Success of Traded Tech Companies

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Overview

- Most U.S. technological companies are traded in the stock market in the past years

- But how to evaluate if they are "successful"?

- Being well-known is not a success, some tech companies are not famous.

- Factors taking into consideration:
  - Market Capitalization (Market Cap)
  - PE Ratio
  - Stock Price
  - Efficiency Ratio
    - Market Cap per dollar of stock price

- **4 models**

Data

- Dataset from Top Tech Companies Stock Price in Kaggle by Tomas Mantero
  - S&P 500 companies
  - Not all companies, specifically the **tech** companies
  - Technology Sector List.csv
  - Technology Companies folder
  - Includes the companies' key financial data
    - 7 variables
    - 100 companies, 74 after cleaning
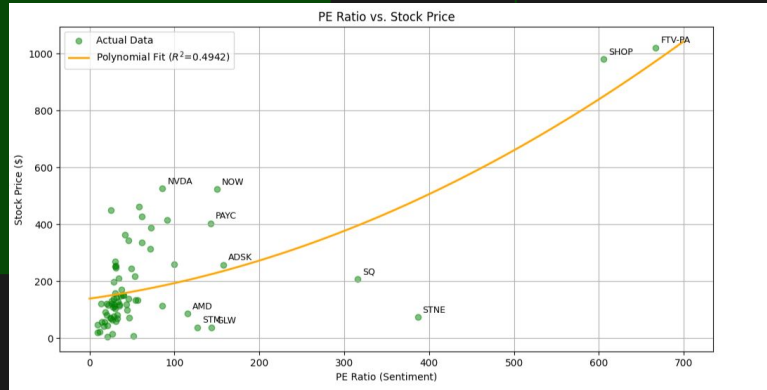   - Data cleaning in Python before analysis

Market Cap vs Stock Price

- Linear Regression Line
  - Flat and weak
  - R^2 = 0.0004, nearly 0

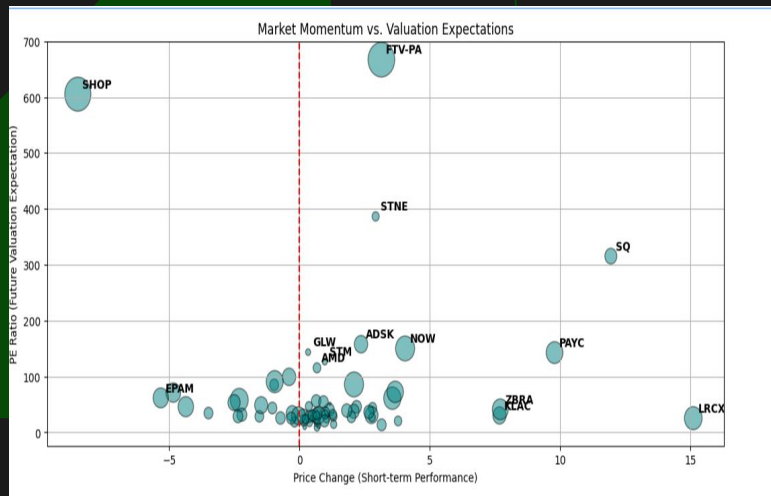- Tech giant companies, like Apple and Microsoft, don't have the highest unit value per share.

Sentiment vs Valuation

PE Ratio vs. Stock Price

- PE Ratio vs Stock Price
- R ^ 2 increase to 0.4942
- Polynomial Fit
- **Investor sentiment** is the "dominant force" in tech stock returns, outweighing traditional factors like momentum (Li, 2025).
- Nearly **50%** of a tech company's stock price can be explained by investor expectations
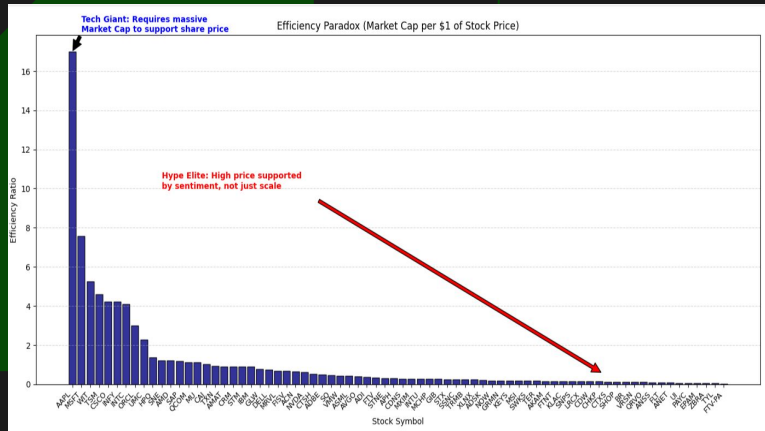
Momentum vs Valuation

Market Momentum vs. Valuation Expectations

- Price Change (Short-term Performance) vs PE Ratio (Future Expectation)
- Bubble Chart
  - The size of bubble shows the company's' stock price
  - Standard line at change = 0, companies at left are losing value, regardless of high stock price now
  - Some companies, like Intel, are right after the line with low PE Ratio.
    - Not "Successful" as expected

Efficiency Paradox

- Calculate a new measure: Efficiency Ratio
    - Evaluates the market cap per dollar of stock price
    - Structural efficiency of success
    - Tech Giants and Hype Elites
    - Measuring tech company's success is a complex process, not from single financial standards

Conclusions

1 Financial success in the tech sector is primarily driven by investor sentiment (**PE Ratio**) rather than company size (**Market Cap**), as evidenced by the significant jump in R^2 from **0.0004** to nearly **0.50**.

2 Success follows an exponential **Polynomial Curve**; once a company establishes a powerful market narrative, its valuation accelerates independently of traditional linear growth metrics.

3 High-value "Superstar" stocks exhibit **Wicked Ambiguity** by maintaining elite valuations and price points even during periods of negative short-term price momentum.

4 No universal formula for success; the industry is split between **"Tech Giants"** (success through massive asset density) and **"Hype Elites"** (success through agile, narrative-driven market cap).

Next Steps & Limitations

- Evaluates the relationship between company's stock price and the traded years.
- Update the datasets regularly

Limitations:
- This dataset is from 5 years ago, need to be updated
- Doesn't take the outside factors into account
  - New products
  - Companies' changes, like merge, close, board's change

- Doesn't contain the specific company's stock trends over years

References

Li S. (2025). Momentum, volume and investor sentiment study for u.s.

technology sector stocks-A hidden markov model based principal

component analysis. PloS one, 20(9), e0331658.

https://doi.org/10.1371/journal.pone.0331658

Mantero, T. (2024). "Top Tech Companies Stock Price." *Kaggle Datasets*..