Global Macro Strategy

Scaling a Wall of Worry

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Themos Fiotakis
Strategist
themos.fiotakis@ubs.com
+44-20-7567 7215

Jeremy Chalder, CFA
Strategist
jeremy.chalder@ubs.com
+44-20-7567 1223

Daniel Waldman
Strategist
daniel.waldman@ubs.com
+1-203-719 4281

Yianos Kontopoulos
Strategist
yianos.kontopoulos@ubs.com
+44-20-7568 8924

A spike in investor risk aversion to "crisis levels".

The past year has seen significant volatility and underperformance of equities and other risky assets. Unlike the norm, this was not driven by a significant fall-out in global growth. Instead, a massive spike in investor Risk Aversion, currently at "crisis levels", is the likely driving force.

What does an indicator of global Risk Aversion tell us about the path ahead?

Borrowing from asset pricing theory, we construct an indicator of global equity risk aversion. History suggests that the current extreme levels are more likely to moderate, leading risky assets stronger. But equally, in the post 2008 world, recoveries are shallow and short-lived – so expected returns should also be moderate.

Recovering from the macro shocks of 2015…

2015 was a year of macro shocks for global stocks. Against initial expectations, lower oil prices and a strong dollar coupled with CNY stability related worries and persistent disinflation – they all led to broader tightening in financial conditions. Despite those shocks, monetary authorities (outside of Europe) delivered a hawkish message throughout the year.

…as long as policy remains accommodative.

Policy has become significantly more accommodative for risky assets in 2016 (from China all the way to the Fed). And as long as it stays so, the risk is skewed towards: 1) stronger equity markets; 2) laggards – such as European equities and credits – catching up; 3) steeper curves with higher bond yields, particularly in Europe; 4) a flatter path for the dollar which; 5) helps commodities stabilize; 6) higher gold prices driven by easier policy; combined with 7) a recovery in inflation expectations; and, lastly 8) weaker currencies (vs USD and EUR) in countries where policy easing is urgently required (Japan, NJA etc.) or EMs with balance sheet pressures.

But the stakes are high.

Having said that, if high risk aversion extends over time, it can spill-over into spending and investment decisions, weighing on growth and (ultimately) global assets. We would look for risk-reducing events in ongoing dovish Fed communication, relative CNY stability, BOJ adding to QQE at the April 28 meeting and ECB easing translating into healthy credit demand in the April bank lending survey. The main risk is a central bank over-reaction to the higher inflation data that oil stabilization may trigger in the months ahead, both in terms of headline and in terms of core inflation.

The risk rally has so far been underwhelming

The February lows marked a point of extreme pessimism for equity markets and risky assets more broadly. The growth assumptions required to justify market levels were unrealistically low. And the potential for relief from easier monetary policy was underappreciated at best, discarded as irrelevant at worst.

February lows marked a point of extreme market pessimism…

Back then, we laid out a clear case; the threshold for a positive growth surprise was low in markets. And what was required for risky assets to stabilize and reverse back into gains was policy relief (see Will the Risk Rally Persist? Market Pessimism vs Delayed Policy Relief). We also took a deep dive into the mechanics of quantitative easing and showed that a) it is a major market driver accounting for 50-60% of the valuation boost in stocks and bonds since the depths of the crisis and b) there was room for policy to smooth out growth shocks in the form of lower US yields (see Big Macro 03: Does Monetary Easing Work?).

…the threshold for positive growth surprises was low…

Since then, macro developments have fallen in place with our framework. Monetary conditions have eased globally – primarily driven by the Fed sending a dovish signal by lowering its dots (The Fed delivers dovish dots). And, equally, the ECB has delivered a much more dovish policy mix than anticipated (ECB fireworks). We expect the BOJ to respond to Yen strength on April 28th (Yen-thusiasm challenged, not lost). And there is evidence of ongoing easing in China (see Slow Start but Signs of Rebound amid Policy Support and China by the Numbers).

