Brian Scott
(307) 690-4799 bscottwyoming@gmail.com
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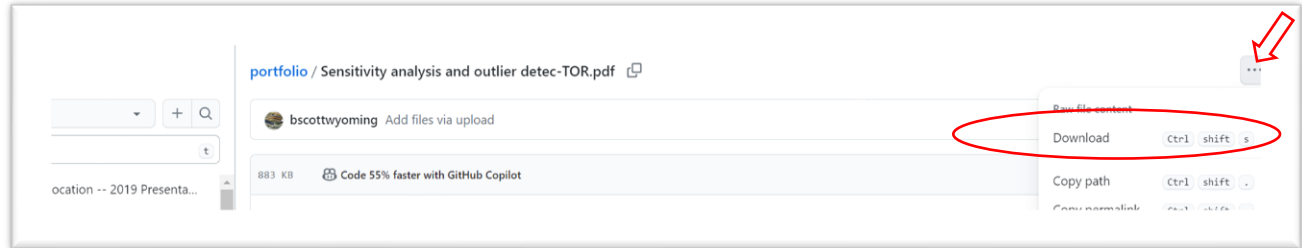
All but the large media files linked below are at this GitHub page. The reader is invited to peruse this content as the below summary is not exhaustive. At each GitHub link you will see a download button which can be helpful for viewing multi-page documents.

Various (Schwab, current employer)

- Current quantitative research group owns multiple models that rate active funds. At the end of 2022 one of our model's expected performance repeatedly appeared in our division's annual business plan. Since this report's distribution far exceeds our team I took it upon myself to improve quality of analysis as well as the publishing efficiency. This required more source code work than publishing work. This version is redacted to be above board in all matters IP.

- Here is a writeup of sensitivity analysis conducted on one of our models. Here is the monthly input validation report as determined by *Detec-TOR* (total outlier removal) , the outlier/anomaly module I was tasked to build, for the same model. As determined by sensitivity testing, outlier scores that crossed certain thresholds are counted and collected and if enough scores cross a breadth threshold the process is paused for investigation. This version is redacted to be above board in all matters IP.

- Oversight/audit requested additional research for one of our models. Here I explain their ask then conduct tests. This version is redacted to be above board in all matters IP.

Asset Allocation (QES and Allocator)

- Received Governor of Utah award and comp bonus for leading reinvention of annual AA work. While still being required to show our technical process, this is an investment committee presentation. We show the range of portfolios produced by our CMA computations (valuation) and sampling (industry publication) processes as the inputs into four different optimization approaches. We qualitatively select four desired portfolios and compare to current target and various benchmark portfolios. Here is a tear sheet of a single run. We also simulate portfolio performance across various holding periods and conduct historical stress tests. We then generalize the results of preferred portfolios and, at a later date, presented the specific allocations we believed would imbue the portfolio with the desired modifications teased out in the AA process.

betaRank (QES and Allocator)

- Page Rank of course simply computes the stationary distribution of a Markov chain. In application its utility is the handy dampening factor equation that allows users to deploy some assumptions and arrive at an ergodic matrix and thus the stationary distribution will converge. At QES I built betaRank as a trend following model in our inhouse tech stack "Strategy Tester." Our goal was to build a product for multi-strat portfolios. That code is long gone but here is an attempt to replicate the approach in Python. Additionally, in my role at the Allocator, I used this algo to build a relative trend following overlay on our liquid book. Here is a monthly tear sheet for our public equities book. I show monthly weights and hypothetical trend portfolio performance alongside current and target performance. Trend signal weights are translated to min/max constraints as defined by asset allocation.

Portfolio Management/Construction (Allocator)

- Key reason hired by Allocator was my experience with our trend following funds at QES and the Allocator CIO's belief in "tail risk" or "risk mitigation" or "crisis alpha" portfolios (10-20% of total portfolio). Here we deployed two things. First was long UST Strips (3-15%) with a gearing overlay such that when risk-off telemetry crossed various thresholds we went long UST futures, increasing duration from ~25 years to ~45 years. Here is my full investment memo. Second, the Alpha Protect fund we created with Man FRM (3-15%). Alpha Protect existed before me, but this version of the portfolio reflects my work to evolve its approach. Here is a report I built to monitor its performance and sensitivities. Here we create four silos: multiple trend following approaches, short term and vol-breakout trading, global macro plus some risk-off factors, and straight up long vol strategies. The portfolio performed well enough and was liquid enough to fund purchasing of crashing liquid assets in March 2020 and bore the intended fruit when liquid assets inflated shortly thereafter.

Risk Reporting (Allocator)

- As mentioned on my CV I was assigned entire risk reporting and for all intents and purposes designed the risk management framework. The CIO, board, and I first authored a risk manifesto. For reporting we emphasized returns- and holdings-based risk reporting. For returns reporting, we wanted to understand exposures. Since returns defined exposures during asset allocation we wanted to be sure we were actually getting those exposures, or at least understand what exposures we were actually getting. We ran portfolio and AA returns across various risk factor schema (eventually deciding on Two Sigma's Venn approach to factor taxonomy) and compared/monitored these loadings while paying particular attention to tracking error. Here is the returns-based report. For holdings, we paid a reporting service for a quarterly flat file detailing liquid and private holdings across various dimensions e.g. geography, sector, security type. Here our main focus was understanding and if possible avoiding concentration risk. Here is the holding-based report.

Journalism and Media (Teton Gravity Research, Rainbow Media, POWDER Magazine etc.)

- I had a 10-year media career before finance. I was reluctant in the beginning of my finance journey to expand on these accomplishments because I didn't want to convey the impression it's what I would rather be doing. It has become at least semi-material to show my media career required training, that my and experience in this field honed specific skills, and that I have a range of abilities likely not seen in any other candidate applying for technical analyst positions.
- I was given a magazine and the masthead title "Editor" (year one and year two) immediately after getting my undergrad in journalism. Here is one of a few quick pieces I wrote for Powder Magazine; an international publication but the North American skier's bible for sure. Here is a feature I wrote for a national magazine in Australia, here it is again translated to German for a Europe magazine. Here is a film and television reel showing my producer, cinematographer, and editor work. Here is a commercial I made for The North Face. Here are some of many shows I did for international broadcast on Rainbow Media (defunct) channels: ski shows in South America, Alaska, and Montana; mountain bike show in Mexico; BASE-jumping show in Idaho and California.