FIS GROUP

October 2014

MARKET INSIGHTS ALERT

Will Emerging Markets Continue to Dance When the Fed Stops Playing?

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There is no shortage of prognostication on which assets/strategies will be most/least impacted as the Fed and the BOE become less accommodative, and how they will be affected. How we answer both questions will be critical to performance over the next year or so. This paper evaluates the likely path and impact of Fed tightening with specific focus on the counterbalancing effects of asynchronous monetary policies globally and the likely impact of Fed tightening on EM risk assets.

We begin with an evaluation of the last two tightening cycles (1994/1996 and 2004/2006). For both cycles, EM risk assets stumbled both before and after the anticipated tightening. In this paper, we focus on the mid-1990s tightening cycle (as opposed to the 2004/2006 tightening cycle) as the most useful guide because today, as then, the U.S. economy was recovering from a credit induced bubble (in the early 1990s, it was the savings and loan crisis of the late 1980s). Despite aggressive (though more traditional) monetary stimulus, that recovery was also viewed with substantial skepticism. The global context was somewhat similar in that in the first half of the 1990s, Japan, which at the time was the second largest economy in the world, was struggling to emerge from debt deflation, collapsing profits and price deflation. Though not an exact facsimile, the Japan of that decade resembles the Eurozone of today, in that Japan's recovery was crippled by the Bank of Japan's stubborn anti-inflation stance. Importantly, as in the 1990s, the stark disparity in global growth rates also led to asynchronous monetary policies. The other key parallel was the performance of the U.S. dollar and commodities. Similar to this cycle's dynamics, in the 1990s the U.S. dollar was relatively weak pre-tightening and then strengthened significantly in response to a combination of the U.S. economy's relative strength as well anticipation of monetary tightening. A strong dollar represents a headwind for commodities, which in turn significantly impacts several EM economies. In contrast, despite Fed tightening in 2004/2006, we were still right smack in the middle of the commodity supercycle and the value of the dollar was not a headwind. This is why the EM Latam index substantially outperformed the EM Asia Index during the 2000s.

During the easing phase of the 1990s cycle, EM stocks climbed by 193% in U.S. dollar terms between 1991 and 1994 but stumbled after the Fed funds rate was increased by 200 bps. This unleashed a full blown bear market in EM risk assets thereafter. While we expect EM risk assets to be challenged as the launch date for Fed tightening approaches, we believe that the fallout this time will be more nuanced. For one, the recovery today is much more tenuous both in and outside of the U.S., which will attenuate the intensity with which the Fed tightens. Consequently, Fed policy today is more data dependent, transparent and globally aware than it was in the mid-1990s. Equally importantly, among EM countries/markets, differences with respect to key macro fundamentals, commodity intensity as well as the extent of structural reform fostering efficient capital allocation through its own indigenous financial infrastructure will significantly determine the intensity of the fallout. Strong fundamentals will be especially important because, as the Fed tightens, there will be less excess liquidity to chase growth opportunities. One source of concern is that earnings in the EM are currently stagnant and several key countries are either slowing or at risk of outright recession. The end of the commodity super-cycle as well as U.S. dollar strength, which boosted many EM countries, will also be a headwind for commodity producer countries. Additionally, current account deficit countries facing inflationary pressures will be constrained in their ability to revive growth through accommodative fiscal or monetary policies, because doing so would further undercut their currencies. These policy constraints currently plague commodity producer countries such as Brazil, Indonesia and South Africa, as well commodity consumers Turkey and India. The risk from capital flight is markedly higher for countries that are more dependent on external capital flows to fund growth and whose capital flows have been disproportionately invested in their local bond markets. Here, Latin America and South Africa appear to be particularly vulnerable relative to Asia. Another related potential pain point is the level of EM private sector debt. Although EM public sector debt burdens are relatively low, private sector foreign debt levels (as a share of GDP) are on par with levels seen in the mid-1990s. While that earlier period's sharp increase in Fed policy rates, which helped catalyze the 1994 Mexican debt crisis and the subsequent 1997-'98 Asian crisis is a low probability event; higher probability currency depreciation among vulnerable countries would likely lead to an upward re-pricing of EM credit risk in those countries. On a country level, notable standouts in this regard include Turkey, Malaysia, Mexico and Poland.

By the end of 2013, gross capital inflows into EM countries were approximately $1 trillion dollars vs. around $300 billion in the mid-1990s. While foreign direct investment comprises the majority of flows into EM, Portfolio Investments almost tripled since the mid-1990s (although, because of relatively robust EM growth, net private portfolio flows as a percent of GDP are roughly the same as peak levels in 1994). Foreign investment in EM assets has clearly boosted investment and

Please see important disclosures on page 16.

growth there and has also helped to deepen their financial markets. But the potential price of these flows is that during times of financial stress and Fed tightening in particular, foreign investors may accentuate capital flight. The most recent example was the large outflows that were prompted by Chairman Bernanke's May 2013 announcement of future asset purchase tapering; which drove up bond yields and led to large depreciations among many EM currencies. Equally relevant to gauging the likely impact of Fed tightening is the source and destination of these portfolio flows. This is because, outside of extreme shocks, Institutional investors as a class are typically more "sticky" in the face of market stress than mutual fund investments and stock allocations are less sensitive to yield differentials and volatility than bond allocations. Mutual fund investments are particularly unstable because they are dominated by open-end structures and ETFs. Although the increasing level of concentration of AUM among very large EM portfolios/managers is a concern, a clearly positive trend is that, as of mid-2014, institutional investors are responsible for 62.4% of the equity portfolio flows and 55% of the bond portfolio flows into EM assets. From a portfolio allocation perspective, Latin America would appear to be most vulnerable to Fed tightening because the region is the largest recipient of both mutual fund and bond portfolio investments. While Asia was also a significant recipient of bond investments, they appear to be dominated by institutional investors.

Despite a reasonable probability of near to intermediate term price volatility, the strategic rationale for investing in emerging markets (faster GDP and income growth and favorable demographics) remains intact. Less appreciated are the long-term allocation effects of wealth creation and investment in emerging markets from local EM investors. This is a three-fold phenomenon: 1) High net worth, pension fund, and retail savings/investments in EM is projected to grow at 2 to 3 times the rate of DM assets over the next 5 to 6 years; 2) EM investors, like investors worldwide, exhibit a strong "home country bias". While local EM investors will probably increasingly diversify into global assets over their currently low base, there will still be an ongoing home bias, such that a majority or at least heavy disproportion of the newly created wealth in EM will stay home. (After all, the only immutable truth of a national pension system is the currency denomination of their underlying liabilities), and 3) Risk appetites for EM equities from local EM investors is currently low, as has been typical for past development patterns in the U.S., Europe, and developed Asia. Therefore, over time, we believe that the destabilizing effect of foreign investor outflows as a result of financial stress will be mitigated by the growing local investor base and deepening capital market infrastructure in several EM countries. To that end, a 2014 IMF study demonstrated that a developed local investor base and indigenous capital markets breadth and complexity would in fact be expected to significantly mitigate asset depreciation from portfolio outflows that emanated from DM market stress. Among emerging markets, South Africa and Chile are clear standouts in terms of indigenous capital markets depth. Other notables included Malaysia and Mexico. Through the Shanghai exchange agreement, the expected internationalization of the Renimbi and other measures, China is on its way but not there yet.

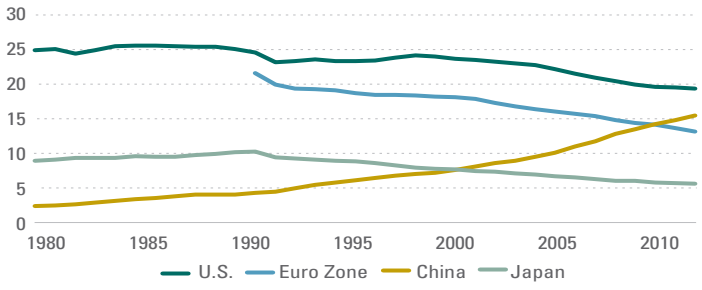
From a tactical investment perspective, the most prudent six to twelve month strategy would be to underweight EM as whole. Within EM, we would overweight commodity consumers, particularly those that are undergoing investment friendly structural reform that is fostering local investor participation. Such countries would primarily reside in North Asia and to a lesser extent India (although we would await a more reasonable entry price). Additionally, secular and policy dynamics are especially favorable to technology and consumer oriented sectors such as health care. We would underweight commodity produce countries, particularly those that are highly dependent on external capital for growth. Obvious examples include Brazil, South Africa, Russia and to some extent Indonesia. (Although South Africa's deep capital markets infrastructure and globally exposed listings could help to mitigate flows prompted by Fed tightening). Countries that appear especially dependent on foreign capital inflows for growth and that are more dependent on bond investments, such as Turkey and Poland warrant additional caution.

SHIFTING ECONOMIC IMPORTANCE AND ASYNCHRONOUS RECOVERIES

One of the complicating aspects of using prior Fed tightening cycles as a guide is the shifting importance of different regions and countries as well the asynchronous state of the recovery and central bank policy constraints around the world. As shown in FIGURE 1 below, at the inception of the last two prior tightening cycles (1994/1996 and 2004/2006), the economic might of the U.S. (as measured by PPP-GDP as a % of World GDP) far outstripped other regions and countries. For the two earlier cycles, Japan was the second most important economy (as the common currency zone using the Euro was not established until January 1999). Today, while the U.S. still accounts for the largest share of world output, it is closely followed by China, then the Eurozone and then Japan. In essence, what's new to the equation this time around is the elevated role of China and the diminished role of Japan relative to both the U.S. and the Eurozone.

