

# Using a Strategy Consisting of Market Capitalization and Moving Averages to Analyze the Performance of Three Investment Models for a 3-Month Period

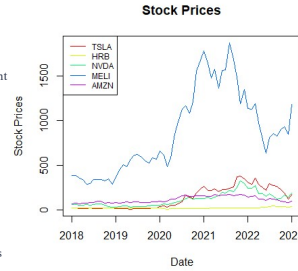


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## Strategy

- Balance portfolio between high-risk-high-reward stocks and low-risk-low-reward stocks
- Goal is to maximize gains without taking on too much unnecessary risk
- Risk averse
- Reduce systematic risk
- Wanted high-reward stocks while considering different current market factors
- Another factor under consideration was having a large market cap
  - Larger market cap helped show which companies have a higher consumer base and can better withstand current market factors
- Compare the candlestick chart with moving averages (5, 10, 30, 50, 100, 200) \*Data gathered from Webull and TradingView
  - Moving averages use historical prices to help predict the future direction of the stock
  - Good indicator of support and resistance



## Macro Analysis

- Our prediction of the market is that it will behave more in line with the market since 2020 rather than since 2018
  - However, we wanted to still consider a longer time period for a better analysis and view of the historical prices
- On February 1st, the Federal Reserve raised interest rates by only a quarter of a point. In 2022, the Federal Reserve raised interest rates by three-quarters of a point four consecutive times and raised interest rates by half a point since past December.
- The significance of the quarter-of-a-point raise is that the Federal Reserve seems to believe that they are gaining control over inflation which in return will lead to a thriving market in 2023
- The Consumer Price Index report has shown a 0.4% increase in inflation, for February, with expectations of a 0.3% increase for March
  - \*Increases are month-over-month
  - Inflation still increasing but at a slower rate

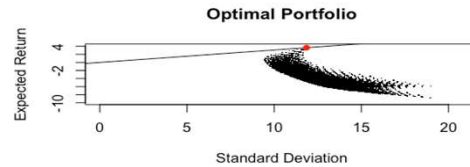
## Expected Returns

TSLA: 3.3207340  
AMZN: 0.5863168  
NVIDIA: 1.9277855  
MELI: 1.8600296  
HRB: 0.6406594

## Portfolio Theory

Portfolio Theory uses the CAL in which the slope is the Sharpe Ratio and gives the user the maximized portfolio for the stocks that they chose.

TSLA	35%
AMZN	0%
NVDA	20%
MELI	25%
HRB	20%



## Adjusted Portfolio Weights

We chose to take 5% out of MELI instead of HRB and put it into AMZN because they have similar returns, but MELI has a higher risk.

TSLA	35%
AMZN	5%
NVDA	20%
MELI	20%
HRB	20%

## Fama French Three-Factor Model

The formula for the Fama French three-factor model is:

$$E(r) = r_f + \beta_1(r_m - r_f) + \beta_2(SMB) + \beta_3(HML) + \epsilon$$

The last part of the equation,  $\epsilon$ , is the unsystematic risk associated with the individual risks each company possesses that are not related to the market.

The three factors are the excess return of the market ( $r_m - r_f$ ), the book-to-market values (HML), and the size of the firms (SMB).

(SMB)	Tesla	Amazon	Nvidia	Mercado Libre	H&R Block
Intercept	1.6197	-0.52382	0.3426	0.5270	0.1139
Mkt Index	1.9606	1.21052	1.8412	1.4446	0.6394
SMB	0.0485	0.02653	-0.2475	0.7902	0.2222
HML	-1.0424	-0.89811	-0.9842	-0.8236	0.9796

## References

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## Results and Interpretation

- The beta associated with the intercept is the over or undervaluation
- The market index is associated with the risk level of the market correlated with the market return
- Small-minus-big is associated with the correlation between the size of the stock and the stock returns
- High-Minus-Low is associated with the correlation of the book-to-market equity ratio and the earnings

