. (Oey, P. “The Impact of Foreign Currency Movements on Equity Portfolios.” Morningstar Manager Research, Jun 15 2015.)

An April 2015 study by GMO concluded that while hedging reduces volatility in the near term, it does not reduce volatility over long holding periods. The study also found that hedged equities are more closely correlated with US equities; hence hedging does not lessen overall portfolio volatility. (LeGraw, C. “The Case for Not Currency Hedging Foreign Equity Investments.” GMO White Paper, April 2015.)

Another study by MFS Investors set out to answer two key questions: Does hedging improve returns? And does hedging decrease the volatility of returns? As with the GMO study, the MFS study found no persistent advantage to currency hedging over a 40-year period. It concluded that although currency hedging can dampen volatility for short time periods, the beneficial effects diminish over longer periods. For investors who elect to hedge, the study recommended doing so holistically across the entire portfolio as hedging individual strategies is far less effective. (“Whether to Hedge Currency Risk in Equity Portfolios.” MFS Investment Insights, April 23, 2015.)

These studies confirm that investors with a long time horizon can forego hedging without sacrificing long-term performance. But what about investors with shorter time horizons? When we compare hedged and unhedged returns for short time frames, currency effects have a significant impact on portfolio returns. This is illustrated in Chart 8 on the following page, which compares the hedged and unhedged returns for a number of MSCI indexes for the period between January 2014 and May 31, 2015.

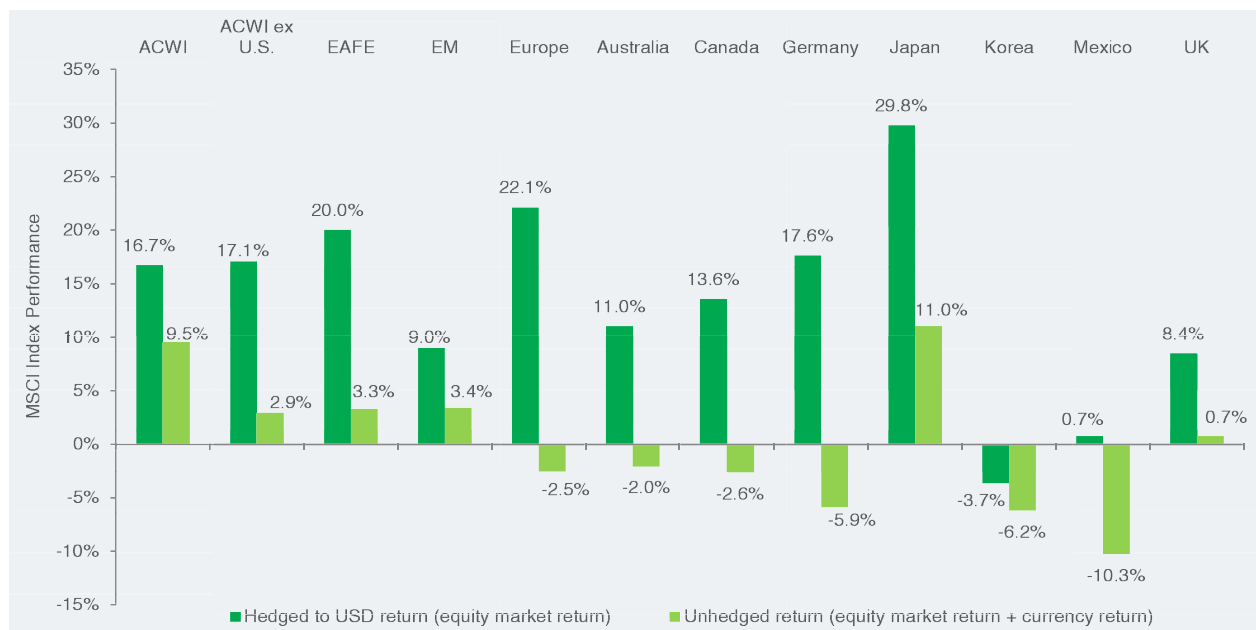
Mechanics of Hedging

Investors have various options for how to handle their foreign currency exposure:

- At one extreme, investors can remain 100% unhedged, as they anticipate long-term US dollar weakness. This is tantamount to a short, or bearish, call on the dollar. In some cases, investors view the forex exposure as another source of portfolio diversification; in others, they don’t hedge because they are not equipped to deal with the complexity and resource needs of a hedging program. Most US-based equity managers fall into this camp. As we have seen, this approach worked well when the dollar was weak, but presents challenges when the dollar is strong.

Currency Hedging—Panacea or Placebo?

Chart 8. Comparison of Hedged and Unhedged Returns



Source: "The Impact of Foreign Currency Movements on Equity Portfolio." Morningstar Manager Research, June 2015.

- At the other extreme, investors can choose to be 100% hedged, either because they believe the US dollar is going to appreciate in the long run and they want to protect their portfolio, or they want to eliminate any uncertainty due to exchange rate volatility. If they choose to hedge, they have to be willing to commit to the trading resources and infrastructure to oversee a complex hedging program, or they can outsource the task to a currency overlay manager.
- Investors can also be partially hedged along this continuum. The hedge can be passive, such as hedging a fixed percentage of the overall portfolio. More active investors can hedge a variable percentage of the

portfolio, based on their currency expectations, level of comfort with an active hedging strategy, and desire to generate incremental returns from the strategy.

