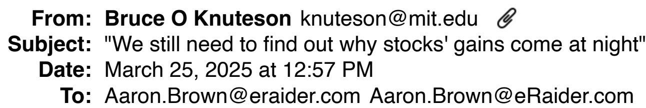
From: **Bruce O Knuteson** knuteson@mit.edu
Subject: "We still need to find out why stocks' gains come at night"
Date: March 25, 2025 at 12:57 PM
To: Aaron.Brown@eraider.com Aaron.Brown@eRaider.com

Dear Aaron,

Your 2025-03-17 *Bloomberg* column "We Still Need to Find Out Why Stocks Gains Come at Night" is far and away the best finance column I have so far read on this topic. That is not a high bar, to be sure, but your column clears it handily.

Reflecting on your column and on questions I have recently received from others, I have a few general comments that may be helpful to those trying to assess the current state of research on this topic. Although addressed to you and prompted by your generally fine column, my comments are mostly intended for others. I group my comments under the general themes of "we still need to find out why stocks' gains come at night," "the whack-a-mole literature," and "conspiracy."

"We still need to find out why stocks' gains come at night"

The title of your column is misleading in three important ways.

1. **We already know the answer.** The manipulation first described in [2016] (references linked below) has been the only explanation that fits the facts for nearly a decade. The evidence overwhelmingly supports that explanation. No other explanation comes close. Which of the few suspect firms are culpable and to what extent remains an open question, not yet publicly answered.

2. **"Why stocks' gains come at night" is the wrong framing of the puzzle.** The correct framing of the puzzle is why many stocks and indices display such striking patterns of overnight and intraday returns. I attach Figure 4 of [2023] to illustrate. The salient features of these patterns requiring explanation include their striking, often-decades-long consistency, the significantly negative returns, the many stocks with strikingly positive intraday / negative overnight patterns in addition to the many stocks with strikingly positive overnight / negative intraday patterns, and the patterns that clearly change at specific points in time. The popular framing "why stocks' gains come at night" is an (often intentionally dishonest [1]) attempt to divert attention away from these other salient features of these striking patterns.

3. **"We still need to find out why stocks' gains come at night" incorrectly implies there is some useful further investigation "we" can do. There isn't.** For nearly a decade, the market manipulation I describe has been the only plausible explanation. The sorts of investigations economists and finance researchers can do haven't changed this state of affairs for a decade, and they are unlikely to change this state of affairs if you give them another decade. The only useful investigation at this point is authorities checking to see whether any of the few quant firms that are the primary suspects have ever engaged in the market manipulation I describe and whether the striking patterns in the world's stock markets can be understood in terms of their trading. That investigation should definitely answer the question, one way or the other. These authorities are not stupid, and they have now had a decade to do that. If they had convincingly determined market manipulation was not the cause, you can be sure they would have made their finding widely known. Silence from regulators for a little while is understandable. Utter silence from regulators on such an obvious and consequential topic for a decade is a clear indication of a serious problem.

"The whack-a-mole literature"

"The whack-a-mole literature" [2] so far exhibits a few general themes worth noting.

1. **Claiming a "partial explanation" -- a tact seemingly exuding reasonableness and humility -- is really just a pathetic, dishonest ploy to get editors, reviewers, colleagues, journalists, and other readers to ignore all the salient features of this puzzle the "partial explanation" doesn't address.** The correct explanation for this puzzle is not the cobbling together of partial explanations. As I have noted previously (to the *Financial Times* and to Haghani et al.), you can't get partial explanations to somehow add constructively in one direction to explain the positive overnight / negative intraday stocks and simultaneously add constructively in the other direction to explain the negative overnight / positive intraday stocks. The intrinsic nature of the salient facts of this puzzle overwhelmingly point to a single, simple explanation, not to a cobbling together of many "partial explanations."

