One of the many mysteries swirling around high-frequency trading is just how profitable the lightning-fast buying and selling of stocks, options and commodities really is.

The Tabb Group, a financial services industry research firm, recently estimated that the 300 securities firms and hedge funds that specialize in rapid-fire algorithmic trading took in some $21 billion in profits last year. But when pressed on how it arrived at this figure, Tabb representatives won’t say.

My colleague Felix Salmon, on his Reuters blog, says the Tabb figure “is not obviously unreasonable,” but he would like to know more about how the firm got the figure. So would I, and until Tabb comes forward with more information, I’m not sure how reliable a statistic it is to keep quoting.

Of course, the dozen or so Wall Street firms and hedge funds that are the leaders in high-frequency trading — either serving as a market maker or trading for their own account — aren’t much help either. Most prefer to say simply nothing on the subject, leaving us in a very dark pool on the issue of high-frequency profits.

To be fair, Goldman Sachs recently came out and said “even using the broadest definition, high-frequency shares trading accounted for less than one percent of Goldman Sachs’ total revenue in the first half of 2009.”

In the first half of the year Goldman’s total net revenues were $23.2 billion. The dollars generated from high-frequency trading would appear to be a rather negligible $232 million. The firm adds that less than one percent of its daily value at risk — the amount of money it could lose from trading — is due to high-frequency trading.

But Goldman is talking only about high-frequency trading of stocks, not options and commodities. In options trading alone, Goldman’s algorithmic-driven platform is estimated by a market source to account for 15 percent of the daily trading volume.
By comparison, the high-frequency options volume leader is the giant hedge fund Citadel Investment Group, controlling some 25 percent of the daily trading activity.

Additionally, there’s a great deal of latitude for firms to decide what it considers to be proceeds from high-frequency trading. Bernard Donefer, a professor at CUNY Baruch College and a critic of automated trading strategies, says “nowhere in the market is a trade marked as a high frequency trade.”

So it’s entirely up to each firm to determine what constitutes a high-frequency, algorithmic-manufactured trade.

One thing we do know is that a lot of money is being sunk into high-frequency trading technology. *The Wall Street Journal* reports that NYSE Euronext is spending millions of dollars to construct a new hub for high-octane trading in Mahwah, New Jersey.

By its own admission, Citadel “has expended and continues to expend hundreds of millions of dollars” on building and maintaining its high-frequency trading platforms.

Add it all up and that’s a lot of money Wall Street is committing to high-frequency trading. And if we know anything about Wall Street, it doesn’t invest money in something unless it can generate a sizable return on investment.
Algos gone wild

The many proponents of high-frequency trading keep saying there’s no reason to be concerned about a rogue algorithm sparking a 1987 market-style crash. HFT supporters keep saying show us a case where a rogue algo even caused a minor hiccup in the market.

Well, Bernard Donefer, a professor at CUNY’s Baruch College in New York City and a critic of highly-automated trading programs, says the world already has gotten a glimpse at the kind of mayhem a rogue or simply a misfiring algo can cause.

Donefer, in a soon to be published research paper, blames high-frequency traders and an algo gone wild for a bizarre $9 drop in United Airlines’ stock on Sep. 8, 2008. The sudden plunge in UAL shares wiped out $1 billion in market value in just 12 minutes, after a six-year-old headline about the airline filing for bankruptcy erroneously hit some news wires.

The airline’s stock quickly recovered after it was determined that the bankruptcy story was an old, old story. But Donefer argues the precipitous drop in UAL shares “was mostly the result of the interplay between the algorithms that search and compile information from the Web and the ones that Wall Street firms and hedge funds use to make trades automatically.”

This is an isolated case, but Donefer says it’s only a matter of time before an event like the UAL one–or a series of events in which algos go wild–sparks a widespread market crash.

Will we see an event caused by algos gone wile in our markets? I believe it is inevitable. I am further convinced that with no planning…or regulatory framework it will be hard to stop. With unfettered or naked access, it might impact the viability of a broker.

This is the doomsday scenario I wrote about in my Column Wall Street meets The Matrix. It’s also the kind of computer-driven catastrophe that the folks at Zerohedge.com and Joe Saluzzi of Themis Trading have been warning about.

The trouble is I’m not sure the Securities and Exchange Commission and other regulators are paying serious attention the growing list of high-frequency trading Cassandras.

Bonus feature: Here is an earlier paper from Donefer in which he writes about the risks posed by algos gone wild.
UPDATE: Donefer points out that his soon-to-be published paper on UAL relies heavily on The New York Times version of events surrounding the plunge in the airline’s shares.