# Project Paper Digital Tools for Finance

## S&P500 Sector and Industry Group Momentum

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# Intuition

- Momentum is one of the most cited and strongest factors in academic literature and subject to many investment strategies in practice
- In our project we investigate whether a momentum setup as in [Jegadeesh and Titman, 1993] can be profitably applied in sector and industry group settings
  - Sectors and industries are forms of combining companies with similar risk exposures into one basket
  - Aggragating can help reduce transactions, reducing idiosyncratic risks while still preserving specific trend exposure evolving on a sector or industry level

# Backtesting Environment

## Strategy Parameters

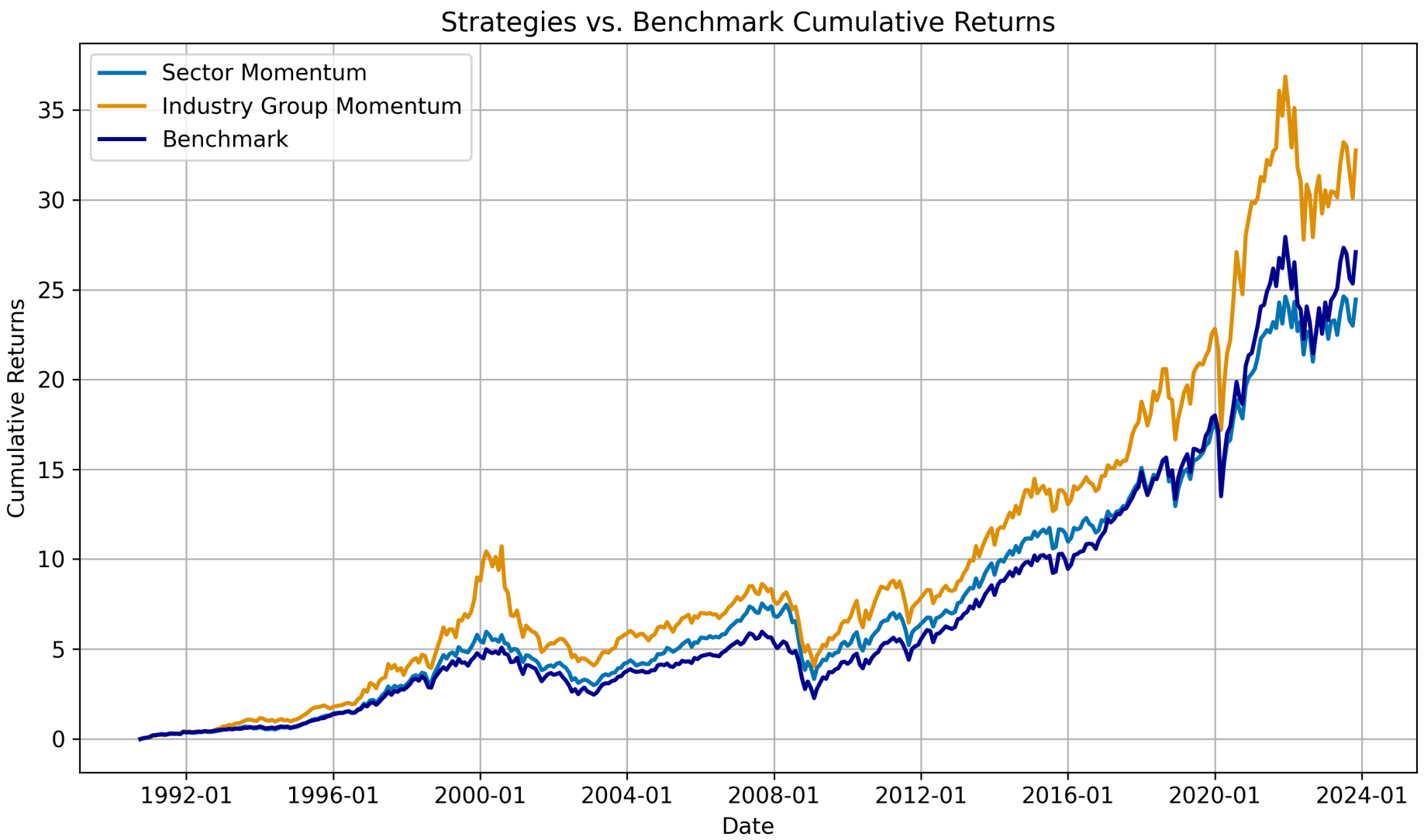
- **Holding Period:** 3 months
- **Lookback Period:** 9 months
- **Rebalancing:** monthly
- **Long assets:** 3
- **Short assets:** 3
- **Transaction costs:** 10 BP (proportional)
- **Time Period:** September 1989 - October 2023

