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Why Is the VIX "Fear Gauge" So Low?

The world today is a cauldron of global political uncertainty. From Brexit to Donald Trump to North Korea, the potential for upheaval appears to never have been greater. Yet financial markets reflect otherwise. The VIX, the popular measure of the implied volatility of S&P 500 index options, is at its lowest level in years. What gives?

Four noted analysts tackle the question.

The World Is Doing Better Than Most People Think

I have three, somewhat contradictory, elements to my answer.

First, it is far from clear to me that there is something especially unique about the supposed "cauldron of global political uncertainty." I suspect what is really new, and I believe a major challenge for many aspects of our society, is the constant 24/7 media and communications aspects of our lives, and in particular the role of social media. What has also become clear is that most of us now realize there are huge uncertainties out there. I suspect before we entered this world of mass information, a lot of us simply didn't think the world was so uncertain, even though it probably always was. So what is new, I would argue, is that we all now simply know the future is uncertain and there are lots of risks out there.

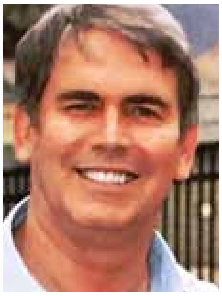
Let me give some examples. I was born in the late 1950s. Social commentators now look back on that period and describe 1957 as the happiest year of any time going back to the previous century and indeed since. This was little more than a decade after the end of World War II, and while it is easy to understand why so many people were hopeful about the future, it is hard for me to entertain seriously the idea that there was less uncertainty. Indeed, we know that there wasn't. The Korean War began in 1950, the building of the Berlin Wall in 1961, and we saw the showdown between the United States and Russia in Cuba in 1962.

Jim O'Neill

I entered the financial markets at the start of the 1980s and there were frequently huge shocks. What is different from today is that a lot of them were *Continued on page 8*

Jim O'Neill served as Commercial Secretary to the Treasury, United Kingdom, and is the former Chairman of Asset Management for Goldman Sachs International.

When Real Interest Rates Are Lowered, Financial Volatility Is Suppressed



Scott Bessent

Global political uncertainty has rarely been higher in recent memory. Brexit, North Korea, upcoming Italian elections, and fresh concerns about a possible Trump impeachment loom, and a major geopolitical event seems increasingly possible. And yet implied volatility has rarely been lower, whether for equities, interest rates, currencies, or commodities. One measure of implied volatility, the VIX, closed below 10 on May 8, something that has happened only nine times since 1990.

Importantly, it is not just implied volatility that is so low. Realized volatility has also been remarkably dormant. Indeed, over the past twelve months, the rolling thirty-day realized volatility on the S&P 500 has averaged a paltry 9.4.

Why have realized and implied volatility been so low, despite the plethora of known risks? Market pundits have suggested a number of possible explanations: *Continued on page 9*

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Historically, Geopolitical Risk Has Had Little Market Impact

Adam S. Posen

It may not make much sense that geopolitical risk has little equity market impact, but it should not surprise us. Historically, even actual outbreaks of war or recurrent terrorism have caused little in the way of deviations of market outcomes from their usual patterns—and when they have had an impact, those impacts have tended to be transient. This is an empirical regularity of outcomes in the wealthy West, definitely since nuclear deterrence and avoidance of direct great power wars have come into play.

But going back further into the nineteenth century, and wider into economies more exposed to credible if not existential threats, the impact of geopolitics on market outcomes has been limited as well. There have been some negative effects of national security uncertainty on long-term economic performance—as well as more importantly and far more awfully on human lives directly—even if not on stock prices or volatility. That says something about how stock prices and profits are determined by the lasting insulation of incumbent businesses and by political redistribution towards capital and particular sectors, more than it says anything about geopolitical risk being unimportant. *Continued on page 10*

Adam S. Posen is President of the Peterson Institute for International Economics.

Markets Have Become Conditioned To Rely on Comforting Stabilizers

Market measures of financial volatility have plunged to two-decade lows at a time of "unusual uncertainty" for the world due to economic, financial, geo-political, institutional, political, and social factors. It is a notable disconnect that adds to the list of inconsistences for a global economy and markets that are becoming harder to predict. Fortunately, most of these can be favorably resolved through an appropriate domestic policy response and better multilateral coordination. That is the good news. Less good is that policymakers may not have as much time as their revealed preference may suggest.