Hedging strategies can be implemented using a variety of tools, such as currency forwards, currency futures or currency put/call options. Forwards are the most common vehicle, as the forward market for currencies is very liquid and contracts can be readily customized. A forward contract sets a price today to buy/sell currency at a specified future date. The forward price reflects the current spot rate, the interest rate differential between the two countries and the time to maturity.

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By locking in a set forward rate, investors lock in a predetermined return from the hedge. They eliminate any uncertainty associated with changes in exchange rates, but equally, forego the opportunity to benefit from any rate changes. Even with the exchange rate locked in, the value of the investment will fluctuate along with stock prices and any cash flows into/out of the investment.

Currency-hedged exchange traded funds (ETFs) based on major indexes such as the MSCI EAFE and MSCI EM are an increasingly popular mechanism for hedging investment portfolios. Taken together, ETFs provide investors with a convenient way to express various investment views:

- The unhedged ETF gives the investor exposure to both the foreign market and the currency.
- The currency hedged strategy adds a currency overlay to hedge back into dollars and eliminate the currency exposure.
- A third variant hedges the market exposure and gives the investor exposure purely to the currency element. This option is useful for investors who want to isolate the currency exposure to hedge investments elsewhere.

Finally, Chart 9 on the right provides a useful roadmap for identifying conditions when hedging can be beneficial.

Challenges with Hedging

We have seen that returns for fully hedged or unhedged portfolios are comparable in the long run, but can vary widely during short time intervals. Investors can benefit from hedging when time frames are compressed; however, it is difficult to hedge tactically, and investors who try do so often end up worse off than if they did nothing. Thus, most equity managers choose to forego hedging.

Chart 9. FX Hedging Decision Framework

International Market View	US Dollar View	Portfolio Positioning
Positive	Positive	Hedge International Exposure
Positive	Negative	Leave International Exposure Unhedged
Positive	Neutral	Hedge International Exposure
Negative	Positive	Hedge and Underweight International Exposure
Negative	Negative	Underweight International Exposure. Stay Unhedged .
Negative	Neutral	Underweight International Exposure. Keep Hedged .

Source: "Building Today's Currency-Hedging Framework." Deutsche Asset & Wealth Management, October 2014.

Along the hedging continuum, staying fully hedged, partly hedged or fully unhedged each presents its own challenges to investors:

1. Currency movements are unpredictable. An extreme example is the Swiss National Bank's decision to terminate the Swiss franc's peg to the euro earlier this year. Investors were blindsided by the action and those who were hedged missed out on the overnight double-digit appreciation in their Swiss holdings. To illustrate the unpredictability, Chart 10 on the following page ranks the annual returns of the MSCI EAFE index by currency. As we see, the direction and magnitude of currency swings can be highly variable.
2. Hedges are imperfect. Exchange rates and share prices are in constant flux and hedge ratios need to be adjusted for changing prices. A typical hedging program will use forward contracts with monthly expirations, leaving the portfolio exposed to changes from exchange rate or stock price movements between rollover dates. Investors who find themselves on the wrong side of a hedge have to wait until the next settlement date to unwind their positions. More frequent rollovers can improve the

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Chart 10. MSCI EAFE Index—Annual Returns Ranked by Major Currencies

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 YTD	
21.14%	32.45%	28.07%	11.58%	-20.88%	35.59%	15.78%	-9.19%	32.35%	49.88%	9.09%	14.99%	USD
16.14%	31.62%	26.86%	9.72%	-27.76%	31.38%	11.10%	-9.60%	17.82%	42.52%	9.08%	14.12%	CHF
15.76%	30.48%	26.37%	4.64%	-28.15%	29.53%	8.66%	-11.23%	16.35%	31.15%	7.14%	12.73%	JPY
12.43%	27.48%	18.06%	3.52%	39.43%	29.08%	2.78%	-11.39%	16.02%	22.96%	4.09%	8.06%	GBP
11.78%	20.74%	17.50%	0.68%	-42.71%	17.49%	-2.62%	-12.09%	15.34%	19.95%	3.85%	5.88%	EUR
11.09%	13.96%	13.48%	0.21%	-45.95%	12.59%	-4.81%	-12.35%	15.22%	19.77%	1.34%	4.97%	AUD
10.77%	10.41%	11.28%	-5.30%	-53.97%	1.21%	-5.19%	-16.43%	12.67%	18.01%	-4.34%	-0.42%	CAD

Source: FactSet data, July 8, 2015.

effectiveness of the hedge, but make the hedging process far more complex and labor-intensive.

Chart 11 on the following page compares the hedged and unhedged returns on MSCI ACWI, EAFE and EM indexes from January 2004 through June 2015. We see that hedging was a net contributor to returns only about half the time.

- Although the cost of hedging major currencies is relatively low (Chart 12), the opportunity cost of hedging can be substantial. Investors who hedge their foreign holdings are protected when the currency declines, but will miss out on any subsequent upside if the investment performs well in local currency terms.

