

The Value of the M6 Competition in Practice

Naftali Cohen
Columbia University

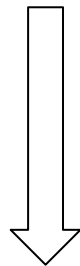
Outline

- Industrial value
- Academic value
- Educational value

Outline

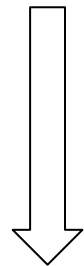
- **Industrial value**
- Academic value
- Educational value

- **Market efficiency (EMH):**



- price-based strategies do work (i.e., momentum-based, mean-reversion, etc.)
- fundamental data (i.e., public financial reports)
- private-replicating (alternative) data (i.e., email receipt data)

- **Market efficiency (EMH):**

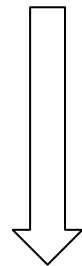


- price-based strategies do work (i.e., momentum-based, mean-reversion, etc.)
- fundamental data (i.e., public financial reports)
- private-replicating (alternative) data (i.e., email receipt data)

- **Predictability:** days → months

Industrial value

- **Market efficiency (EMH):**



- price-based strategies do work (i.e., momentum-based, mean-reversion, etc.)
- fundamental data (i.e., public financial reports)
- private-replicating (alternative) data (i.e., email receipt data)

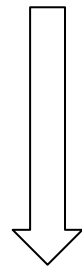
- **Predictability:** days → months

- **Performance measure:** ~~pointwise forecast~~ → position (correlation)



Industrial value

- **Market efficiency (EMH):**



- price-based strategies do work (i.e., momentum-based, mean-reversion, etc.)
- fundamental data (i.e., public financial reports)
- private-replicating (alternative) data (i.e., website traffic data)

- **Predictability:** days → months

- **Performance measure:** ~~pointwise forecast~~ → position (correlation)

- **Day-to-day value:** limited direct impact without

- a supporting theory and
- backtested results



Industrial value

- **Vs. Reality:**
 - no transaction cost (turnover not important)
 - no rebalancing

Industrial value

- **Vs. Reality:**
 - no transaction cost (turnover not important)
 - no rebalancing
- **Accountability** (vs. academic research, but no skin-in-the-game)



Industrial value

- **Vs. Reality:**
 - no transaction cost (turnover not important)
 - no rebalancing
- **Accountability** (vs. academic research, but no skin-in-the-game)
- **Get s**t done mentality!**



Outline

- Industrial value
- **Academic value**
- Educational value

Academic value

- Academic value = idea generation

Academic value

- Academic value = idea generation
- Private-replicating datasets? (i.e., email receipt data)



Academic value

- Academic value = idea generation
- Private-replicating datasets? (i.e., email receipt data)
- Ideas on panelizing/ stabilizing datasets?



Outline

- Industrial value
- Academic value
- **Educational value**



Educational value:

- **Course:** Teaching DDMIF = Introduction to Quant Research.
- **Reach:** Engaged ~100 students over the past year.
- **Hands-On Experience:** Students participate in an *M6-style weekly competition* (10 weeks/ semester).

Educational value:

- **Course:** Teaching DDMIF = Introduction to Quant Research.
- **Reach:** Engaged ~100 students over the past year.
- **Hands-On Experience:** Students participate in an *M6-style weekly competition* (10 weeks/ semester).
- **Competitive Benchmarking:** Students' strategies compete against 4 baselines:
 - passive (index-following),
 - equal-weighted long portfolio,
 - gambling/ last-value portfolio,
 - random selection