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Mohamed El-Erian

In the first week of May, when this was written, the media was consumed by nuclear threats from North Korea, the leak of strained Brexit conversations between the United Kingdom and the European Union, mounting speculation about the direction of an inquiry into alleged Russian meddling in the U.S. elections, threats of populism and anti-globalization nationalism, and inconsistent signals from economic data, including an ever-widening divergence between "soft" and "hard" data. Yet the VIX, or what is commonly referred to as the markets' "fear gauge," fell below 10, a level last seen in 1993. This followed a bipolar International Monetary Fund forecast for global growth pointing both to better baseline prospects and higher downside risks. And all added to puzzles about what to make of all the competing signals from the market for equities, suggesting a pickup in growth and corporate earnings, and that for *Continued on page 10*

O'Neill, *continued from page 6*

pretty unexpected—except to the very astute few—and certainly ones that people didn't talk about much in advance. The utter chaos surrounding the breakdown of the European Monetary System in the late 1980s and early 1990s caught many by surprise, and soon after, the so-called Mexican tequila crisis caused major disruption. The decline of the Thai baht in 1997 was initially regarded by many as a one-off, and the fact that it appeared to trigger a series of escalating traumatic crises in a number of Asian countries in the following months and years was not something many predicted. That was followed by the collapse of Long-Term Capital Management in the late 1990s, and especially given that this was a firm driven by the brains of some of the most widely respected finance academics, it was not a subject many talked about with anything other than admirable awe in the years before.

We all talk about all sorts of possible crises, many of which turn out to be nothing.

So financial and political crises are not new, and those that turn out to be genuine crises in the future will have to be dealt with as and when they arise, if they can't be dealt with in advance. What is different today is that we all talk about all sorts of possible crises, many of which turn out to be nothing. The latest example is the French presidential elections, which for virtually the whole of early 2017, financial market commentators spent idiotic hours fretting about.

Second, we have lived since 2008 through an extraordinary period of monetary—and in many places, fiscal—generosity, and therefore financial market asset prices have almost definitely been influenced by this, and in particular, by the levels of short- and long-term interest rates, and the structure of the interest rate markets. It is probably the case that the level of the VIX may be indirectly influenced by this. Until we return to a period of higher nominal—and perhaps especially—higher real interest rates, I suspect it is unlikely that financial market volatility will return to levels that one might associate with the world of uncertainty, which genuinely exists out there.

As a parallel observation, until policymakers somehow feel more comfort that the world and their own domestic economies can cope with more normal historic-style monetary policies, then market pricing might continue to be a bit abnormal. Indeed, unless policymakers themselves indirectly either allow or encourage more volatility, maybe it won't occur. We live in a world of reasonable—if not spectacular—economic growth, low unemployment in many places (with notable exceptions), and of course, low inflation. If cyclical economic policy is geared towards presiding over such a world, then there is no reason why the markets should necessarily change their structure radically. Indeed, most of the time, when there is a risk of an undesirable shock, then policymakers undertake steps to be even more friendly, and the shock either fades because of the policy response, or for some other reason. Brexit might be a good example, where within the first twenty-four hours of the following week, policymakers in the United Kingdom responded with easier monetary policy and a commitment to a friendlier fiscal policy, possibly negating the negative consequences that many feared.

One crucial side aspect which needs to change is what I like to call the micro environment of the financial markets. It is attractive for many publicly quoted companies to simply use excess cash to buy back their own shares. This boosts their price-to-earnings ratio, simultaneously making (short-term) investors content and meeting their own mandated targets, which in turn helps company executives be remunerated. It is enabled by the generous way in which borrowing is treated in terms of tax policy, and this state of affairs is even more enhanced in circumstances where companies borrow to buy back their own shares. Why face head-on the huge genuine risk of long-term business investment, during which the company is bombarded 24/7 by news, when you can simply manage your cash flow to help your investors and your own performance, and remuneration?

Now, I believe this is actually unsustainable. Some aspects of the populism seen now in the United States and United Kingdom reflect that the system isn't working for many less fortunate, and something needs to happen about this. Policymakers need to encourage corporations and other so-called leaders to take more genuine risk. Policymakers should also probably move away from the era of extremely generous monetary accommodation. If they did, I suspect we will then get more genuine uncertainty, including things that are measured in financial markets like the VIX.

