Highlights and analyses at the end of the article have been added by David L. Griscom. (The analyses can be understood by reading only the highlighted passages.)

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Talking Business

Markets Quake, and a 'Neutral' Strategy Slips

By JOE NOCERA

"We have to atone to our clients, but we have no right to whine for ourselves," said Clifford Asness, the co-founder of AQR Capital Management, a money management firm that has been much in the news recently. "When we succeed, we make a boatload of money, we get imitators, and our risk increases. That's how capitalism works."

We were speaking on Thursday, a week after one of the lousiest market days of his life. Along with James Simons of Renaissance Technologies and David Shaw of D. E. Shaw, Mr. Asness is one of the leading practitioners of what is called quantitative investing, using computer models to buy and sell thousands of stocks (and bonds and derivatives and commodities and currencies and country indexes and just about anything else that can be traded). Mr. Simons, Mr. Shaw and Mr. Asness, in particular, use these quant models to run what are called in the business "market neutral" hedge funds, meaning that their gains (or losses) are not dependent on whether the market goes up or down.

AQR has about $37 billion under management, with $27 billion of that in plain vanilla equity funds. The rest is invested in its quant hedge funds, its best-known operations. Indeed, over the last seven years, AQR's flagship hedge fund has been up, on average, 13.7 percent a year, after fees, handily outperforming the Standard &Poor's 500, which gained only 1.9 percent annualized during that time.

Mr. Asness himself is known for being ridiculously smart, highly engaging, and funny, with more one-liners than Henny Youngman. I got to know him, and to like him, a few years ago, when I wrote about him for The New York Times Magazine. He can get a little full of himself, but most of the time he can be brought back to earth with a small, friendly jab. In other words, he's the rare hedge fund manager you'd like to have a beer with.

Anyway, back to that awful Thursday. As you may recall, the market ended Aug. 9 down more than 380 points. That kind of day isn't fun for anybody, but it was an especially brutal day for firms that are supposed to be indifferent to market ups and downs — namely, quant funds like those run by Mr. Asness and his partners. What made it

especially painful is that their troubles on Thursday really had nothing to do with the market's fall.

In the days leading up to Thursday [August 9], Mr. Asness's fund — and most other quant funds — had gotten clobbered. When the AQR flagship fund opened for business on Friday, Aug. 10, it was down 13 percent for August. Mr. Simons's famed Medallion fund, which has rarely had a down month during nearly two decades of incredible performance, lost 8.7 percent in early August. By mid-August, Goldman Sachs's flagship Global Alpha fund was down 26 percent for the year. Everywhere you looked in the little town of Quantsville, it was ugly.

And then, in the blink of an eye, it turned around, at least for the moment. As of today [August 18], Mr. Asness's fund had gained back half of what it lost in the previous two weeks, and was at break-even for the year. I hear through the grapevine that Mr. Simons has already made back every penny Medallion lost in early August. During its conference call earlier in the week, Goldman announced that it had rounded up $3 billion for one of its battered hedge funds; I'll bet a steak dinner that that fund has seen some gains this week as well.

All of which poses some big questions: What really happened during the Great Quant Meltdown of early August? More to the point, should it scare us or reassure us?

> Griscom: I think the bigger question is why did it turn around "in the blink of an eye"?

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Let's be honest here. You hear the words "quant fund meltdown," and one firm comes to mind: Long-Term Capital Management.

Back in 1998, that now infamous quant fund really did melt down, not only liquidating, but shaking the entire global financial system. Long-Term used complex computer models that failed to anticipate some severe once-in-a-lifetime market events, and it was shockingly leveraged — it was using $100 of borrowed money for every dollar of its own capital — which magnified its losses. It was also run by some of the smartest people on Wall Street. "When Geniuses Fail" was the apt title to Roger Lowenstein's fine book about that fiasco.

Ever since, whenever quant funds stumble, it's "When Geniuses Fail Redux." Wall Street wags begin to wonder if those losses will lead to something truly cataclysmic, while newspaper reporters take a certain undisguised glee in reporting on really smart people losing money. Even now, there's enough Luddite schadenfreude in the air that rumors continue to circulate that AQR is continuing to absorb substantial losses — which is the exact opposite of the truth, Mr. Asness says.