FIGURE 1 Shifting Economic Importance

GDP as % of World GDP on a PPP Basis

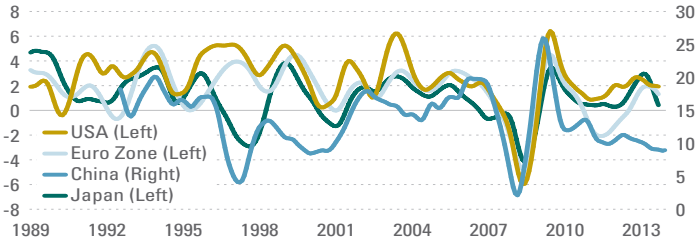


Sources: FactSet & FIS Group staff estimates

As shown in FIGURE 2 below, based on LEI comparisons, THE U.S. economy is at the cusp of self-reinforcing and improving economic fundamentals. Production here continues to outstrip other developed countries; strengthening employment would be expected to undergird consumption and capex is finally improving at an encouraging pace. Indeed, for the last two easing/tightening cycles, the U.S. has led the recovery and was the first to tighten. The difference this time is a much lower level of growth globally as well as stronger deflationary headwinds. This is because unlike the late 1980s credit bust (the Savings and Loan crisis), the fallout from the 2008 credit crisis was more severe and global.

FIGURE 2 Disparate Growth

CLI Leading Indicator Trend Restored; Growth Rate Same Period Previous Year, SA



Source: FactSet & FIS Group staff estimates

While CHINA appears to be stabilizing more recently, growth momentum there has been negative since late 2010 and remains a deflationary force. The slowdown in the Chinese economy stems from both cyclical and structural factors. From a structural standpoint, the Chinese economy is approaching middle-income status, with per-capita GDP of around $7,000-$8,000. Historically, once an industrializing economy reaches this level of income, the natural rate of growth tends to downshift to about a 6% to 8% range. Accordingly, Japan downshifted to 6% in the 1970s when per capita GDP reached the equivalent of $7,000-$8,000 and Korea downshifted in the 1990s when per capita GDP climbed to similar levels. What differentiates China is its high savings rate (50% of GDP). While this attribute helped insulate China from financial crises, it also made the economy much more susceptible to oversupply and overinvestment than others. Therefore from a cyclical standpoint, China is currently undergoing a period of inadequate demand or oversupply as a result of the last decade's domestic investment boom and the prolonged slump in global trade since 2008. This deflationary backdrop requires the Chinese government to actively stimulate demand via both fiscal and monetary policy. However policymakers there face a dilemma. While structural reforms that involve removing support from inefficient and over-indebted entities (such as State-owned enterprises, local governments and property developers) to a "market based system of resource allocation" are critical for long-term sustainable growth, this short term restructuring will likely depress growth. Rebalancing credit support to small and medium businesses as well as higher value-added sectors will ultimately buoy growth; but the fruits of these reforms will not be immediate. On the other hand, the current credit overhang (since late 2008, China's corporate and household credit rose by $13 trillion or by 80 percent relative to GDP), limits their ability to reflate the system via easy credit and fiscal stimulus. Consequently, thus far, the pace of structural reform has been piecemeal and in some ways contradictory. For example, increased infrastructure spending this year has been somewhat offset by a slashing of operating budgets at all levels of government anywhere between 15% and 20%. Similarly, the impact of last month's liquidity injections ($200 billion) into the banking system has been somewhat muted by prior liquidity tightening as well as measures to tamp down window-dressing of bank deposits in order to standardize bank reporting. Going forward into 2015, China's ability to balance structural reform and achieve its 7.5% GDP growth objective will determine whether it will continue to in essence, export deflation (which would reduce the Fed's capacity to tighten) or increase its contribution to global final demand (which is especially critical to growth in the rest of EM as a whole because it represents their largest trading partner).

The EUROZONE remains mired in stagnation, with GDP growth reaching at best 1% next year. Cyclical problems there are intertwining with structural ones, creating a miasma of growth stagnation, weak confidence and policy paralysis. The underlying growth trend for the Eurozone economies (both in terms of population and productivity growth) will be a secular headwind. Cyclically, ongoing weakness in credit demand as well as balance sheet deleveraging exacerbated by the Asset Quality Review (AQR), is hampering the ECB's efforts to buoy growth. It is therefore entirely possible that bund yields will retest their previous lows, dragging down borrowing costs throughout the entire world economy. The reflationary impact of a cheaper euro and the ECB's current drive to quantitatively ease will likely only be seen in the spring of 2015, because of the lag in monetary policy effects and the removal of uncertainty and de facto bank deleveraging caused by the overhang of AQR. Importantly, although as a share of global output, the common currency zone is behind both the U.S. and China, it has an outsized impact on global trade (at 16.7% of world trade of goods and services, the EU-27 area is the largest contributor, followed by the U.S. at 13.4% and China at 12.6%). Therefore, it has an important impact on the recovery of global aggregate demand, particularly for export-oriented Japan and China.

Finally, JAPAN faces secular headwinds from poor demographics. Its labor force is contracting by 0.5% per annum and its trend line for productivity averages 0.8% a year. This means that Japan's real growth should average about 0.3% unless there are drastic supply-side reforms. Additionally the Abe administration has announced plans to increase taxes again next year. If implemented, this would deal another major blow to the Japanese economy. Despite a 30% fall in the Japanese yen last year, its current level is insufficient to sustain a 2% inflation rate. Therefore, it is likely that more monetary accommodation in the cards.

...LEADS TO ASYNCHRONOUS TIGHTENING

The U.S. (and the U.K.) economy is clearly ahead of the rest of the industrialized world on the road to a self-sustaining recovery. As such, the Fed has already begun to taper its asset purchases, while central banks throughout the rest of the world are either increasing their QE programs or dropping interest rates. The path of policy interest rates is determined by the Fed's forward guidance which is consistent with a lift-off from the ZLB, which is estimated to occur in the first half of 2015. We agree with the consensus that the focus will be on the short end of the curve to curb speculative excess without derailing a still-fragile U.S. economy. Likely tools for doing so would involve increasing the interest paid on excess reserves or mopping up excess reserves by raising reserve requirements or through reverse repos. FOMC communications suggest that it will not sell MBS aggressively but will gradually reduce its balance sheet to normal levels by 2020. Moreover, the global savings glut and weak growth in Europe and Japan will continue to anchor the magnitude and severity of tightening. The likely result will be a flattening yield curve; dollar appreciation (which would further undermine commodity prices) and a significant short to intermediate term pullback in risk assets. While a hiccup in risk assets would be expected at the onset of tightening, it is not until the Fed funds rate rises above neutral rate, (currently estimated at about 3.7%) that a genuine cyclical downturn would likely occur. Today, the Fed funds rate stands at around 0.07%.

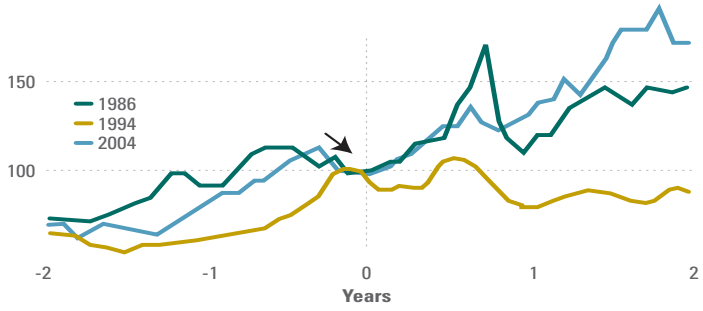
As the tightening phase progresses, carry trades and corporate cap structure arbitrage such as stock buybacks, which have been a major accelerant to equity prices will become more challenged. Among publicly traded assets, typically the most sensitive to dollar liquidity and an increased term premium, such as bio tech stocks, certain EM risk assets and credit spread sectors will be most challenged. These assets in particular have been lubricated by a steady flow of dollar liquidity which tamped down both yields and volatility.

For the balance of this paper, we will evaluate the likely impact of Fed tightening on EM risk assets. FIGURE 3 evaluates the impact on key EM risk assets in three of the past tightening regimes (1986, 1994 and 2004).

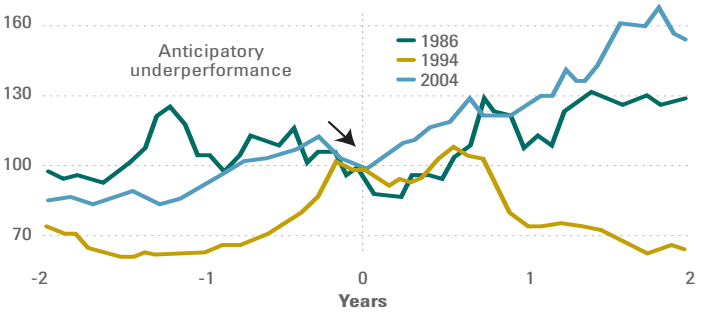
In all cases, EM risk assets stumbled up to and after the anticipated tightening occurred. Among those three tightening cycles, we believe that global conditions today are most closely paralleled by the one that took place in 1994, with some important exceptions which I will discuss later.

FIGURE 3 EM and the Fed

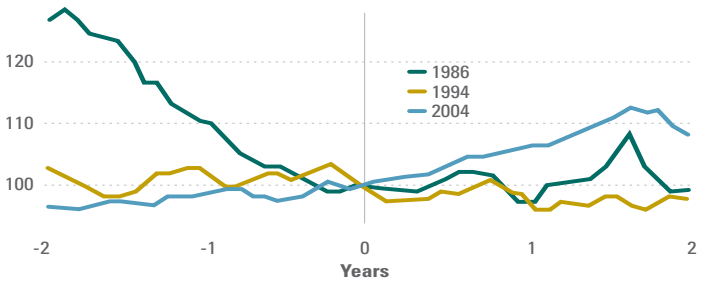
Emerging Markets Stock Prices[1]



Emerging Markets / U.S. Stock Prices[1]



Emerging Markets Real Effective Exchange Rate[2]



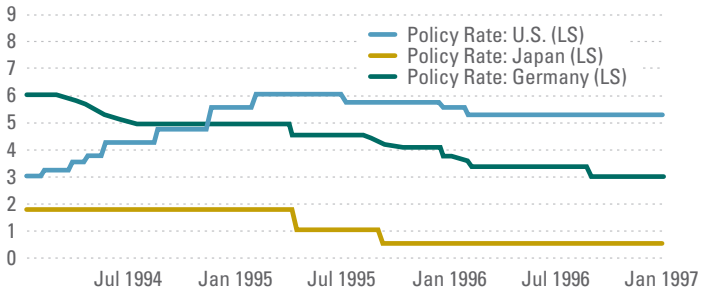
1. U.S. dollars; source: MSCI & IFC
2. Equally-weighted aggregate; source: J.P. Morgan Chase & Co.
Note: All series rebased to 100 signifying first Fed rate hike after a U.S. economy recovery.

