Innealta
CAPITAL

COMMENTARY: FEBRUARY 7, 2014

WHAT IS A VOLATILITY INDEX?

Recent financial innovations have brought to investors previously unavailable vehicles for volatility investing. This month, we pause to survey what is the most widely followed volatility index, comment on why volatility investing has become so popular, and discuss the various vehicles available for investing in volatility.

The most common volatility index is the CBOE Volatility Index, or "the VIX." This index measures the market consensus expectation of near-term (30-day) volatility. All volatility indexes are similar, and we focus on the VIX due to its popularity and its visibility. The popularity of volatility indexes likely stems from the negative relation between volatility and equity markets.[1] More specifically, when equity markets decline precipitously, the VIX rises, often dramatically. It is this negative relation between the VIX and equity market declines, which are generally periods during which investors become more risk-averse, that drives the association of "fear" with the VIX.

Unlike stocks, bonds, and physical commodities, vehicles for investing directly in volatility do not exist. Volatility itself is not directly observable, much less, investible. To bridge that gap, exchanges have introduced derivative contracts linked to the VIX index, allowing investors to gain exposure to volatility. As we will highlight, the inability to trade the underlying asset often limits the ability of investors to replicate (i.e. arbitrage) the returns.

MEASURING VOLATILITY

Since volatility is not directly observable, one must estimate volatility based on available data. One plausible approach would be to estimate volatility from historical data, such as historical price changes. Such a measure, however, reflects historical realized volatility from asset price fluctuations, whereas market participants require forward-looking estimates of volatility. This is especially important since historical volatility is not often an accurate predictor of future volatility, which is true of nearly all asset classes.

To obtain forward-looking estimates of volatility, practitioners turn to the options market. One of the important determinants of option prices is the forward, or implied, volatility of the underlying asset: estimates of implied volatility are inferred from the prices of exchange-traded options. This process involves determining the level of volatility necessary to result in the option value equaling the market price. This process is similar to finding the forward or spot interest rates.

Index options trade actively and their prices provide a window into market consensus views of expected volatility. Consider a put option. A put option is similar to an insurance policy that pays off when the underlying asset experiences a catastrophe. For example, hurricane insurance is similar to a long put option. When hurricane damage occurs, the policy pays out a positive amount proportional to the damage, and when there is no damage, the insurer keeps the policy holder's premium payments. Continuing the analogy, the cost of such an insurance policy is increasing in the risk the covered property will experience a hurricane. The risk of a hurricane in Florida is greater than in many other states, which is why the cost of hurricane insurance in Florida exceeds the cost in other states. The price of insurance is thus proportional to the perceived risk of the protection being offered.

The purchaser of a put option on the S&P 500 pays a premium to acquire the option. The put option's value increases as the level of the S&P 500 declines. Due to the asymmetry of the options expiration payoff, the cost of the put option is an increasing function of expected volatility during the life of the option. If the put option investor expects the S&P 500 Index volatility to be low during the time until the option expires, that investor is willing to pay only a small premium for acquiring the option. If, however, they expect high levels of volatility, they are willing to pay a larger premium. It is this process through which market participants' expectations of volatility are incorporated in options prices. Practitioners then transform those option market prices into

[1] Some refer to these indexes as "fear" indexes. This is due to the nature of volatility, which is what these indexes measure, and that the level of volatility tends to correlate negatively with the level of equities.

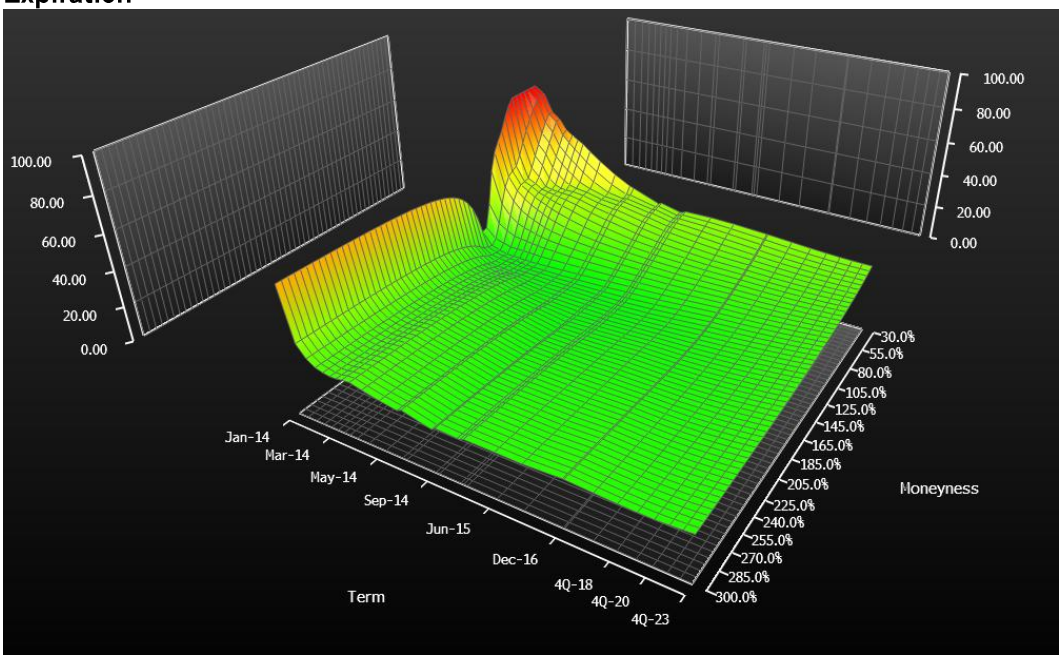
implied volatility estimates. The direct relationship between option value and implied volatility is an important one.

