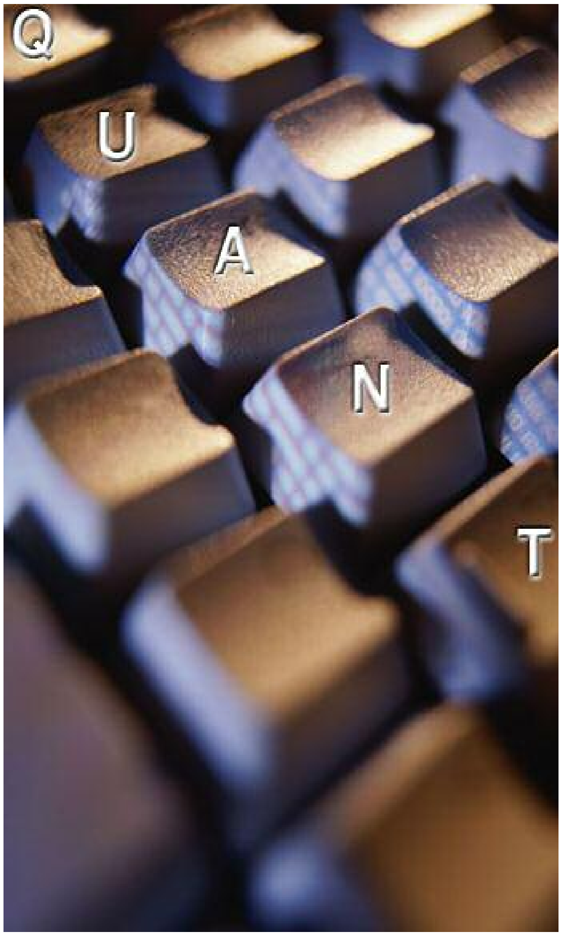

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Quant is Not a Four Letter Word

Perspectives on the Market Dislocation of Summer 2007

By

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Introduction – Quants get a bad rap, but did they all deserve it?

The popular press has been having a field day recently, writing about the seemingly universal travails of quantitative investment strategies in July and August. While certain quantitative strategies did indeed face significant performance challenges during the summer's market dislocation, it seems that to a large degree *all* quantitative firms were incorrectly tarred with the same brush.

This is understandable, to some extent, since quantitative money management is an esoteric field, subject to all-encompassing labels such as "trading systems" and "black boxes." This paper offers perspectives from BNY Mellon Asset Management on how and why quantitative strategies differ in substantive ways, and on our approach to quantitative management. We think it is important to add some balance and facts to the stories widely disseminated in the popular media, and hope it will serve as a starting point for investors trying to understand the market's gyrations of summer 2007.

The basics of quantitative investing

Quantitative strategies fall into two broad categories. While the terminology is sometimes used inconsistently, the most common are:

- *Fundamental-driven strategies*, implemented using quantitative techniques.
- *Technical strategies*, which use historical relationships of price movements (e.g., currency vs. industry returns, pairs trading) and economic indicators.

Within each category there is also a wide variety of asset classes covered – e.g., equities, fixed income, currencies and tactical asset allocation across multiple classes.

What happened in July and August?

Most of the data points for the key period of July 16 to August 15 are not available yet, but the prelude that occurred in the credit markets has been widely publicized. Starting in the spring, problems with "sub-prime mortgages" roiled the market for mortgage-backed securities. Headlines in July concerning two large hedge funds experiencing large sub-prime-related losses helped spread the malaise. Soon the broader credit markets virtually seized up, as investors reduced risk positions and fled to the safety of Treasury bills.

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This sudden shift in risk premiums put in motion a significant credit correction. While it is unclear precisely why a dislocation in a relatively narrow part of the credit market in turn caused a broad market disruption, two major forces were set in motion that impacted *some* quantitative strategies:

Investors need to understand how quant managers distinquish themselves from others within the quant universe.

- With the credit correction, private equity firms became increasingly unable to obtain, or complete, financing for their deals. Private equity firms typically have a bias toward value in their target companies, and many other investors take positions in those targets, presuming that these companies will increase in value as takeover candidates. So as the market recognized that private equity firms would have trouble financing deals, value stocks came under pressure. This affected quantitative firms across the board (both fundamental-driven and technical strategies) since they also tend to have a value orientation. As a result, the stock market experienced a marked shift away from value to growth.