ARE THE 1990s A RELEVANT PLAYBOOK?

For context, in the first half of the 1990s, the U.S. economy was still struggling to recover from the savings and loan crisis that occurred in the late 1980s. Despite aggressive (though more traditional) monetary stimulus, that recovery, somewhat similar to this one, was met with substantial skepticism until the middle of the decade. In fact, it was this recovery in which the term "jobless recovery" and "outsourcing America" became part of the American lexicon. The global context was also somewhat similar in that in the first half of the decade, Japan, which at the time was the second largest economy in the world, was struggling to emerge from debt deflation, collapsing profits and desperately (and ultimately unsuccessfully) attempting to ward of price deflation. Though not an exact facsimile, the Japan of that decade foreshadows the Eurozone of today, in that Japan's recovery was crippled by the Bank of Japan's stubborn anti-inflation stance. Consequently, the yen appreciated by a whopping 97% between 1990 and 1994. (Parenthetically, though not struggling to emerge from debt deflation, Europe and specifically Germany was also a source of disinflation as the former West Germany was struggling to integrate East Germany after the fall of the Berlin Wall in 1990). Ultimately, Japanese deflation, the financial crisis in emerging Asia and the resulting savings surplus contributed to the fall in global inflation and interest rates in the 1990s. Similar to Japan in the 1990s, a deflating and weak Eurozone economy will continue to anchor the magnitude and severity of Fed tightening.

As with today, the Fed was the first major central bank to tighten monetary policy in February 1994 while the BoJ and the German Bundesbank were still easing. U.S. stocks increased by 58.9% in the first half the 1990s, until the Fed began to tighten by over 200 basis points over the course of 1994 in response to stronger-than-expected payroll data. This led to a big pause in the nascent equity bull market and a significant performance reversal in leveraged areas of the fixed income markets (e.g. Orange County & Mexico). The Mexican peso crisis in late 1994 short-circuited the Fed's tightening and the subsequent Asian crisis and devaluation in 1997 brought an additional dose of deflationary pressure into the global system. After initial volatility as a result of the first round of Fed rate hikes, bond yields actually declined over the decade, which further fanned the speculative flames of the U.S. stock market bubble. Finally, the dollar was weak against the yen in the first half of the 1990s, but strengthened in the second half. The first up-leg of the dollar bull market was centered on a falling yen between 1995 and 1998. The dollar's second up-leg was driven by the then-collapsing European currencies – the D-mark in particular – between 1995 and the early 2000s. For the entire bull market the dollar appreciated 36% (January 1995 – December 2000) in trade-weighted terms. Commodities and gold prices mirrored the dollar/yen exchange rate through all of the 1990s, i.e. they had a brief rally on the back of a weakening dollar against the yen in the first half of the decade, but then fell apart in the second half in tandem with a rising dollar and a rising fed funds rate. FIGURE 4 below retraces the asynchronous path of tightening which took place in the 1990s.

FIGURE 4 Central Banks in the 90s
Percent



Source: BCA Research

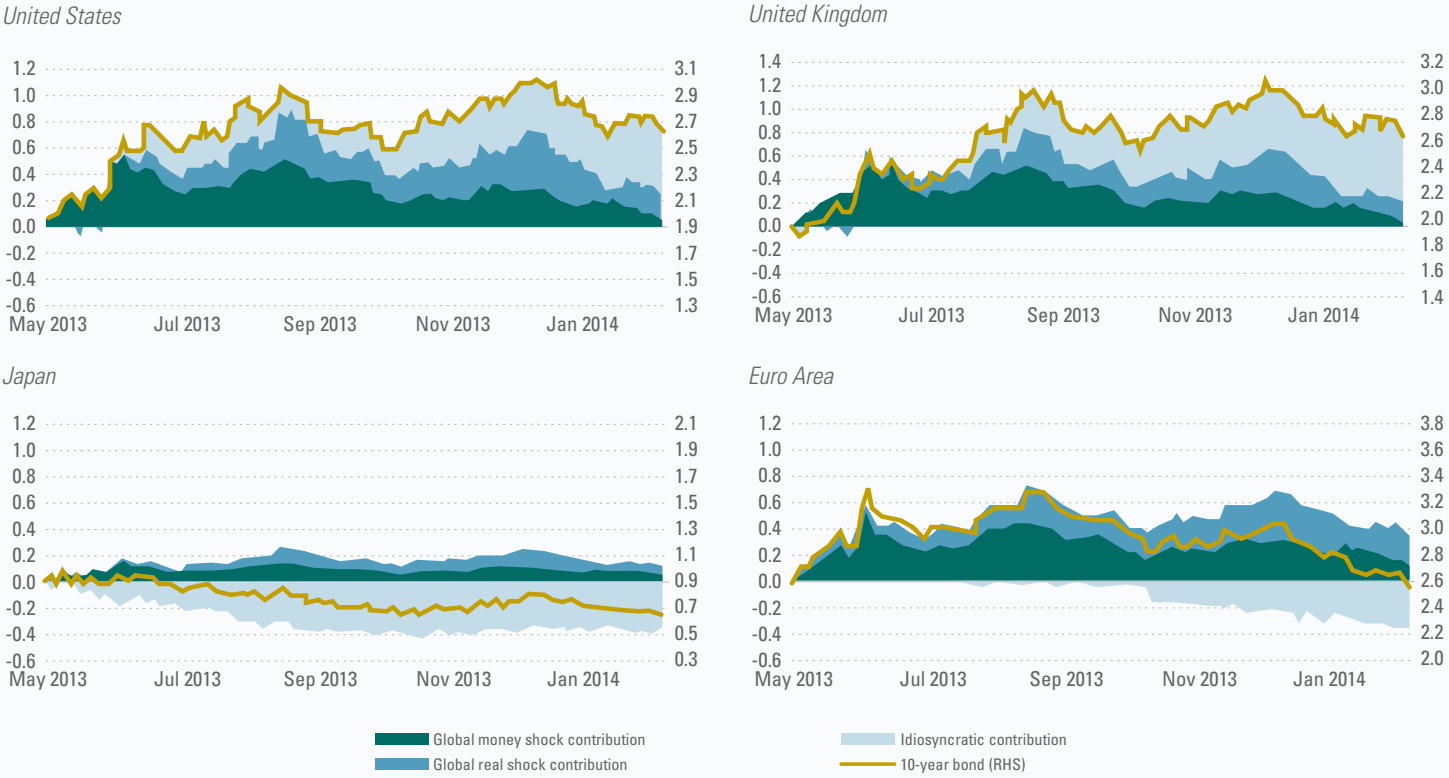
Today, as in the 1990s there is substantial macro fundamental dispersion among the major economies, which leads to vastly different central bank postures. The feedback loops or spillover between these regimes were underappreciated in the 1990s. In fact, the biggest surprise at the time was that bond yields dropped precipitously in the second half of the 1990s despite a booming U.S. economy. In hindsight, it is clear that the imploding Asian economy and its resulting surge in excess savings drove down U.S. bond yields, which in turn fueled a consumption and investment boom in the U.S. This cycle is no different.

FIGURE 5 (on the next page) is from the IMF's 2014 Spillover report and examines the country specific factors that are likely to counterbalance the upward pressure in bond yields from the global money and real shocks that one would expect in a scenario of asynchronous monetary policy. The distinction between the two is that positive monetary shocks from tightening typically push up bond yields and depress stock prices; while positive "real" shocks increase both yields and stock prices.

Using common components from money and real shocks, the analysis decomposes the projected change in each region's 10 year bond yield after a 100 bps. increase in the U.S. 10 year bond as a result of idiosyncratic and common money and real factors. The impact of asynchronous monetary policies is reflected in the substantial negative idiosyncratic contribution to yields in Japan and the euro area, while the respective idiosyncratic factors in the U.S. and the U.K. are positive. It is these cross currents that we believe may attenate the Fed's tightening cycles and modulate its impact on global risk assets, and particularly EM risk assets.

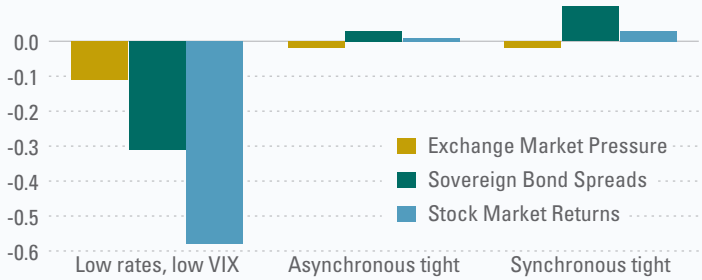
FIGURE 6 evaluates the impact of a 100 bps. increase in U.S. long term rates, distinguishing between tightening induced by a monetary and real shock. As expected, the counterbalancing cross currents caused by asynchronous tightening would be expected to significantly mute the stress related impairment of EM risk assets. For example, ongoing easing in Japan could actually benefit emerging markets in the Pacific region by encouraging Japanese investors to rebalance their portfolio towards more risky assets. Similarly, balance sheet expansion by the ECB would also encourage yield and return seeking capital flows that could conceivably find their way into EM assets.

FIGURE 5 Drivers of 10-Year Bond Yields
Shock decomposition; percent



Sources: Bloomberg L.P. & Harver Analytics

FIGURE 6 Financial Stress in Emerging Market Economies over Tightening Cycles
Index

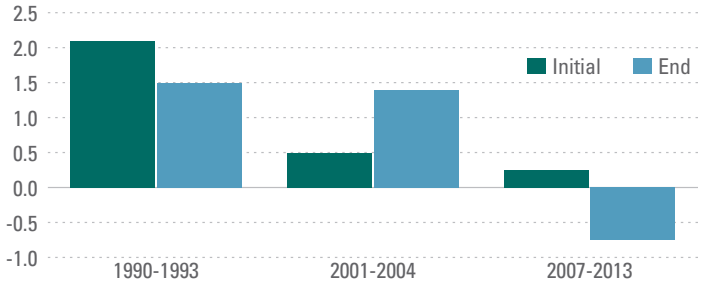


Sources: IMF, Global Data Source & IMF staff calculations
Note: VIX = Chicago Board Options Exchange Market Volatility Index

WHAT ELSE IS DIFFERENT THIS TIME?