## Data

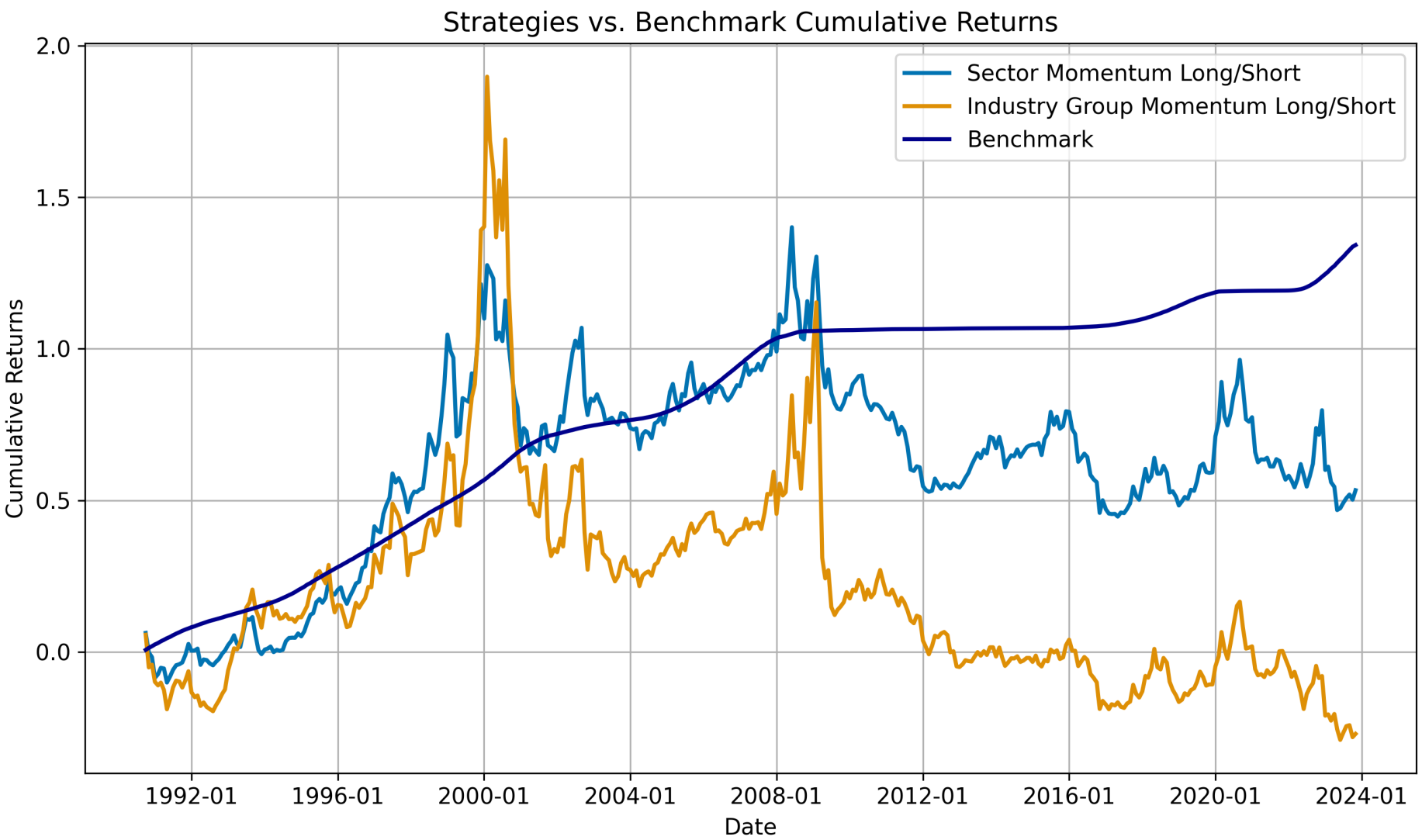
Daily data is downloaded from Bloomberg:

- **Benchmark:** S&P500 Total Return Index
- **Risk Free:** 3 Month T-Bill
- **Sectors:** S&P500 Total Return GICS Sectors
- **Industry Groups:** S&P500 Total Return GICS Industry Groups