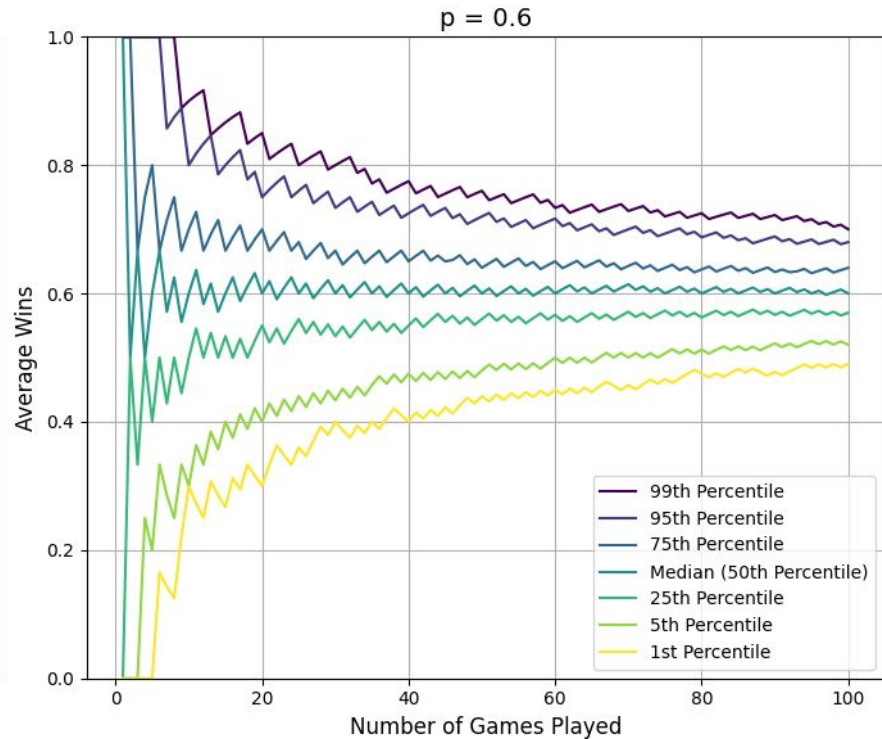
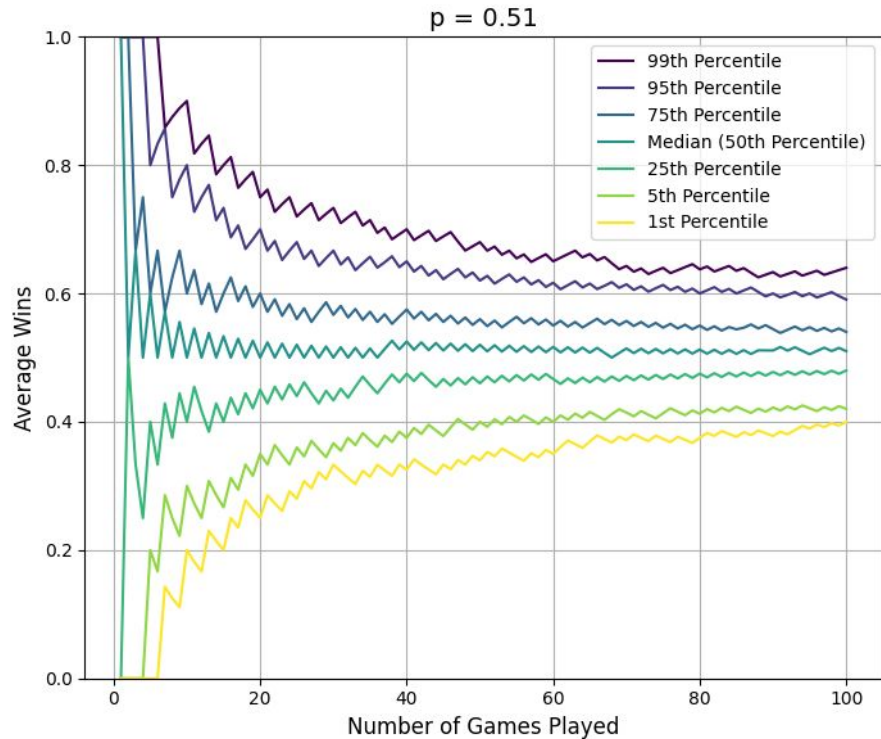


Educational value:

- **Schedule:** Weekly submissions by Sunday, 6pm ET. Performance determined on Friday's EOD values; No rebalancing; No transaction cost etc.
- **Investment Universe:** M6-aligned investment options, *augmented with 10 select cryptocurrencies*.
- **Evaluation Standards:** Consistent with established M6 criteria.
- **Resources:** No provision of external data; encouraging independent research.
- **Incentives:** Winning teams awarded an A+ and an exclusive dinner with the course instructor.

