

A1: Part 2 Loading into Data Viz

Presented to

Mr. Thomas Kurnicki

Data Extraction & Visualization

DAT-6081

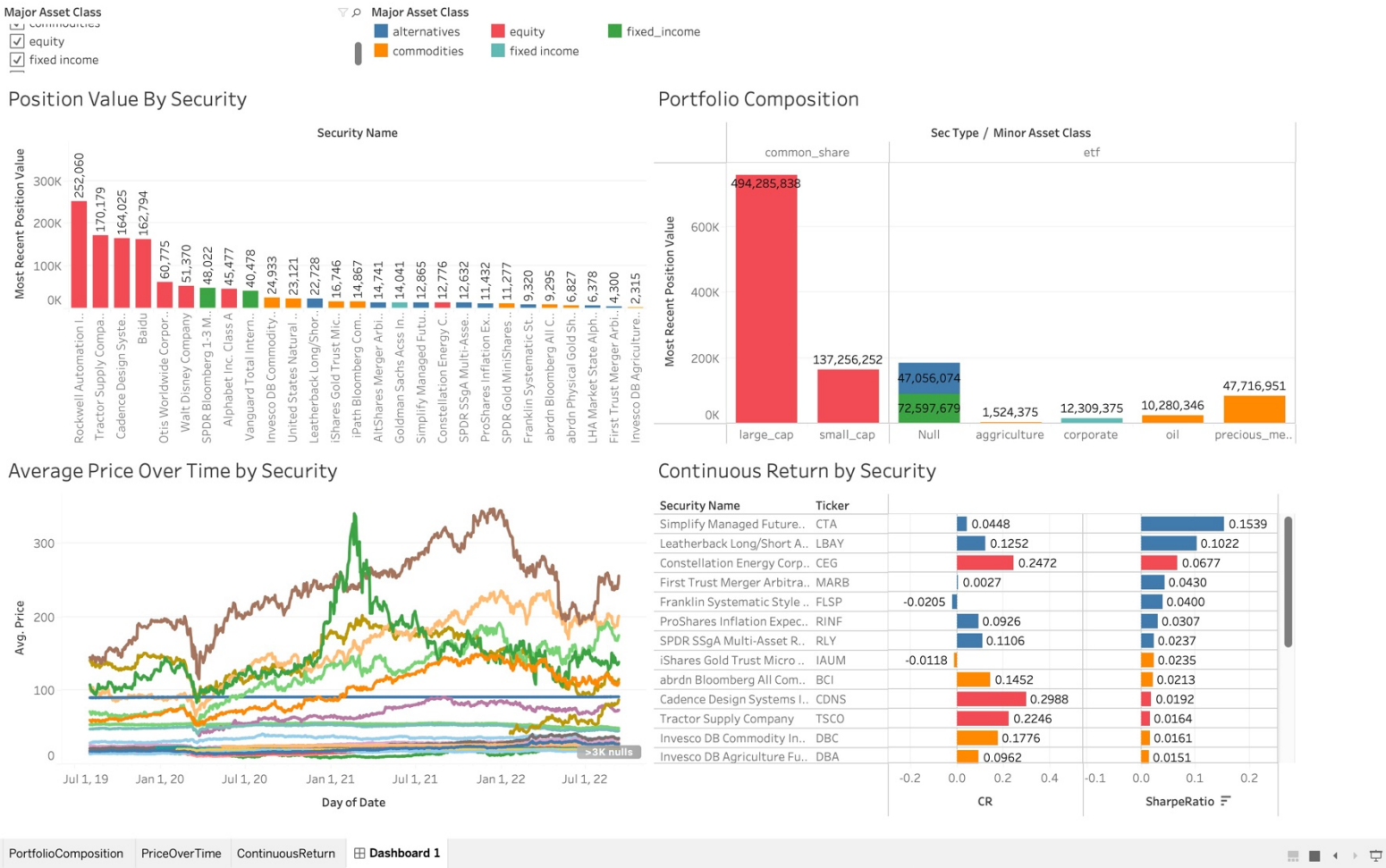
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26/11/25