The CBOE Volatility Index (VIX)

In 1993, the Chicago Board Options Exchange (CBOE) introduced the CBOE Volatility Index, or VIX for short. Originally, the VIX measured market expectations of volatility using exchange-traded S&P 100 options. This choice stemmed from the fact that the S&P 100 Index is broadly representative of much of the U.S. equity market, and at the time had the most liquid exchange-traded options. Option market liquidity is important for accurate measurement of implied volatility. Illiquid options suffer from large bid-ask spreads and trade infrequently, both of which would result in inaccurate measurement of implied volatility. Subsequently, in 2003, the CBOE revised the methodology used to construct the VIX, altering the methodology for computing implied volatility to bring it in line with those used by practitioners. Since then, the index has been based on S&P 500 Index options. Additional changes included an overhaul of the methodology used to construct the VIX and the inclusion of options across a broader range of strike prices. These changes are aimed at improving market participants' ability to trader and hedge volatility.

It is well documented that implied volatility measurements vary considerably depending on which option is selected. For example, there are persistent patterns in implied volatility across strike price (holding time-to-expiration term constant) and also across term-to-maturity (holding intrinsic value, or moneyness, constant). Turning to Exhibit 1, which plots the implied volatility obtained from S&P 500 Index options on January 29, 2014, it becomes immediately clear that there is not one unique measure of implied volatility. In fact, there is great variation in implied volatility estimates across various strike prices and times-to-expiration.

Exhibit 1: S&P 500 Index Implied Volatility Across Strike Prices and Time-To-Expiration



SOURCE: Bloomberg

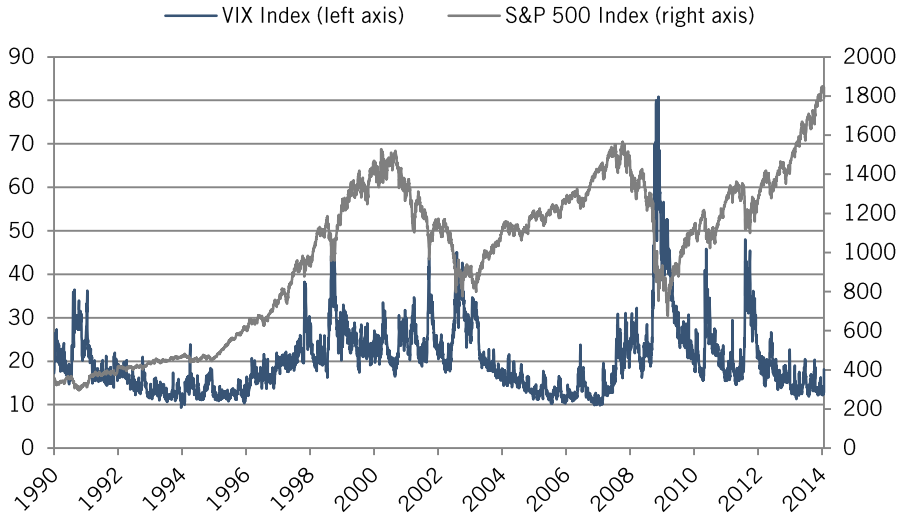
First, examining the pattern across strike price for near-term S&P 500 Index options (presented as moneyness, or the ratio of the option strike price to the Index level), reveals a butterfly shaped pattern that is particularly prominent among near-term options (those with close expirations). There is a clear void in the surface at the

money (options having strike prices equal to the current index level). Part of this pattern is driven by liquidity as near-the-money options tend to be the most liquid. Additionally, there is a clear pattern across maturity. Holding strike price constant, implied volatilities decrease as time-to-maturity increases, which is also influenced by the relative liquidity of the options.

Our visual inspection of the implied volatility surface presented in Exhibit 1 suggests that when measuring implied volatility, the selection of which option(s) to use for that measurement is of critical importance. For this reason, the CBOE has developed an approach that considers both put and call option implied volatilities across a range of strike prices. To facilitate the accurate measurement of implied volatility the methodology includes put and call options that are at- and out-of-the-money. All options having zero bid prices are excluded.