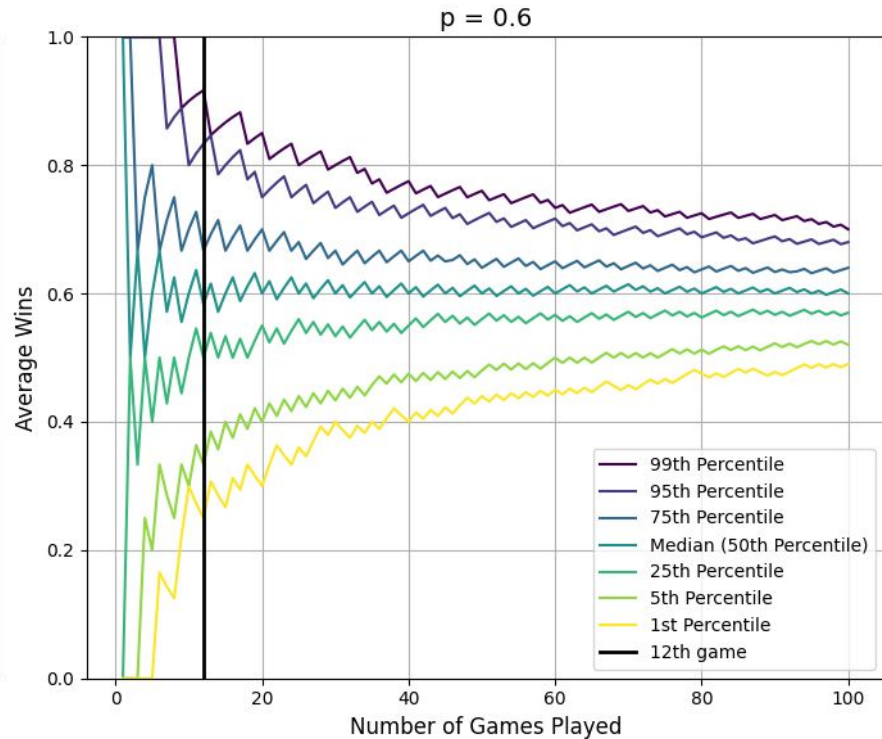
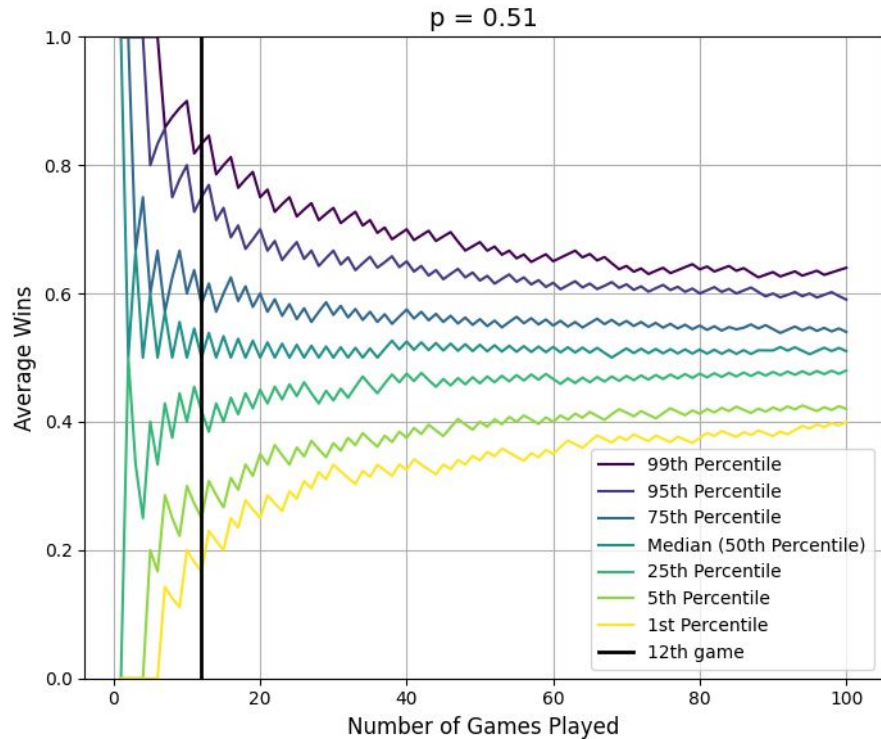