- International portfolios typically hold shares of large global companies, whose treasury departments routinely undertake some level of hedging at the company level. Overlaying an additional layer of hedging at the portfolio level may actually run counter to the actions taken by the company. Nowadays, multinational corporations commonly generate the majority of their business outside their home markets, in which case, it may be insufficient to simply hedge exposure in the company's home currency and investors will need to look at a firm's economic exposure.

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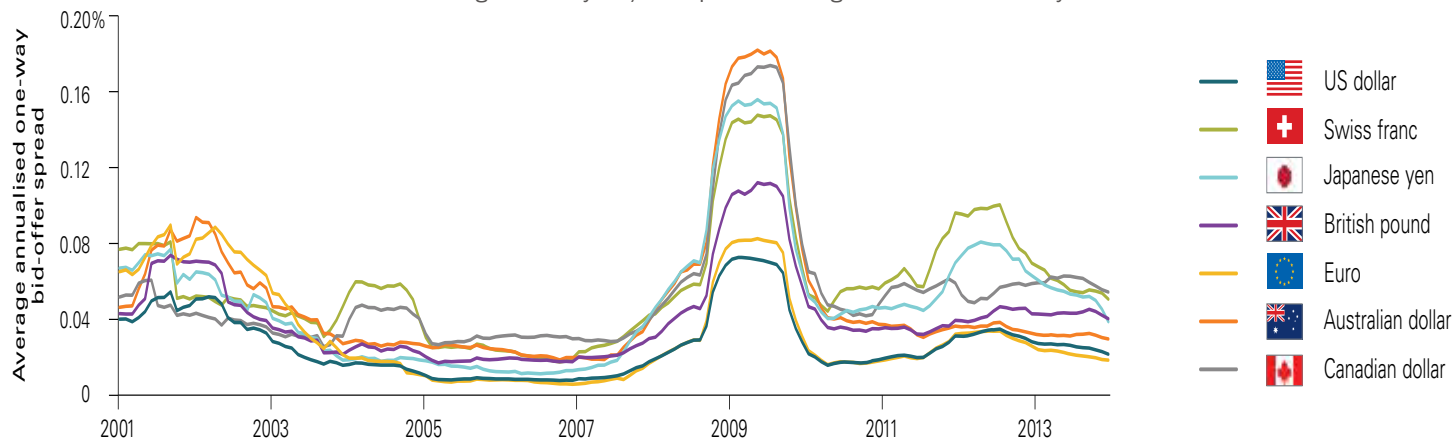
Chart 11. Impact of Currency Hedging on Returns

	MSCI EAFE Index			MSCI Japan Index			MSCI ACWI Index		
	Unhedged Return (LC)	Hedged Return (USD)	Currency Impact	Unhedged Return (LC)	Hedged Return (USD)	Currency Impact	Unhedged Return (LC)	Hedged Return (USD)	Currency Impact
2004	12.7%	20.2%	7.5%	10.8%	15.9%	5.1%	13.1%	20.9%	7.8%
2005	29.0%	13.5%	-15.5%	44.6%	25.5%	-19.1%	29.5%	16.6%	-12.9%
2006	16.5%	26.3%	9.8%	7.3%	6.2%	-1.1%	18.1%	26.7%	8.6%
2007	3.5%	11.2%	7.7%	-10.2%	-4.2%	6.0%	8.5%	16.7%	8.2%
2008	-40.3%	-43.4%	-3.1%	-42.6%	-29.2%	13.4%	-40.9%	-45.5%	-4.6%
2009	24.7%	31.8%	7.1%	9.1%	6.3%	-2.8%	31.7%	41.4%	9.7%
2010	4.8%	7.8%	3.0%	0.6%	15.4%	14.8%	7.6%	11.2%	3.6%
2011	-12.2%	-12.1%	0.1%	-18.7%	14.3%	4.4%	-12.2%	-13.7%	-1.5%
2012	17.3%	17.3%	0.0%	21.6%	8.2%	-13.4%	16.3%	16.8%	0.5%
2013	26.9%	22.8%	-4.1%	54.6%	27.2%	-27.4%	20.1%	15.3%	-4.8%
2014	-4.5%	3.0%	7.5%	-3.7%	6.7%	10.4%	4.2%	7.6%	3.5%
2015 YTD 6/30	5.9%	6.7%	0.8%	13.8%	14.9%	1.2%	2.7%	2.9%	0.3%

Source: Exchange Traded Funds, Deutsche Asset & Wealth Management, September 2014 with FactSet updates through June 30, 2015.