Different starting points and a different Fed. Despite the above referenced similarities, there are also important differences in both the strength of the recovery this time around, as well as the policy stance of the FOMC. In early 1994, annualized real GDP growth was 2.8%, inflation averaged about 2.5%; the Fed Funds rate was around 3% and bond yields were trading at almost 6%. Today, real GDP is estimated to come in at around 3%, inflation averages about 1.5%; the Fed Funds rate is around 0.07% and 10 year bond yields are trading at around 2.1%. Partially because of a much weaker macro-economic backdrop, today's Federal Reserve appears to incorporate a broader array of data to gage the capacity of the real and financial economy. Likely pre-conditions before any meaningful tightening include an unemployment rate approaching 5% (currently at 5.9%), wage growth approaching 3% (currently at 2.4%) and inflation getting to at least 2%. For financial assets, these key differences in the macro backdrop have resulted in a term premium that is well below its level at either the end or beginning of the last two tightening cycles. As shown in FIGURE 7 below, the term premium now stands in negative territory which has effectively boosted risk seeking behavior.

FIGURE 7 Term Premium During Easing Cycles in the United States[1]
Percent

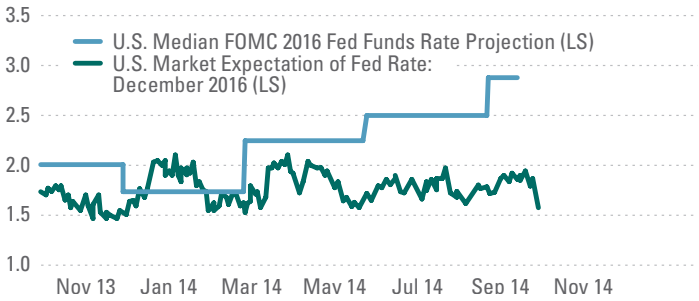


1. Based on Kim and Wright 2005 decomposition
Sources: Bloomberg, L.P. & IMF staff calculations

As mentioned previously, even weaker final demand outside of the U.S. and the U.K., would likely continue to anchor both bond yields and inflation. Additionally, the dramatic response to the Fed's tightening in 1994 was partially caused by the market being caught off guard; whereas today's Fed is substantially more transparent. The net effect of these factors would likely result in a substantially more moderate and data-driven tightening, a more gradual rise in the dollar and a more muted fallout in EM risk assets.

On the other hand, the extraordinary monetary policy measures adopted to encourage risk taking and spur final demand have taken us into uncharted territory; which potentially increases the probability of either a policy misstep or market confusion/ overreaction to Fed policy.[1] Clear examples of potential confusion as a source of future market volatility can be observed in the debate over the appropriate neutral rate and/ or the difference between the future paths of policy interest rates as illustrated by the median estimate of FOMC members (or "dots") relative to market estimates. FIGURE 8 contrasts both paths.

FIGURE 8 FOMC "Dots" at Greater Risk Than Rate Expectations
Percent



Source: BCA Research

Faster than expected tightening would result in greater than anticipated long term rates through both higher policy rates and term premia. Both would be expected to foster increased volatility in risk assets. In fact, from this perspective, transparency could actually increase the likelihood of market confusion. Chairman Bernanke's introduction of tapering and the market's response to it is one example of the amplified market risks of transparency.

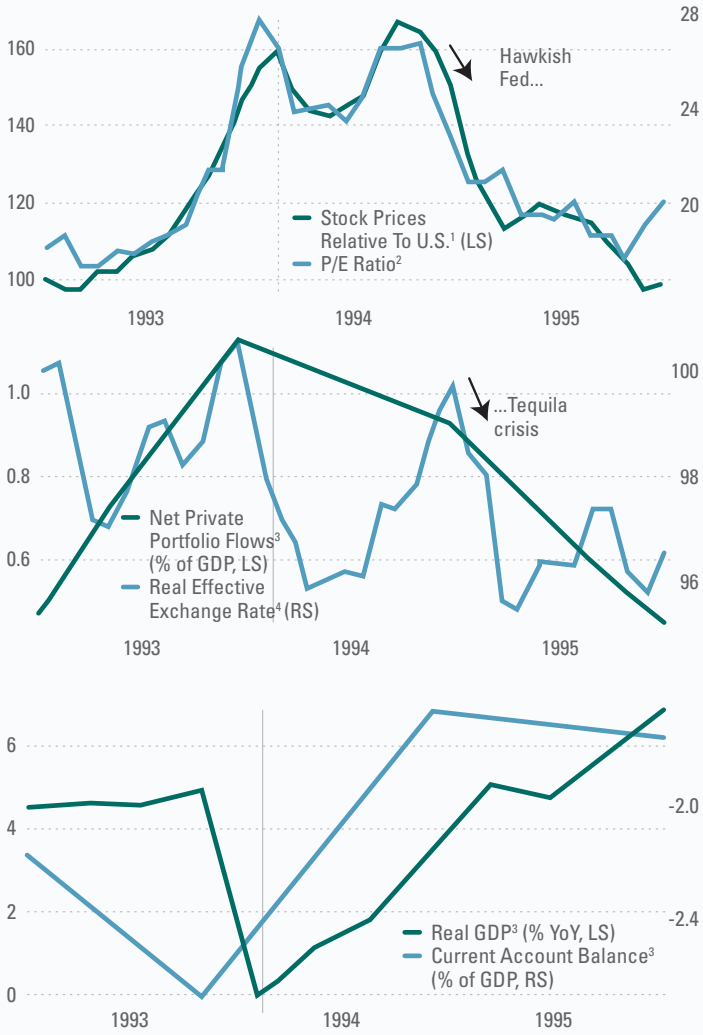
HOW WILL EM ASSETS BE AFFECTED BY FED TIGHTENING?

As shown in FIGURE 9 (on the next page), during the easing phase of the 1990s cycle, EM stocks, (as measured by the MSCI EM index) climbed by 193% in U.S. dollar terms between January 31, 1991 and January 31, 1994. By late 1994, they began to stumble when the dollar started to take off and Mexico had gone into crisis. That bear market eventually degenerated into a full-blown crash in EM equities in the second half of the 1990s.

It is also interesting to note that the performance of EM equities relative to both U.S. and Non-U.S. developed equities are on par or higher than they were in 1994 (see FIGURE 10 on the next page).

1. These measures were adopted across the board globally. For example, the Bank of England launched its Asset Purchase Program in 2009, and the Bank of Japan implemented its program in 2010, then increased its size in 2013. The European Central Bank has conducted asset purchases since 2010, but the amounts have been negligible, and purchases have been largely sterilized.

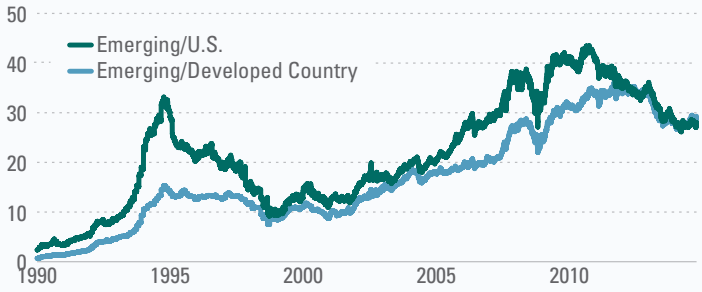
FIGURE 9 EM and the Fed Tightening in 1994



1. U.S. dollars; rebased to January 1993 = 100; sources: MSCI & IFC
2. Sources: MSCI & IFC
3. Source: IMF
4. Equally-weighted aggregate; source: J.P. Morgan Chase & Co.

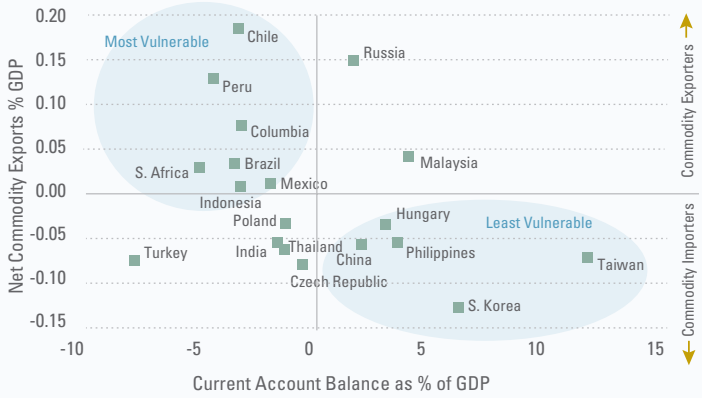
Note: Vertical line denotes February 1994 Fed rate hike

FIGURE 10 EM vs. U.S. and Developed Country Returns



Sources: FactSet & FIS Group staff estimates

FIGURE 11 Commodity Intensity (Oil) vs. Current Account Balance



Sources: FactSet, The World Bank, IMF & FIS Group staff estimates

EM FUNDAMENTALS AND INDIGENOUS CAPITAL MARKET DEPTH

While Fed tightening is likely to reprice the risk of EM assets upward and therefore induce some degree of portfolio outflows, what really matters in terms of the "stickiness" of investment capital as well as resilience to a monetary shock is the strength of each country/market's fundamentals as well as the depth and sophistication of their indigenous capital markets structure.