Dashboard for Management



PositionValue | PortfolioComposition | PriceOverTime | ContinuousReturn | Dashboard 1

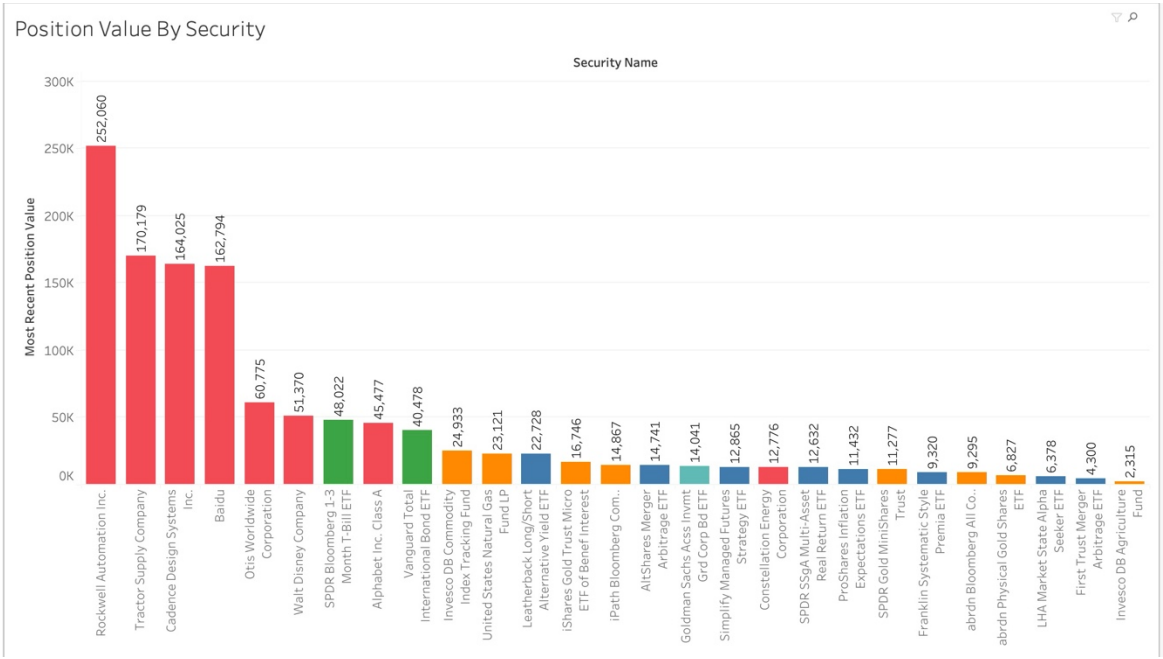
Report for Management

Based off the view *invest.AlexandreLyV3,* this report shows each securities' position value, their composition by major asset class, minor asset class and sector type, their price over time and of course most importantly their continuous return and Sharpe ratio in the last 3 years. Mrs. Bojana Popovic's portfolio is structurally dominated by the equity's major asset class at 631.5$M position value, followed by the fixed income at 84.9$M, 59.5 $M in commodities and finally 47$M in alternative investments. Within these assets, many of them are very sensitive and highly concentrated in the U.S. stock market, leaving the defensive assets like fixed incomes and alternatives less in the mix. For the sake of a diversified portfolio, the strategy of Risk-Budgeting Rebalance should be favored to dilute highly accumulated securities and refocus their capital into well chosen, non-correlated assets, which will improve the portfolio's risk exposure and it's Sharpe ratio.