# Long Only Momentum Performance vs. S&P500



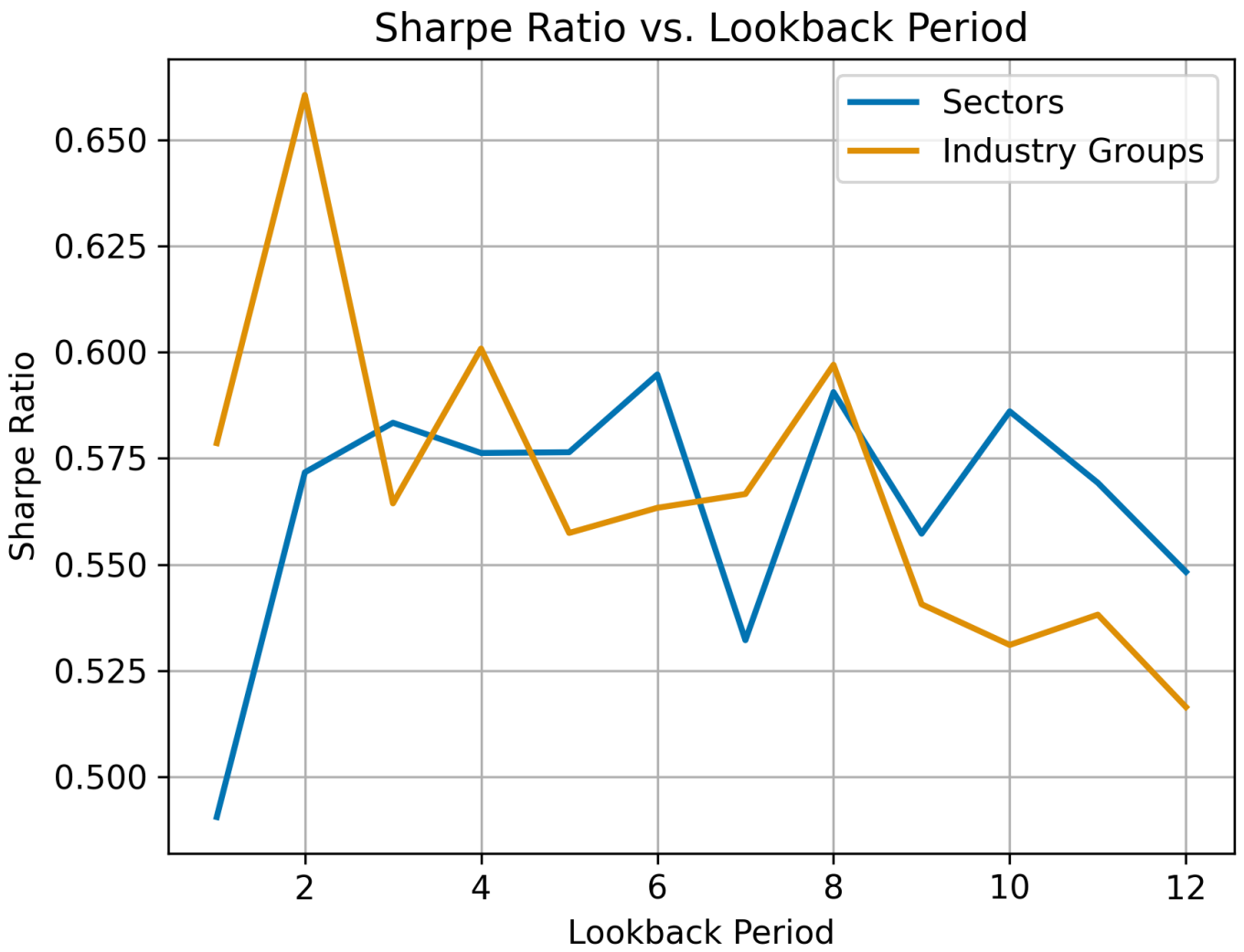
# Long/Short Momentum Performance vs. Risk Free Rate



