

Convertibles Outlook Q4, 2017

Is It Time To Buy Volatility Cheap?

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Early in 2017, we made two predictions for the year that we believed would both benefit the convertibles market:

(a) **Economic growth would rise**—This would primarily benefit cyclical companies which has particular relevance to the convertibles market because it is approximately 70% composed of companies in cyclical sectors.

(b) **Uncertainty would drive up equity volatility**—A new U.S. government, Brexit, French elections and the state of Italian banks all pointed to higher uncertainty which could drive up equity market volatility. Typically, this benefits convertibles versus stocks due to the optionality of the asset class.

To date, we have been only half right: Economies around the world are growing, and cyclical stocks have indeed performed very well; but to date, equity volatility is stuck at historical lows.

In this paper, we examine the volatility environment in three parts as follows:

1. How Low is Equity Volatility and Why?
2. Global Convertibles Volatility
3. How Has a Rise in Volatility Affected Convertibles vs. Stocks

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How Low is Equity Volatility and Why?

To assess equity market volatility, investors often look at two key measures: actual historical volatility (as measured for example by the standard deviation of major equity indexes) and forward-looking, or “implied” volatility which is derived by observing current prices paid for put and call options.

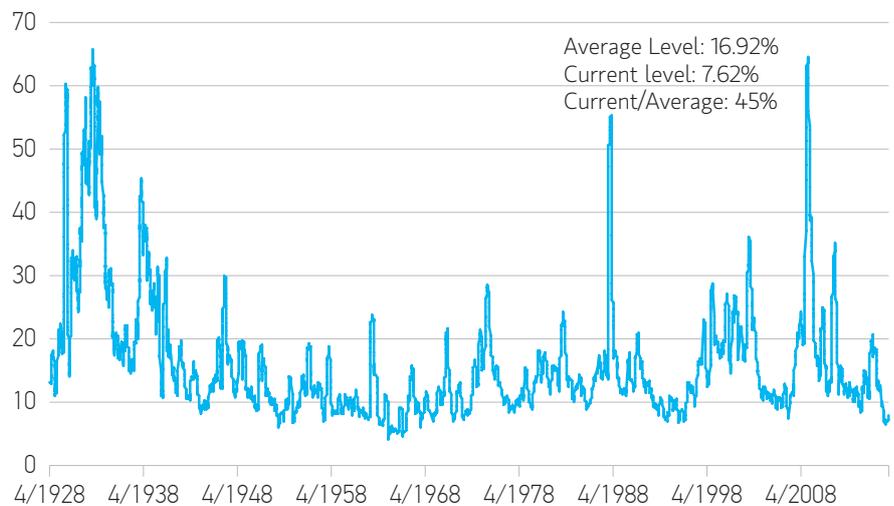
We first use U.S. data to allow a study of the longest available range:

- *Display 1* shows historical 90-day volatility on the S&P 500 index back to the Great Depression. Here, we observe that the current level of volatility is the lowest it has been since almost exactly 50 years ago dating back to 1967, when the Beatles released “Sgt. Pepper’s Lonely Hearts Club Band,” and the U.S. federal minimum wage was \$1.40 per hour. In other words, for most of today’s investors, this was before their time. We also observe from the data that the current level of volatility on September 1, 2017, is lower than 92% of all weeks since 1928 and is less than half of its long-term average of 16.92%.

- The VIX takes a forward-looking approach to volatility by measuring the prices of options to the next three months expiry. As such, the VIX is widely known as the market’s “fear gauge” and can spike very quickly on negative market news. In order to view a slightly smoother picture, we show in *Display 2* a 90-day rolling average of VIX levels going back to 1990. Here, we observe that the current level of VIX on September 1, 2017, is in its 99th percentile over the nearly 30 years since it was first measured and is just over half of its long-term average level of 19.50%.

DISPLAY 1

90-Day Historical Volatility, S&P 500 Index



Source: MSIM Research

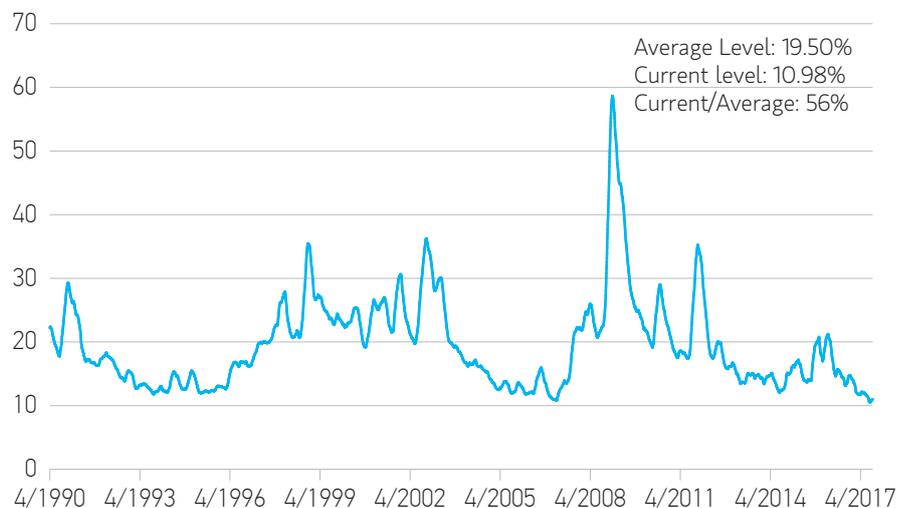
Data as of September 1, 2017.