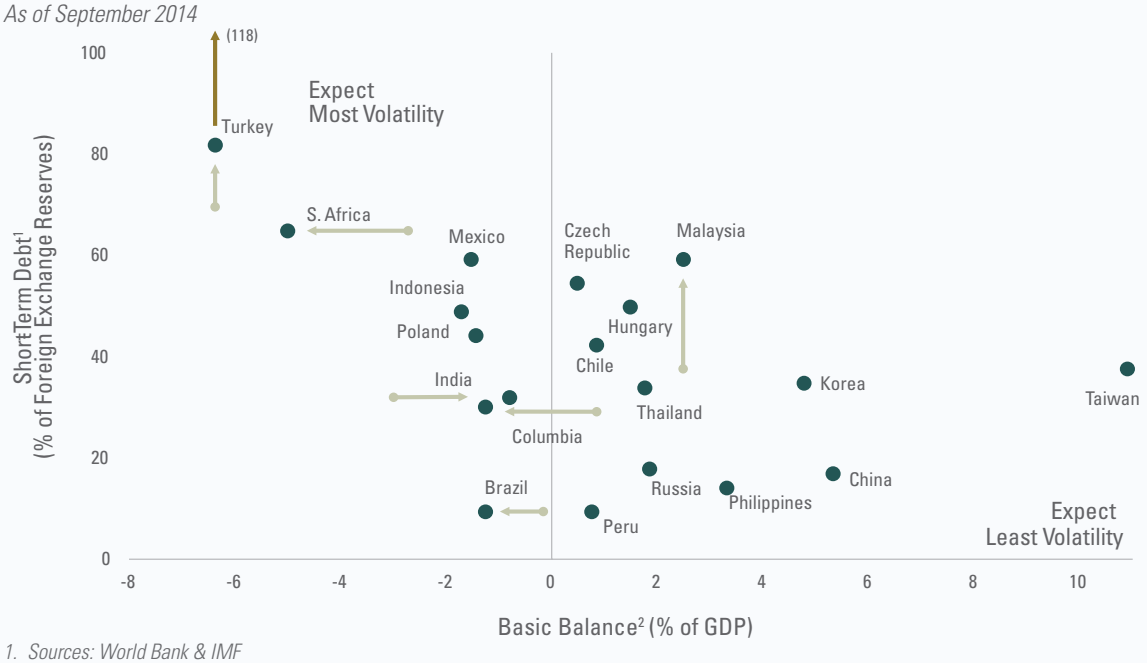
Strong fundamentals will be especially important because, as the Fed tightens, there will be less excess liquidity to chase growth opportunities. One source of concern is that earnings in the EM are stagnant and several key countries are either slowing or at risk of outright recession. Additionally, current account deficit countries facing inflationary pressures will be constrained in their ability to revive growth through accommodative fiscal or monetary policies because doing so would further undercut their currencies. FIGURE 11 (above) evaluates the countries shown relative to their current account balance (which gauges the extent to which they are over-consuming) relative to their commodity intensity. Countries in the north west quadrant of the chart are net commodity producers and carry current account deficits relative to their GDP. We would expect them to be most vulnerable as the Fed tightens, particularly if the dollar continues to strengthen (thus challenging commodity prices). On the other hand, countries in the south east quadrant would likely be least vulnerable because of both their positive current account reserve as well as a positive growth tailwind from falling commodity prices.

Those countries that habitually over-consume to the point that they are heavily dependent on foreign capital are likely to be especially vulnerable as even a minor event can trigger a reversal in foreign sentiment and subsequent capital flight. This flight creates a vicious cycle, in that capital flight drives asset prices down and interest rates up. The growth rates that

were dependent on the capital slow, and the lower growth rates further depress capital flows. This process ends when adjustments in demand and competitiveness bring external spending in line with incomes, and when asset prices have corrected enough to stabilize capital flows. Countries most vulnerable are those whose current account shortfalls are being funded by short term capital inflows. FIGURE 12 evaluates each EM country shown by the outstanding Short Term Debt as a percent of their Foreign Exchange reserves vs. their Basic Balance, which is the sum of their Trade and Capital Balance. In essence, it contrasts the degree to which they are living within their means relative to their ability to defend themselves from a major exodus of capital. The most vulnerable are Hungary, Turkey and South Africa. Other members of the Fragile Five are Indonesia and Brazil whose basic balance position has actually worsened since the end of 2013, despite the recent performance of its stock markets. India, which was the final member of the fragile five, has actually improved in term of its basic balance (though it is not entirely out of the woods).

FIGURE 12 Capital Flows and U.S. Monetary Normalization: Except Volatility

As of September 2014



1. *Sources: World Bank & IMF*
2. *Calculated as current account balance plus net foreign direct investment*

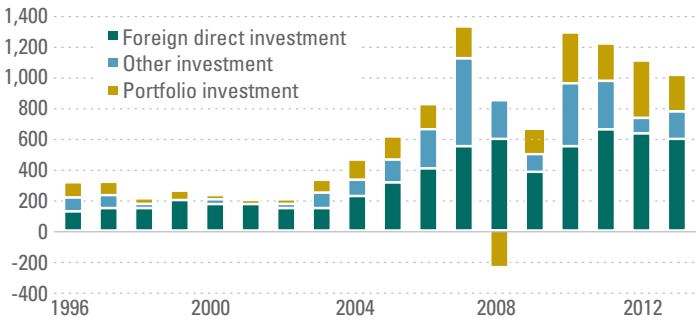
Note: Gray arrows indicate direction of significant changes since Q4 2013
Source: MRB Partners Inc.

EM CAPITAL FLOWS AND FUNDAMENTAL DYNAMICS

Foreign participation in emerging markets took off in the 1990's. Since the early 2000s, gross capital flows to emerging markets have quintupled. While foreign direct investment comprises the majority of flows into EM, Portfolio Investment – the most volatile component -- has become a more important component of the mix (see FIGURE 13). In the 2000s, changes in the mix of foreign capital inflows were primarily concentrated in fixed income markets; whereby increasing credit ratings and more attractive yields allowed many emerging market sovereigns to shift from issuing hard currency external debt to local currency domestic debt. In doing so, they partially overcame the "original sin" of issuing bonds denominated in hard currency to finance business operations denominated in their local currency.

FIGURE 13 Gross Capital Inflows to Emerging Markets

Billions of U.S. Dollars

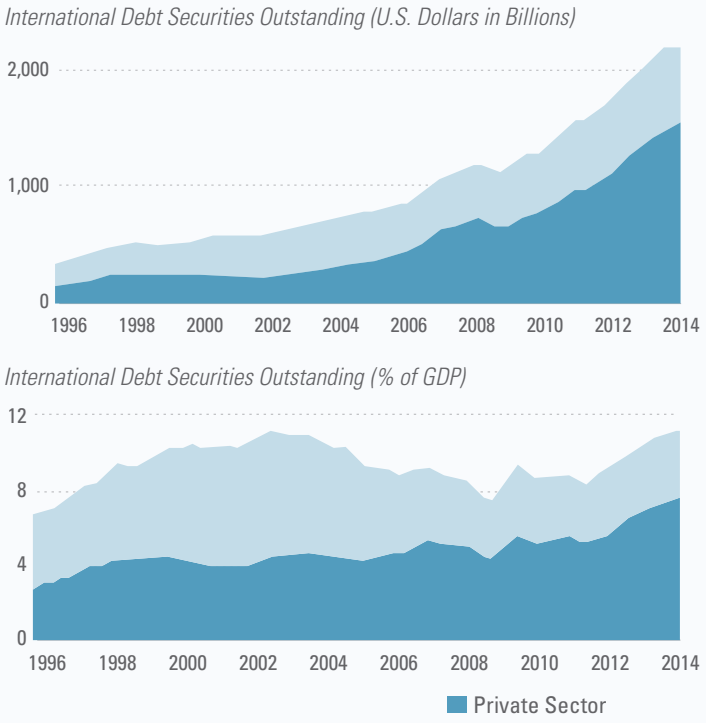


Sources: IMF, World Economic Outlook database & IMF staff calculations

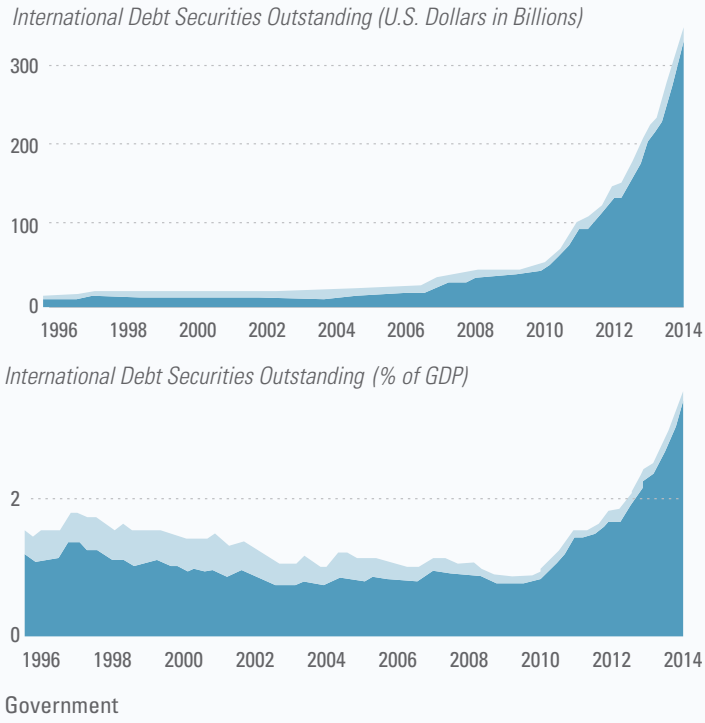
The corporate sector in emerging markets have also been active issuers to international investors. In fact, although EM public sector debt burdens are relatively low, private sector foreign debt levels (as a share of GDP) are on par with levels seen at the end of 1996 and early 1997 (see FIGURE 14). While the deflationary crosscurrents discussed previously, render a sharp increase in Fed policy rates which helped catalyze the 1994 Mexican debt crisis and the subsequent 1997-'98 Asian crisis a low probability event; the higher probability currency depreciation among vulnerable countries would likely lead to an upward re-pricing of EM credit risk in those countries. Unlike the mid-1990s, most EM private issuers have avoided the "original sin" that has been a historical source of vulnerability. However, this in effect transfers the exchange risk to offshore investors that could conceivably reduce their exposure to the depreciating currency/country.

For some countries like Peru and Malaysia, foreign investors' participation dominates the local bond markets. However, as shown in FIGURE 15, foreign participation in local bond markets has increased across the board with the notable exception of India because of that country's regulatory restrictions on foreign ownership of local bonds.