…and policy relief has been significant enough to justify a strong response in terms of risk sentiment.

Yet, the joy that risky assets have so far extracted out of policy relief has underwhelmed our expectations as well as those of most market participants, especially in terms of non-US assets. Euro-area stocks are still down for the year, global bond yields (bunds, in particular) hover at very low levels and currencies sensitive to risk sentiment such as the $/JPY are making new lows.

Yet the risk rally has so far underwhelmed expectations.

Global risk premia are edging higher despite little evidence of a rapid growth slowdown

Importantly, risky asset returns have underwhelmed as bond yields edged lower. This means that the compensation that markets require to buy risky assets – the *risk premium* - has likely increased.

A global proxy of global risk premia introduced by Bhanu Baweja and Manik Narain (Assessing the anatomy of this rally) (Figure 1) summarizes shifts in equity and rates volatility, as well as global credit spreads. Since the lows of 2014, risk premia have been edging higher. Earlier this year, risk premia spiked to levels not seen since the early stages of the GFC and the Euro-area debt crisis.

Global risk premia have been edging to multi-year highs…

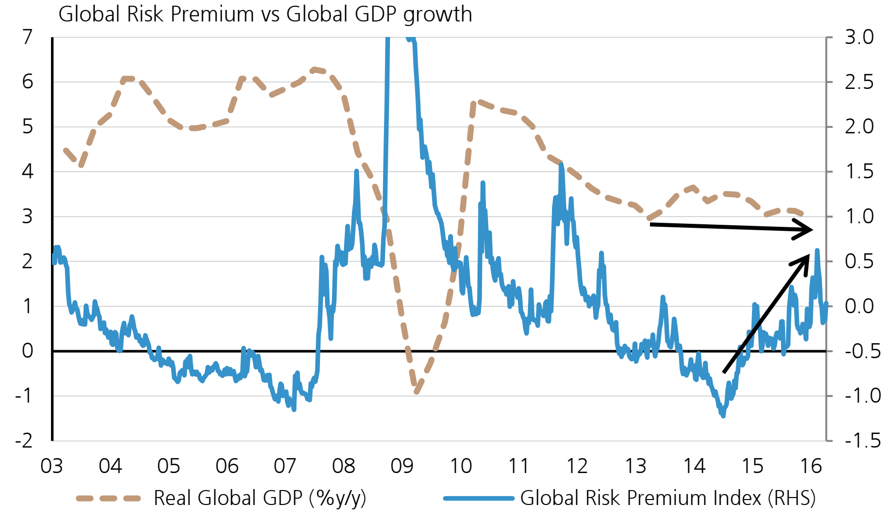
There are two main reasons why investors would require higher compensation to prefer stocks over bonds (a higher *risk premium*): a) a significant *cyclical downturn* that lowers corporate earnings and equity prices and/or b) a higher degree of *risk aversion* among investors (see Box 1 for more detail). Interestingly, both the August 2015 and the January 2016 sell-off episodes took place in the absence of significant growth damage: global growth has been reasonably stable and has fared much better compared to past risk premium spikes (Figure 1).

…despite relatively stable global growth…

In that sense, hard as it is to disentangle it from growth dynamics, a heightened sense of risk aversion among investors may be the main driver behind the underwhelming performance of risky assets.

…suggesting a heightened sense of risk aversion among investors.

Figure 1: Recent sell-offs took place at a less suspect time for growth



Source: UBS, Bloomberg, Haver Analytics

Is there a way of quantifying and visualizing the spike in risk aversion over the past few months? How does it compare to past risk aversion spikes and what does history tell us about the future? Does risk aversion mean-revert or are we in the middle of a secular decline in risk-appetite?

The main driver has been a spike in investor risk aversion to multi-year highs

Standard asset pricing theory[1] shows that, on average, investors demand higher compensation (a higher risk premium) to buy an asset that falls in value when growth slows down. This is intuitive in the sense that an asset that offers insurance during difficult times is much more valuable than an asset that drops in value when you need it the most.