The index performance is provided for illustrative purposes only and is not meant to depict the performance of a specific investment. **Past performance is no guarantee of future results.**

See Disclosures at the back for index definitions.

DISPLAY 2

90-Day Rolling VIX Index



Source: MSIM Research

Data as of September 1, 2017.

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Broadening to look at global data, we also include *Display 3*, which depicts the 90-day historical volatility picture of the MSCI Global Equity Index.

Display 3 shows that a similar story to the U.S.: 90-day historical volatility on September 1, 2017, was lower than 97% of all weeks since 1994 and was less than half of its long-term average of 13.40%. Although the global data series is shorter, it is nevertheless helpful because it provides a more direct comparison to global convertibles data, which we look at in the next section below, as both are global indexes with similar geographical distributions.

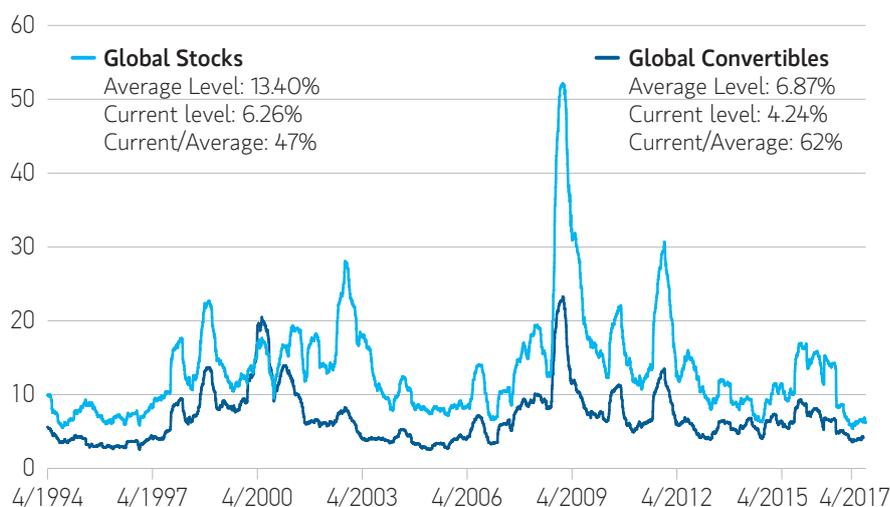
A central question among investors is why has volatility reached such lows? Our view is that nearly a decade after the Credit Crisis of 2008 investors see better economic forecasts and improving corporate earnings, with few caveats. Central banks are finally tightening, and slowly taking the world off life support as economic confidence grows. For the first time since 2008, markets can handle rate increases as a positive signal rather than a worrying end to financial assistance. In other words, the fear gauge has moved to a low setting.

Global Convertibles Volatility

The key input to convertibles risk and return is in the underlying equity option, so we would expect convertibles volatility to be lower in light of the reduced volatility level of stocks. However, we must remember that a convertible is structured as a bond plus equity option, and so it has an important secondary input from the bond side. As rates begin to rise, bond investors can actually expect more volatility as fixed coupon payments become less appealing. So, we observe in *Display 3* that while the 90-day historical volatility of the Reuters Global Convertible index was low at a current level of 4.24% on September 1, 2017, this represents the 73rd percentile compared to its historical average of

DISPLAY 3

90-Day Historical Volatility Global Stocks vs Global Convertibles



Source: MSIM Research

Data as of September 1, 2017. Global Stocks represented by the MSCI World Index. Global Convertibles represented by the Thomson Reuters Convertible Global Focus (USD Hedged Index).

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DISPLAY 4

Sharpe Ratios – Global Stocks vs Global Convertibles

	9/1/2016 – 9/1/2017	4/1/1994 – 9/1/2017
Global stocks return	17.19%	7.39%
– risk free rate	1.74%	3.61%
= excess return	15.45%	3.78%
÷ Global stocks volatility	7.98%	13.40%
= Global stocks sharpe ratio	1.94	0.28
Global convertibles return	8.90%	7.44%
– risk free rate	1.74%	3.61%
= excess return	7.16%	3.83%
÷ Global convertibles volatility	4.71%	6.87%
= Global convertibles sharpe ratio	1.52	0.56

Source: MSIM Research

Global Stocks represented by the MSCI World Index. Global Convertibles represented by the Thomson Reuters Convertible Global Focus (USD Hedged Index).

6.87%. Convertibles volatility, while at low levels, is not quite as much of an outlier as in the equity market because it is pushed up by an increase in volatility to the bond side of the valuation in an environment of interest rate increases. Note here that we are only able to go back and observe data to early in 1994 when the Global Convertible index was created.