What is scary in this case is not that the quant funds were the initial source of a ripple effect on the rest of the market; they weren't. The quant funds were the recipients of a ripple that began in a corner of the market that they had little to do with —namely, the subprime mortgage crisis. It's the way the subprime contagion shook the quants, whose subsequent downturn then added to the ripple effect, that's what is nervous-making.

Mr. Asness's hedge fund offers a case in point. Does his fund deal with the subprime business? Not in any significant way. Rather, the securities that cost AQR so much money were good old-fashioned equities.

To oversimplify (sorry: you can't explain this stuff without oversimplifying), AQR's market neutral funds use computers to sort through a set of complex but common-sensical criteria to identify all sorts of assets — including stocks — that it believes are undervalued but gaining some momentum, which means that both price and fundamentals are improving. It buys, literally, thousands of those stocks. Then it seeks out stocks it believes are overvalued and starting to lose momentum. It shorts those stocks. What makes the fund "market neutral" is that it always tries to have the same amount long as short. Mr. Asness likes to say that it's not really rocket science but intuitive investing; the computers mainly allow him to do it across thousands of stocks at the same time.

Mr. Asness does not suggest that he is going to be on the winning side of every trade. Not even close. Nor does Mr. Asness suggest that his strategy is risk-free. It's not. "If you don't take any risk, you won't make any money," he said. Even when things are going swimmingly, he's going to have almost as many losing trades as winning ones. But over time the winning trades will add to better-than-average gains. In a down market, he hopes that his shorts will fall more than his longs, and in an up market, he wants the longs to rise more than the shorts.

As for risk, he adds leverage to bolster returns; indeed using borrowed money to calibrate risk is a major part of his strategy. But it's not crazy stuff like Long-Term Capital Management, and it would be hard to argue with his results over time.

What happened in August is something that happens to every investor at times, even Warren E. Buffett: his strategy stopped working. So did Mr. Simons's strategy and that of all the other quants. Mr. Asness's trades weren't just a little off — they were hugely off. The undervalued stocks he was buying were dropping steeply, but he wasn't getting any help from the short side of his portfolio. Several "quants" I spoke to — market veterans who had been through the 1987 market crash and the 1998 Long-Term Capital disaster — told me they had never seen anything quite like it.

Why did it happen? In the immortal words of the market sage, James Grant, "On Wall Street, every good idea is driven into the ground like a tomato stake." Quant investing, as practiced by the likes of Mr. Asness, Mr. Simons and others, has been enormously successful. And anything that's successful on Wall Street is invariably going to be copied by others. That is exactly what's happened in many cases at firms that did other things besides quant investing — like trading in derivatives built around subprime loans.

As these subprime instruments have cratered, investors have lost faith not just in them but in other credit derivatives. The holders of these securities had to meet margin calls and make other payments. So they had to start selling more liquid securities like, well, the kind of easily traded securities held in their quant equity portfolios, like Microsoft or I.B.M. or General Electric. And as they sold, other quant shops, like AQR, which held many of the same stocks, saw huge drops instead of small gains. Is it any wonder traders are calling this a contagion?

One line making the rounds on Wall Street is that the events of last week show that, just as with Long-Term Capital Management, the quants' models didn't work — that bloodless computers simply can't anticipate events outside the norm. That line drives Mr. Asness bonkers. "In theory, what just happened is impossible, so if we stuck to the theory, we'd be dead," he said. "We know this stuff happens." Once they realized the magnitude, he and his partners quickly began a mild "deleveraging" to protect against even bigger losses. Eventually, AQR started buying cheap stock again — which had become even cheaper thanks to the short-term panic.

In the view of several big-time quants I spoke to, their big mistake was in not realizing that their little corner of Wall Street had become so crowded with imitators — and that when others were forced to sell, they were going to get hurt. Now they are all trying to figure out how to factor that into their thinking for the future — Mr. Asness very much included. "We have a new risk factor in our world," he said.

