Review: What Happened to The Quants in August 2007?

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Abstract

During the week of August 6, 2007, long/short equity hedge funds experienced unprecedented losses.
The authors hypothesize that this was initiated by the rapid unwinding of a statistical arbitrage portfolio by a multi-strategy hedge fund or a proprietary-trading desk. This may have originated outside of the equity sector (e.g. structured credit).
These initial losses put pressure on a broader set of long/short and long-only equity portfolios, causing further losses by triggering stop-loss policies. A significant rebound occurred subsequently.
The quantitative nature of the losing strategies was incidental, and the main driver of the losses was the firesale liquidation of similar portfolios that happened to be quantitatively constructed.
Systemic risk in the hedge-fund industry has increased in recent years.

Outline

- Motivation
  - A deeper understanding of financial markets under stress
- Measuring illiquidity exposure
  - return autocorrelation as a sign of market friction
- Network view
  - A number of recent papers have applied the theory of networks to financial markets
- Conclusion
  - systemic risk and financial stability

Measuring Illiquidity

- Returns should not be autocorrelated
  - either markets are informationally inefficient
  - …or there are signifigant market frictions
- therefore, rolling return autocorrelation can be a measure of illiquidity
- Amaranth example

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Hedge Fund Illiquidity

- the aggregate autocorrelation of Long/Short Equity Hedge and Equity Market Neutral funds has been on the rise since 2000, implying a significant decline in liquidity (see Fig. 6)
- the fact that an entire category of strategies could suffer such significant losses in the absence of any real market news suggests that the current level of liquidity is less than we thought
- Another example: the supposed unwinding of the carry trade in July-August generated losses for a number of global macro and currency-trading funds

A Network View

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- The "small world" network model seems to be promising for constructing measures of systemic risk
- define the "degree of connectedness" as the change in CS/Tremont hedge fund return index correlations
- the most significant indicator of increased connectedness is the fact that the Multi-Strategy category is now more highly correlated with almost every other index
- Multi-Strategy did not have a significant equity component in the 1990's, but this has changed over the past seven years

Conclusion

- stock screening and portfolio construction tools have made quants out of many fundamentalists
- new systemic risk requires new financial stability oversight