We construct a global indicator that measures shifts in investor *Risk Aversion*, not necessarily linked to growth shifts and their impact on equities.

In the same framework, risk aversion works an amplifier: the less keen investors are to take risk, the more compensation they will demand to invest in a cyclical asset – proportionally to the degree of co-movement between the asset and the cycle.

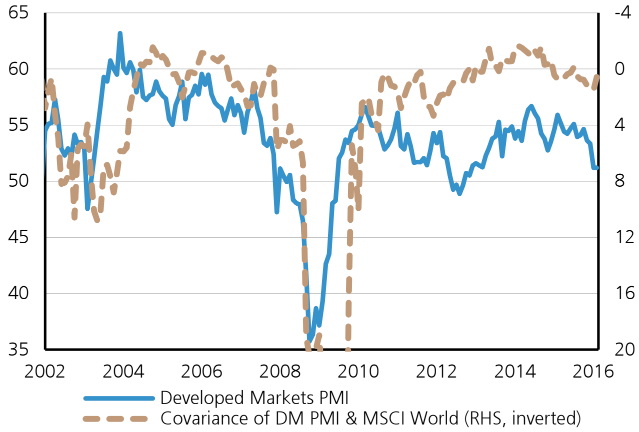
Typically, as growth slows, equities become more cyclical (Figure 2). And, equally, investor appetite varies. Using standard assumptions we construct a measure that allows us to capture swings in the equity market's Risk Aversion that are not necessarily linked to growth swings but primarily relate to shifts in investor sentiment (Box 1 offers more detail).

Risk aversion levels today are quite comparable to the levels observed at the peak of the Euro-area sovereign debt crisis and even at the 2008 crisis (Figure 3). Of course, asset performance then was much worse, but this is because the cycle deteriorated much more rapidly at the time. With cyclical damage much less pronounced, risk aversion has been the key driving force behind wider risk premia.

We find that risk aversion has spiked globally over the last year to levels comparable with crisis periods.

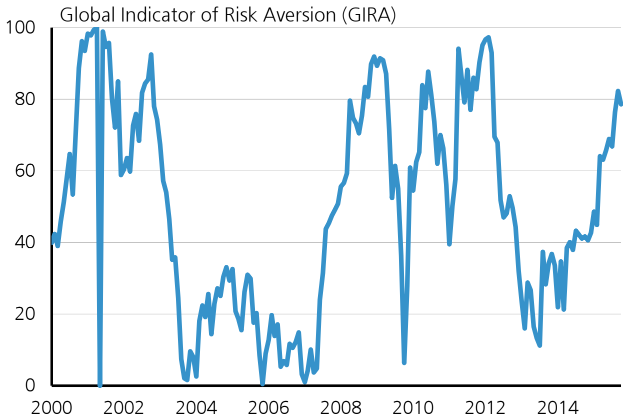
[1] This theory is best known as the Consumption Capital Asset Pricing Model.

Figure 2: As growth slows, equities typically become more cyclical.



Source: UBS calculations, Haver Analytics, Bloomberg

Figure 3: Risk aversion has spiked to "crisis" levels.



Source: UBS calculations, Haver Analytics, Bloomberg

Key lessons from 16 years of risk aversion data

A close look at the historical path for risk aversion renders a number of key conclusions with forward looking implications:

The key lessons:

1. It is clear that risk aversion goes through regime shifts. It is clear how high risk aversion was in the aftermath of the EM crises of the late 90's, early 00's and around the time that the dot-com bubble burst. Equally, it is pretty clear how unique and excessive the period between 2004 and 2007 was, in hindsight.

Risk aversion goes through regime shifts and we have been in a regime of heightened risk aversion since the GFC.