The VIX index considers S&P 500 Index options that are near expiration. Specifically, the two nearest expirations are used, with the requirement that the nearest expiration be at least seven calendar days away. When the nearest option breaches the one week to expiration threshold, the index "rolls" into the second and third contract months. Given the timing of option expirations, this roll typically takes places near the second Friday in a given month. Although a detailed illustration of the VIX calculation is beyond the scope of our commentary, for the curious reader, the CBOE publishes the VIX methodology, complete with an illustrative example of the index computation.[2]

Exhibit 2: The VIX Index and S&P 500 Index



Bloomberg LLP

Exhibit 2 presents the historical values of the VIX Index, dating back to January 1990. The blue line is the VIX, and it exhibits dramatic spikes around the times the S&P 500 Index experiences its largest declines. The VIX reached its highest levels during the Financial Crisis, spiking to over 80. Also evident is that the VIX index tends to revert quickly back to low steady-state levels following dramatic spikes. Given these properties, the VIX is seen as a natural hedge of equity portfolios. When equity portfolios experience their worst returns, the VIX Index spikes dramatically. In a portfolio context, an allocation to the VIX Index has a positive payoff in the state of the world when the equity investor most needs such a payoff. Further, speculators may want to invest in volatility as a way to profit from possible geopolitical risks. Others may desire the other side of the trade, betting

[2] http://www.cboe.com/micro/vix/vixwhite.pdf.

that volatility may mean-revert to its historically low levels. Thus, it is not surprising that hedgers and speculators alike have a strong appetite for investment vehicles for volatility investing.

INVESTING IN VOLATILITY

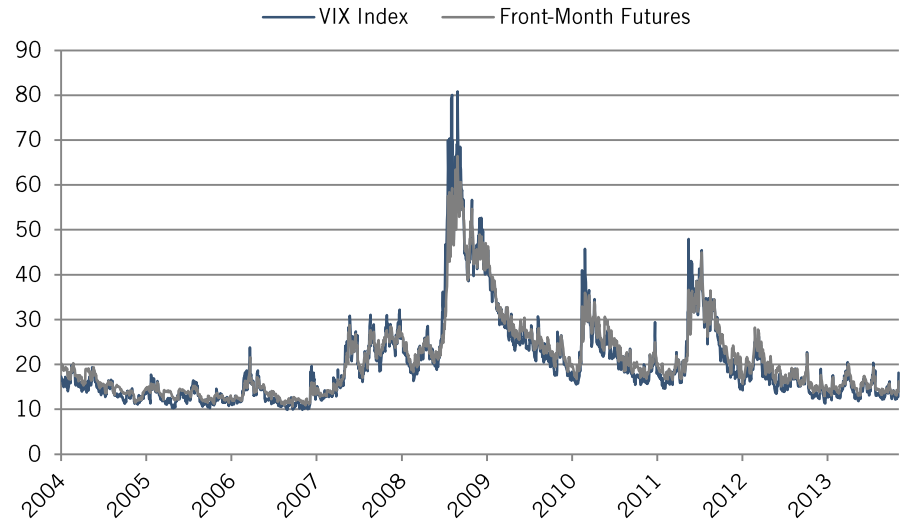
Given the well documented negative relation between "volatility" and equities, it is not surprising that a huge demand has emerged for volatility investment products. However, noting that the VIX Index is constructed from the implied volatility of S&P 500 Index options, it is easy to see that volatility itself is not directly investable. To bridge this gap, the CBOE introduced in March 2004 VIX Futures options. The wildly successful introduction of VIX futures was followed in February 2006 with the introduction of VIX options contracts.

VIX futures and options expanded the investment opportunity set, providing investors with access to tradable products with volatility exposure. A speculator may establish a long position in VIX futures in anticipation of events that increase investor risk aversion, such as a geopolitical event or financial market crisis. Equity investors may use long positions in VIX futures to hedge their potential losses from severe equity market declines. Other speculators may establish short positions in VIX futures, betting that volatility will decline.

Futures contract settlement prices on investment assets and physical commodities are linked through arbitrage, or the law of one price. Should the futures contract price be too high, arbitrageurs may profit from shorting the futures contract, borrowing money, and purchasing the spot asset. The arbitrageur will take the opposite steps should the futures contract price be too low. Since volatility is not directly investable, arbitrage between the spot market and the futures market is more difficult. Thus, it would not be surprising if the behavior of VIX futures prices differ significantly from that of the VIX Index itself (the spot price).

In Exhibit 3, we plot through time the VIX Index as calculated and reported by CBOE and the front-month (closest to expiration) VIX futures contract. We consider the front month contract to be that which is nearest to expiration, but has at least 7 days until expiration.