Educational value: performance assessment



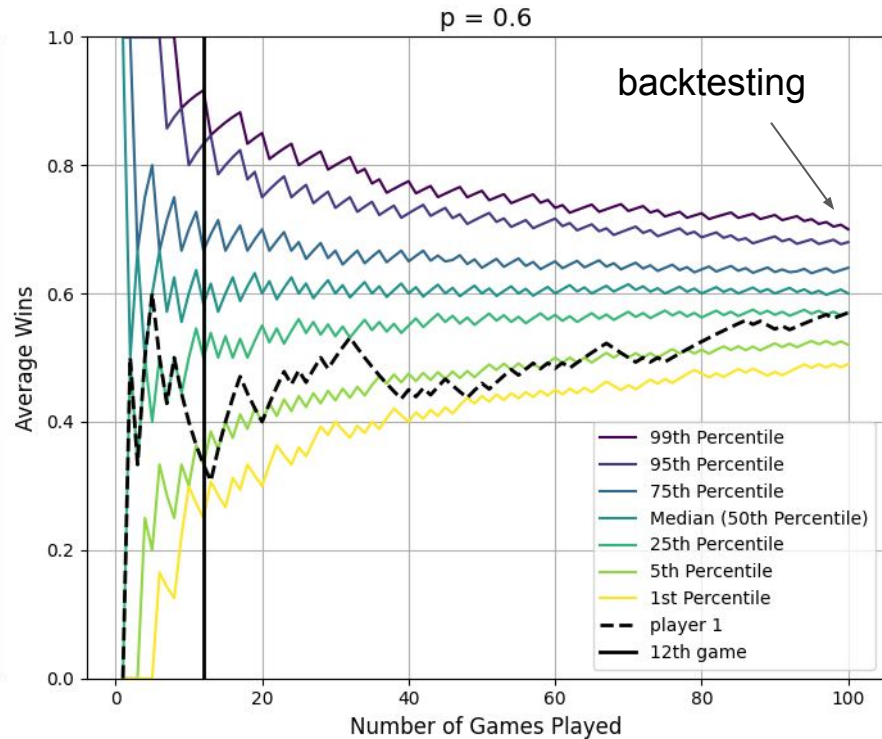
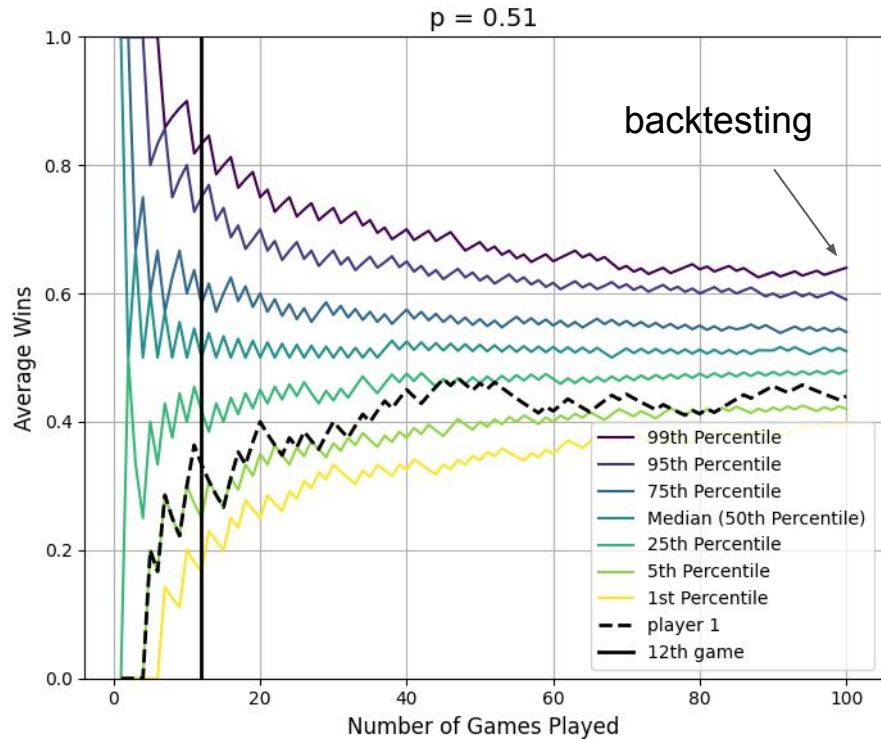
Averaged over 1,000 “players” per game