2. **Articles in the whack-a-mole literature tend to ignore any salient features of this puzzle that disprove whatever "partial explanation" is being offered.** My favorite example of this specific flavor of intellectual dishonesty is the popular theme of blaming "retail traders" for producing these strikingly consistent, global, decades-long return patterns. The only way authors can get away with the absurd suggestion that millions of stupefyingly inconsistent "retail traders" produced such strikingly consistent, global, decades-long return patterns is to pretend the striking consistency is not itself a salient feature of the puzzle requiring explanation. You just can't get something so remarkably consistent from people so remarkably inconsistent. Most authors understand this point perfectly well, even if they pretend not to. If they could address this point compellingly, you can be sure they would. They can't, so they ignore it.

3. **Any attempted explanation involving retail traders is dead on arrival.** Blaming retail traders is such a popular theme in the whack-a-mole literature this point is worth restating on its own, even if the point is so obvious its restatement is

insulting. You just can't get something so consistent from people so inconsistent.

4. **Most of the articles in the whack-a-mole literature arise from digging around, finding something correlated in some way to these striking return patterns, and then suggesting a "partial explanation" motivated by the correlation.** Lacking the authority to demand and analyze the trading of the suspect quant firms and apparently lacking the integrity to just clearly warn the public that these suspicious return patterns exist, finding such correlated things is really the only way economists can contribute. The correlated thing is sometimes at least moderately interesting. The "partial explanation" is there because the authors need it to get their paper published, not because they believe it. They don't.

5. **After considering (and probably quickly discarding) any paper's "partial explanation," you should separately consider whether the empirical facts presented in the article constitute evidence against the leading (market manipulation) explanation, even if the article itself doesn't explicitly do that.** Hopefully, somebody somewhere will find evidence that definitively disproves the market manipulation explanation in [2016-2019] so none of us will need to think about it ever again. Unfortunately, in the case of Haghani et al., the leading explanation actually explains the observed correlation between "attention stocks" and stocks with positive overnight gains far better than the just-so "attention stock story" offered in Haghani et al. In the leading explanation, the trading that caused the ridiculous positive overnight returns in stocks like TSLA materially increased the price of those stocks. Since stocks that have done very well are more likely to be "attention stocks," the leading explanation naturally predicts the qualitative relationship between "attention stocks" and "stocks that perform best at night" observed in Haghani et al.

6. **When considering facts presented as evidence for or against the leading explanation, it worth distinguishing the predictiveness of the leading explanation with and without knowledge of the trading of the primary suspects.** With knowledge of the primary suspects' trading, the manipulation explanation is extremely predictive: each of the hundreds of strikingly consistent return patterns should be understandable (to an authority with access to the suspect firms' trading) in terms of the culpable firms' trading. Without knowledge of the trading of the primary suspects (for all of us in early 2025 who do not know the culpable firms' exact trading), the manipulation explanation is much less predictive due to the many ways the culpable firms could have traded (as far as we know). As a simple example, in the attached figure, several stocks (particularly AIG, BZH, C, F, FMCC, FNMA, LVS, and MGM) exhibit a particularly sharp positive overnight / negative intraday divergence around the 2008 financial crisis. Knowing the suspect firms' trading, every single one of these stocks offers a distinct opportunity to disprove the manipulation hypothesis; without knowing the suspect firms' trading, there isn't much we can say. We can all write papers without the suspect firms' trading for another decade, or the authorities with access to the suspect firms' trading can just get the definitive answer using the data necessary to get the definitive answer.

"Conspiracy"

Nobody (including me) likes the implications of the only explanation for these strikingly suspicious return patterns. If anybody (including me) could disprove the only explanation (the way anyone can easily disprove every other explanation anybody has come up with), they would just do that. Since nobody can do that, the people who don't want to acknowledge the implications of the only explanation keep quiet. When they are forced to speak or write about this topic, they call the only explanation that fits the facts a "conspiracy theory" -- a convenient way to imply "wrong" [3] without offering any actual evidence or providing a compelling alternative explanation. Your use of the "conspiracy theory" label (which you clarify to mean "a simple explanation for a host of puzzles that is logical, but that requires coordinated malfeasance by many nominally responsible people without any leaks") is better than most. Of course, you presumably mean "without anybody stopping it" rather than "without any leaks." A former quant screaming about the issue continually and publicly for a decade seems like a pretty big leak to me.