So how should the rest of us feel about what just happened? Even though the worst seems to be over, I still think we should still be worried. But not because computer-driven quant funds took a tumble. That's a symptom, not a cause. The larger issue is the contagion itself — the fact that something so out of left field, like subprime, could wind up hurting the quants.

Richard Bookstaber, a former quant manager, has recently written a book, called "A Demon of Our Own Design" (Wiley, 2007), which has become a small sensation on Wall Street. In it, he argues that the proliferation of complex financial products like derivatives, combined with use of leverage to bolster returns, will inevitably mean that there will be a regular stream of market contagions like the one we're having now — one of which, someday, could be calamitous. To him, last week's quant crisis is a classic case in point. "I think crises become inevitable when you have a financial structure like ours," he said. "How deep or how frequent they are, I wouldn't want to predict." Well, who would?

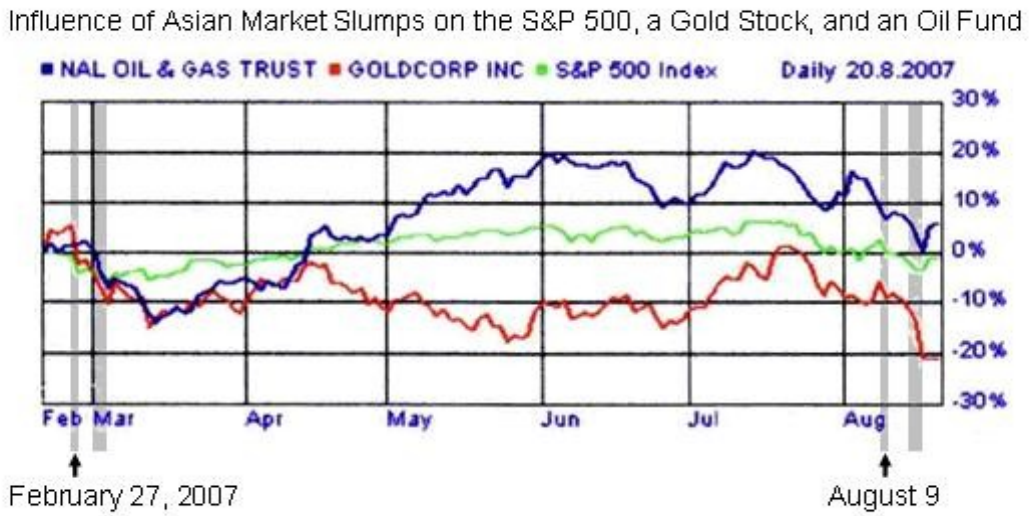
So yes, it really is a scary world out there. But quants like Mr. Asness aren't the reason.

Griscom's analysis:

Much of the discussion above that I *haven't* highlighted takes the position that the cause of the recent quant fund setbacks was some sort of a synergism of the "subprime

contagion" and certain as-yet-undiagnosed flaws in the quant-fund computer algorithms. Nevertheless, the author of the article, Joe Nocera, concludes that we are seeing "a symptom, not a cause." I agree with Joe.

There is much evidence gathered over a long period of time that the price of gold is being manipulated (see, e.g., www.gata.org/essays.html). And I have come to realize that this may also be true for other valuable commodities – particularly Canadian energy funds. Let's take a look at how these things held up through the two Asian market crises thus far in 2007 (of course, both precipitated by the U.S. "subprime contagion"). In the following 6-month graph I use the S&P 500 as a surrogate for all U.S. stock markets, GoldCorp Inc as a surrogate for gold (and an example of a gold mining stock), and NAL Oil & Gas Trust as a surrogate for other commodities (and an example of a Canadian oil trust):



Some explanations and disclaimers: This is a standard graph type, easily available from (in this case) the Washington Post and other providers of financial news. Everything plotted on such graphs is artificially set to zero percent at the starting point at the extreme left. Neither the gold stock nor the oil fund I have chosen here are entirely typical of their respective classes – *except* in the times of market turmoil demarked by vertical gray bars, in which cases most securities in both of these classes show certain behaviors in common. I inspected several equities of each type before selecting NAL Oil & Gas Trust and Goldcorp, for the simple reasons that they quickly disentangle from each other and then diverge from the S&P Index in opposite senses, thus making it easier to compare their short-term fluctuations. (As expected, the individual equities vary much more widely in the long term than stock market averages, such as the S&P.)