Exhibit 3: The VIX Index and the Front Month VIX Futures Contract Price



SOURCE: Bloomberg

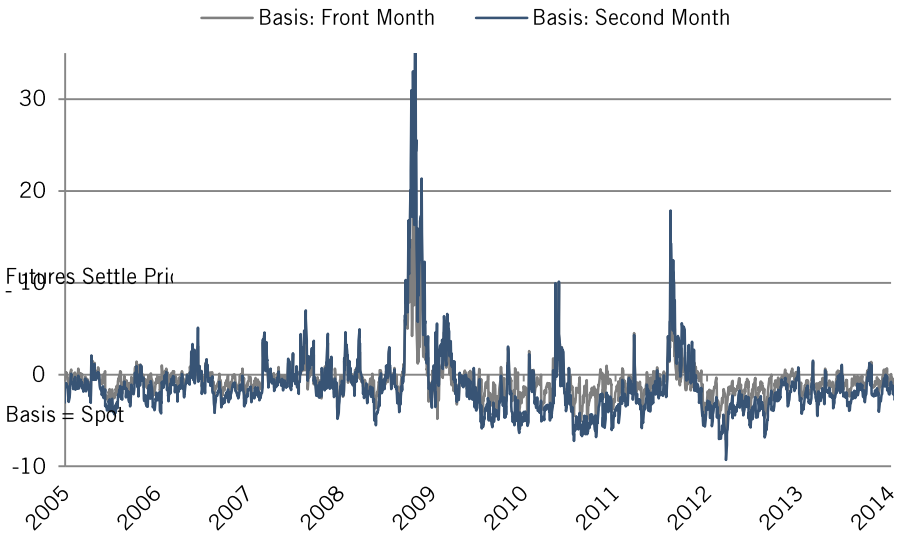
Visual inspection of Exhibit 3 reveals that there is a strong, positive correlation between the VIX Index and the front-month futures price. The implication is that an investor's realized return for investing in the front-month

VIX futures contract is similar to what they would have realized had they been able to invest in the VIX Index itself.

Despite their similarities, it is clear in Exhibit 3 that VIX futures do not exactly replicate the hypothetical returns to investing in the VIX Index itself. Most notable is that during periods in which the VIX spikes, the front month VIX futures contract price spikes, but by a smaller magnitude. Additionally, during periods when the VIX Index reverts to low levels, the front month VIX futures contract price tends to be above the index level. This means that investors purchasing volatility exposure using VIX Futures contracts buy in at higher contract prices and realize smaller price jumps when the VIX Index jumps. Although this suggests that investment returns to the VIX futures contracts are less than those of the VIX Index itself, one must keep in mind that the VIX Index is a fictitious, un-investible, paper portfolio. Given that the volatility index itself is un-investible, it is important to frame any critique of the VIX futures contract realized return performance in the context of there being no alternative for achieving volatility exposure.

The futures basis is defined as the difference between the underlying asset's price for immediate delivery (the spot market price) and the futures price. In Exhibit 4, we examine the historical relation between the VIX Index and the settlement prices of VIX futures contracts. We present the basis for two VIX futures contracts: the front-month (nearest expiration) contract, and the second-month contract, which expires one month later than the front-month contract. Again, we require the front month contract to have at least seven days until expiration.

Exhibit 4: VIX Futures Basis, Front-month and Second-month Contracts



SOURCE: Bloomberg

Examining Exhibit 4, we see that the VIX futures basis is negative on the overwhelming majority of days. The implication of this is that an investor seeking long exposure to volatility through futures contracts faces VIX futures prices that are higher than the VIX Index level. When futures contract prices are above the spot price, this is referred to as "contango." Under this scenario, if the spot index does not change, as the contract expiration approaches, the long futures investor will realize a loss. This is referred to as a negative roll yield. Since Futures contracts expire, to maintain exposure to the underlying commodity, a futures market investor must "roll" their futures position from the expiring contract to a longer-dated contract. As we have seen, futures prices tend to vary across the term structure, so the price at which investors gain exposure to the commodity differs across contracts. When the futures term structure is in "contango," and futures prices are higher than the

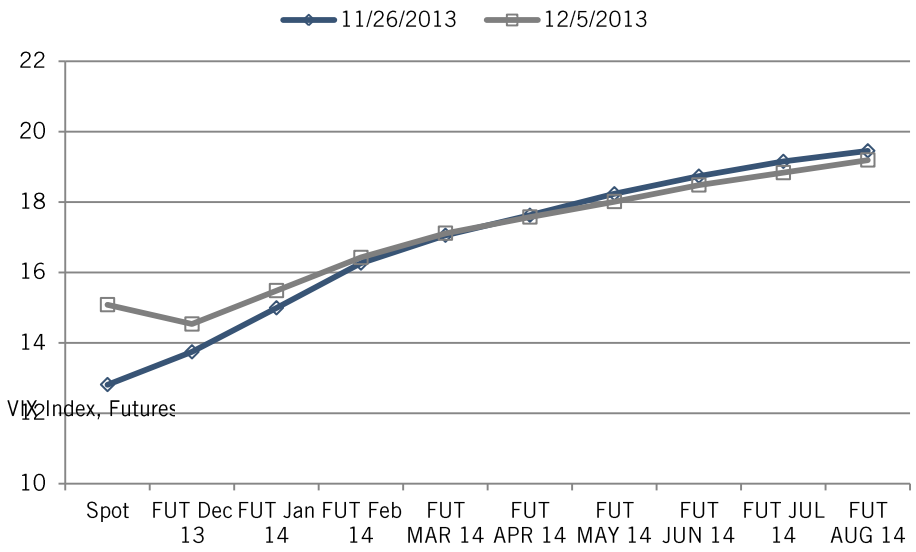
spot price, the long futures investor controls the commodity at a higher cost basis than the spot. Thus, they expect to experience losses, all else equal, as the futures basis decays toward zero (the futures price converges to the spot price) as expiration approaches. Conversely, the short investor realizes a gain of identical magnitude. Effectively, the speculator on the short side of the contract requires a risk premium for assuming this side of the trade. In this scenario, short positions are rewarded with this risk premium at the expense of long positions.