My final comment is that despite all this uncertainty and many genuine things to worry about, the world is doing better than most people seem to think. Global economic growth for the ten years ending in 2016 has averaged 3.4 percent. This is one-tenth more than reported for both the 1990s and 1980s, and while below the heady 3.7 percent of the 2000s, it is sufficient to bring hundreds of millions of people out of absolute poverty across many parts of the emerging world. Indeed, those who concentrate on such key matters are suggesting that if we maintain the same trends through 2035, then the only people still in absolute poverty will be—sadly—in Africa. Perhaps the markets aren't entirely irrational. ◆

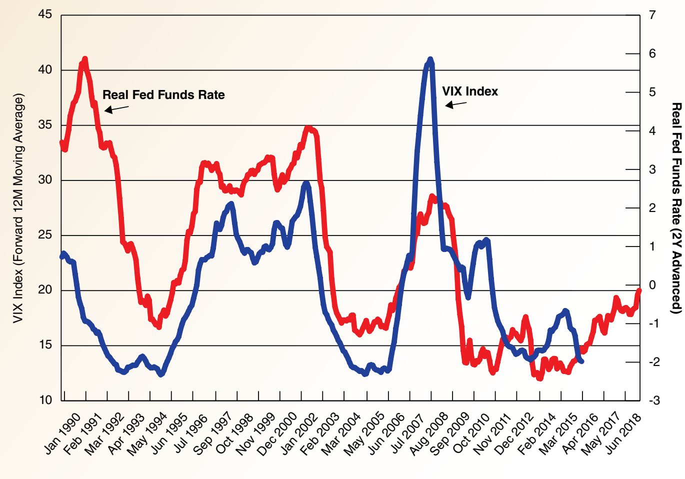
Bessent, *continued from page 7*

the rise of volatility-selling ETFs, short gamma positions among broker-dealers, and the shift from active to passive investment management. Recently, Mark Mobius of Templeton Advisors even suggested that social media and the spread of fake news could be to blame. By his telling, the glut of confusing headlines is causing people to dismiss new information, because they can no longer be sure what is true.

While each of these suggestions has some merit, the true explanation is likely far simpler. Just as the nature of water changes when the temperature drops below zero degrees Celsius, so too does the nature of financial markets when real interest rates become negative. Put simply, when central banks push real rates below zero, financial volatility freezes.

The chart shown here plots a smoothed average of the VIX index against a lagged measure of the real federal funds rate. The image is highly suggestive. In short, volatility appears to react to changes in real interest rates with a lag of one to two years years. When real interest rates are high, so too will be financial market volatility. And when real interest rates are lowered, financial volatility will likewise be suppressed.

Does volatility react to real interest rate changes with a lag of one to two years?



Why might volatility show such a strong relationship with changes in interest rates? In a 2006 paper, Raghuram Rajan, former governor of the Reserve Bank of India and now a professor at the University of Chicago, suggested that low policy rates might induce procyclical risk-taking in financial markets. He highlights the incentives of insurance companies with fixed-rate commitments as an example. When interest rates fall, they have no alternative but to seek out riskier investments. If they buy low-return but safe investments, they will fail to generate sufficient returns to meet their obligations. If they take on higher-risk and higher-return investments, they at least have some chance of survival. Rajan makes a similar argument for hedge funds with one and twenty fee structures. When rates are low, they seek out higher return investments and take on leverage to juice performance. If they stick to safe investments, they may not meet their 1 percent hurdle and earn lucrative incentive fees. In other words, low policy rates incentivize financial market participants to "reach for yield."

What might break this feedback loop and cause the freeze in financial volatility to thaw? Inflation.

Tobias Adrian and Hyun Song Shin come to similar conclusions about the procyclical behavior of market participants in a 2008 paper published by the New York Fed. They show that the growth rate of financial institutions' balance sheets is directly related to the degree of ease in monetary policy. When policy is loose, balance sheets grow rapidly and with this so does financial market liquidity. In contrast, when monetary policy is tight, balance sheet growth is slowed and financial market liquidity declines. Further, Adrian and Shin suggest a virtuous cycle in which a rise in asset prices leads to an improvement in the net equity position of financial intuitions' balance sheets, allowing for more balance sheet growth and a further rise in asset prices.