1. **Dashboard Rationale and Key Findings**

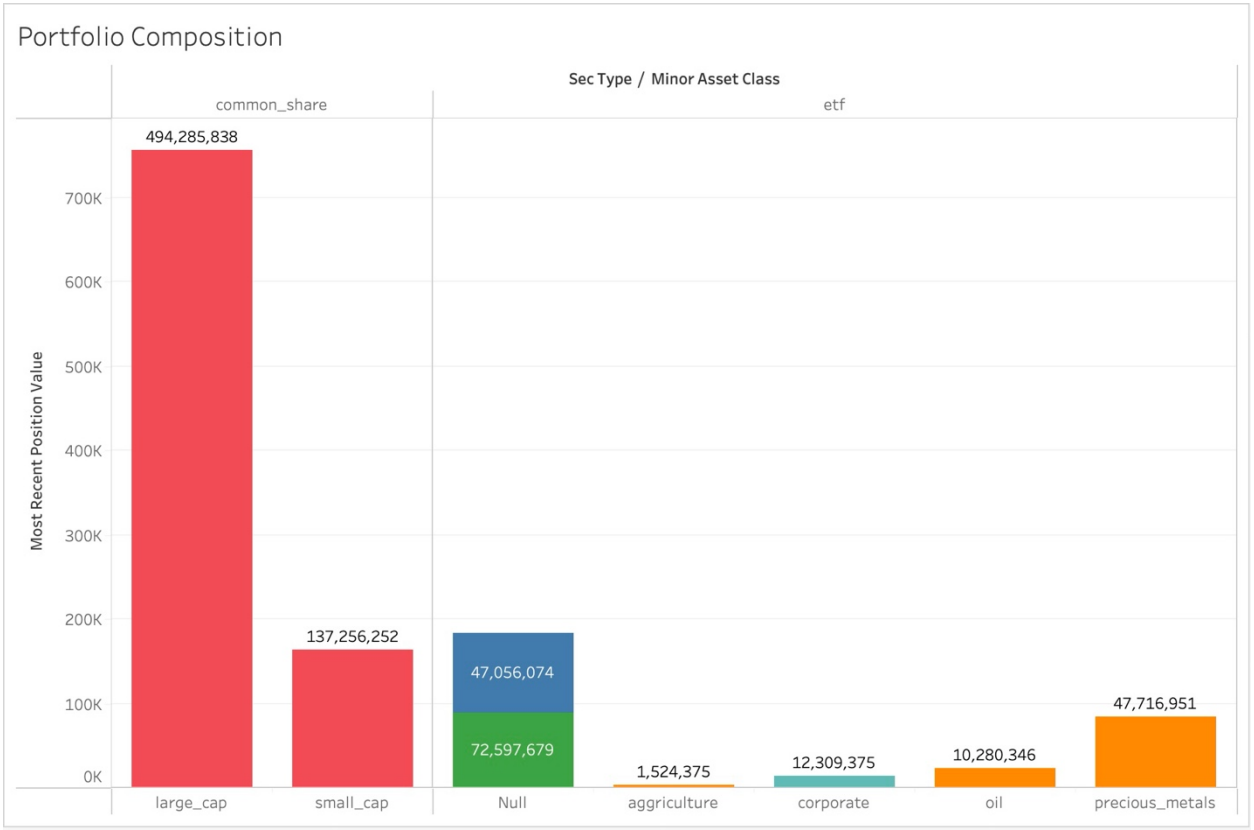
This dashboard focuses on four crucial tables demonstrating the core relationships and comparison (Position Value, Composition, Performance Over Time and Risk/Return Trade-off).

1.1 Findings from Position Value by Security Chart



The bar chart shown shows a concentrated dynamic of equities on individual security level, which demonstrates as a highly uneven cluster making up most of the total portfolio. In fact, hovering over each security changes and displays its composition separated to major and minor asset classes and sector type, average price overtime and its return for that specific security. Indeed, the key findings reside in the four positions (Rockwell Automation: ROK at 252 060$, Tractor Supply: TSCO at 170 179$, Cadence Design: CDNS at 164 025$ and Baidu: BIDU at 162 794$) represent a disproportionately large share of the portfolio in red, to a point where they are well over half of the cumulative exposure shown in the chart. This is then followed by few fixed incomes in green and commodities orange who see their position value sharply contrasted into the lower range of 2315$ to 48 022$. In conclusion, these proportions collectively contribute to very lower diversification benefit which leaves the portfolio diversified in count, but not in impact.