The negative roll yield from contango in the VIX futures term structure is analogous to an insurance premium against severe market declines. During periods of prolonged and abnormally low levels of volatility, an investor may be tempted to view volatility-linked investments as deleterious to portfolio returns since the cost drags on fund returns. This argument, however, is analogous to home owners thinking they should have not purchased flood insurance last year since their house was not damaged in a flood. Such events are impossible to predict far in advance, and by the time the event transpires, it is too late to purchase insurance. When market volatility increases, as has happened thus far in 2014, the volatility linked exposures dramatically enhance portfolio performance.

To further illustrate the difference between the VIX Index itself and the returns to investing in VIX futures contracts, in Exhibit 5 we present the VIX Futures term structure across all futures maturity dates as of November 26, 2014 and one week later on December 5, 2013. Referring to Exhibit 5, we see that on November 26, the CBOE reports the VIX Index value to be 12.83. The closing front-month futures price (December contract) was 13.74. The front month contract basis was -0.89, which is large relative to the basis in contracts where there is a straight forward arbitrage relation between the spot and futures prices. The futures term structure was steep, and increased across term-to-maturity, ending at the August contract which had a settlement price of 19.45.

To illustrate the differences in the dynamics of the VIX Index and VIX futures prices, the Exhibit presents the term structure on both November 26, 2013 and on December 5, 2013. Between these dates, the VIX Index itself rose significantly, from 12.81 to 15.08. Were the index itself investable, this would have corresponded to a nearly 18% gain. Referring to the exhibit, however, it is clear that the returns realized by futures market investors differed dramatically. The front-month contract increased the most significantly, with an approximately 5.7% price increase. The second month contract price increased too, but by a smaller magnitude of 3.3%. The settlement price of longer-dated contract prices, from April through August, actually declined across this time period. This example highlights that the VIX Index is un-investible, and that the returns to the VIX Futures contracts may differ dramatically from calculated changes in the VIX Index. When using futures based products for volatility exposures, it is of utmost importance that we account for the futures term structure and the relative dynamics between the VIX Index and the futures curve.

Exhibit 5: VIX Futures Term Structure



SOURCE: Bloomberg

Together, this evidence suggests that when considering a volatility investment, investors should conduct their analysis using the returns to futures contracts instead of the un-investable VIX index itself, to avoid over-estimating the benefits of volatility exposures.

Although CBOE VIX futures and options contracts have opened the door to volatility investing for many investors, a large number of investors are either uncomfortable with investing in these derivatives markets or barred from doing so by their investment policy. In recent years, another financial innovation has given rise to a new class of financial products that bring volatility exposures to nearly all investors. There are now nearly 20 Exchange Traded Notes (ETNs) or Exchange Traded Funds (ETFs) listed and traded actively on U.S. stock exchanges that offer investors exposure to these indexes.

Although ETFs and ETNs are an innovative structure, they also utilize futures or other derivatives to provide volatility exposure. Thus, it should come from no surprise that realized returns to investing in volatility linked ETFs or ETNs have similar attributes as investing in VIX futures contracts, as opposed to the characteristics of the VIX Index itself. As we have illustrated above, investors must be acutely aware of these characteristics before trading. At Innealta, we study these markets extensively and monitor carefully the impact of the futures term structure and dynamics before adding volatility exposures to our portfolios.

The Innealta Investment Committee has periodically selected volatility exposures for our portfolios. When doing so, we consider these exposures under the reasonable expectation that the return will replicate the returns to VIX futures contracts, as opposed to those of the VIX Index itself. Volatility exposures can serve as either short-term hedges of equity market risk, or as a short-term trade based on the belief that the market is mispricing near-term risk. As we will highlight in the following summary of our market outlook, under the current market conditions, volatility exposures have performed exceedingly well as market participants have been forced to re-evaluate risk exposures. In these contexts, we always consider the potential hedging benefits, volatility reduction, or tactical opportunity presented by a volatility linked investment. The Investment Committee is ever vigilant to ensure that we consider the portfolio benefits against the expected costs associated with the reality that direct volatility investments are unavailable and therefore futures linked exposures will provide returns differing from those of the VIX Index itself. We recognize that these differences exist, and are careful to only add

volatility exposures under prudent conditions, when the expected portfolio benefits outweigh the associated costs.