Educational value: performance assessment



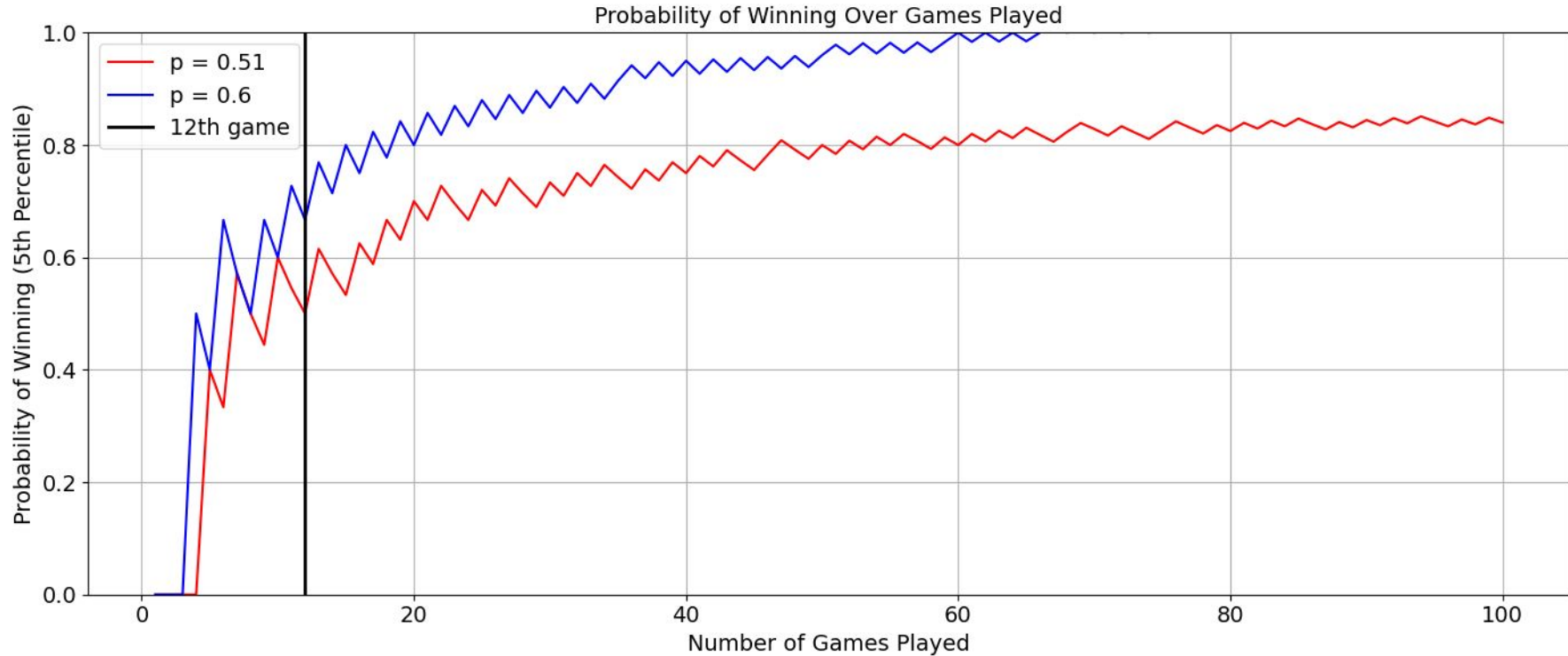
Averaged over 1,000 “players” per game

Educational value: performance assessment



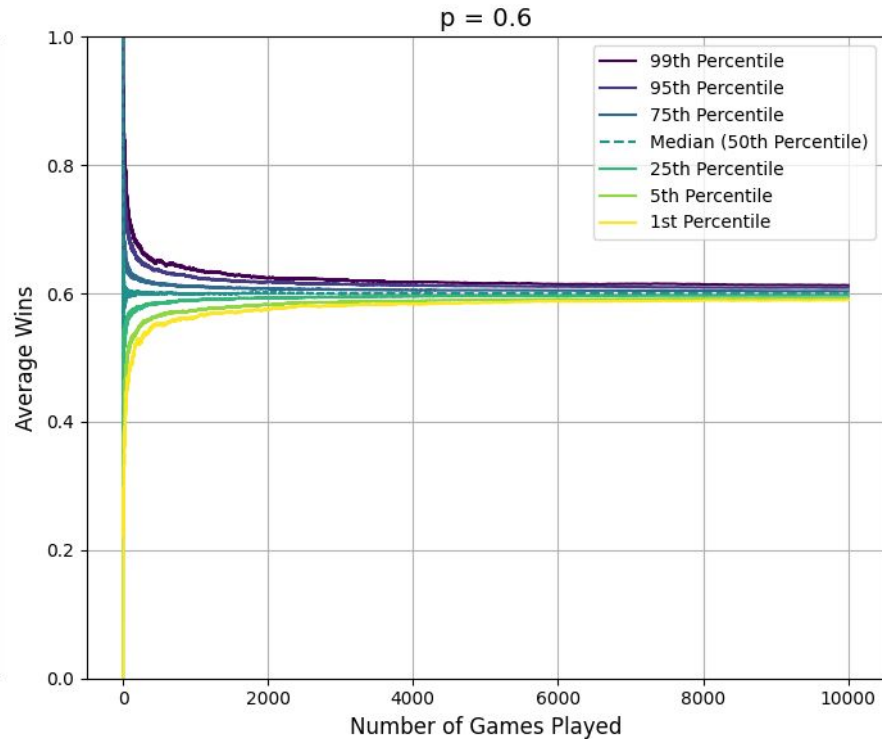
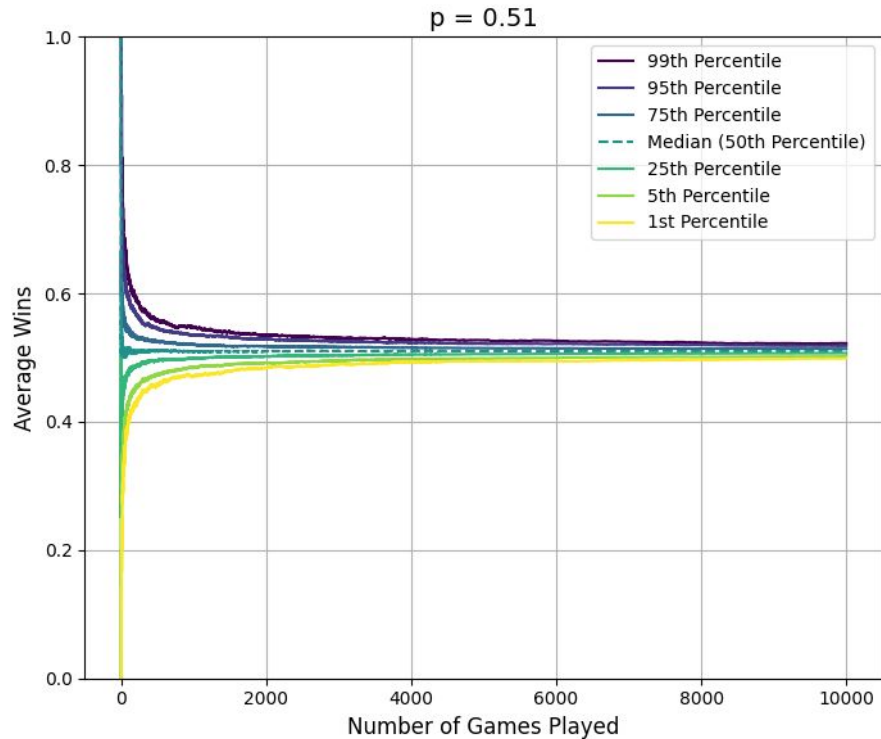
Averaged over 1,000 “players” per game

Educational value: performance assessment



Averaged over 1,000 “players” per game

Educational value: performance assessment



Averaged over 1,000 “players” per game

Educational value: predictability?

- **Performance measures:**
 - **IR:** positional measure in units of risk
 - **Pointwise:** Limited value even in a distributional context (**hackable**)
- **Frequency:**
 - Monthly? yes
 - Weekly?
 - Certainly, need more iterations



Educational value: Fall 2023, In-class, current standing

| | group_name | mean_forecast | mean_decision | forecasts_rank | decisions_rank | overall_rank |