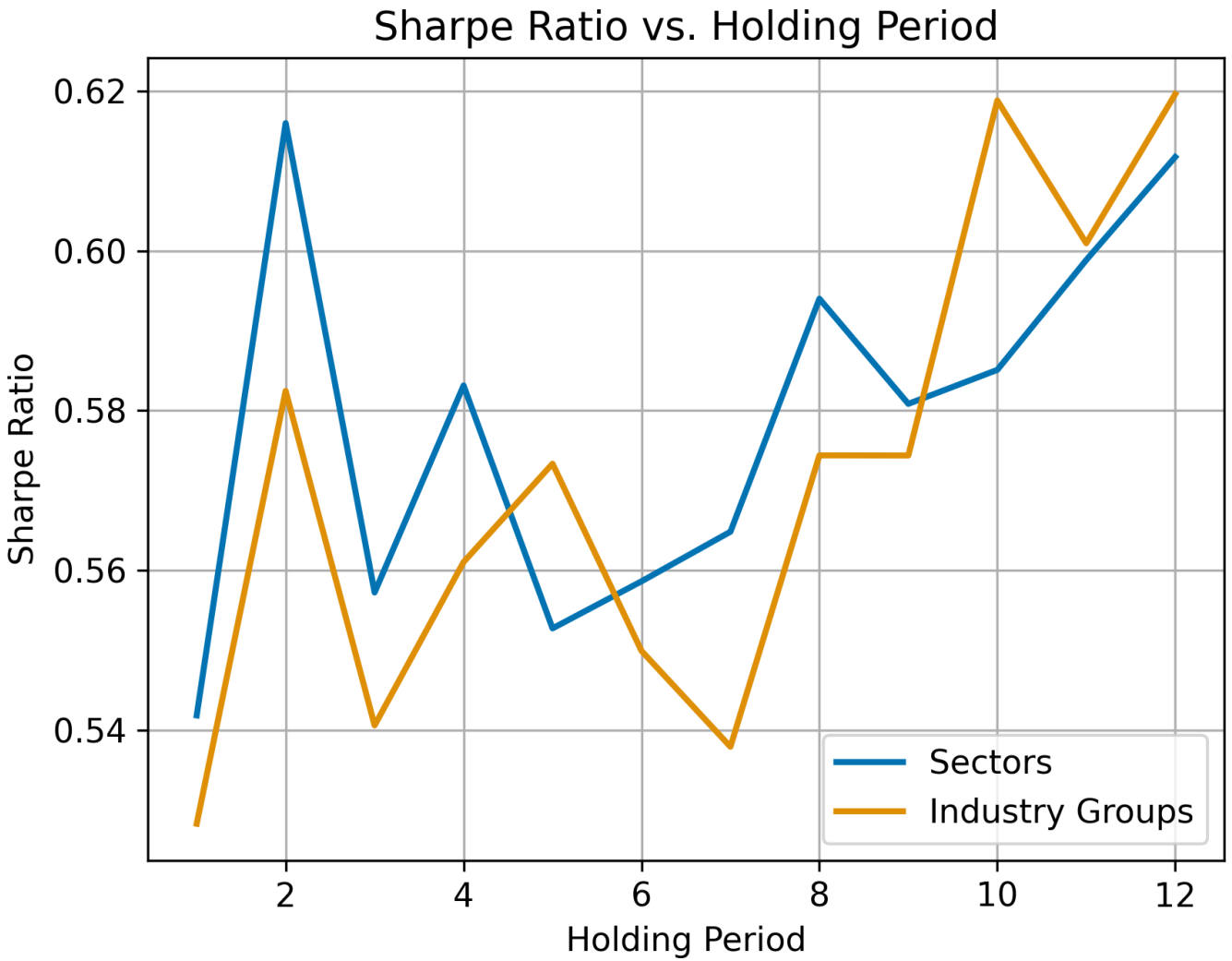
# Summary Statistics Sector and Industry Group Momentum vs. S&P500

| | Long only | | Long/Short | |
|---|---|---|---|---|
| | Sectors | IG | Sectors | IG |
| Alpha | 0.33 | 0.52 | −2.07 | −3.35 |
| (T-Value) | (0.35) | (0.35) | (−1.14) | (−1.20) |
| Beta | 0.91 | 1.01 | 0.29 | −0.07 |
| Excess Return | 8.38 | 9.71 | −0.72 | −2.14 |
| Kurtosis | 1.82 | 1.32 | 2.05 | 4.38 |
| Max | 14.14 | 16.01 | 8.58 | 20.13 |
| Min | −18.81 | −20.09 | −13.59 | −26.19 |
| STD | 15.03 | 17.96 | 10.52 | 16.41 |
| Sharpe Ratio | 0.56 | 0.54 | −0.07 | −0.13 |
| Skewness | −0.61 | −0.34 | −0.41 | −0.55 |
| Total Return | 10.95 | 12.28 | 1.85 | 0.43 |