In other words, low interest rates spur a reflexive feedback loop in which more rapid balance sheet growth generates increased financial market liquidity, thus raising asset prices and dampening measured volatility, allowing for further balance sheet growth.

What might break this feedback loop and cause the freeze in financial volatility to thaw? Inflation. As the U.S. labor market continues to tighten and wage growth accelerates, the Fed will raise interest rates to prevent the economy from overheating. Unfortunately for markets, this is where the analogy with water ends. As temperatures start to rise and winter comes to a close, the spring thaw brings with it new blooms and sunnier days. However, as real interest rates rise above zero, the thaw in financial volatility will not feel like springtime, as the positive feedback loop described above begins to go in reverse. Higher interest rates will lead to slower balance sheet growth, resulting in less market liquidity, more market volatility, and ultimately lower asset prices. Feedback loops are great on the way up. As they unwind, the experience is typically far less enjoyable. ◆

Posen, *continued from page 7*

To put it much too bloodlessly, we have run a bunch of natural experiments on market reaction to changes in perceived security risk.

■ The risk of nuclear war arguably went down a lot in the immediate aftermath of the Cold War ending in 1989, and then rose significantly as nuclear weapons technology proliferated to unstable or inimical regimes more recently. Average national savings rates moved little in response to these stark changes in threat, as opposed to the large changes that business cycles and the financial crisis had.

■ Large withdrawals of U.S. and Soviet troops from locations around the world, notably Germany, Eastern Europe, and the Philippines, seemed to matter little for economic outcomes on their own in terms of geopolitical risk (though of course their withdrawal allowed the marketization of Eastern Europe).

■ The 9/11 attacks on the United States led to costly and widespread imposition of new standards of homeland security, including at the borders with Canada and Mexico, and imposing transactions costs and time burdens on travelers and shippers. According to most polls, Americans felt less rather than more safe, and if anything overestimated the risk of terrorism. Neither of these facts led to any deterrence of the great market bubbles of the early and mid 2000s.

■ Countries truly beset by ongoing terrorist threats, ranging from Colombia to India to Israel to Thailand to Turkey, saw increases in inwards direct investment and sustained stock market appreciation. Of course, some of this was due to the success of various anti-terrorism and security measures undertaken by their governments—and when there was outright civil war in Colombia, there was an economic cost to go with the horrible human toll. But geopolitical risk being higher on an ongoing basis for these economies did not make their stock indices underperform over time.

Even large-scale conflict and the tides of history rarely change who is rich, and that is probably a large reason why stock markets do not respond to geopolitical risk very much. As leading trade economists Donald Davis and David Weinstein pointed out with creative research in 2002, the bombings that flattened Japan in World War II did not prevent the same commercial centers from being dominant there after the war as before (other scholars following their example found similar evidence for other post-calamity recoveries). A recent paper by Guglielmo Barone and Sauro Mocetti, released by the Bank of Italy, documents that largely the same families are rich and poor in Florence in 2011 as were in 1427. If your relative wealth as a stockholder or investor can be unchanged by seven jundred years of history including invasions and civil warfare, it's hard to see why an equity holder in today's United States or European Union should worry much on the geopolitical front.

Even large-scale conflict and the tides of history rarely change who is rich.

It is horrible, and may well be evil, that rich Western governments can inflict social destruction on other countries by military means (see Iraq, Afghanistan, Libya, and so on), and send off their own poorer young citizens to risk death inflicting that destruction. But for all the talk of blowback, doing so hardly puts their investments at risk, except perhaps in consumer brands. Even that consumer threat is exaggerated when thought of in narrow financial terms, since the countries that are failed states or home to terrorists are usually much the same as the countries that are not integrated with the global economy.

It is the internal political stability of the rich economies, and the possibility of redistribution or strong regulation (neither necessarily bad), that presents any real uncertainty for equity investors. Responding to perceived geopolitical threats with economic nationalism will probably harm national economic growth and certainly harm productivity, but may actually be good for incumbent businesses and their owners' profits. ◆

El-Erian, *continued from page 7*

government bonds which signalled a considerably more subdued outlook.

Long conditioned to ignore not just inconsistencies but, also, the growing list of realities that were deemed improbable not so long ago, equity markets have marched higher around the globe, with some (such as the NASDAQ and S&P 500) recording new highs—an outcome that, rightly, has led some central bankers to warn markets about excessive risk-taking, albeit to no avail. Meanwhile government bond yields have remained unusually low, brushing aside not just equities' excitement about growth prospects but also signals that the Federal Reserve is serious about delivering on its guidance for higher interest rates than what is implied by markets.