|----|-----------------|---------------|---------------|----------------|----------------|--------------|
| 0 | HIREUS | 0.158160 | 4.174897 | 4.0 | 1.0 | 2.5 |
| 1 | MEDALLION | 0.167051 | 4.084366 | 6.0 | 2.0 | 4.0 |
| 2 | RANDOM | 0.170574 | -0.715632 | 7.0 | 7.0 | 7.0 |
| 3 | SP500 | 0.116146 | -3.093078 | 1.0 | 13.0 | 7.0 |
| 4 | EW_LONG | 0.160000 | -2.557707 | 5.0 | 11.0 | 8.0 |
| 5 | GAMBLING | 0.152968 | -5.563922 | 2.0 | 14.0 | 8.0 |
| 6 | ALPHA | 0.175398 | -0.743322 | 9.0 | 8.0 | 8.5 |
| 7 | CITADELSPINOFFS | 0.258155 | 3.861707 | 14.0 | 3.0 | 8.5 |
| 8 | HELLO_WORLD | 0.197328 | 0.152552 | 11.0 | 6.0 | 8.5 |
| 9 | UHCAKIP | 0.171047 | -2.257846 | 8.0 | 9.0 | 8.5 |
| 10 | DYF | 0.232342 | 0.191339 | 13.0 | 5.0 | 9.0 |
| 11 | JAYSTREET | 0.157266 | -6.004853 | 3.0 | 15.0 | 9.0 |
| 12 | 4SIGMA | 0.282630 | 3.585681 | 15.0 | 4.0 | 9.5 |
| 13 | LAMM | 0.182633 | -2.448027 | 10.0 | 10.0 | 10.0 |
| 14 | MSG | 0.212526 | -2.985561 | 12.0 | 12.0 | 12.0 |