FIGURE14 Emerging Markets (ex-China)



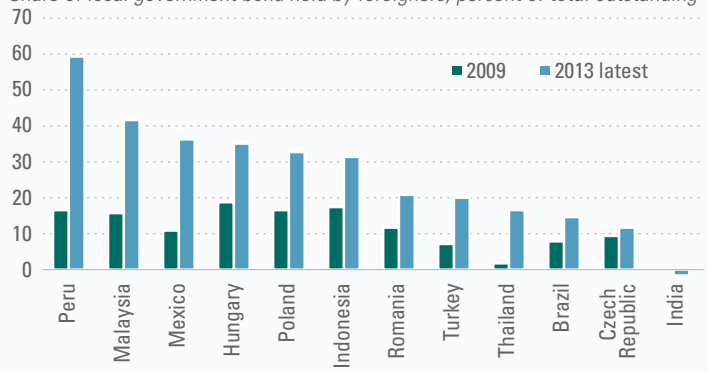
Emerging Markets (China)



Source: Bank for International Settlements

FIGURE 15 Foreign Investor Participation in Local Government Bond Markets

Share of local government bond held by foreigners; percent of total outstanding



Sources: Asian Development Bank, AsianBondsOnline, Bank for International Settlements, Elkins-McSherry, Emerging Market Trading Association, J.P. Morgan, national authorities & IMF staff calculations

According to EPFR[2] data, the total AUM of equity and bond funds allocated to EM markets increased from a pre-Lehman peak of $900 billion to $1.4 trillion in May 2014. The largest growth was among bond funds which quadrupled from $88 billion to $340 billion over the same period. Increased foreign investment in EM assets have boosted investment and growth there and has helped to deepen their financial markets. But the potential price of these flows is that during times of financial stress and Fed tightening in particular, foreign investors may destabilize EM markets by accentuating both booms and busts. The most recent example was the large outflows that were prompted by Chairman Bernanke's announcement of future asset purchase tapering which drove up bond yields and led to large depreciations among many EM currencies. Equally relevant to gauging the likely impact of fed tightening is the source and destination of the increased portfolio flow. This is because stock vs. bond allocations as well as the type of investor are key determinants of the relative "stickiness" of these portfolio flows. Bond portfolio investments tend to be more short-term oriented and more sensitive to yield differentials and volatility than stock investments. Institutional investors as a class are typically more "sticky" than mutual fund investments. FIGURE 16 evaluates the allocation of EM flows between institutional and retail investors (which typically invest through collective investment vehicles, such as mutual funds or ETFs) by type of investment, as well as the breakdown between active and passive strategies. A clearly positive trend is that institutional investors are responsible for 62.4% of the equity portfolio flows and 55% of the bond portfolio flows into EM assets as of mid-2014. This is substantially higher than in the mid-1990s, when flows were dominated by mutual fund investors. Collective vehicles Mutual fund vehicles offer different fund structures and allocation strategies to investors; with the two main structures being open-end and closed-end funds. ETFs are a form of an open-end fund which trades on exchanges. Because open-end funds allow investors to easily redeem or add funds, they obviously represent less stable capital flows than either closed end funds or institutional investors. From this perspective bond portfolio flows appear to be the most vulnerable because of the lower level of institutional ownership and the disproportional role of open-end fund investors.

Whether or not asset managers will have a destabilizing effect on EM markets depend on the degree to which their behavior is correlated. Correlative behavior typically occurs through two channels. One is the use of similar benchmarks that drive allocations among EM countries. The other is through the behavioral patterns of different investors.

The use of similar benchmarks would be expected to drive up the correlation of flows that emanate from passive investors. The construction methodology of most passive investment funds has traditionally been relatively pro-cyclical (in that when markets are appreciating, they will "bid up" the same securities and when market are either depreciating or investors are withdrawing money, passively managed funds will sell portfolios in similar fashions, aggravating directional movements). Theoretically, active investors tend to be less pro-cyclical and in some cases, contrarian because their holdings are not necessarily constrained by the benchmark's weights or constituents. That said, several studies have shown that the career risk of short-term underperformance against their peers and the benchmarks has over time induced risk-minimization strategies that reduce tracking error relative

FIGURE 16 Types of Collective Investment Vehicles Investing in Bonds and Equities*

	Bond Funds Investing In:		Equity Funds Investing In:	
	Advanced Economies	Emerging Market Economies	Advanced Economies	Emerging Market Economies
Fund Structure				
Open-End Mutual Funds	90.9	91.5	83.9	72.9
Closed-End Mutual Funds	2.2	1.1	0.9	1.8
Exchange-Traded Funds	6.9	7.3	15.2	25.3
Investor				
Institutional**	50.8	55	48.4	62.4
Retail	48.6	44.7	50.8	37.2
Strategy				
Actively Managed	85.7	92.8	69.3	69.5
Passively Managed	14.2	7.2	30.7	30.5

** The share of total new assets as of end-May 2014, in per cent.*
*** In the EPFR database, institutional investor funds are defined as funds targeting institutional investors only or those with the minimum amount of $100,000 per account.*
Sources: EPFR & BIS staff estimates

2. EPRF refers to the Emerging Portfolio Research Global. It is one of the most widely used data sources for foreign fund flows to EMs, particularly because of the high frequency of the data. EPRF collects data on total net assets and flows by type of investor (institutional or retail), country and asset type. The database covers some 11,000 equity funds and 4,500 fixed income funds.

to the benchmark. Nevertheless, the relative dominance of active managers among EM portfolio flows should theoretically reduce market instability (unless those flows are derived from open-end collective vehicles or momentum based institutional strategies).

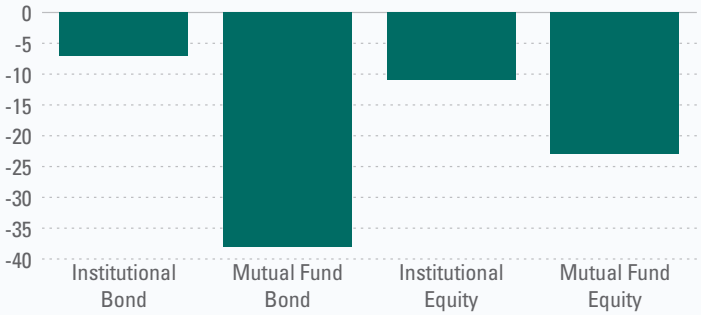
With respect to the second channel, behavioral patterns, various studies suggest that mutual fund investors tend to crowd into similar names, exhibiting a clear pattern of momentum or return chasing. This leads to markedly greater sensitivity to periods of instability (see FIGURE 17).

Actual patterns in flows reinforce these results. FIGURE 18 evaluates net flows into EM assets over various financial market crises and FIGURE 19 (on the next page) evaluates net flows between institutional and mutual fund investors during the 2013 taper tantrum. In all cases, and undoubtedly most relevant, while total portfolio flow declined significantly after the May 2013 announcement, institutional investors largely stayed the course, while retail investors baled.

FIGURE 17

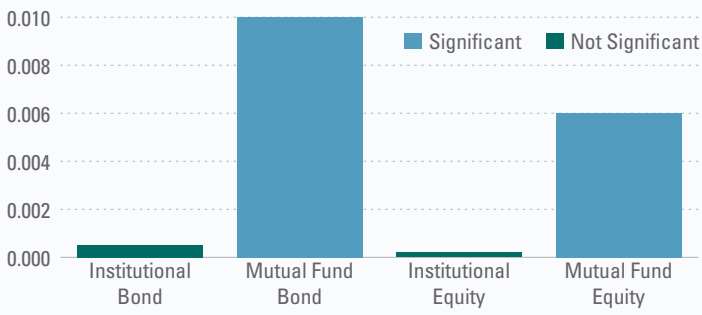
Sensitivity of Portfolio Flows to Emerging Markets to the VIX by Type of Investors and Assets

Changes of flows when the VIX increases by one standard deviation; percent of standard deviation of flows



Evidence for Momentum Trading

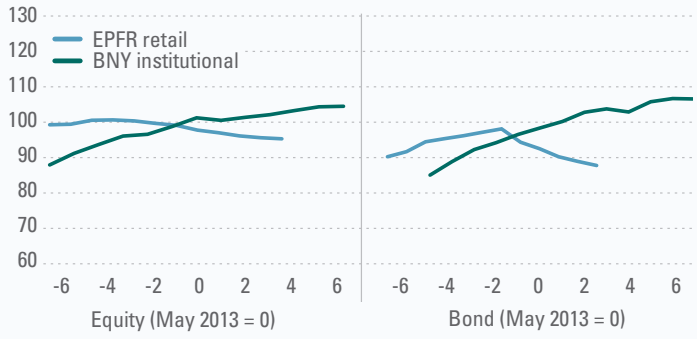
Estimated coefficient on lagged country index returns



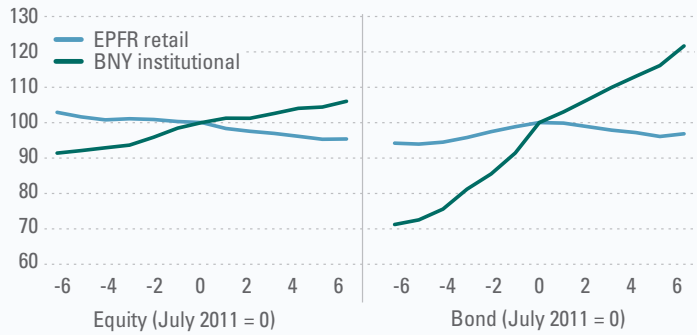
Sources: Bank of New York Mellon, EPFR Global & IMF staff estimates

FIGURE 18

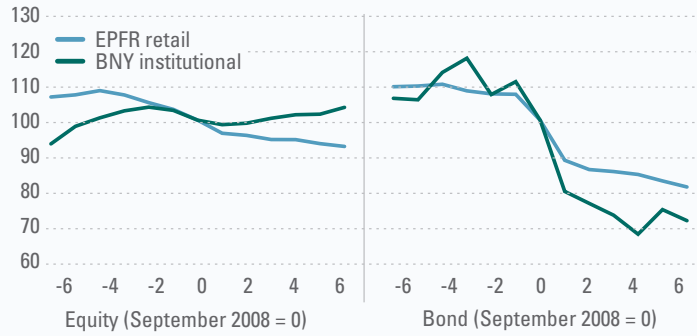
May 2013 Sell-Off *May 2013 = 100*



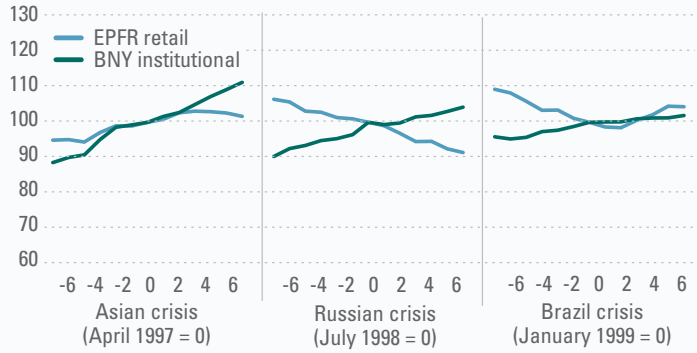
European Sovereign Debt Crisis *July 2011 = 100*