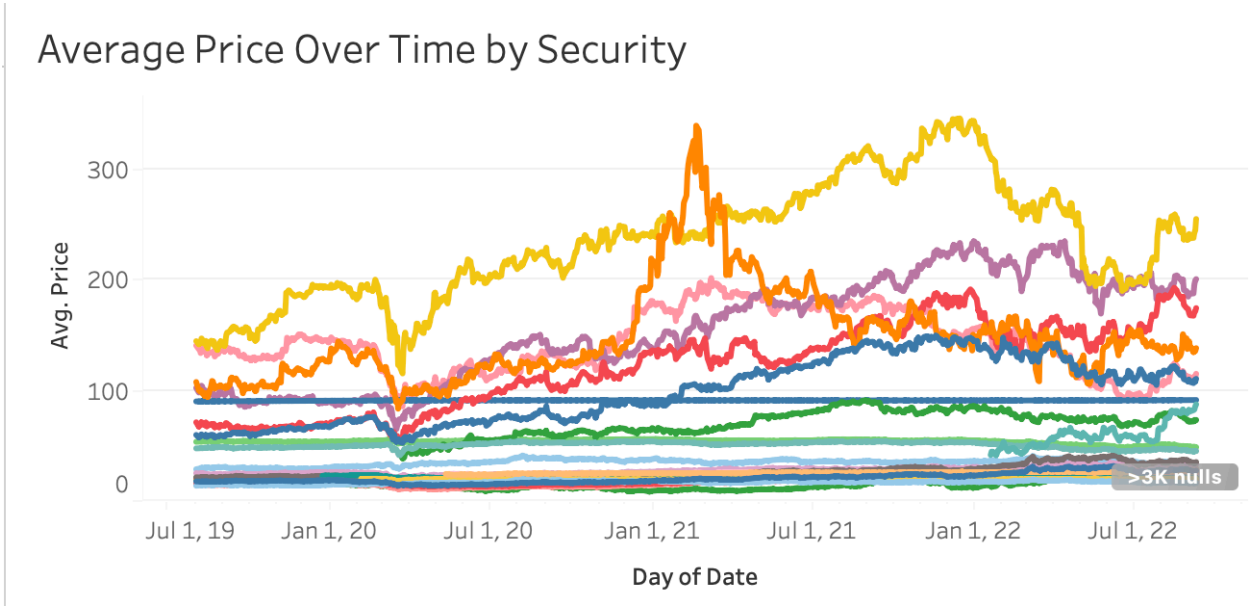
1.2 Findings from Portfolio Composition



Portfolio Composition's bar chart provides a top-down view of how the portfolio is distributed across equity size segments and ETF categories. Once again, the