Chart 12. Hedging Costs—MSCI World Index

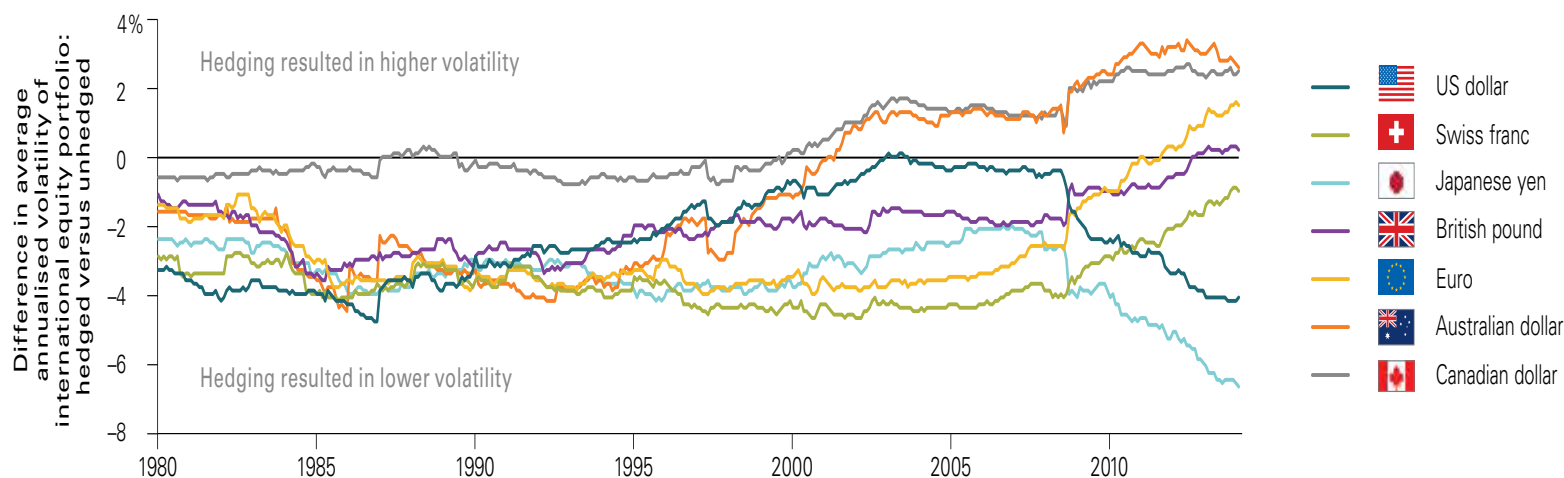
Average One-Way Bid/Ask Spread to Hedge into Stated Currency



Source: "To Hedge or Not to Hedge?" Vanguard Research, September 2014.

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Chart 13. Volatility Impact of Hedged vs. Unhedged Returns
Rolling 10-Year Returns, January 1971 to December 2013



Source: "Considerations for Global Equities." Vanguard Research Brief, December 2014.

Impact on Portfolio Volatility

Along with certain developed market currencies such as the yen and Swiss franc, the US dollar is considered a safe haven or "risk-off" currency. A "risk-off" currency holds its value during periods of market stress or geopolitical turmoil, but is apt to be weak during periods of strong economic growth, when the weak currency aids exports. Given the negative correlation between the currency and direction of equity markets, hedging portfolios back into the safe haven currency can help to reduce overall portfolio volatility.

Emerging markets currencies, and those of certain resource-based developed economies such as Australia and Canada, tend to appreciate when commodity prices and economic growth are strong, and to depreciate when commodity

prices and economic growth are weak. Given the positive correlation between the currency and equities for such "risk-on" currencies, hedging can aggravate portfolio volatility, as highlighted by the divergence of the Australian dollar and Canadian dollar from the other "risk-off" currencies in the chart above.

Emerging Markets—A Special Case

Investors looking to hedge their emerging markets exposure face some challenges. Trading volumes for most emerging currencies are very small compared to those for developed currencies. In many cases, capital controls and trading restrictions may prevent the development of a forward market, which is a prerequisite for hedging. Some countries prohibit foreign investors from holding their currency, whether locally or outside the country. For all these

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reasons, instruments to hedge currency exposure may be expensive or impossible to find in most emerging market countries. And yet, with volatility in emerging markets higher than for developed markets, there is more of a need for protective tools.

Emerging markets and developed markets differ in another key respect. As it turns out, the decision to invest in emerging markets is strongly tied to the outlook for commodity prices. When the outlook for commodities is bullish, the stock market and currency tend to do well in tandem; when the outlook is bearish, both stock prices and the currency weaken. The need to hedge emerging markets currency exposure will likely occur at the same time the equity market outlook is deteriorating. Given this “risk-on” character, the currency exposure can be hedged by simply cutting back to the desired level of equity exposure. (Atwill, T. “Currency Hedging in the Emerging Markets.” Parametric Portfolio Associates Research Brief, December 2014.)

Portfolio Positioning

Currency movements are cyclical. We expect the current dollar uptrend to continue for some time, and to have a negative effect on the value of our non-US equity investments in the near term. With these expectations, we feel it helpful to provide some level of currency protection in portfolios. Our preferred tool for hedging foreign exchange risk is to allocate a portion of the developed markets exposure to currency hedged ETFs that track the MSCI EAFE Index or its components, MSCI Europe and MSCI Japan. As we discussed above, hedging the emerging markets exposure can be achieved by dialing back the overall equities exposure to the desired level.

