Beware False Positives In Statistics-Based SEC Actions

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In June 2015, the U.S. Securities and Exchange Commission announced an enforcement action against an investment adviser, alleging self-serving and illegal allocation of trades to his personal accounts versus his clients' accounts, i.e., "cherry-picking." The commission presented statistical results that purportedly show that the different returns in those two types of accounts could not have happened by chance.

The SEC's data-driven approach in the trade allocation area is part of a larger quantitative initiative at the SEC targeting statistical outliers and anomalies through such programs as the Aberrational Performance Inquiry, which evaluates hedge fund returns,[1] and the Accounting Quality Model (informally known as "RoboCop"), which scours public company filings to estimate "peer-level risk metrics."[2] However, contrary to prior data-driven enforcement initiatives, which see statistical analyses as one component in a broader analysis of whether to initiate an inquiry, the enforcement action described here seems to have been launched based primarily on statistical results.

Using this particular matter as an example, we discuss issues that may be useful to understand around future statistics-based enforcement actions and inquiries by the SEC.

Background and the Novel Implication of "Intent" from Statistical Analysis

In the aforementioned action announced on June 29, according to the SEC, Mark Welhouse and his adviser firm earned $442,319 by entering certain options trades in a master account and then, after waiting to see how the positions fared during the course of the day, allocating profitable trades to his personal account and unprofitable trades to clients' accounts in the afternoon.

For years, the SEC has warned investment advisers about practices that could give rise to suspicions of improper trade allocation. For example, in a 2008 compliance alert, SEC staff outlined best compliance practices with respect to trading in personal accounts and proprietary accounts. In particular, the SEC suggested determining trade allocations prior to or soon after trades are made, and, in the event that the allocation of a trade comes after execution, such allocations should be documented and reviewed by an appropriate individual.

However, not all post-execution trade allocation is improper. In a 1995 pronouncement, the SEC's Division of Investment Management did not object to post-execution trade allocation by an investment adviser who provided advice to a number of different types of investors, all of whom would benefit by aggregating their orders to obtain the best possible execution price and lower commission costs. Such aggregation and post-execution allocation is not inherently fraudulent or in breach of an adviser's fiduciary duties toward its investors.

Nevertheless, there is a long line of SEC cases against investment advisers involving "cherry-picking" or favorable trade allocation. What sets the Welhouse case apart is the SEC's describing its first use of what it called a "data-driven initiative" when it applied a statistical analysis simulation test to Welhouse's trades. The SEC's Division of Economic Risk Analysis determined that Welhouse's own profits from these trades could not have resulted from "a coincidental or lucky combination of trades."[3] The commission investigated Welhouse's profits from trading in options in an S&P 500 ETF called SPY, and found that the profits in his personal accounts were higher than those of his clients, in a highly statistically significant manner. In particular, the SEC used a simulation to calculate the chance that Welhouse's personal accounts profit would be higher than his actual profit by random chance alone. The SEC also found, using a simulation, that the likelihood of Welhouse's personal accounts receiving its "high proportion of profitable trades by pure random chance is less than one in one trillion."[4]

The SEC charged Welhouse with fraud. However, as with most statistics-based enforcement efforts, the trade allocation initiative comes with risks and limitations. The SEC's announcement in the Welhouse case seems to imply that statistically eliminating chance as an explanation for the profitable trades proves a fraudulent motive. We believe that is not always the case and that one should not base "intent" on statistical analyses that can identify abnormal outcomes in an environment free from wrongdoing. As the SEC's former chief economist, Craig Lewis, explained in the context of the Accounting Quality Model, statistical analyses should be used to produce signals that may warrant further investigation.[5]

Statistics-Based Enforcement Actions May Be False Alarms

Lessons can be drawn about statistics-based enforcement actions, even if the details on the statistical tests in this specific matter are scant. Of particular interest is the possibility that statistical tests lead to false findings of suspected wrongdoing. These are known as false positives and are the reason why further investigation is necessary to establish wrongdoing and intent.

First, before taking statistical results as definitive evidence, it may be useful to consider other explanations for those results. Tests like the ones described by the SEC should also factor in the possibility that different trading strategies or trading constraints may explain different returns. For example, an investment adviser may use certain types of options (puts/calls, out/at/in-the-money) for certain purposes for himself and different options for different purposes for his clients.

In contrast, the commission seems inclined to aggregate any and all different types of options on SPY, despite their different average returns and the respondent's use of options across different strategies.[6] On any given day, the respondent may have, for example, entered an aggressive strategy for himself using out-of-the-money calls and a conservative one for his clients using at-the-money calls. However, the resulting different returns might have raised suspicion under the SEC's analysis.

Second, and also related to trading strategies, it is important to examine portfolios instead of just one particular investment instrument. Examining the returns in one specific asset may overlook how they are related to returns of other assets in the clients' portfolios. For example, if the options in a client account are a hedge against market exposure or against exposure to specific investment horizons, then it is important to notice offsetting returns and the impact of those on the overall returns to the client.

Third, it is important to examine the consistency of the returns behind the alleged wrongdoing. If the statistical evidence aggregated over the whole period of alleged wrongdoing does not hold consistently at a higher frequency throughout that period, then the allegations may have to actually be concentrated in only a subset of the alleged period.

Fourth, and in the same spirit of the need to disaggregate returns to observe their distribution, care must be taken to ensure that statistical evidence on aggregate or average returns is not determined by a few outlier returns. If a simulation is based on the average return of a fund or trading strategy over several years, the analysis may be swayed by a few very positive or very negative returns, absent which performance might be unremarkable.

Finally, there is often a temptation to label statistically significant results as relevant, but that is only the case if they have sufficient magnitude in a broader sense. For example, in the Welhouse matter, the personal accounts returned on average +6 percent in its SPY options trades on the first day, while the client accounts returned -5 percent on average. This discrepancy seems large but would seem less unusual if compared to a typical fluctuation in the returns on SPY options. One-day returns on these options can fluctuate by about 20 percentage points. In addition, statistical tests of returns will inevitably find instances of abnormal returns, especially if run on a sufficiently large number of potential targets. There are statistical tests that try to address this issue.

Conclusions

We recommend that investment advisers, asset managers and even corporate defendants undergoing Office of Compliance Inspections and Examinations scrutiny or enforcement investigations become familiar with the SEC's use of statistics. When already faced with such actions, defendants countering statistics-based suggestions of fraud may require a sophisticated demonstration of why such suggestions may be misplaced. These may involve statistical rebuttals as well as alternative explanations of the results. Based on the approaches that the SEC has announced, these actions will likely become more frequent.

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[1] See, e.g., http://www.sec.gov/News/PressRelease/Detail/PressRelease/1365171485332.

[2] See, e.g., http://www.sec.gov/News/Speech/Detail/Speech/1365171491988.

[3] http://www.sec.gov/news/pressrelease/2015-132.html.

[4] http://www.sec.gov/litigation/admin/2015/34-75319.pdf.

[5] "This is not to say that we've built a model that can 'detect fraud.' Far from it. Rather, we hope to provide one more tool that the already sophisticated staff of the SEC can use in its efforts to ensure high quality financial statements." in speech by then SEC Chief Economist Craig M. Lewis on Dec. 13, 2012.

[6] "Mr. Welhouse said that during the relevant time period, in investing his clients' funds, he followed four investment models: conservative, moderate, aggressive, and options. Mr. Welhouse said that the options model traded only SPY options, but that he also traded SPY options in the other models." Further details in http://www.sec.gov/litigation/admin/2015/34-75319.pdf.