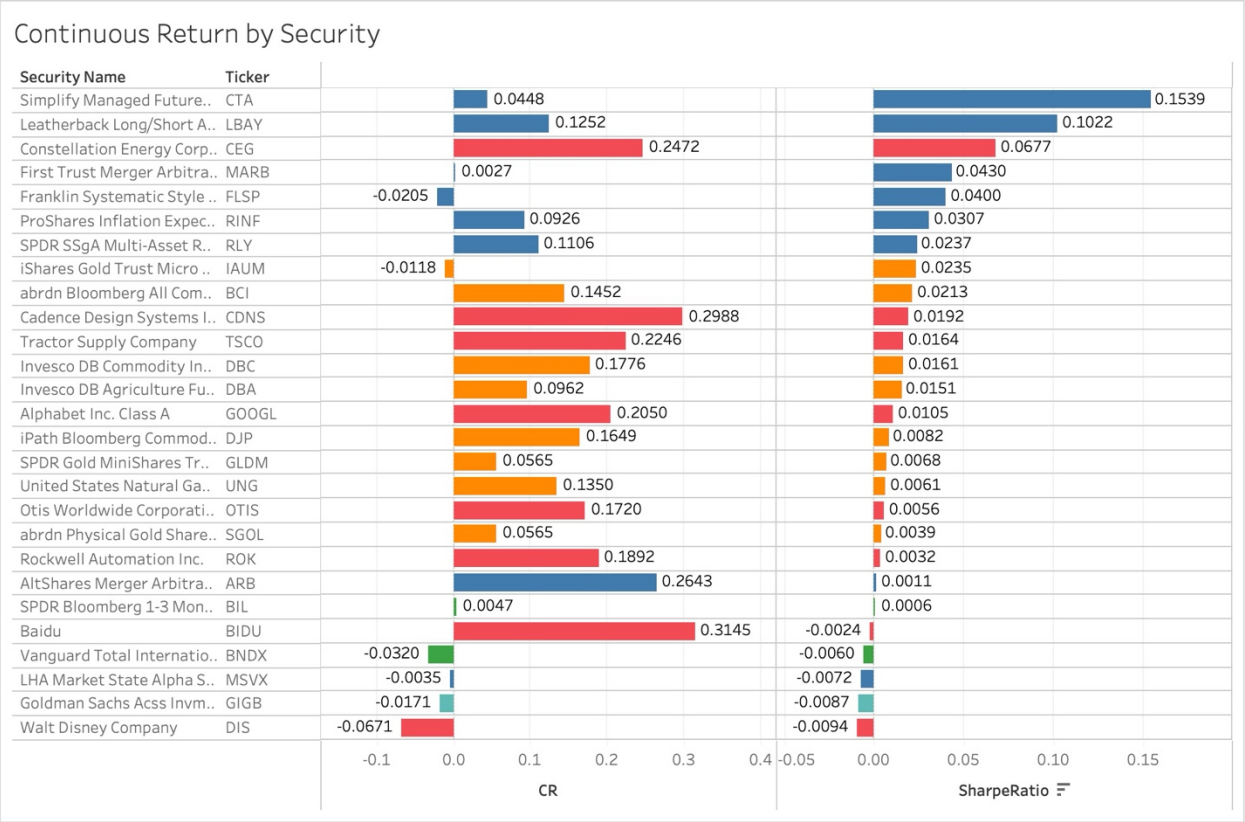
concentration risk is very much highlighted not only by type but also by scale of holdings across asset categories. One element to note is the visual contrast between the breakdown of investments in large cap common shares (494.29 $M) and small cap common shares (137.26 $M) compared to the breakdown of investment of the other minor asset classes such as agriculture (1.5 $M), corporate (12.3 $M), oil (10.28 $M) and precious metals (47.72 $M) who are all ETF segments. This imbalance matters. ETFs are usually safer than picking individual stocks because they spread the risk across many companies. But since ETFs make up only a tiny portion of this portfolio, they barely reduce the overall risk. In short, their small weight isn't enough to counter the heavy concentration in large-cap and small-cap stocks.

1.3 Findings from Average Price Over Time by Security



Fluctuations in prices in the last 3 years are key to analyzing each security in this portfolio, especially when most of the assets do show an upward trendline. A few securities keep climbing even after 2021, showing stronger fundamentals and solid momentum. Meanwhile, many ETFs and fixed-income assets barely move, which makes sense given their lower volatility. This mix highlights a clear pattern: not every security impacts the portfolio the same way, it's really the higher-priced, more volatile stocks that drive most of the overall risk.

1.4 Findings from Continuous Return by Security



For the last chart, continuous returns and Sharpe ratio were favored to indicate metrics of risk and risk-adjusted performance of investments. Indeed, high-return stocks are driving most of the portfolio's performance, but they're also generating the bulk of the risk. Specifically, the 4 most high-performing equities in red (BIDU: 31.45%, CDNS: 29.88%, CEG: 22.46% and TSCO: 22.46%) all show high continuous return, but show weaker Sharpe Ratio (BIDU: -0.0024, CDNS: 0.0192, CEG: 0.0677, TSCO: 0.0164) compared to the more defensive investment like the alternative investments in blue with a lower return (CTA: 4.48% and LBAY: 12.52%), accompanied with a higher Sharpe ratio (CTA: 0.1539 and LBAY: 0.1022), The alternative investments for example, deliver modest returns but better Sharpe ratios, signaling smoother, more stable performance on a risk-adjusted basis despite having lower raw returns.