Global Financial Crisis *September 2008 = 100*



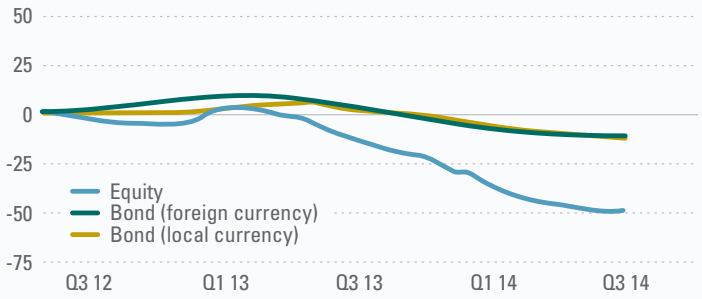
Earlier Emerging Markets Crisis *Every month = 100*



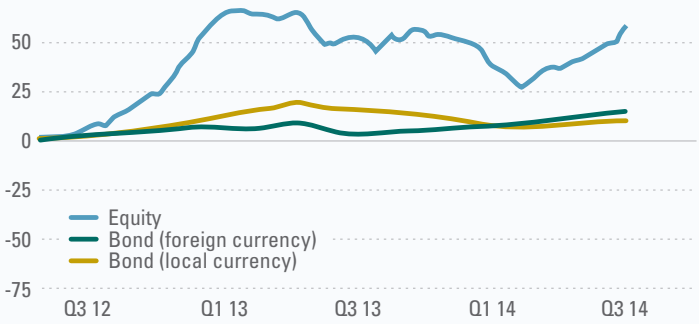
Sources: Bank of New York Mellon (BNY), EPFR Global, Eurekahedge & IMF staff calculations

FIGURE 19 Cumulative Net Inflows to EME Equity and Bond Funds

Retail[1]; In billions of US dollars



Institutional[1],[2]; In billions of US dollars

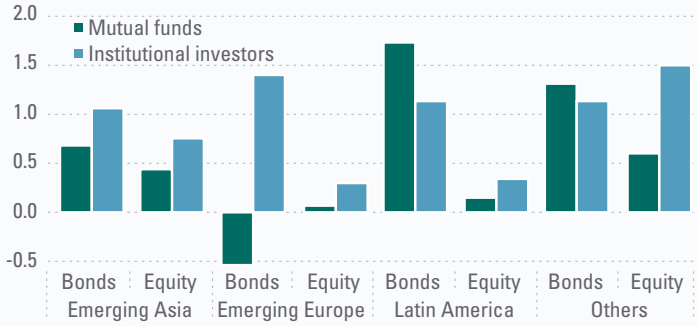


1. *All EPFR funds*
2. *EPFR Global defines institutional investor funds as funds targeting institutional investors only or those with the minimum amount of $100,000 per account*

Sources: EPFR & BIS staff estimates

FIGURE 20 Portfolio Inflows, by Region and Investor Type

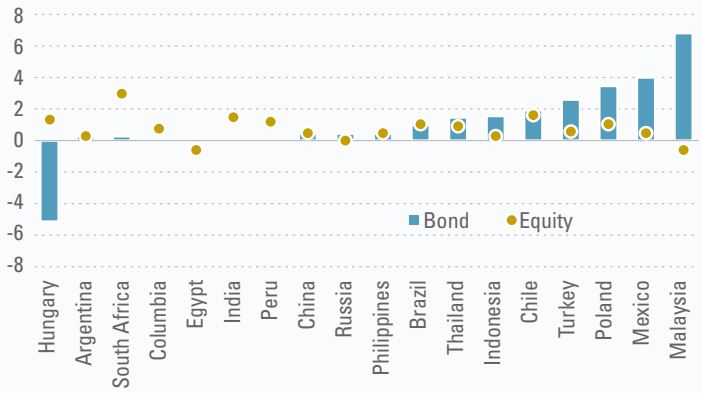
Net inflows between October 2008 and September 2013; % of GDP



Sources: Bank of New York Mellon, EPFR Global, Federal Reserve, Hedge Fund Research, U.S. Treasury International Capital System & IMF staff estimates

FIGURE 21 Gross Portfolio Inflows by Country, 2009-13

Annual average; % of GDP



Sources: IMF, World Economic Outlook database & IMF staff calculations

It is however worth noting that institutional investors don't always stay put relative to their retail counterparts. Faced with extreme shocks, they have actually divested more vigorously. For example, during the global financial crisis precipitated by the Lehman Brothers default, institutional investor bond flows dropped more precipitously than did mutual funds. Moreover, likely as a result of minimum credit rating guidelines, institutional investors are just as sensitive as mutual funds when a country's sovereign credit is downgraded below institutional grade.

Another potential concern is the level of concentration among institutional players in the EM market. According to EPFR data, as ultimate investors' allocations to EM assets continued to grow, the total amount of AUM managed by the largest 500 firms doubled from $35 trillion in 2002 to almost $70 trillion in 2012. Additionally, among the largest 500 firms, the largest 20 firms represented about 40 percent of their total AUM in EM assets, the top five firms accounted for 18 percent of their total AUM and the largest firm accounted for 6 percent of the total. The large size and AUM concentration among asset managers investing in EM markets is a potential source of concern. A major allocation change by one or more very large player, particularly in periods of market stress, could have a major impact on smaller and more illiquid EM markets.

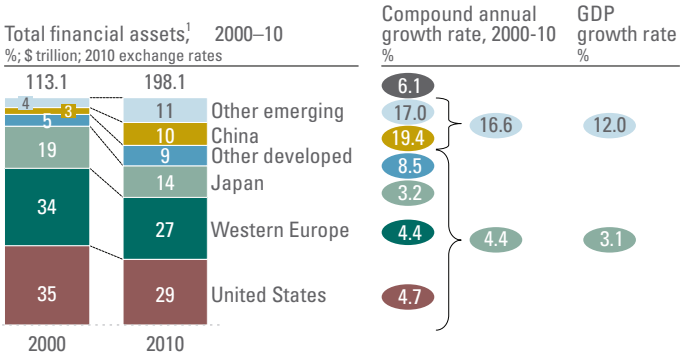
From a portfolio allocation perspective, Latin America would appear to be most vulnerable to Fed tightening because the region is the largest recipient of both mutual fund and bond portfolio investments. While Asia was also a significant recipient of bond investments, they appear to be dominated by institutional investors. To illustrate, FIGURE 20 evaluates the allocation of EM flows between institutional and retail investors and further breaks those flows type of investment (bond and stocks) as well as percent of GDP for Emerging Asia, Europe and Latin America. FIGURE 21 evaluates the stock vs. bond portfolio inflows at a more granular country level.

On a country level, the most vulnerable appear to be Malaysia, Mexico, Poland, Turkey and Indonesia, in that all of the above countries, bond portfolio inflows exceeded or in some cases, dominated equity inflows (see FIGURE 21).

Over time, we believe that the destablizing effect of foreign investor outflows as a result of financial stress emanating from the DM will be mitigated by the growing local investor base and deepening capital market infrastructure in several EM countries. For example, a April 2014 PWC report estimates that based on OECD data, between 2010 and 2020, more than one-billion middle class consumers will emerge globally. The single most important regional contributor to this surge is attributable to South America, Asia, Africa and the Middle East. According to this report, the global middle class is projected to grow by 180% between 2012 and 2020, with Asia replacing Europe as home to the highest proportion of middle classes possibly by 2015. This increasing affluence, particularly when coupled with capital market reform, would be expected to significantly fuel demand for financial products. One current example of this trend is the Shanghai-Hong Kong Mutual Market Access arrangement which, by providing access to the Chinese A share market, should boost consumer and small cap stock valuation there. The Chinese government's stated plans to internationalize the renminbi by 2020 will also likely significantly increase capital flows to that economy.

FIGURES 22 & 23 contrast the current and projected growth in financial assets in the EM vs. DM markets. As shown below, the compound annual growth of EM financial assets have grown nearly four times as quickly as DM assets.

FIGURE 22

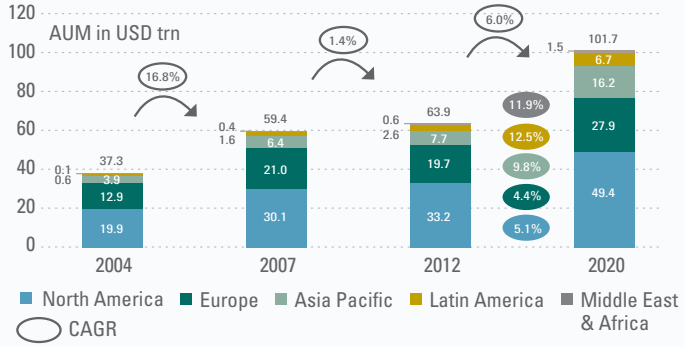


1. Includes cash and deposits, fixed-income securities, listed equities, and alternative investments; excludes real estate, commodities, derivatives and nonlisted equtiies
Sources: National sources & McKinsay Global Institute

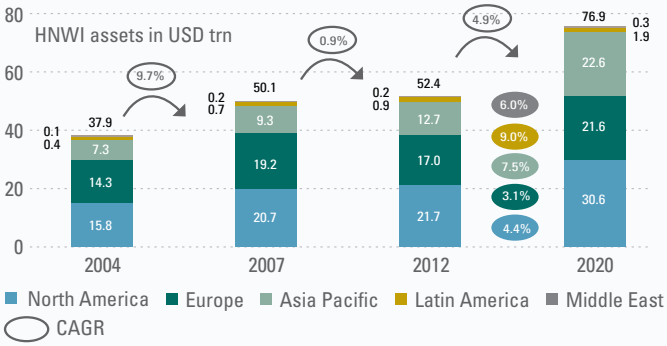
Moreover, according to the previously referenced study by PWC, High net worth investors (HNWI), pension funds, and retail savings/investments in EM will grow at 2-3 times the rate of DM assets over at least the next 5-6 years (see FIGURE 23).