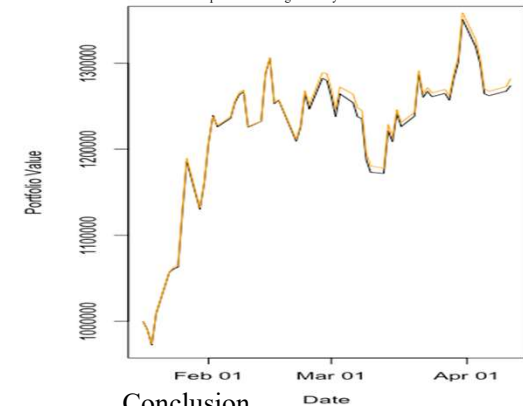
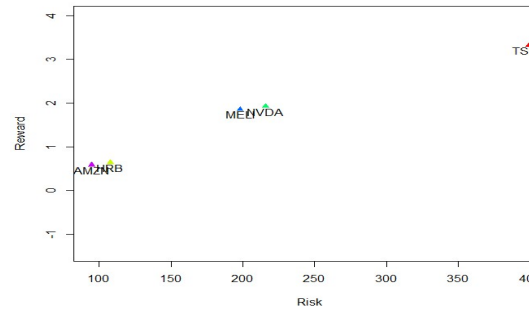
Stock	Macro Analysis (HR, HR, L&R, HR-L&R, etc.)	Market Capitalization	Moving Average (Bullish/Bearish)	One-year price target (average)
Tesla	High Risk-High Reward	661.107 billion	Bullish	\$ 204.06
Amazon	Low Risk-Low Reward	968.575 billion	Bullish	\$ 137.05
Nvidia	High Risk-High Reward	591.401 billion	Bullish	\$ 256.39
Mercado Libre	Medium Risk-Medium Reward	60.938 billion	Bullish	\$ 1,470.00
H and R Block	Low Risk-Low Reward	5,629 billion	Bullish	\$ 38.00
United Airlines	Low Risk-Low Reward	13.728 billion	Bearish	\$62.44
American Express	Low Risk- Medium Reward	120.762 billion	Bullish	\$186.28
Heu Corp.	High Risk- High Reward	41.213 billion	Neutral	\$158.81
Applied Materials Inc.	High Risk- Low Reward	95.896 billion	Bullish	\$129.08

\*The one-year average price target is based on Wall Street analysts, data on tiprankings.com

## Variances and Covariances

	Tesla	Amazon	Nvidia	Mercado Libre	H&R Block
Tesla	359.414	186.576	163.519	164.836	100.027
Amazon	186.576	158.034	175.745	132.064	69.109
Nvidia	163.519	175.745	360.236	184.746	78.524
Mercado Libre	164.836	132.064	184.746	206.093	12.302
H&R Block	100.027	69.109	78.524	12.302	140.415

## Risk vs Reward



## Purpose

- Our goal in doing this analysis is to educate the average investor, whether investing personally or with a financial advisor
- We also enjoy making money so we wanted to make the most possible

## Stocks In Our Portfolio

TSLA- Tesla has been a volatile stock. Tesla stock dropped heavily in 2022 and we hope to catch it before it returns to a higher level. Since January 17, Tesla's stock has increased by nearly 70 dollars. Tesla has extra inventory from 2022 and is primed for a big production year in 2023. They have also decreased the prices of their cars by as much as 20%.

AMZN- Amazon has been down over the past year, but it has steadily increased so far in this trading period. Amazon is also one of the largest e-commerce stocks making it more trustworthy along with the hopeful deceleration of inflation.

NVDA- Nvidia is involved with the computer chip design and manufacturing of several well-known tech stocks such as Amazon, Tesla, Google, and Apple. Nvidia has started to go up in price since its downtrend in 2022.

MELI- Mercado Libre is Latin America's largest E-commerce and online auction platform. We also chose Mercado Libre because of its base in Latin America and the diversification that it can give to the portfolio.

HRB- H and R Block is a tax preparation company. With taxes being due mid-April we expect H and R Block to go up in response to more consumers using this company. Revenue has also been reported to have increased by 5% year-over-year. They are also expanding their human resource base to help drive customers to use their platform and services more.

## Portfolio Performance

- Our modified portfolio increased from one million dollars to almost 1.27404 million dollars. Or a 27.404% increase.
- The Portfolio theory portfolio went from one million to 1.28207 million or a 28.207% increase.
- The Portfolio Theory recommendation beat our modified portfolio by 803%.

## Benchmarks

- The first benchmark we chose is the S&P 500. From Jan 17, 2023, to Mar 29, 2023, the S&P 500 was up .923%.
- Our second benchmark is a group of the highest market capitalization stocks in the United States region.
- In order they were as follows: Microsoft, Google, Amazon, Nvidia, and Berkshire Hathaway Incorporated.
- If our portfolio was equally weighted amongst these stocks, the return would have been around 16.297%.
- Our portfolio from the same period of time was up 25.699 percent.
- Our modified portfolio did significantly better than our two benchmarks.

## Conclusion

- Overall, our strategy of using Risk Vs Reward analysis of our stocks was a great way of balancing our portfolio and maximizing return.
- All three models were instrumental in fine-tuning our portfolio in order to better balance our stocks.
- The only downfall of the models was the fact that all three did not accurately give us the results of Amazon.
- Amazon stock was up 1.85% for the time period, while all three models predicted that Amazon would underperform and be overvalued.
- In hindsight, we could have picked a better low-risk and low-reward stock to replace Amazon.