2. We have been in a regime of heightened risk aversion since the GFC. It is very interesting that, globally, we have only briefly visited levels of risk aversion close to the lows of the 2004-2007 expansion, the aftermath of the Euro-area crisis resolution and ahead of the Fed's taper.

3. In the long run, risk aversion mean-reverts. This means that, at current high levels, the hurdle for short positions is higher.

At the current levels of Risk Aversion, the hurdle for short positions is higher…

4. But equally, risky asset returns are likely to be moderate even if risk appetite returns. First, in a regime of lower trend growth and lower government bond yields, the same excess returns (of stocks over bonds) imply lower total returns (of stocks). Second, given the post GFC regime shift, the decline in risk aversion is likely to be brief and shallow (at least relative to the past). So, expectations of risky asset outperformance need to be moderate.

…but risky asset returns are likely to be moderate even if/when risk appetite returns.

5. Given the better cyclical position of the US, a larger part of the recent volatility can be linked to a rapid increase in Risk Aversion following the Fed's hawkish guidance, the dollar strength and the collapse in oil prices since 2014. In contrast, Euro-area has stayed in a regime of elevated risk aversion for the best part of the last 2 years (Figure 4 and Figure 5).

US Risk Aversion has picked up over the last year. Euro-area has remained in high Risk Aversion zone for 2 years now.

6. The longer this risk aversion shock persists, the more likely it is to contaminate growth data and create broader pressures on global equities. In prolonged and deeply-rooted risk aversion shocks, the level of financial market pressures can become self-fulfilling. Tight financial conditions can gradually weigh on growth data as well.

And the longer the risk aversion shock persists, the more likely it is to contaminate growth and global equity performance.

Looking ahead: room to recover from multiple macro shocks – but risks loom

Last year has been a year of significant macro shocks for global equities and risky assets. What was meant to be a positive growth shock from lower oil prices across developed economies, turned out to be a substantial tightening in financial conditions, where the initial pressures on oil related equities and credit companies gradually broadened out across the global high yield credit sector (Figure 6).

Last year has been one of significant macro shocks for risky assets…

What was meant to be a brief spell of low CPIs translated to a broad-based decline in long-term inflation expectations triggering deflation risks.

What was meant to be another step in the gradual transition towards a new equilibrium in China's growth, quickly morphed into worries of uncontrolled outflows and hard-landing, as local authorities allowed for a weaker CNY.

And against this backdrop of macro shocks, global monetary policy tightened throughout 2015 (outside of the ECB). Primarily, the Fed drove expectations of tightening leading the shadow (expectations-driven) policy rate significantly higher in a short timeframe (Figure 7). The BOJ is yet to deliver the long-overdue expansion to QQE. Lastly, as mentioned above, CNY depreciation added to global financial market volatility.

…while global monetary policy tightened throughout 2015.

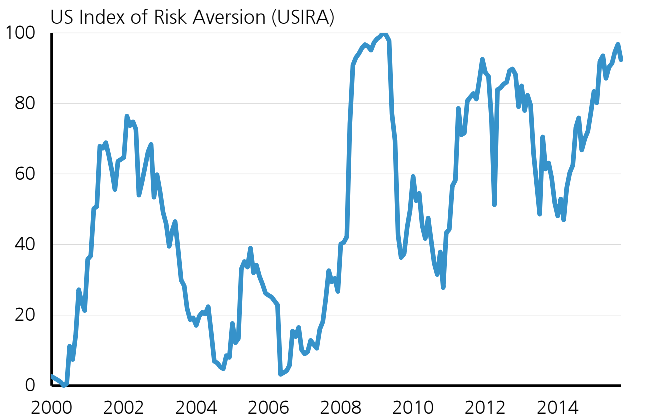
The growth fall-out from those risks has so far proven moderate and our outlook remains one where DM growth rebounds in the quarters ahead. Nevertheless, we have seen and presented evidence that risk premia have risen on the back of heightened risk aversion.