FIGURE 23

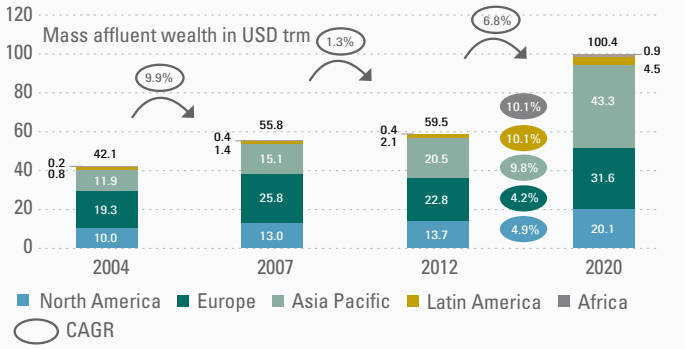
Global AUM Projection[1]
By region for 2020



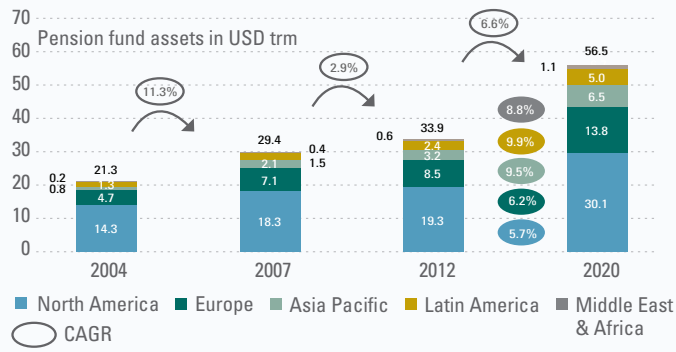
Global HNWI Asset Projection[2]
By region for 2020



Global Mass Affluent Wealth Projection[2]
By region for 2020



Global Pension Fund Assets Projection[3]
By region for 2020



1. *Past data based on Hedge Fund Research, ICI, Preqin, Towers Watson, and The City UK data.*
2. *Past data based on Credit Suisse Global Wealth Data Book*
3. *Past data based on The City UK data.*

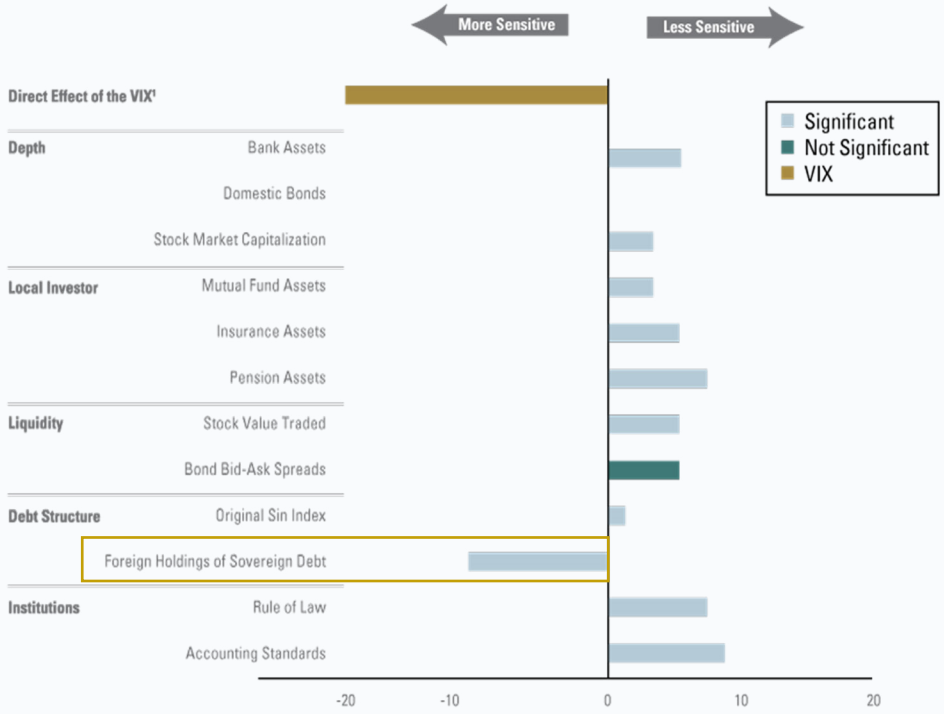
Source: PwC analysis

Although the strategic rationale for investing in emerging markets is well known (i.e. that most emerging markets are and will be growing faster than developed markets, that incomes there are rising faster, and demographics are favorable in many markets) and will remain intact despite the impending tightening cycle, less appreciated are the long-term allocation effects of wealth creation and investment in emerging markets from EM investors. This is a three-fold phenomenon: 1) High net worth, pension fund, and retail savings/investments in EM is projected to grow at 2 to 3 times the rate of DM assets over the next 5 to 6 years; 2) EM investors, like investors worldwide, exhibit a strong "home country bias". While EM investments will probably increasingly diversify into global assets over their currently low base, there will still be an ongoing home bias, such that a majority or at least heavy disproportion of the newly created wealth in EM will stay home. (After all, the only immutable truth of a national pension system is the currency denomination of their underlying liabilities), and 3) Risk appetites for EM equities from local EM investors is currently low, as has been typical for past development patterns in the U.S., Europe, and developed Asia. We not only expect the same pattern to unfold within EM, but are already seeing micro-examples of this in rural vs urban China.

Since the early 2000s, there has been broad-based deepening in the financial infrastructure among major EM countries. Financial depth is defined by the size of financial markets relative to economic activity and by the various functions that their financial market performs. Such functions include intermediation, price discovery and hedging. FIGURE 24 evaluates the impact of increased volatility in the developed world (estimated by a 10 percentage point increase in the VIX) on annualized EM excess returns over U.S. Treasury yields across various dimensions of financial deepening.

The analysis shows that most of the dimensions of financial deepening are associated with lower sensitivity to global shocks for equity markets. Though not shown, the IMF analysis also depicted similar results for bonds denominated in local and foreign currencies. Additionally, some of the effects of a larger local investor base has a stabilizing effect. For example, a larger financial sector (banks and non-bank such as mutual funds, pension funds, and insurance companies) may be sufficient to offset the unfavorable impact of a direct increase in the VIX. Similarly, capital market development (such as large and liquid stock markets) generally lowers the sensitivity of asset returns to global financial conditions. (Although liquidity in bond markets don't appear to significantly mitigate financial stress). While not repeating the "original sin" of issuing debt in hard currency to fund local currency operations has reduced vulnerability to financial stress, greater foreign engagement in domestic markets increases the price sensitivity to global financial shocks. When more government debt (domestic and external) is held by foreigners, excess equity returns, local currency bond yields, and currency excess returns become more sensitive to global financial conditions. This effect is particularly strong for local currency bond yields.

FIGURE 24 Equity Excess Returns over US Treasury Yield
Annualized; percentage points



Sources: IMF, World Economic Outlook database & IMF staff calculations

Among emerging markets, South Africa and Chile are clear standouts in terms of indigenous capital markets depth. Other notables included Malaysia and Mexico. Through the Shanghai exchange agreement, the expected internationalization of the Renimbi and other measures, important and positive change is on its way in China but not quite there yet.

CONCLUSION

In light of the above analysis on the mid 1990s Fed tightening cycle as well key differences both in the global environment and in the structure of EM economies and capital markets, we believe that while short term volatility is likely as we approach the launch date of Fed tightening in 2015, the response will be more muted and more nuanced. Among EM countries, the risk from capital flight is markedly higher for countries that are more dependent on external capital flows to fund growth and whose capital flows have been disproportionately invested in their local bond markets. Here, Latin America and South Africa appear to be particularly vulnerable relative to Asia. Another related potential pain point is the level of EM private sector debt. Although EM public sector debt burdens are relatively low, private sector foreign debt levels (as a share of GDP) are on par with levels seen in the mid-1990s. While that earlier period's sharp increase in Fed policy rates, which helped catalyze the 1994 Mexican debt crisis and the subsequent 1997-'98 Asian crisis is a low probability event; higher probability currency depreciation among vulnerable countries would likely lead to an upward re-pricing of EM credit risk in those countries . On a country level, notable standouts in this regard include Turkey, Malaysia, Mexico and Poland. As a result of the sharp increase in portfolio flows over the last decade, during times of financial stress and Fed tightening in particular, foreign investors could further destabilize some EM markets by accentuating capital flight. The most recent example was the large outflows that were prompted by Chairman Bernanke's announcement of future asset purchase tapering which drove up bond yields and led to large depreciations among many EM currencies. From a portfolio allocation perspective, Latin America would appear to be most vulnerable to Fed tightening because the region is the largest recipient of both mutual fund and bond portfolio investments. While Asia was also a significant recipient of bond investments, they appear to be dominated by institutional investors. Over time, we believe that the destabilizing effect of foreign investor outflows as a result of financial stress emanating from the DM will be mitigated by the growing local investor base and deepening capital market infrastructure in several EM countries.

From an investment perspective, the most prudent strategy would be to overweight commodity consumers, particularly those that are undergoing investment friendly structural reform. Such countries would primarily reside in North Asia and to a lesser extent India (although we would await a more reasonable entry price). We would underweight commodity produce countries, particularly those that are highly dependent on external capital for growth. Obvious examples include Brazil, South Africa, Russia and to some extent Indonesia. (Although South Africa's deep capital markets infrastructure and globally exposed listings could help to mitigage adverse lows prompted by Fed tightening). Countries that appear especially dependent on foreign capital inflows for growth and that are more dependent on bond investments, such as Turkey and Poland (and to a lesser extent Mexico) warrant additional caution.