2. Business Insights and Strategic Implications

2.1 Insight: Equities Over-Concentration

The heavy reliance on the “Big Four” holdings composed of Rockwell Automation, Baidu, Tractor Supply, and Cadence Design creates a real structural weakness in the portfolio. As shown previously in the first 2 charts of the dashboard, these four names make up most of the portfolio’s total value. In practical terms, the portfolio isn’t really betting on the broader market or economy. It’s betting on the fortunes of just four companies. If one of them, like ROK or BIDU, were to fall drastically in stock price, the smaller positions in Fixed Income and Commodities (the lower range “buffer” seen earlier) simply wouldn’t be large enough to absorb the hit. Not only to mention the fact that also rely on the technology industry to perform well, to have great returns, instead of investing in equities in different industries to dilute the concentration risk. Put simply, the portfolio doesn’t have enough protection to withstand the failure of a single major holding.

2.2 Insight: Risk vs. Reward Misalignment

The last chart of the dashboard does highlight the important mismatch between the equities that take up most of the portfolio’s capital, are the least efficient on a risk-adjusted basis. Meanwhile, the assets that deliver the best efficiency, the alternatives securities receive almost no capital at all. The business impact of this inefficiency lies in the underinvesting in the most efficient parts of the portfolio and overinvesting in the less efficient ones, by keeping CTA (Simplify Managed Futures Strategy ETF) and LBAY (Leatherback Long/Short Alternative Yield ETF) at very small position values (CTA: 12 865$ and LBAY: 22 728$). The choice of choosing the Sharpe ratio lies in the removal of the risk-free rate to better assess the risk-adjusted return on the same level playing field. Favoring a higher Sharpe ratio stock confirms a better return from the risk taken.

2.3 ETF Optimization

As mentioned before, there is not only an over concentration in the major asset classes of this portfolio, but also over concentration on *“common shares” sec_type* of 631.54 $M combined versus meager 191.48 $M in exchange traded funds (ETF). This can be problematic because investing in common shares in a specific company is riskier than a conglomerate of companies in an ETF of an industry or specific grouping.

3. Actionable Recommendations

3.1 Redistribution of the “Big Four”

To reduce the portfolio’s overexposure to the “Big Four” positions, the recommendation for Mrs. Bojana Popovic is to reduce the position of Rockwell Automation (ROK) and Baidu (BIDU) by 15%. These holdings don’t have impressive Sharpe ratio (ROK: 0.0032 and BIDU: -0.0024) and are taking too much capital which will address the volume imbalance, all while retaining a potential gain from the upward trend.

3.2 High-Sharpe Ratios Favored

Allocating more capital into high Sharpe ratios stocks can benefit the portfolio by removing unnecessary risk taken and adjust it for a reward more suited for the investment. A a matter of fact, the weights should be redistributed from the equities, for example the 15%, to the alternative’s investment indicated earlier like CTA, LBAY and more, for better risk-adjusted return. Hence why the table sorted in descending order of Sharpe ratio to demonstrate the ones to be invested more or even choose new securities with better competitive Sharpe ratios.

3.3 Changing Core Risk Exposure to ETFs

The choice in ETFs should be reconsidered with the client pertaining their risk aversion, all while exposing the risk to other high performing industries, not only over concentrating on technology equities. The investment in ETFs that are performing well in Dubai should be crucial for this portfolio, since the client is more familiar with her hometown and knows which industry are striving and to find the highest performing ETF in those sectors. In terms of actions, choosing away from equities and focus more on commodities in oil and gas which tend to have better diversification benefits since they are less correlated to the equities.