Let's consider the "conspiracy" required for this market manipulation at three different levels.

1. **The conspiracy among the core group of responsible people at a single culpable firm is highly plausible, easy to understand, and easy to hold together.** Mentally picture a couple dozen male thirty-somethings (some older, some younger) with Ph.D.s in math, physics, and computer science [4]. This core group may be embedded in a much larger firm, but everyone outside this core group is mostly irrelevant -- they have no detailed knowledge of what the group does and no detailed influence on what the group does. Although the group itself may have a congenial, collaborative feel, substantive information is shared on a need-to-know basis, most projects are largely individual efforts, and only a few of the most senior members of the group have a full picture of the group's activities. This structure is wonderful for holding together coordinated malfeasance. The only people with a full picture are those in so deep they cannot possibly divulge the truth. The relative newcomers don't have enough detailed knowledge to be a threat. The only real threat comes from those in the middle: at some point, a quant who has been around long enough has acquired a sufficiently informed understanding of the group's activities to recognize the problem and its serious implications. Most quants at that point won't speak up -- social pressure, good pay, the plausible deniability afforded by willful blindness, and the absence of an obviously effective way to address the problem will together be more than enough to keep almost anyone quiet. In very few cases, a subtle threat of career repercussions or legal action may be required to keep the quant in line. As long as you keep him in line for a while, he eventually becomes part of the problem, and once he is part of the problem he is no longer a threat.

This mid-level quant will not view the SEC's whistleblower program as a serious option because he understands the SEC is laughably incompetent [5, 2022]. If a quant sends a complaint to the SEC, the SEC will turn around and ask someone at the quant's firm about it. The SEC won't deliberately name the complaining quant, but they won't need to. In a group of two dozen male thirty-somethings structured the way I have described, you can easily tell from the SEC's questions what information was passed to the SEC, and you can easily tell from that who did the passing. The SEC doesn't have enough knowledge to challenge whatever excuse the firm provides, so for all practical purposes the SEC is irrelevant in this discussion and a quant alerting the SEC is effectively just a quant alerting the senior members of his group he is a threat they

need to deal with. Quants are pretty good at game theory, so any quant thinking about whether to tell the SEC will understand exactly how this is going to go, and only the most mule-headed of quants will choose to do it anyway.

If after reading this you still think the SEC's whistleblower program should be enough to tear apart the core group of responsible individuals at a single culpable quant firm, the sort of language in the contracts used by D.E. Shaw & Co. and Two Sigma made public by the SEC should horrify you [6].

In short, the conspiracy among the core group of responsible people at a single culpable firm is not all that different from the conspiracy among any small group of criminals, and many such small groups of criminals seem to hold themselves together just fine, even without the considerable advantages of billions of dollars and advanced degrees from top universities [7].

2. **Among the few culpable firms, no conspiracy is required.** In principle, the manipulation explanation does not even require more than one culpable firm. In practice, there appear to be a few large quant firms with the necessary characteristics (size, trading volume, lifetime) and strikingly suspiciously consistently excellent, three-decade-long performance, so it seems likely that each is culpable at some level. Each firm could easily have stumbled upon the manipulation on its own, and no explicit conspiracy among the firms would have been necessary for all to profit. At least partially aligned portfolios would have been helpful, but everybody reading the same literature is probably enough to accomplish that.