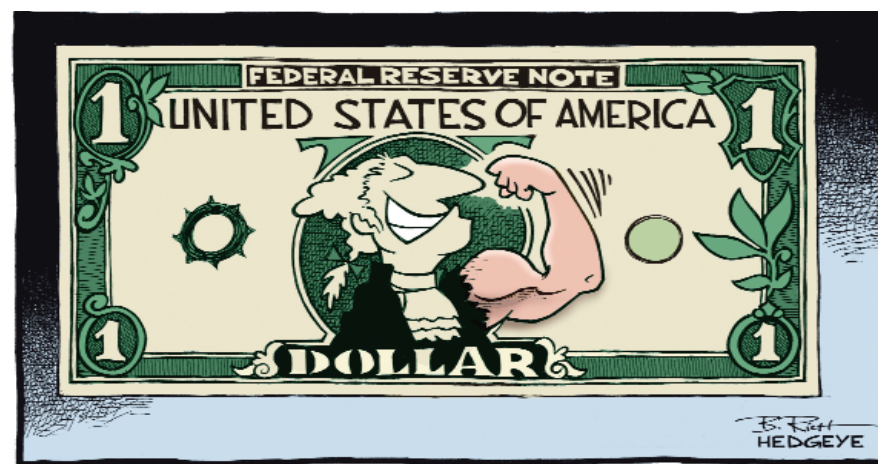
Our ongoing allocations to currency hedged ETFs will be modest. We consider international diversification a key tool to ensure that clients have access to the best investment opportunities in an increasingly globalized market. Being long-term investors, we want to keep our core exposure to international equities

generally unhedged, as we consider the foreign currency exposure to be a valuable source of added diversification in the long run. Furthermore, we believe that active managers are better equipped to identify unusual or interesting opportunities internationally, and also more likely to provide downside protection in turbulent markets, an important consideration in the current uncertain environment.

Conclusion

The subject of currency hedging represents a conundrum for investors: Should they hedge to dampen short-term volatility and potentially miss out on FX gains if the dollar weakens? Or should they remain unhedged, endure near-term volatility and risk potential losses down the line if the foreign currency weakens?

As we have seen, being fully hedged may not be any more optimal than remaining fully unhedged. Under these conditions, we believe the approach we have laid out—to hedge a portion of the overall currency exposure using currency hedged ETFs—is a reasonable compromise.



Source: Hedgeye, March 19, 2015. Reprinted with permission.

Second Quarter Performance Summary

Asset Class	Benchmark	2Q15 Return	YTD Return	Performance Summary
Cash	Citi 3-month T-bill	0.01	0.01	Cash yields remain at near-zero levels.
Domestic Gov't / Agency	BC U.S. Gov't & Related 5-7	-0.74	1.15	US Treasury yields rose in tandem with an uptick in global government yields in Q2. Long duration bonds were hit harder, with 30-yr Treasuries returning -10.4% vs -3.0% for 10-yr and -0.74% for 5-yr, respectively.
Domestic Tax-Exempt	BC Municipal Bond 5-Year	-0.17	0.59	Municipal markets were rattled by Governor Padilla's disclosure that Puerto Rico is unlikely to repay its \$72 billion debt load without dramatic restructuring. High grade bonds outperformed high yield bonds, returning -0.9% vs -3.0%.
TIPS	BC TIPS	-1.06	0.34	In addition to the uptick in Treasury yields, TIPS performance factored in higher inflation expectations due to tightening labor market conditions and the sturdy pace of job creation in H1.
Investment-Grade Debt	BC Inv. Grade Intermediate	-1.09	0.78	A combination of heavy new issuance, steepening yield curves and spike in Treasury yields hurt IG performance in Q2 due to the low yield and long maturity profile of debt in this sector. May saw a record level of issuance to fund M&A activity, buybacks and companies seeking to lock in low rates.
High-Yield Debt	BC High-Yield Intermediate	0.11	2.48	The high yield sector was, buffered from sizable losses in government and corporate bonds by the relatively higher yields and lower duration. Floating rate bank loans returned 0.63%, bettering the flat return on high-yield bonds.
Global Bonds	Citi World Gov't Bond Index (Hedged)	-2.66	-0.68	Rising nervousness over a potential Grexit weighed heavily on European sovereign debt as the quarter drew to a close. Returns were impacted by rising yields as well as the falling currency.
Emerging-Markets Debt	Morningstar EM Composite Bond Index	-0.34	1.67	EM bonds held up better than DM bonds in the volatile 2nd Qtr., as fears over Greece overwhelmed EM-specific issues such as slowing EM growth or an impending US rate hike. Hard currency again outperformed local currency debt, returning -0.34% vs -1.59%, respectively.
Large-Cap Equity	S&P 500	0.28	1.23	Despite optimism over corporate earnings and US economic growth, fears over a potential Grexit caused the index to fall 3.2% from its May 21 highs and close out the quarter roughly flat. The VIX index rose to 18.23 at 6/30 from 13.84 on 5/31, mirroring those concerns.