Still, we see something *very odd* in the short term. In moments of market turmoil, the gold-mining stock and the oil trust – each with its well-defined net asset value based on its well-known reserves and production rate of mineral wealth *each tends to plunge – as much as three to five times faster than the S&P!* Please realize that most other individual stocks that comprise the stock market have *ill-defined values* (based on investors'

perception of how profitable the company will be many months into the future). Common sense tells us that in times of faltering economies, investors are more likely to harbor doubts about the future profitability of just about any financial instrument *except* (1) (maybe) high-grade bonds and (2) equities based on critically needed commodities from currently productive mines or wells. But what we see in the graph above would seem to imply the exact opposite in the second case.

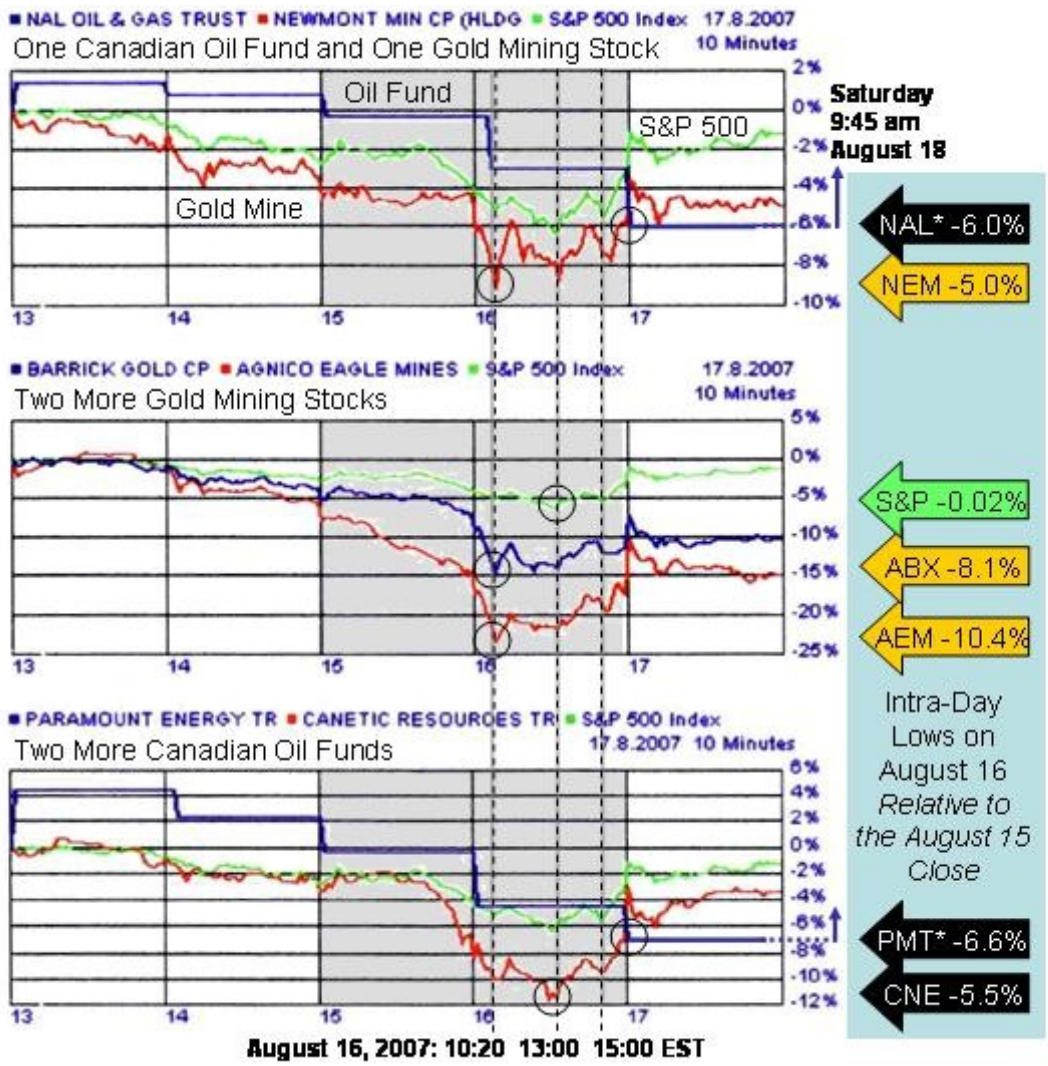
It was also interesting to me to discover that about a week after the single-day Asia-precipitated market shocks of February 27th and August 9th, there occurred what I will call "aftershocks" in the U.S. markets, each of which spanned at least two days (the narrow and broad gray bars in the graph above represent one- and two-day intervals).