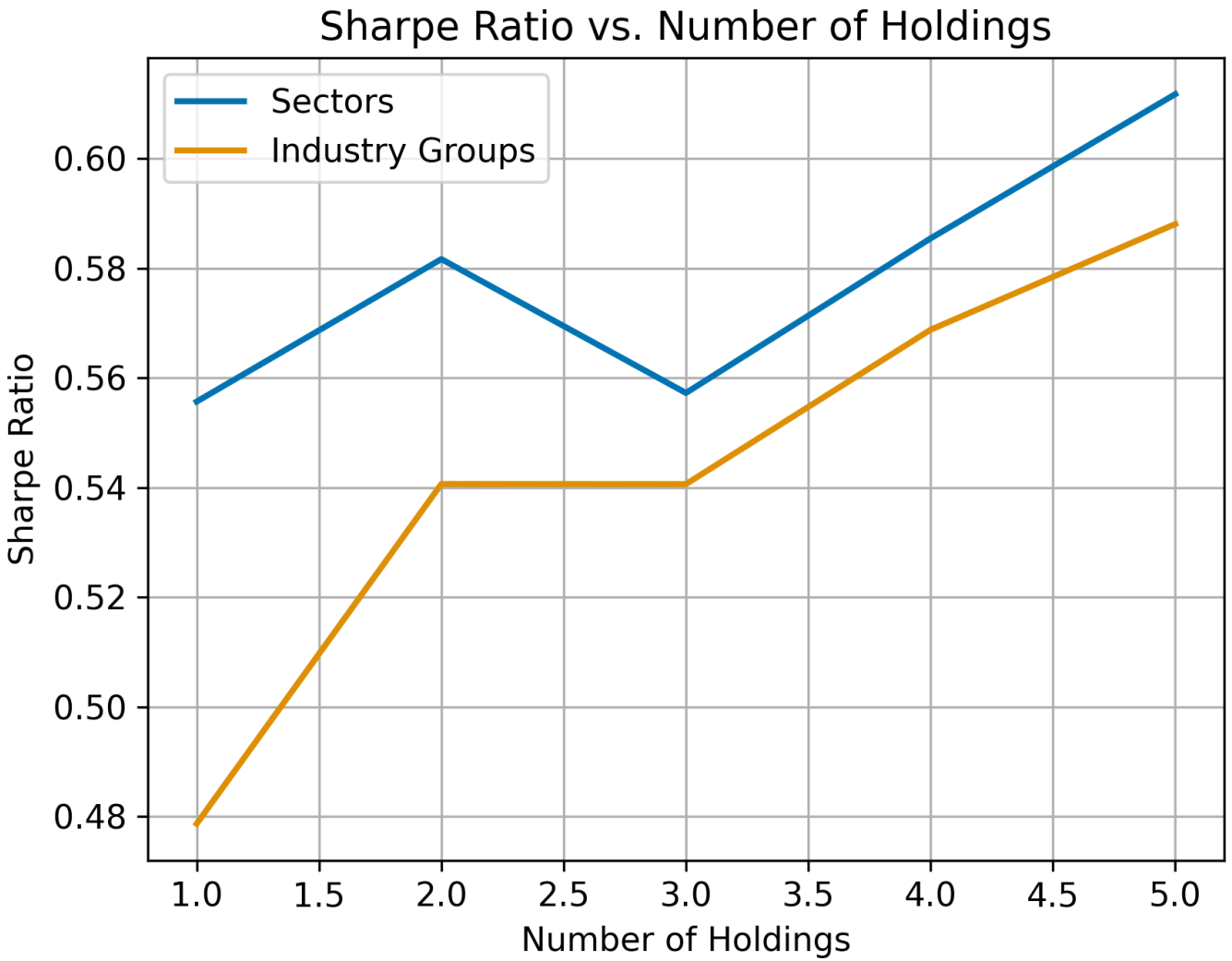
# Net Sharpe Ratios vs. Lookback Period for Long Only Sector and Industry Group Momentum Portfolios



