The CAC 40's outsized surge in response to the French presidential election results is a perfect example of why fat tails matter. Low volatility of returns does not mean low risk when the tails of the returns distribution are fat. With the final election round only days away, the CAC 40 Index remains primed for large moves.

The Post Election Surge in the CAC 40 Index was not what equity strategists expected

The outcome of the first round of the French presidential elections was no great shock, neither was it a guarantee that the French economy was on its way up. Few people expected the surge in the CAC 40 Index which took place on Monday 24 April. The night before, Peter Oppenheimer, Goldman Sachs strategy research team head was quoted as saying:

> *"As this has largely been the central expectation priced into the markets, we would expect any rally to be modest. French domestic stocks and the CAC 40 have not underperformed significantly as of late, and we do not expect them to rally materially following today's results, or after the second round of the election."*

But the Index rose by 4.14% on 24 April–its best single day since August 2015 and more than it had gained in all of 2017.

Low Volatility does not mean low risk

Prior to the first round of the French presidential elections on 23 April, the volatility of daily returns on the CAC 40 Index was lower than it had been for the past two years[1]. But low volatility does not mean that there's a low risk of large price movements. In fact, without an assumption about the distribution of returns, there's no way to translate volatility into predictions about the probability of events.

The standard assumption is that returns are normally distributed. If that were the case, once you know the mean and standard deviation of returns, you can calculate the probability of, for example, a 4.14% gain in a day[2].

But, if returns were normally distributed, such an event would be expected *less than one day in a century*. In the case of the CAC 40 Index, there have been over 50 such events in the past half century so there's no reason to take such a calculation seriously.

Fat Tails Tell the Tale

As is usual in financial data, the tails of the distribution of daily returns in the CAC 40 are much fatter than those of a normal distribution. Our tail model, using 250 days of data up to the market close on Friday 21 April, said that Monday's surge was a breach of the 99% daily Value at Risk which was 3%, but not a breach of the 99% Expected shortfall (4.8%). The tail is sufficiently fat that a 4.14% gain should now be expected more than once a year.

While the tails of the daily returns distribution are not as fat as those of the 5-day returns–which as we noted in a publication two weeks ago[3] are fatter now than they have been since the spring of 1987–they are fat enough to predict that the post election surge was a risk that should have been taken seriously.

The fatter the tail the more significant the Expected Shortfall

The critical feature of fat tails is that they increase the gap between VaR and Expected Shortfall. The fatter the tail, the further from the VaR level the ES–the average VaR breach–will fall and the more important it is to have an accurate estimate of that average.

As of the close on 28 April, the CAC 40's volatility remains at a two year low but the returns tail is as fat as it was a week earlier. Our updated 99% daily VaR and ES for a long position in the CAC 40 Index are 2.71% and 4.34%. For a short position they are 3.23% and 5.30%.

The CAC 40 remains poised for large moves.

---

[1] *https://au.finance.yahoo.com/news/global-markets-soar-macron-leads-130516032.html*

[2] *Calculated using the 250 days to 21 April 2017, the standard deviation of daily returns was 1.02% The mean daily return over that period was 6.4 basis points.*

[3] *What Just Happened? 17 April 2017. Is the CAC 40 primed for a major move in reaction to the French elections?*

Copyright © 2017 Omega Analysis Limited

Omega Analysis

LEGAL NOTICE

Please read this notice carefully:
The contents of this document are for illustrative and informational purposes only. No information in this document should be considered a solicitation or offer to buy or sell any financial instrument or to offer any investment advice or opinion as to the suitability of any security in any jurisdiction. All information is subject to change and correction due to market conditions and other factors.This document has been created without any regard to the specific investment needs and objectives of any party in any jurisdiction. Specific instruments are mentioned in this document but this should not be construed in any way as a recommendation to invest in them or in funds or other instruments based on them. They are used for informational purposes only. Omega Analysis Limited does not provide investment advice. Investors need to seek advice regarding suitability of investing in any securities or investment strategies. Any decisions made on the basis of information contained herein are at your sole discretion and should be made with your independent investment advisor.

Copyright © 2017 Omega Analysis Limited