Returning to what we have read in the column above: "In the days leading up to Thursday [August 9], Mr. Asness's fund — and most other quant funds — had gotten clobbered." But "...then, in the blink of an eye, it turned around, at least for the moment [August 18]."

So the big question in my mind is: Why did the quants come through both the shock and the aftershock of February-March, 2007, meet disaster in the shock of August 9th, but then erase their losses during the aftershock of August 13-16? According to Mr. Asness speaking on August 18th: "In theory, what just happened is impossible..."

In physics, if something happens that is impossible under the prevailing theory, this theory is effectively falsified and a new theory must be formulated. In the present case, I haven't inspected nearly enough data to even hatch a scientific hypothesis of what happened in "the days leading up to Thursday" August 9th. But I surely can speculate: If there should be U.S. Government-sponsored criminals on Wall Street manipulating the markets, they must have done something differently in the days leading up to August 9th than they did in the days leading up to February 27th – and likely at times in the more distant past – during which the quant funds' computers "learned" to expect certain normally-unexpected trends in certain special circumstances. Conceivably it could have had something to do with oil funds in the same class as NAL Oil & Gas Trust (NAL), which had no response at all to the shock of February 27th but appears in the graph on the previous page to have anticipated the August 9th shock days in advance...

However, because the "aftershock" of August 13-16 was far more dramatic on the charts than the primary shock of August 9th (and because the 5-day graphs I could obtain from the Washington Post last weekend didn't include August 9th), I decided to take a closer look at last week's market machinations. The graphs I show below represent the five trading days ending on Friday, August 17th. I put gray backgrounds on the two days spanning the main aftershock to the S&P, although it is abundantly clear that this slump was brewing shortly before the closing bell on the 13th. In the first of these 5-day graphs I've substituted Newmont Mining (NEM) for Goldcorp (GG), which I used in my 6-month graph. In fact, these two gold mining stocks behaved very similarly in the 6-month chart, *except that Goldcorp plunged three times lower than NEM during the aftershock of August 16th* and, *unlike NEM, GG didn't recover*.



The step-like behaviors of two Canadian energy funds in the graphs above correlate with their being traded on the U.S. Over-The-Counter (OTC) market. In most cases, the daily changes appear after the market close, and hence could have been manipulated without leaving a record. This is especially true now, because that since January the Washington Post has ceased showing the daily trading volumes in these two equities. For this reason, I regard the next-day opening prices of NAL and PMT to be more accurate indications of their likely closing prices had the trading records been publicly available.

The second 5-day graph above shows two other large gold mining companies, while the third one shows one of only two Canadian oil funds (that I know of) that are traded on the New York Stock Exchange, Canetics (CNE), as well as a Canadian 100%-natural-gas fund, Paramount Energy Trust (PMT), which like NAL is sold OTC in the U.S. Note that CNE's behavior on August 16th is not unlike that of the gold mining stocks.