CURRENT STATE—JANUARY 2014

After 2013 saw record increases in global equity markets—particularly in the United States and the developed world—January has mostly been a down month for equities. In fact, the S&P 500 Index experienced one of the worst Januarys on recent record, down 5%. While some developed markets have remained relatively steady, emerging markets have been affected more strongly, with some emerging equity markets, such as Turkey and South Africa, down more than 10% for the month.

Domestic U.S.

Some commentators have already expressed doubts in regard to whether the U.S. Federal Reserve would continue its tapering efforts as planned due to the recent emerging markets turmoil as well as some disappointing domestic employment numbers. However, as the Fed's tapering plan is oriented towards a longer horizon and focuses on the needs of the domestic economy rather than global markets, the Fed thus far has "stuck to their guns." As a result, the Fed reduced its monthly asset purchases again by $10 billion to $65 billion. This decision implies that the Fed still expects U.S. economic growth for this year and it even alluded to moderately improving employment indicators, which generally have been on the weaker side of the perceived economic recovery thus far.

On the flip side, the new Fed Chairman Janet Yellen is going to inherit a $4 trillion balance sheet and faces the monumental task of normalizing Fed policies after an unprecedented expansionary phase without triggering any financial or fundamental economic turmoil. The effects that this normalization process will have on global financial markets remain to be seen. Sooner or later market participants are bound to realize that the party will have to come to an end and that equity markets cannot be fuelled forever by an ever-expanding supply of "cheap money," while ignoring the fundamentals required to support those valuations. In our framework, fundamentals continue to be mixed, at best. Even after the minor blip in stock prices we have seen over January, fundamentals are far from being able to support current U.S. equity valuations. While we continue to believe that the U.S. equity market in general is overvalued, we have added equity exposures on a very selective basis in our Sector Rotation Portfolio to the following U.S. sectors: Materials, Financials and Industrials. Our quantitative framework has recently become more positive on those particular U.S. sectors relative to fixed income, although their emergence is so nascent that the Investment Committee elected to trade into the positions in modest increments. The ability to add select exposures in smaller increments means that the committee has the ability to be much more aggressive when opportunities arise. On a broad market level, however, we currently see far better opportunities in other markets, particularly after the corrections that have taken place over the last few weeks.

Europe

Europe has been relatively less affected by recent global equity market corrections than other regions. The economic conditions in this region are improving somewhat. Over the last six months the U.K. has exhibited one of the sharpest improvements of all European countries in terms of economic growth. In this regard, the U.K. economy has repeatedly beat analysts' expectations. U.K. employment has risen steadily as have real estate prices, which are even at record highs in some areas, partly due to the introduction of a governmental help-to-buy scheme. The recent strong improvements are however also a reflection of the fact that the U.K. has had a sharper decline in economic activity than many of its European neighbors over the past five years and it is now merely returning to more "normal" levels. As in other regions, one of the weaker sides of the U.K. recovery

continues to be labor productivity, as measured by the output produced per hour of labor. Overall, we view the U.K. as a relatively attractive investment opportunity in Europe. As the country has not adopted the euro, it also makes it somewhat less exposed to any further Eurozone problems that might be on the horizon. We have therefore recently included a U.K. equity position in our Country Rotation Portfolio.

Within the Eurozone, Germany continues to be relatively strong and growing with consumer confidence reaching its highest level since 2007. Germany has remained one of the few engines within the Eurozone that has been running steadily even throughout the crisis. Despite continued positive economic development in Germany, we are currently not invested in the country's equity market as we believe that these developments already have been priced into valuations.

Among the Eurozone periphery we have seen some positive developments, with Ireland exiting its rescue program and Portugal contemplating the same move. The latter country only recently emerged from its deepest recession in over 40 years when it experienced unexpectedly strong economic growth over the second and third quarters of last year, which had been largely driven by growth in exports while imports fell. On the flip side Portugal's public debt is still around 130% of its GDP. In addition, both corporate and household debt remains high. These debt levels make the country very vulnerable to potential interest rate increases.

Interest rate levels have fallen markedly for the Eurozone periphery over the last 12-18 months. Spanish, Portuguese and Irish bonds are now trading at spreads that are only between 100-300 basis points above German interest rates, which are the lowest and safest in the Eurozone. This remains the case, despite recent market volatility.

Nevertheless, these positive developments shouldn't mask the fact that a lot of work remains to be done within the Eurozone. While Ireland and Portugal have done relatively well, other Eurozone periphery members are still struggling. The main reason why further rounds of Eurozone turmoil have been averted is that interest rates have been kept artificially low, a situation that will not be sustainable indefinitely. Moreover, as we have just seen for emerging markets over the past week, investors' risk aversion may increase at any time. This can be triggered by relatively minor events. This means that interest rate spreads over the safest bonds may also increase at any time. Most of the Eurozone periphery is still very vulnerable to rising interest rates which increases their borrowing costs.