Educational value: competition-emphasized topics

- Qualitative vs. quantitative decision making:
 - robust/ consistent/ significant decision making. what's your strategy/ theory? backtesting?
- Frequency: data vs. trade
- Universe covered: factor modeling
- Predictability: factors/ features
- Forecasts → positions
- Combining ideas



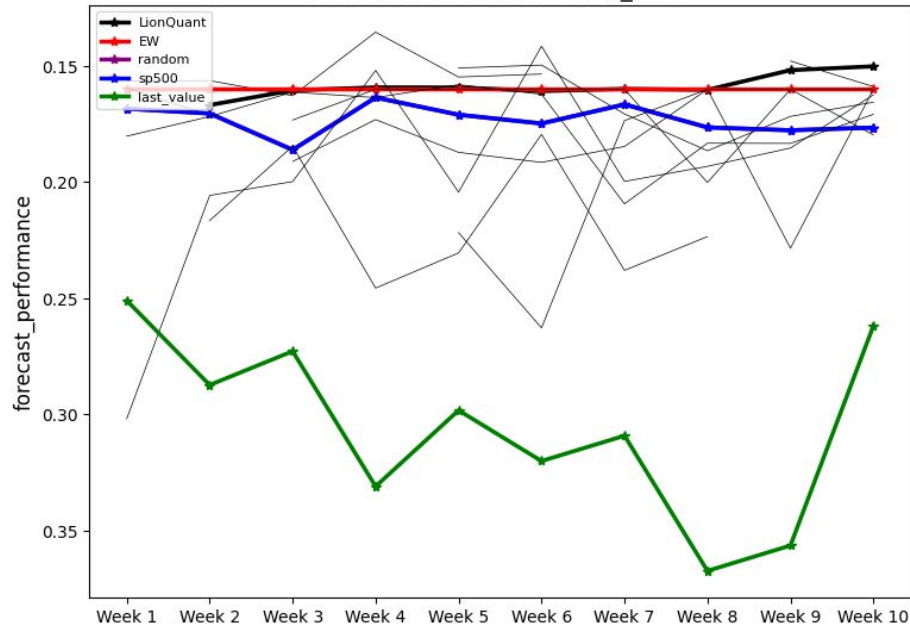
Educational value: competition-emphasized topics

- Data and strategies:
 - Price-based signals: **momentum**, mean-reversion, etc.
 - Analyst revisions (i.e., Yahoo Finance, Factset, etc.)
 - Scraped-based sentiment data (i.e., Twitter, etc.)
 - Fundamental data (i.e., Yahoo Finance, Factset, etc.)
- **Mostly factor investing**