The S&P 500 Index is repeated in all three graphs, but is best studied in the first one, where its vertical expansion is greatest. The block arrows at the right are color coded as follows: green for the S&P, gold for gold mining, and black for oil and/or gas trusts. "PMT" is a 3-letter acronym for Paramount that I invented for present convenience; the 3-letter acronyms without asterisks are actually ticker symbols on the New York Stock Exchange.

I use these block arrows indicate the intra-day lows on August 16th (circled on the graphs) *with respect to the corresponding closing price on the 15th*. The seeming mid-day dip in the S&P of about 2% is illusory due to its having opened 1.35% higher than its close on the 15th. In fact, during this day of crisis for gold mining stocks and energy funds, the S&P's intra-day low was only -0.02% with respect to its Wednesday close. Why?

I think that a clue to the correct answer may lie in a spooky personal story. At 10:08 AM EST on Thursday the 16th, I happened to be looking at my Washington Post web portfolio and saw that the Dow Jones was down about 389 points (fully 3%)! Thinking that "the crash" was finally upon us, I immediately switched to the New York Times (because it normally has a better graph) and refreshed my browser screen to update the graph already on my screen. Whoops, the graph disappeared! In its place, I got blank window with one of those little symbols in the corner indicating "no picture is available." It was about an hour before I got the Times graph back again, and when I studied it I found no sign of 389-point drop that I remembered seeing on the Post for 10:08 AM EST. The Post showed the Dow down just 246.8 at 10:18 AM. All record of what I thought I saw happening in the interval 10:08 to 10:18 had vanished. At the end of the day, a columnist for the AP wrote: "Wall Street pulled off a dramatic late-session turnaround to close mixed Thursday after bargain hunters lured by weeks of massive declines came back to the stock market. The Dow Jones industrials, down more than 340 points in afternoon trading, ended the day with a loss of just 15." But what happened to the 389 points in *morning* trading?

To try to figure out the answer, let's go back for a closer look at the charts of the previous page. First note that at precisely 10:10 AM on Thursday (2 minutes after the Post said the Dow was down 389 and the NY Times graph disappeared) not only does NAL take a -2.7% day-long hit, but only 10 minutes later NEM, ABX, and AEM respectively take sharp transient hits of -5.04, -8.14, and -10.4%! CNE is also down in this moment, 3.3% below its previous-day close. And in this very same 10-minute span the S&P reverses its fall, making a perfect "V" shape. For the rest of the day NEM tracks the S&P almost perfectly, except for second sharp downward spike at 1:00 PM EST.

It turns out that NEM is the only gold mining stock that is a component of the S&P 500. Thus, the downward pointing tits on the S&P graph at 10:20 and 13:00 EST on August 16th – which were not shared by the otherwise-nearly-identical Dow Jones Index – are almost certainly attributable to the dramatic downward spikes of NEM on that day.

My working hypothesis is that the massive sell-offs of gold stocks and energy funds was engineered by the USG for the purpose of raising enough money to buy sufficient shares of the 500 components stocks of the S&P and the 30 component stocks of the Dow Jones

to totally nullify the effects of queasy investors reacting to the "subprime contagion" by dumping these stocks. The fact that the sole gold mining stock to be a component of either index (NEM) faired no worse than the S&P itself on August 16th is consistent with my hypothesis.

So what about the Canadian energy funds?

Well, as far as I have been able to determine, as of their Friday, August 17th openings NAL was paying monthly dividends at an annualized rate of 17.8% and Paramount was paying out a 25.8% annual rate!!! Who but idiots – *or market manipulating miscreants* – would be selling such holdings in a stock market that seemed at risk of crashing?

"And then, in the blink of an eye, it turned around."

So why did the quant funds suddenly turn around in the market "aftershock" of August 13-16?

The only answer that I can think of is that they once again managed to be in synch with the USG manipulators on Wall Street. This means, among other things, that they must have short-sold gold stocks and energy funds during the August-13-16 aftershock as though they were "overvalued" assets.

I conclude that *the quants have now become unwitting – or witting – partners in an economic crime of unprecedented scope and magnitude!*

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