Moreover, as we have described in previous commentaries, there has been a development over the last 1-2 years that has been labeled as "re-domestication of debt". There has been a run on Eurozone periphery government bonds by domestic investors while foreign investors have largely retracted from those markets. This situation is particularly pervasive within the Eurozone periphery where domestic banks are now able to obtain ultra-cheap financing from the European Central Bank (ECB) and in turn use those funds to invest in domestic government bonds. One problem with this development is that Eurozone periphery governments and domestic banks have become very interdependent, which represents a dramatic increase in systemic risk to the Eurozone. If a government fails, the banks will also fail, as they are substantial owners of government debt. Conversely, if the banks fail, then the government may subsequently fail because banks have to pull their funds out of government bonds thus precipitously increasing the cost of borrowing. In short, this interdependence may create an insurmountable pernicious cycle.

Another major problem within the Eurozone is that economic growth has remained stubbornly low. Economic growth forecasts for the next 12 months are generally only about 1%. If this modest level of growth continues, it will be a long path for the Eurozone to return to pre-crisis levels of economic output as the region is still down about 13% compared to pre-crisis levels. These growth levels remain modest despite the fact that monetary

policy within the Eurozone has been extraordinarily accommodating. It is our view that this very low economic growth will do little to cure the structural employment issues throughout peripheral EU countries.

The discrepancy in economic output between present and pre-crisis levels is currently not reflected in equity market valuations, which are about the same in Europe now as they were at the peak of 2007. This situation is perfectly in line with our mantra over at least the last six months that equity valuations continue to be out of touch with fundamentals in many of the EU capital markets.

Russia has recently become more attractive and we have added a beta exposure to our Country Rotation Portfolio. The Russian equity market has experienced a strong correction since last October, despite the fact that the country's fundamentals remain solid. Though there is always considerable political risk associated with any investment in Russia, we believe that recent equity market corrections are overdone.

In addition, the quantitative framework has recently become somewhat positive on Spain. The framework has begun recently to exhibits the initial evidence that the underlying fundamentals have stabilized and that recent valuation declines have brought the Spanish market's valuation to the level where it presents an attractive opportunity on a relative basis. Given the committee's continued concern regarding the viability and truncated upside for the Eurozone economies, initiating a beta exposure here was the result of our extensive vetting of the model and careful interpretation of its output. Ultimately, the committee decided to utilize our flexibility to establish beta positions gradually while we continue to monitor closely the framework and the exogenous macro-economic events impacting the Spanish economy.

Asia-Pacific

Asian markets have not been exempt from the slew of events that have rattled risk markets globally, including the liquidity fallout from Fed tapering, the manufacturing slowdown in China, emerging market current account deficits, reserve depletion, structural headwinds, and political and social unrest.

China faces growing concern over its shadow banking system. It is likely only a matter of time before we see the first defaults on trust products that, until recently, many had assumed to be safe. Rising domestic bond yields suggest that investors are staying away from shadow banking products. This shift may negatively impact infrastructure projects across the country. Local governments that rely heavily on trust loans can become starved for new cash. To avert a crisis, it seems as if officials face a difficult balancing act to stem the tide of the country's growing debt pile and introducing the concept of default risk into the shadow banking sector, without provoking a sharp shock to the system. Some believe a default would be a good outcome, allowing the system to recognize losses and begin the deleveraging process. This week's bailout of a troubled trust product, however, appears to have temporarily calmed fears while delaying the inevitable need to address the growing moral hazard problem in the banking system. Ratings agencies argue the government, in bailing out the trust, "failed to create a useful framework for future defaults."

China's economic growth, although dramatic, has been fueled by infrastructure investment made possible by these trusts. If this supply of capital is cut off, local governments will likely enter a crisis. At a minimum, infrastructure projects will halt. Policy makers are aware of this concern, and for years have aimed policies toward stimulating domestic consumption growth. Despite their efforts, the economic transformation has not gained sufficient strength to avert the looming crisis. Further, lower-than-expected factory output last week (a final manufacturing PMI reading fell below 50) has made investors reassess economic growth projections, and sparked a new round of emerging market declines. While there are some signs that recent valuation compressions have made China a more attractive beta exposure, the current risks are high, and the likely near-term volatility makes us pause before adding this exposure.

Turning to Japan, a beta exposure recently initiated by the Investment Committee, the Bank of Japan is expected to extend its quantitative easing programs into the spring. The yen continues to come under pressure from the expectations of further easing, although somewhat stubbornly, Japanese exports have not yet received the desired boost, and the trade balance has become increasingly negative. In addition to the disappointing exports, a significant driver of the trade imbalance has been imports of energy while nuclear power plants remain offline. Prime Minister Abe's economic transformation plan may take longer than initially projected, given the overhang of years of lost investment and productivity due to exports being hindered by the soaring yen.