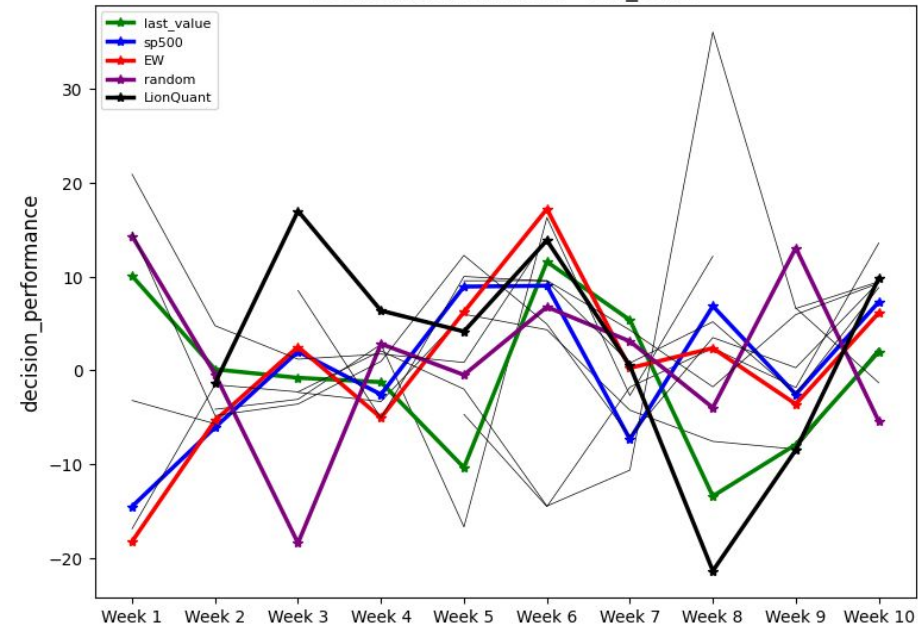


Educational value: Fall 2022 results

Forecast Performance - fall_2022

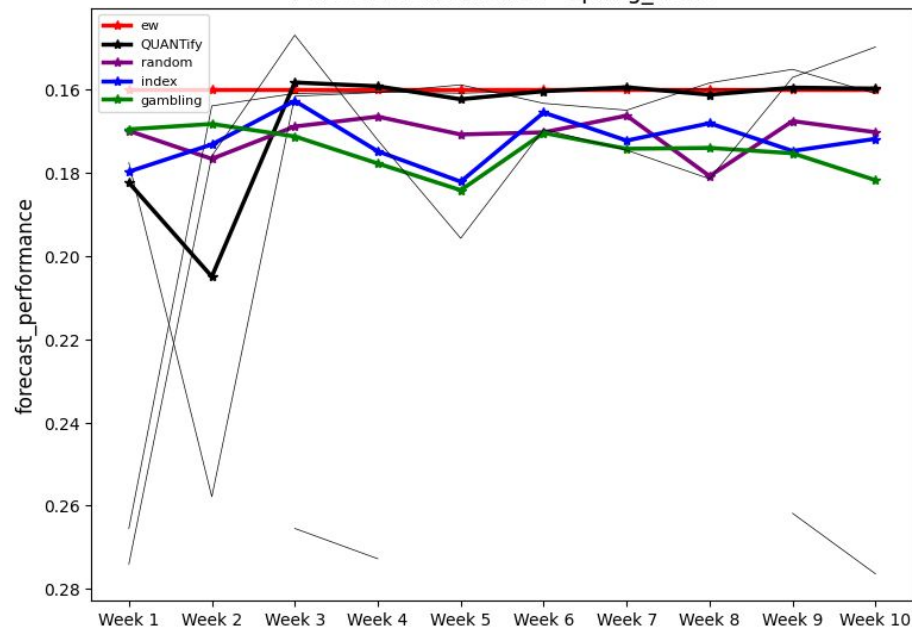


Decision Performance - fall_2022

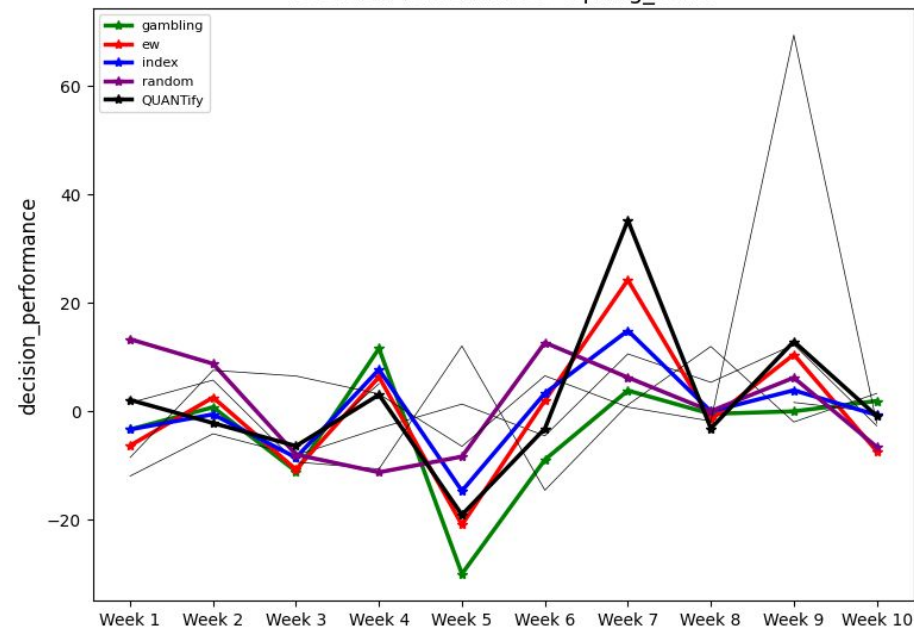


Educational value: Spring 2023 results

Forecast Performance - spring_2023



Decision Performance - spring_2023



Thanks!



Disclaimer

The material presented in this session is strictly for educational purposes and does not constitute investment advice or endorse any particular trading strategies. The views and opinions expressed are solely those of the presenter(s) and do not reflect the positions of any affiliated organizations, partners, or agencies.