We can now combine the analysis and compare global convertibles risk and return to global stocks, both in the current low volatility regime and again over the longer term. *Display 4* reminds us of a key beneficial feature of owning convertibles in the long term—in nearly 25 years since the Global Convertibles index was created, the annual return for convertibles of 7.44% actually slightly outperforms global equities at 7.39% but with about half the volatility (6.87% vs. 13.40%). When we state this in terms of a Sharpe ratio (excess return over a risk free rate—we used the five-year U.S. Treasury—divided by the volatility), we then see convertibles outperform stocks with a ratio of 0.56 vs. 0.28.

However, in the past year, stocks have strongly outperformed with a return of 17.19% (vs. 8.90% for convertibles) and even though the risk has been higher, the sharpe ratio is very high at 1.94 for stocks versus 1.52 for convertibles.

This leaves the investor asking why? We believe the answer lies in the fact that the environment in the past year for equities has been ideal—economic data and corporate earnings have risen steadily, but not too steeply, allowing the MSCI Global Equity index to rise 10 months in a row from November 2016 through August 2017. This is the longest run of consecutively positive months for the MSCI Global Equity index since an 11-month run from April 2003 to March 2004. When stocks have gone up steadily in a given period, they have exhibited less volatility. Investors in convertibles can think of the premium paid for the optionality as an attempt to suffer less in a negative event, but in return accepts a lesser upside when times are good due to the cost of the premium.

How Has a Rise in Volatility Affected Convertibles vs. Stocks

From the historical evidence above, the data is clearly showing that the level of volatility is so low that it is improbable for it to do anything but rise from here.

A sensible question is what might cause volatility to start to head back up towards these historical average levels? As postulated above, if volatility has been held down because economic growth has begun to march steadily up, then it follows that any indicators to show a reduction in economic growth would increase volatility. Market valuations are starting to price in new higher levels of growth and earnings, and as that bar is set higher, the chance of future data failing to meet higher expectations grows, too. In addition, although markets have shown an ability in 2017 to withstand geopolitical shocks (French elections, Brexit fallout, Trump tweets), there are nonetheless continued risks such as North Korea and U.S. political instability to consider.

Given these expectations for volatility, we attempt to examine how convertibles have performed in different volatility environments. In the analysis below, we observe how convertibles have behaved historically at varying volatility levels.

In *Display 5*, we examine the impact to both equity and convertible returns historically under different volatility regimes. Again, we use U.S. data as that allows us to show the longest historical period.

Some interesting observations from the table include:

- In the current volatility regime of <13% for the VIX, both stocks (+261 basis points per month return on average) and convertibles (+222 basis points) performed well, but as expected, stocks performed better due to implied strong equity markets and a drag from the cost of option insurance.
- Stocks continued to outperform until the VIX rises above 17 and then convertibles have outperformed. The level of VIX above 17 has occurred 53% of the time in the sample since VIX began (from August 2000).
- The historical average for VIX of 19.5 sits in the middle of the 17-21 range shown in the table. Here, convertibles outperformed stocks with an average historical monthly return of 54 basis points vs. 23 basis points for stocks.

This leads us to conclude that convertibles performed best relative to equities when volatility is not at depressed levels, as the optionality of convertibles benefits investors versus the straight equity in higher volatility environments. Given our expectations on higher volatility, we should see convertibles performing more competitively against equities in comparison to performance in 2017 thus far.

DISPLAY 5 Historical Performance of Global Stocks vs Global Convertibles Under Different Volatility Regimes

Monthly Returns	VIX LEVEL					
	<13	13-17	17-21	21-25	25-29	>29
S&P 500	2.61%	1.91%	0.23%	0.08%	-3.24%	-3.36%
Global Convertibles	2.22%	1.43%	0.54%	0.58%	-2.41%	-1.46%
Relative Return	-0.38%	-0.48%	0.31%	0.49%	0.83%	1.90%
% of time spent at this VIX level	20%	27%	19%	14%	9%	11%

Source: MSIM Research

Data for August 4, 2000 - August 25, 2017. Global Convertibles represented by the Thomson Reuters Convertible Global Focus (USD Hedged Index).

Summary

We believe that there is a good case to be made for convertibles relative both to stocks (as volatility rises) and credit (as rates rise).

When we look around the world, we observe stable and improving investing conditions that look as appealing as they did before the 2008 credit crisis. We are therefore minded to maintain risk in portfolios, but at the same time, it is hard to see equities continuing to rise without more volatility. If volatility can only rise from here, then the prudent

investor seeks to buy volatility when levels are low. Convertible bonds are a proven way to own equity volatility, and the timing to buy looks good as lagging short-run risk-adjusted returns versus stocks suggest they are due to recover towards the long-run average.

We said this earlier in 2017, and we admit we were early: Investors agreeing with the notion that equity market volatility and interest rates will both continue to rise should seriously consider adding to convertible bond allocations.

For more information on convertibles' behavior in a rising rate environment, please view our [“Convertible Outlook 2017 – Best of All Worlds?”](#) paper on MSIM.com.

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