The Investment Committee continues to expose the portfolios to select country equity markets across this region. In addition to Japan, we maintain our position in South Korea and Russia, and have initiated exposures to Hong Kong and Singapore. The framework continues to reflect that recent sell-offs have driven valuations below the levels supported by the underlying fundamentals, and thus represent opportunities. Each of these exposures has been challenged by the slew of issues affecting global equity markets. While the framework sees value in these select equity markets, we appreciate the volatility in the current investment landscape and have chosen to add incremental exposures to the portfolios, allowing us to capitalize on additional periods of volatility.

Latin America

The declines in Latin America have been partly triggered by Argentina's devaluation of its currency against the U.S. dollar. This measure is aimed to combat Argentine inflation which has exceeded 25% per year. The Argentine move exposed the vulnerabilities of other emerging market countries with respect to their ability to control domestic inflation levels. Nominal interest rates in many emerging market countries have been too low to compensate bond market investors for inflation levels, resulting in negative real returns. This problem has come to the forefront starting with the Argentinian devaluation, which caused many international investors to pull funds from emerging markets with very little differentiation between markets. This move has caused many emerging markets currencies to tumble, and as a result, a number of countries' central banks have decided to stem the tide by increasing interest rates.

In some cases the interest rate increases have been fairly substantial. For example, Turkey raised its policy rate from 7.75% to 12% at an emergency meeting. South Africa raised its repurchase rate by 50 basis points to 5.5%. Brazil has raised interest rates by 3.25% since last April to 10.5% in an effort to control inflation. Some of these moves may have calmed currency markets for now, but the long run impact remains to be seen. It is likely that in some emerging markets countries additional interest rate increases will be required to prevent local currencies from depreciating further and to control inflation. The Committee continues to monitor these events and selectively takes advantage of the resulting volatility to add exposures that may have been unduly punished by the coordinated waves of selling in emerging market assets.

While inflation remains a threat in some of these countries, one should not lose track of the fact that many emerging market countries have more healthy finances than most of their developed market counterparts. Debt-to-GDP ratios for these countries are in many cases considerably lower than for many developed markets, including the United States.

Peru is one example of a Latin America beta exposure that is viewed positively by our framework. We continue to retain our existing Peru position. While Peru has had challenging equity market performance over the last few months, there are some signs that its equity market has found a support level. Peru's underlying economic fundamentals remain highly attractive within our quantitative framework.

Our quantitative framework does not view Brazil favorably. While our framework had been positive on Brazil during the summer of 2013, during which time we added a Brazil beta exposure to the portfolios, presently the framework reflects that the country's economic situation has deteriorated over the last few months. Its high current account deficit of 4% of GDP has caused some international investors to label the country as one of the "fragile five" emerging market economies. Despite sustained interest rate increases by Brazil's central bank, inflation levels remain elevated at 6% compared to the target level of 4.5%. Moreover, consensus expectations of economic growth are a paltry 1 percentage point for the next 12 months, a relatively low level for an emerging market economy.

As in previous months, our quantitative framework continues to be negative on Mexico due to the country's poor fundamentals. There are very few signs of an economic recovery. In fact, Mexican banks' bad debts recently reached their highest levels in a decade mostly as a result of problems in the construction sector as well as consumer credit. In summary, at the present time, the ongoing emerging market volatility has not spared Latin and Central American countries. In some cases, this period of volatility seems to have opened several opportunities. Guided by the framework and our analysis of events as they evolve, we have added select exposures and continue to re-evaluate those exposures, as well as monitoring exposures that at the moment are not as attractive.

CONCLUSION

More recently our quantitative framework has gradually become more positive on a number of equity markets. It is important here to recall that our framework measures the attractiveness of equity markets relative to the return and volatility trade-off of a fixed income portfolio. As fixed income's attractiveness has waned, select equity exposures have increased in attractiveness. Moreover, recent equity market corrections have created attractive entry levels for investments in several countries. The Investment Committee has been much more conservative than in times past in adding exposures by utilizing smaller increments. This new flexibility opens up the playbook for the Committee to add the exposure selectively to take advantage the opportunities arising during periods of volatility. While, in general, many problems and threats for the global economy remain as we have discussed above, one needs to differentiate between different countries' economic development. On that basis selective equity investments have become attractive.

We have taken advantage of these opportunities over the past few weeks and we have added allocations to the following equity markets: Hong Kong, Singapore, Japan, Korea, Spain, the U.K. and Russia. We view some of these investments as intermediate- or long-term opportunities and some of with the expectation they will be shorter-horizon exposures in cases where short-term exogenous events may have led recent market corrections to become overdone. If emerging markets were to fall further, we would most likely invest in additional countries and/or add to our existing country exposures. We will minimally continue to aggressively rebalance as volatility offers opportunities. On the developed side, if further equity market corrections were to occur, we foresee attractive investment opportunities both in Asia and Europe.

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Country/Regional risk is the chance that world events such as political upheaval or natural disaster will adversely affect the value of securities issued by companies in foreign countries or regions. Country/Regional risk is especially high in emerging markets.

Emerging markets risk is that chance that stocks of companies located in emerging markets will be substantially more volatile, and substantially less liquid, than the stocks of companies located in more developed foreign markets.

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