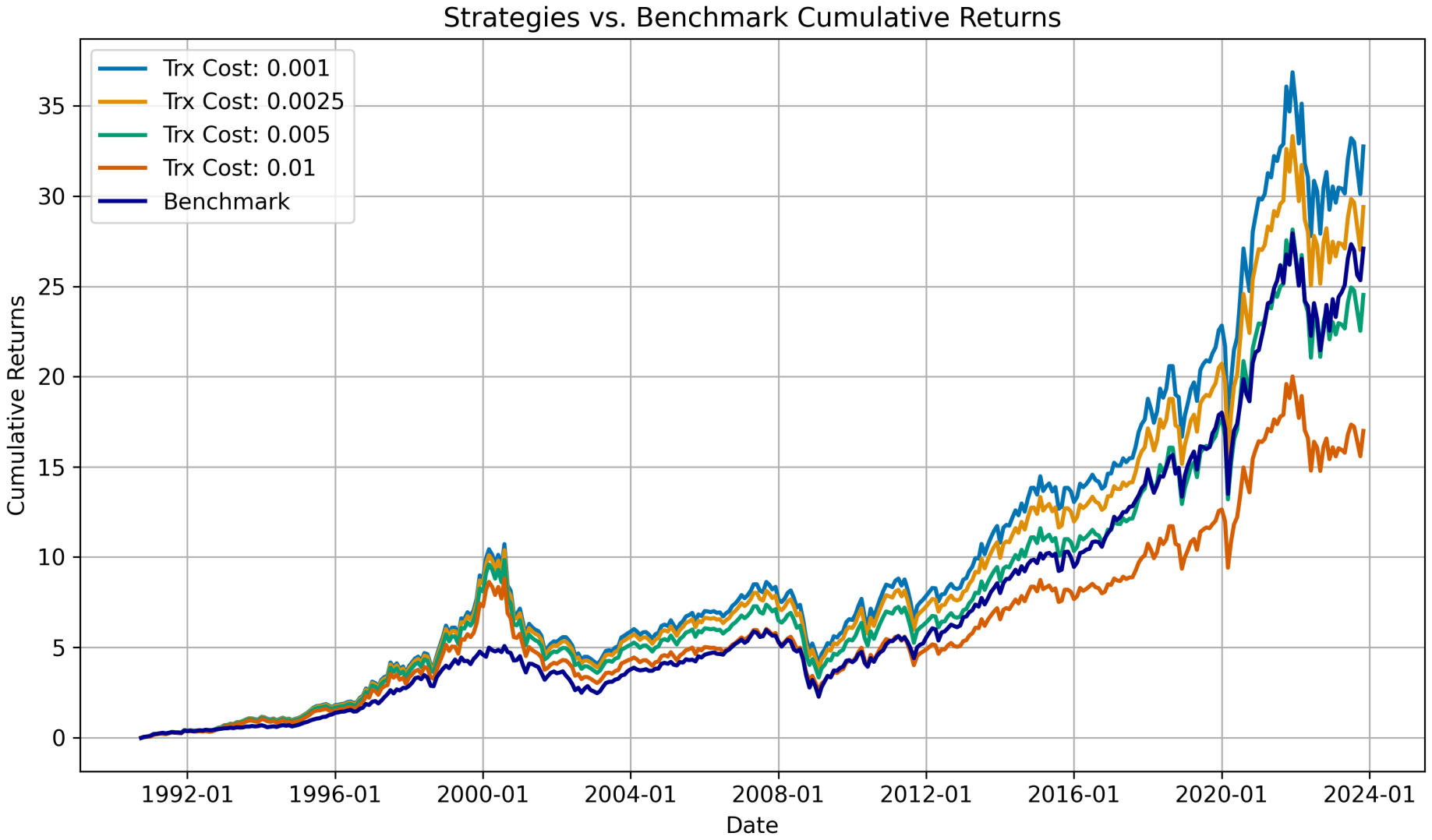
# Net Sharpe Ratios vs. Holding Period for Long Only Sector and Industry Group Momentum Portfolios



# Net Sharpe Ratios vs. Number of Holdings for Long Only Sector and Industry Group Momentum Portfolios



# Net Performance vs. Level of Transaction Costs for Long Only Sector and Industry Group Momentum Portfolios



# Conclusion

- We find that a pure long-only momentum stratey based on industry groups can generate excess returns
- A sector implementation did not work most likely because the level of aggragation is too high and thus the potential to generate alpha too low
- Including a short leg to exploit the UMD factor was a money losing strategy in the investigated period probably due to momentum crashes and is thus not attractive in real world settings
- Bottom line: The universe to select from plays a crucial role and is arguably more important then other input parameters.

# References I

Jegadeesh, N. and Titman, S. (1993).
Returns to buying winners and selling losers: Implications for stock market efficiency.
*The Journal of Finance*, 48(1):65–91.