Growth damage has so far been contained. Yet, risky assets have performed poorly on the back of a big spike in Risk Aversion.

The natural tendency is for risk aversion spikes to fade. And as long as policy remains supportive, risks are skewed towards: 1) stronger equity markets; 2) laggards – such as European equities and credits – catching up; 3) steeper curves with higher bond yields, particularly in Europe; 4) a flatter path for the dollar which; 5) helps commodities stabilize; 6) higher gold prices driven by easier policy; combined with 7) a recovery in inflation expectations; and, lastly 8) weaker currencies (vs USD and EUR) in countries where policy easing is urgently required (Japan, NJA etc.) or EMs with balance sheet pressures.

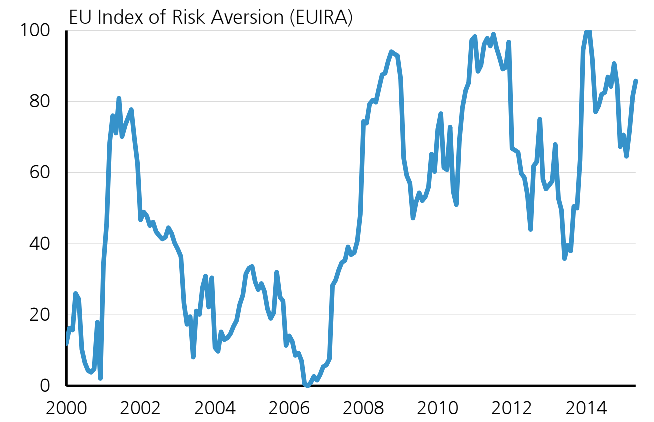
Risk Aversion shocks tend to fade. This would have meaningful implications for markets today.

Figure 4: Risk Aversion index US



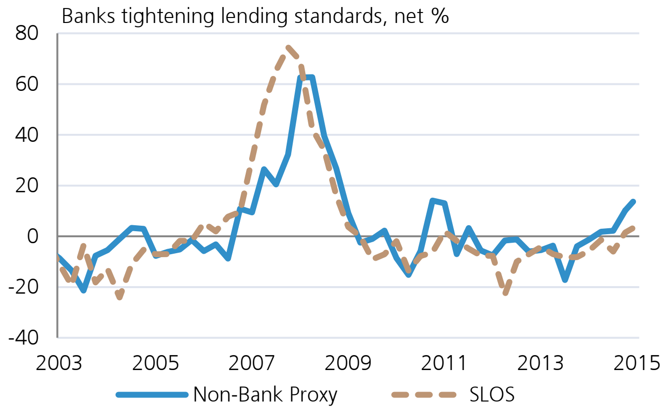
Source: UBS calculations, Haver Analytics, Bloomberg

Figure 5: Risk Aversion index EU



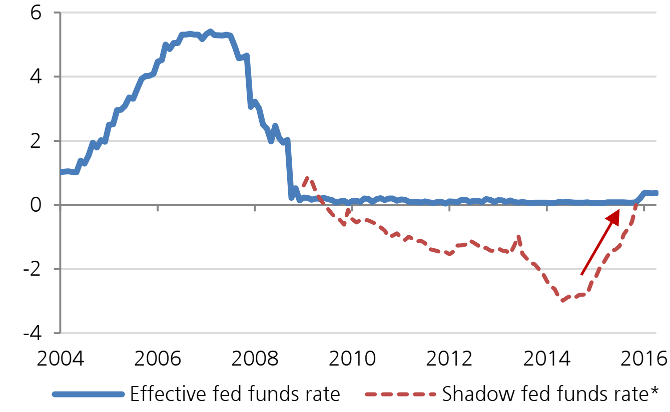
Source: UBS calculations, Haver Analytics, Bloomberg

Figure 6: Non-bank credit points to tighter conditions



Source: UBS, Bloomberg. SLOS: Federal Reserve's Senior Loan Officer Survey

Figure 7: Fed tightening effectively began in 2014



Source: Federal Reserve, Wu and Xia (2015), UBS. *Policy stance at lower bound.