Second Quarter Performance Summary (Continued)

Asset Class	Benchmark	2Q15 Return	YTD Return	Performance Summary
Small/Mid-Cap Equity	Russell 2000	0.42	4.75	Small stocks outperformed large stocks in Q2, helped by rising M&A activity; improving US economic growth, and lower exposure to global macroeconomic issues.
International Equity	MSCI EAFE	0.62	5.52	Signs of stabilizing economic growth in the Eurozone and solid gains in Japan boosted performance early in Q2; however, rising fears of a potential Grexit overwhelmed global markets as Q2 drew to a close.
Emerging-Markets Equity	MSCI EM	0.69	2.95	The MSCI EM index made steady gains early in the quarter on speculation that the US Fed would delay raising rate, but fell 3.2% in late June, due to growing nervousness about a Grexit and the massive selloff in Chinese equities late in the quarter.
Real Estate	DJ Composite REIT Index	-10.15	-7.49	Q2 performance across all REIT sectors was hurt by concerns over impending rate hikes. Among the better performers were Self Storage -5.0%, Hotels -5.78% and Apartments -6.4%, while Health Care -14.4%, Malls -11.4% and Strip Centers -13.1% were among the worst performing sectors.
Commodities	DJ UBS Commodity Index	4.66	-1.56	Following three consecutive quarters of losses, the BCOM returned 4.66% in Q2, driven by gains for crude oil +17.5%, grains +18.5% and agricultural commodities +12.8%. According to the FAO, world food prices have declined 15% in 2015, led by a 17% drop in sugar prices.
Private Equity	S&P Listed Private Equity	5.73	10.78	PE was the top performing asset class, both for Q2 and YTD, among all the asset categories here. Buoyant transaction activity and high valuations boosted performance.
Hedge Funds	HFRX Global Hedge Fund Index	-0.78	1.27	Q2 performance was hurt by global concerns such as the abrupt selloff in China and rising fears over Greece. Trading-oriented strategies such as global macro and managed futures were hard hit, as were distressed managers with exposure to Puerto Rico and Greece.

Source: FactSet; Data as of 6/30/2015

Second Quarter Market Summary

	Price	2014	3Q14	4Q14	1Q15	2Q15	YTD	Annualized			
								1-Year	3-Year	5-Year	10-Year
US Equity Benchmarks											
Dow Jones Industrial	17,619.51	10.04	1.87	5.20	0.33	(0.29)	0.03	7.21	13.77	15.41	8.32
Nasdaq Index Composite	4,986.87	14.75	2.24	5.70	3.79	2.03	5.90	14.44	20.86	20.18	10.35
S&P 500	2,063.11	13.69	1.13	4.93	0.95	0.28	1.23	7.42	17.31	17.34	7.89
Russell 1000 (Large Cap)	1,152.64	13.24	0.65	4.88	1.59	0.11	1.71	7.37	17.73	17.58	8.13
Russell 1000 Growth	991.78	13.05	1.49	4.78	3.84	0.12	3.96	10.56	17.99	18.59	9.10
Russell 1000 Value	1,009.87	13.45	(0.19)	4.98	(0.72)	0.11	(0.61)	4.13	17.34	16.50	7.05
Russell Mid Cap	1,689.26	13.22	(1.66)	5.94	3.95	(1.54)	2.35	6.63	19.26	18.23	9.40
Russell Mid Cap Growth	775.08	11.90	(0.73)	5.84	5.38	(1.14)	4.18	9.45	19.24	18.69	9.69
Russell Mid Cap Value	1,686.99	14.75	(2.65)	6.05	2.42	(1.97)	0.41	3.67	19.13	17.73	8.89
Russell 2000 (Small Cap)	1,253.95	4.89	(7.36)	9.73	4.32	0.42	4.75	6.49	17.81	17.08	8.40
Russell 2000 Growth	782.76	5.60	(6.13)	10.06	6.63	1.98	8.74	12.34	20.11	19.33	9.86
Russell 2000 Value	1,520.08	4.22	(8.58)	9.40	1.98	(1.20)	0.76	0.78	15.50	14.81	6.87
S&P GICS Sectors											
	Weight										
Consumer Discretionary	12.6%	9.68	0.26	8.74	4.80	1.92	6.81	16.45	22.52	23.39	10.57
Consumer Staples	9.7%	15.98	1.95	8.15	0.99	(1.74)	(0.77)	9.41	13.98	16.56	10.63
Energy Sector	8.0%	(7.78)	(8.62)	(10.68)	(2.85)	(1.88)	(4.68)	(22.20)	5.60	10.57	7.00
Financials	16.2%	15.20	2.33	7.25	(2.05)	1.72	(0.37)	9.34	20.81	14.12	0.32
Health Care	14.9%	25.34	5.46	7.48	6.53	2.84	9.56	24.17	27.31	23.84	11.27
Industrials	10.4%	9.83	(1.09)	6.76	(0.86)	(2.23)	(3.06)	2.37	17.19	17.03	8.00
Information Technology	19.7%	20.12	4.77	5.24	0.57	0.19	0.76	11.10	16.34	17.63	9.60
Materials	3.2%	6.91	0.22	(1.80)	0.99	(0.48)	0.50	(1.08)	13.35	14.45	8.57
Telecommunication Services	2.3%	2.99	3.07	(4.16)	1.54	1.59	3.15	1.89	6.34	14.09	7.33
Utilities	3.0%	28.98	(3.96)	13.19	(5.17)	(5.80)	(10.67)	(2.90)	8.02	12.47	6.88
Global Equity Benchmarks											
	Price										
MSCI World Index	1,735.61	4.94	(2.16)	1.01	2.31	0.31	2.63	1.43	14.27	13.10	6.38
MSCI AC World x-USA	269.88	(3.87)	(5.27)	(3.87)	3.49	0.53	4.03	(5.26)	9.44	7.76	5.54
MSCI EAFE	1,842.46	(4.90)	(5.88)	(3.57)	4.88	0.62	5.52	(4.22)	11.97	9.54	5.12
MSCI EAFE Growth	1,438.48	(4.43)	(5.55)	(2.29)	5.85	1.01	6.91	(1.33)	12.11	10.09	5.80
MSCI EAFE Value	2,885.13	(5.39)	(6.20)	(4.85)	3.89	0.22	4.11	(7.09)	11.80	8.93	4.37
MSCI Emerging Markets	972.25	(2.19)	(3.50)	(4.50)	2.24	0.69	2.95	(5.12)	3.71	3.68	8.11
MSCI BRIC	279.41	(2.85)	(3.25)	(4.09)	3.55	4.57	8.29	0.48	5.01	1.42	9.68
MSCI Japan	2,936.37	(4.02)	(2.30)	(2.42)	10.21	3.09	13.62	8.31	13.30	8.80	4.23