- Many multi-strategy hedge funds with quantitative strategies had portfolio "sleeves" with highly leveraged credit instruments. As the value of these fell, the multi-strategy funds were forced to sell equities from other portfolio sleeves to cover margin calls on the credit instruments, which were too illiquid to trade. This had a snowballing effect on the equity market, as other leveraged players were forced to unwind as well.

While the performance of quantitative firms overall was very volatile during that period, we know from our experience at BNY Mellon Asset Management, and anecdotally from other firms, that performance varied widely. However, two generalizations appear to hold for the period. The first is that highly leveraged firms were hurt the most. Second, there is a sizable subset of technical quantitative firms – often called "statistical arbitrage" firms – that appeared to have significant overlap in the factors they use in their models and in their portfolio positions. The pressure of these firms trying to unwind similar positions at the same time appears to have exacerbated the market's volatility.

Quantitative investing at BNY Mellon Asset Management

The market's experience in July and August underscores the importance for investors to understand how quantitative managers distinguish themselves from others within their peer universe. BNY Mellon Asset Management has several quantitative managers within our multi-boutique structure, with each firm pursuing alpha generation autonomously through its own unique investment philosophy and processes. Our expertise dates back to the beginning of quantitative investing in the 1970's. The founders of Mellon Capital Management Corp. introduced the first stock index portfolio in 1971, and one of the first quantitative tactical asset allocation models in 1972. Another boutique, Franklin Portfolio Associates,[1] in 1982 was among the first managers to implement fundamental analysis in a consistent way across thousands of stocks through the use of computer models.

BNY Mellon Asset Management's expertise dates back to the early days of quant investing.

Along with Mellon Capital Management and Franklin Portfolio Associates, our quantitative managers include: Mellon Equity Associates, Pareto, BNY Overlay Associates, and WestLB Mellon Asset Management.[2] Additionally, some of our other investment boutiques also use quantitative techniques as part of broader investment strategies.

Each of our BNY Mellon Asset Management quantitative managers employs a different proprietary model, based on different factors and weightings, across a number of asset classes, including: U.S., International and Emerging Markets Equity; and Bonds, Currency and Global Tactical Asset Allocation (GTAA). All share the philosophy common to most *fundamental-driven* quantitative managers, in that the factors used are grounded in what they see as sound fundamental analysis and economic theory; e.g., company fundamentals (such as dividend discount model valuations, earnings quality and momentum, P/E, etc.), economic trends and price movements. By way of comparison, *technical* quantitative strategies are based on historical datasets, price trends and correlations; fundamental analysis is not integral to the model's design. Both fundamental-driven and technical quantitative approaches are equally valid, and success depends on the expertise, skill and insight of the managers.

Examples from our small dataset demonstrate that performance varied widely

As we have noted, diversity of philosophies, models, factors and weightings led to significant variation in performance. The experience at BNY Mellon Asset Management's quantitative investment boutiques – while certainly not statistically significant – is illustrative here. Of 11 quantitative strategies across five boutiques in July six strategies outperformed their benchmarks, while five underperformed; the experience in August was similar, with five that outperformed, five that underperformed, and one flat. The greatest degree of outperformance within the two-month data was 1.16%; the largest underperformance was 2.25%. We have heard of similar wide dispersions of results among other fundamentally driven quantitative managers such as ourselves. Thus, broad brush characterizations about quantitative managers' performance during the period are bound to be off the mark.

[1] Franklin Portfolio Associates has no affiliation to Franklin Templeton Group of Funds or Franklin Resources, Inc.

[2] WestLB Mellon Asset Management is a joint venture between The Bank of New York Mellon Corp. and WestLB AG. Each firm owns 50%.

Conclusion: distinctions among quantitative firms are important

Some firms employing quantitative strategies combined with high leverage undoubtedly helped trigger the sharp volatility of equity markets in July and August of 2007; many more were also affected by that turbulence. With so much of the data still unavailable, it is impossible to state definitively who was affected, and the extent of the impact. However, our judgment is that the impact varied widely, based on the experience of BNY Mellon Asset Management, anecdotal conversations, and our understanding of the distinctly different models and approaches within quantitative management. Most popular press accounts ignored or downplayed those variations.

While all quantitative managers share a common set of sophisticated tools, the models they build are only as good as the skill, expertise and judgment of those who construct and implement them. We believe that these points are crucial to evaluating quantitative managers and understanding the role and impact they have in today's market.

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