But equally expectations on risky asset returns need to remain moderate…

But it is clear that expectations need to be moderate. Low trend growth, low equilibrium yields (see Big Macro 01) and a regime of permanently elevated risk aversion post GFC, imply lower total returns for risky assets.

And there are significant downside risks. The longer financial markets stay in a "high risk aversion" mode, the higher the chances that it spills over to a broader decline in appetite for spending and investment and ultimately into slower growth and drawdowns for risky assets.

…and it is important that policy remains accommodative.

Contrary to popular narratives, we continue to highlight the high significance of monetary accommodation in this environment; we would look for dovish Fed communication, relative CNY stability, BOJ adding to QQE at the April 28 meeting and ECB accommodation translating into healthy loans demand in the April bank lending survey for confirmation of our Policy Relief thesis. They should contribute to moderate normalization in risk aversion. Ongoing improvement in Chinese and US growth data is also helpful, particularly if Euro-area data remains within the ranges.

The key risk remains an over-reading from central banks of the higher inflation data that oil stabilization may trigger in the months ahead, both in terms of headline and in terms of core inflation. A hawkish shift would create market conditions that would soon reverse these near-term inflation surprises.

BOX 1: Deriving Risk Aversion

The main characteristic of a "risky" asset is that it tends to perform strongly when the cycle improves and it tends to depreciate when the cycle deteriorates. In the past 15 years, risky assets would typically underperform risk-free assets and thus risk-premia would typically rise at times of sharp economic deceleration. Whether financial risks propagated cyclical risks or vice versa, the dot-com bust, the 2008 Great Financial Crisis and the 2011-2012 euro-area financial crisis all marked significant downside shifts in growth.

From the perspective of the investor, this poses a key problem. It implies that the asset (stock or corporate bond) pays off well at times when their own income would naturally rise (as individual/labour incomes do during economic expansions). In contrast, during times of lower pay and contraction, when savings are needed the most, the asset loses in value.

For that reason, the more cyclical the asset, the higher the risk premium investors are likely to demand on average.

Consumption asset pricing theory has formulated the problem in an intuitive framework. Investors maximize their expected utility over time by either consuming more today or consuming less and investing in assets that may or may not vary with the cycle. At the same time, they are constrained. In the long run, they cannot consume more than their income plus their asset returns imply. Solving the relevant model leads to an intuitive conclusion:

The more valuable today's consumption, the higher returns investors will demand from an asset in order to consume less today and invest more for the future. And vice versa, the more valuable today's savings for future consumption, the lower the returns investors will require to consume less today, save, invest and consume in the future.

Mathematically and under standard assumptions (e.g. assuming power utility) solving for the pricing equations of a risky (cyclical) and a risk-free (non-cyclical) asset yields the following pricing formula:

$$E(R_i) - R_F = -1/2 * {\sigma_i}^2 + \gamma \sigma_{ic}$$

, where i is an indicator for the security, c for consumption and γ is the risk aversion coefficient.

What the equation describes is a relationship where the risk premium (excess return of risky asset over risk-free asset) is a function of the covariance between asset returns and consumption swings, amplified by the level of risk aversion of the representative investor/consumer and corrected by volatility.

This pricing equation allows us to back out implied risk aversion levels. To calculate variance and covariance matrices we use monthly returns on MSCI Developed Markets Index and monthly changes on the composite DM PMI to proxy for demand swings. To proxy for equity risk premia we estimate long-term mean reversion parameters for equity market returns and adjust for the level of government bond yields. We use yearly, rolling coefficients/parameters using data from 1998. We truncate the variance for extreme and near-zero coefficients. Finally, we adjust the risk aversion coefficient by looking at the rank of the latest read compared to sample history.

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