It is not that markets are misinformed about the unusual fluidity of the global economy. After all, who can avoid

El-Erian, *continued from page 10*
all the media reporting about rather bizarre politics and geo-politics? Rather, they have been conditioned in recent years to rely on four comforting stabilizers:

■ Relatively stable and predictable economic growth overall, albeit lower and less inclusive than what is desirable (and, indeed, feasible).

■ Central banks that are both willing and able to repeatedly step in and repress bouts of unsettling financial volatility using an experimental cocktail of unconventional policies.

■ Liquidity sitting on the sidelines and eager to either engage directly in risk markets (stocks, corporate bonds, non-agency mortgages, emerging market assets, and so forth) or to make its way back there through share buybacks and higher corporate dividends.

■ Related to all this, a strong sense that both the global economy and markets are insulated from unusual political and geo-political developments.

The lower the measures of actual and implied volatility, the greater the willingness of traders and investors (and especially those driven by volatility-anchored models such as VAR, or value at risk) to assume more market risk. And it is an approach that has served them very well so far, as has the more tactical strategy of buying on dips.

But what worries some, including me, is that the disconnect between market valuations and the underlying fundamentals is getting larger and larger—raising two eventual resolution processes: either fundamentals would improve substantially, thereby validating and underpinning the higher asset prices; or asset prices would converge down toward fundamentals and, if history is any guide, could well overshoot them.

Fortunately, this equation can be improved by domestic measures that unleash higher and more inclusive growth, and by improved policy coordination at the global level. By resolving the divergence, this would also lower the risk of unsettling financial instability, offer better prospects for more constructive national politics and multilateral engagement, and dampen the threat of "beggar-thy-neighbor" protectionism.

It is also good news that what is holding back policy implementation does not relate to the engineering aspects. Many economists agree on the package of measures needed to unleash higher growth that is more inclusive and accompanied by genuine financial stability. Specifically, and while they may disagree on the individual weighting of each element, most are comfortable with the following four elements:

■ Deeper structural reforms to enhance growth, including labor market enhancements (such as worker retraining), infrastructure, and tax reform.

■ More balanced demand management policies, with less reliance on unconventional monetary policy and greater emphasis on fiscal policy, especially where there is room;

■ Targeted liability reduction to address persistent pockets of over-indebtedness and debt overhangs that undermine growth (such as the case of Greece); and

■ Improved global policy coordination with a view to reinforcing the beneficial cross-border impact of improved national policymaking.

While the engineering is relatively clear, the political implementation process is a lot trickier.

Gridlock, polarization, and anger politics have limited the scope for multi-year economic approaches that are both needed and possible. Instead, discussions have often been forced into corner solutions that serve to obfuscate the underlying challenges and limit the potential for productive collaborations.

The disconnect between market valuations and the underlying fundamentals is getting larger and larger.

Yet here too, there is some hope. The recent effect of anti-establishment movements—such as the surprise trifecta of Donald Trump's election, Emmanuel Macron's sudden rise and presidential victory, and, to a lesser extent, Brexit—open the possibility of political breakthroughs, albeit not without considerable risks too. Sensing that, financial markets have rallied on the hope that this would lead to higher economic growth, stronger corporate earnings, and the repatriation and productive engagement of considerable cash currently sitting idle on corporate balance sheets.

But time is increasingly an enemy.

Without timely and comprehensive policy responses, the underlying contradictions would intensify and risk tripping up what, until now, has been relatively stable economics and finance. Growth potential would be eroded further. Excessive financial risk taking would become much more of a risk for the general wellbeing. The politics of anger would intensify. Social inequality, already too high, would worsen. And institutions would face increasing pressures of politically induced fragmentation, be they in the public sector (starting with central banks) or private.

The disconnect between fundamentals and financial volatility is yet another confirmation that the global economy is on an increasingly tentative path—one that is heading into a "T junction." With a proper political policy response, the global economy can emerge from this intersection with higher and more inclusive growth. Without one, low growth would give way to recession, artificial financial stability would be replaced with unsettling volatility, and politics would get a lot nastier. ◆