3. **By far the biggest conspiracy here is the years-long decision by regulators, other government officials, economists, journalists, finance industry professionals, and others to hide these strikingly suspicious return patterns and the apparent absence of any innocuous explanation for them from the public at large. This conspiracy is genuinely astounding. But it isn't a theory. It is an objective, indisputable fact. I have extensively documented it (including in the public thread with the SEC and others made available with [2023]). The years-long hiding of these strikingly suspicious return patterns from the public is a historic conspiracy *regardless of what the correct explanation for these suspicious return patterns turns out to be*.** The aspect of this problem most deserving the term "conspiracy" is the indisputable fact that the public at large still (still!) has absolutely no idea these suspicious return patterns that nobody can innocuously explain even exist [8]. Of course, as I point out in [2023] and elsewhere, this well-documented, objectively factual, undisputed, still (still!) ongoing "conspiracy" requires no large, secret, sinister network -- just a bunch of people with bad incentives who lack the integrity to do the right thing.

Again, I appreciate your setting a new bar in your column on this topic. Bloomberg L.P. has an obvious conflict of interest on this topic -- the financial industry won't have nearly as much money to spend on Bloomberg terminals after the public finally hears about this problem -- so the column you wrote is probably the best I could have reasonably hoped for, and I appreciate your writing it.

To others who may wish to write about this topic more openly and honestly than they have so far felt able: you should view this passable column published by such an obviously conflicted company as a green light. Your company would assuredly rather you not [2023], but at this point your editor probably doesn't want to be on the record as being responsible for further delaying the public's understanding of this issue, either. An easy way you can improve upon the new best finance column on this topic is to clearly note the many salient features of the suspicious return patterns in the attached figure -- the striking decades-long consistency, the many stocks in which the pattern is flipped, and so on and so forth -- that I use to justify many of the comments I make above.

Regards,
Bruce

[1] Just to be clear, nowhere in my public writing on this topic so far do I accuse any specific individual or any specific firm of any specific intent. I call out clear patterns where I think clearly calling out the pattern is helpful. In such cases my focus is the pattern. I so far have nothing public to say about the intent behind any specific individual's or any specific firm's specific (in)action(s) on this topic.
[2] Your phrase is a clever improvement on my phrasing in Section IV of [2022].
[3] "Few, and as far as we are aware zero, strikingly suspicious return patterns in financial markets have turned out to clearly be fine" is a far more honest framing than your (editor's?) "Most, but by no means all, conspiracy theories turn out to be false." Any framing that ignores the existence of these suspicious return patterns is ridiculous, even if it is not deliberately dishonest.
[4] The picture I paint here is a rough composite of the primary suspects, not a description of a specific group.
[5] Here I am referring to the poor match between the SEC's institutional skills and the quantitative, technical nature of this problem and to the SEC's resources compared to the resources of the firms it is trying to regulate, not disparaging the abilities or earnestness of the dedicated public servants at the SEC doing their best in an impossible job.
[6] More detail is provided in the SEC Order linked from each press release.
[7] I am of course speaking of the privileged deference you get from such a degree, not any specific, useful, relevant body of knowledge.
[8] The many people currently profiting from the public's ignorance of this problem want to suggest the market manipulation explanation requires a great conspiracy of people hiding damning evidence from the public, and want to argue that since such a great conspiracy is unlikely the manipulation explanation is unlikely. But as a simple matter of well-documented fact, there is indeed a great "conspiracy" of people hiding these suspicious return patterns from the public -- these suspicious return patterns have been around with no apparent innocuous explanation for decades, and the public at large still (still!) doesn't know about them. The market manipulation explanation provides a very simple, natural explanation for this "conspiracy" in terms of the incentives of the relevant players, as you nicely summarize in your column. After all, if these suspicious return patterns were truly innocuous, why on earth have so many seemed so keen to hide them from the public for so long?
[2016] Information, Impact, Ignorance, Illegality, Investing, and Inequality
[2018] How to Increase Global Wealth Inequality for Fun and Profit

[2019] Celebrating Three Decades of Worldwide Stock Market Manipulation
[2020] Strikingly Suspicious Overnight and Intraday Returns
[2021] They Chose to Not Tell You
[2022] They Still Haven't Told You
[2023] Nothing to See Here: How to Say It When You Need to

nothing_to_see
_here_fig4.pdf
2.2 MB

Overnight and Intraday Returns in the United States

50 stocks included in our public thread with the SEC, data through September 30, 2023, log scale