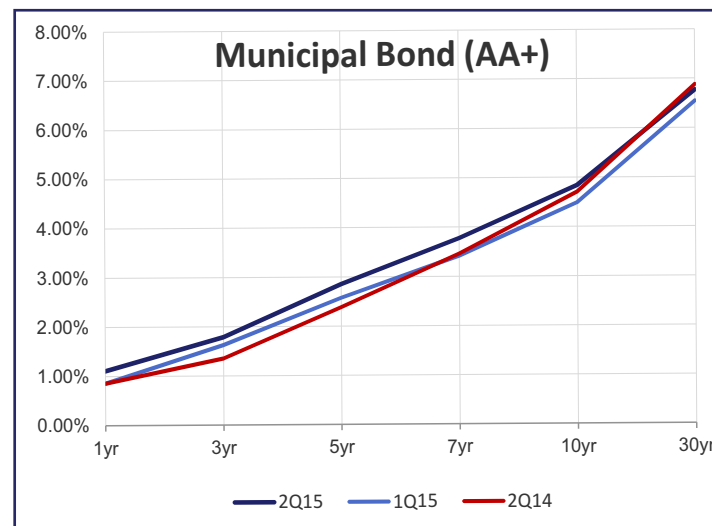
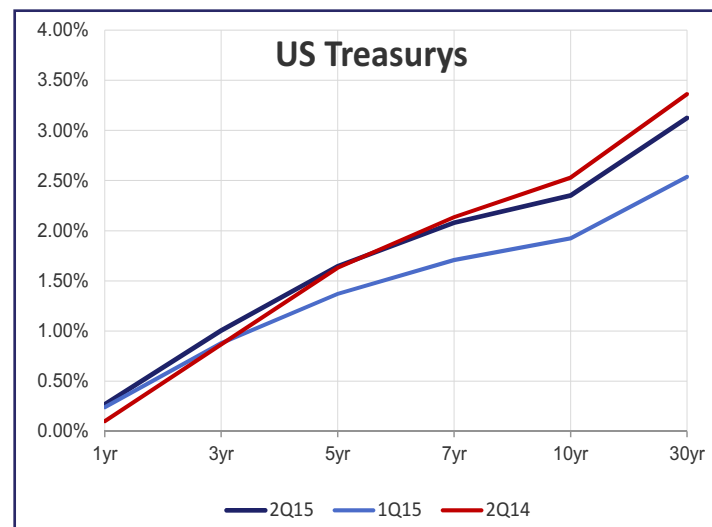
Source: FactSet; Data as of 6/30/2015

Global Equity Valuation Summary	1Q15	2Q15	QoQ
S&P 500			
Price	2,067.89	2,063.11	-4.78
Trailing P/E	17.40	17.98	0.58
Est P/E	16.76	16.37	-0.39
Trailing 12m Earnings	118.87	114.77	-4.10
Est Forward 12m Earnings	123.70	126.41	2.71
Implied 1yr Earnings Growth	4.06%	10.14%	6.1%
Russell Mid Cap			
Price	1,722.25	1,689.26	-32.99
Trailing P/E	22.23	21.85	-0.38
Est P/E	18.79	18.34	-0.45
Trailing 12m Earnings	198.83	198.45	-0.38
Est Forward 12m Earnings	235.96	237.41	1.45
Implied 1yr Earnings Growth	18.67%	19.63%	1.0%
Russell 2000			
Price	1,252.77	1,253.95	1.17
Trailing P/E	33.95	34.61	0.67
Est P/E	24.01	24.37	0.36
Trailing 12m Earnings	91.72	90.04	-1.68
Est Forward 12m Earnings	130.80	130.85	0.05
Implied 1yr Earnings Growth	42.61%	45.32%	2.7%
MSCI EAFE			
Price	1,849.34	1,842.46	-6.88
Trailing P/E	16.39	16.63	0.24
Est P/E	15.92	15.16	-0.76
Trailing 12m Earnings	112.84	110.82	-2.02
Est Forward 12m Earnings	116.44	121.86	5.42
Implied 1yr Earnings Growth	3.19%	9.96%	6.8%
MSCI EM			
Price	974.57	972.25	-2.32
Trailing P/E	13.28	13.52	0.24
Est P/E	11.95	11.82	-0.13
Trailing 12m Earnings	73.40	71.94	-1.47
Est Forward 12m Earnings	81.74	82.54	0.80
Implied 1yr Earnings Growth	11.35%	14.73%	3.4%

Second Quarter Market Summary (Continued)

		2014	1Q15	2Q15	YTD	Annualized			
						1-Year	3-Year	5-Year	10-Year
Interest Rates		Yield							
Prime Rate	3.25	3.25	0.79	0.80	1.60	3.25	3.25	3.25	4.54
3m Treasury Bill	0.01	0.03	0.00	0.00	0.01	0.02	0.04	0.06	1.28
US LIBOR 3m	0.28	0.23	0.06	0.07	0.13	0.25	0.27	0.32	1.77
US Treasury 3m	1.00	0.88	0.24	0.24	0.47	0.96	0.69	0.68	1.96
US Treasury 10yr	2.35	2.53	0.48	0.53	1.02	2.22	2.24	2.37	3.21
US Treasury 30yr	3.12	3.34	0.62	0.71	1.34	2.92	3.18	3.40	3.96
Fixed Income		Price							
Citi 3-month T-bill	622.64	0.03	0.01	0.00	0.01	0.02	0.05	0.06	1.34
BC U.S. Gov't & Related 5-7	103.60	5.36	1.91	(0.74)	1.15	2.13	2.16	3.93	5.27
BC Municipal Bond 5-Year	112.42	3.19	0.76	(0.17)	0.59	1.48	1.91	3.06	3.95
BC TIPS	105.11	3.64	1.42	(1.06)	0.34	(1.73)	(0.76)	3.29	4.13
BC Investment Grade Intermediate	103.31	4.35	1.89	(1.09)	0.78	1.50	3.15	4.49	4.94
BC High Yield Intermediate	98.37	1.85	2.36	0.11	2.48	(0.65)	6.53	8.28	7.63
Citi World Gov't Bond Index	773.60	8.35	2.04	(2.66)	(0.68)	3.54	3.33	3.49	4.07
JP Morgan EMBI Global Diversified	710.21	7.43	2.01	(0.34)	1.67	0.51	4.30	6.76	7.45
Real Estate		Price							
Dow Jones Composite REIT Index	226.16	22.02	2.96	(10.15)	(7.49)	(1.03)	3.81	8.63	0.88
FTSE EPRA/NAREIT Europe	1,750.37	9.47	6.01	(3.48)	2.32	(1.92)	15.19	13.98	4.10
Commodities									
Bloomberg Commodity Index	102.69	(17.01)	(5.94)	4.66	(1.56)	(23.71)	(8.76)	(3.91)	(2.62)
Energy	57.68	(39.34)	(8.20)	10.92	1.83	(43.20)	(11.69)	(12.45)	(15.46)
Agriculturals	62.02	(9.22)	(8.82)	8.29	(1.26)	(14.55)	(8.86)	1.88	1.10
Livestock	33.73	11.56	(9.78)	(1.52)	(11.15)	(17.77)	(1.93)	(0.89)	(5.56)
Softs	42.76	(10.10)	(13.70)	1.61	(12.31)	(30.21)	(16.13)	(5.19)	(3.84)
Industrial Metals	110.94	(6.87)	(5.32)	(5.31)	(10.35)	(19.38)	(8.97)	(5.73)	2.31
Precious Metals	161.85	(6.71)	1.30	(2.55)	(1.28)	(15.83)	(12.50)	(2.19)	9.19
Private Equity / Hedge Funds									
S&P Listed Private Equity Index		(3.61)	4.78	5.73	10.78	2.60	19.75	15.13	
HFRX Global Hedge Fund Index		(0.58)	2.06	(0.78)	1.27	(1.06)	3.19	1.54	1.00
Currencies		Price							
ICE Dollar Index	95.53	12.80	8.98	(2.90)	5.82	19.74	5.38	2.12	0.70
Euro / US Dollar	1.11	(12.18)	(11.24)	3.74	(7.92)	(18.62)	(4.24)	(1.88)	(0.83)
Pound / US Dollar	1.57	(5.86)	(4.79)	5.94	0.86	(8.02)	0.09	1.00	(1.30)
US Dollar / Yen	122.37	14.07	0.03	2.03	2.06	20.79	15.32	6.70	1.00

Source: FactSet; Data as of 6/30/2015



Source: FactSet, HPM Partners. Reflects 5-year tenor, broad composite and generic returns.

Municipal bond yields are shown on a comparable, adjusted basis using a 35% tax rate.

Important Disclosures

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