

# **THE IMPACT OF AI ADVANCEMENTS ON U.S. STOCK MARKETS: A CORRELATIVE STUDY OF AAPL, FB/META, GOOGL, & MSFT**

**BY**

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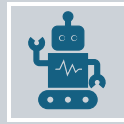
**OCTOBER 22, 2024**

# Hypothesis: Advent of AI has Positively Impacted leading Technology Companies and the Stock Market



## Sampling Plan:

- Apple, Google, Facebook/META, Microsoft
- S&P 500 Index, NASDAQ Composite Index



## Sample Size:

- 1/2018 – 9/2024;
- ChatGPT 11/2022 – 9/2024;
- Gemini/Bard 03/2023 – 9/2024;
- Copilot+ 11/2023 – 9/2024



## Data Sources:

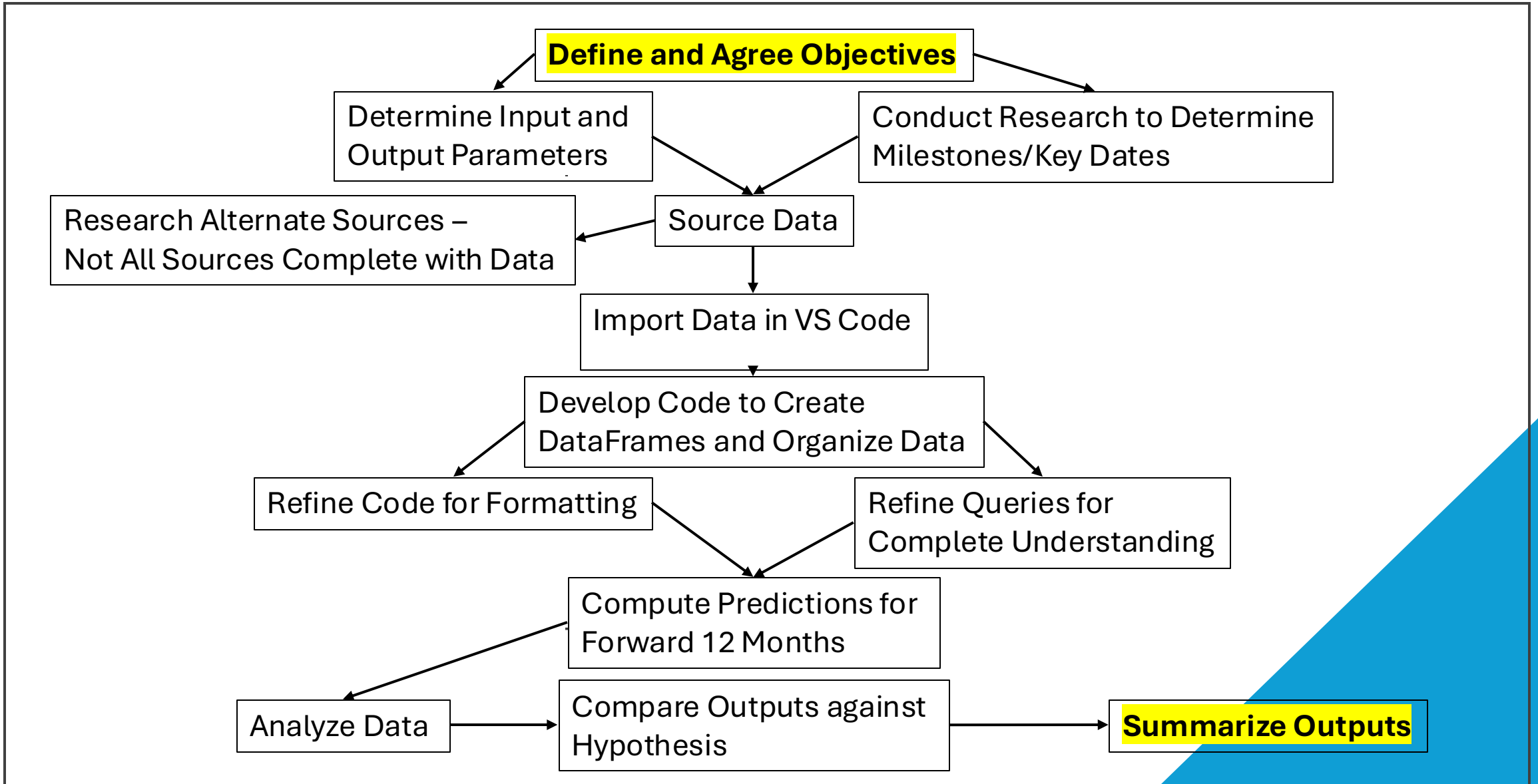
- Alpha Vantage, Yahoo Finance
- Kaggle



## Outputs:

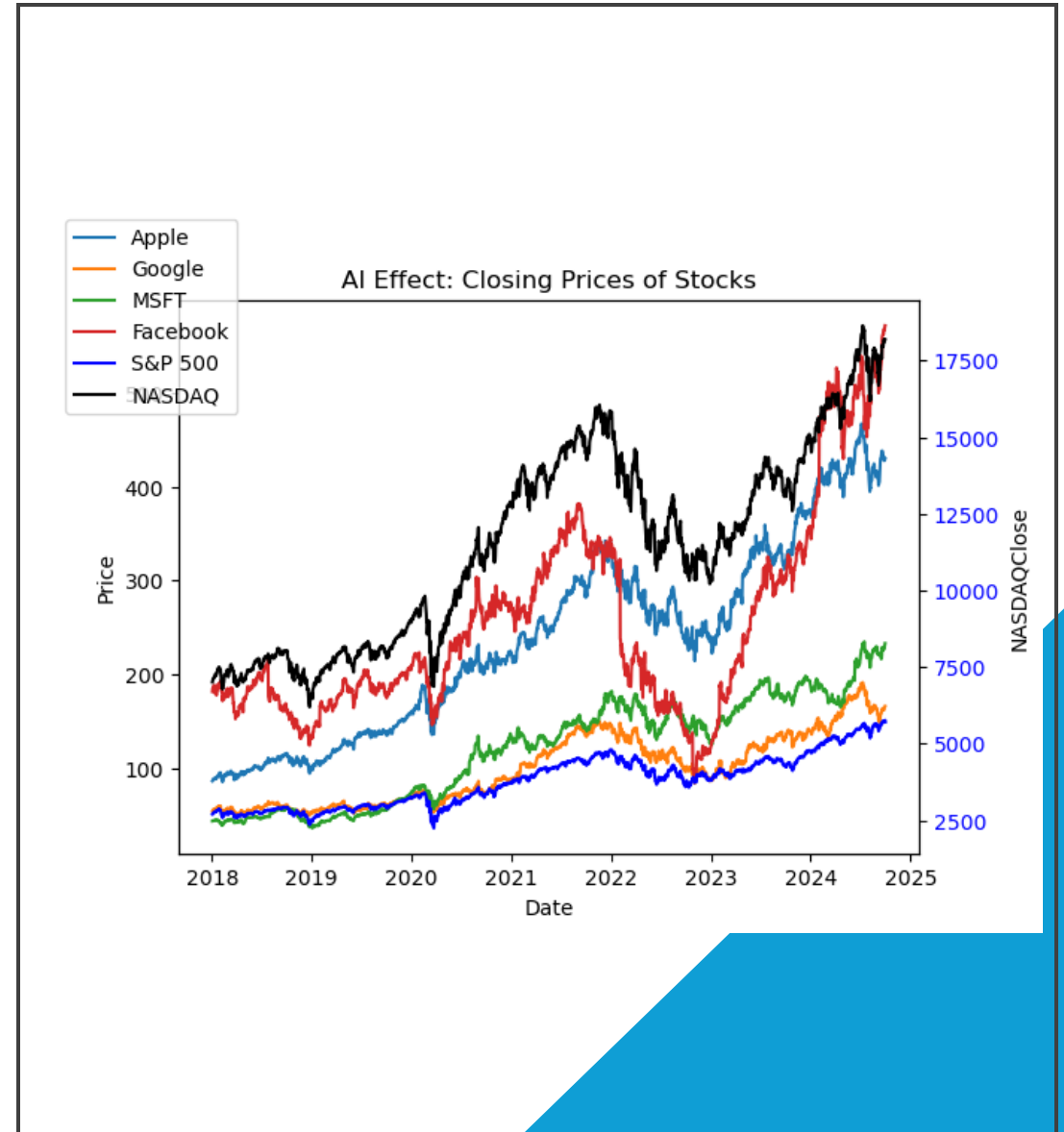
- Total Returns
- Annualized Returns
- Stock Price after Each Release
- Traded Volume after Each Release
- Predictions over next 12-months

# Project Flow

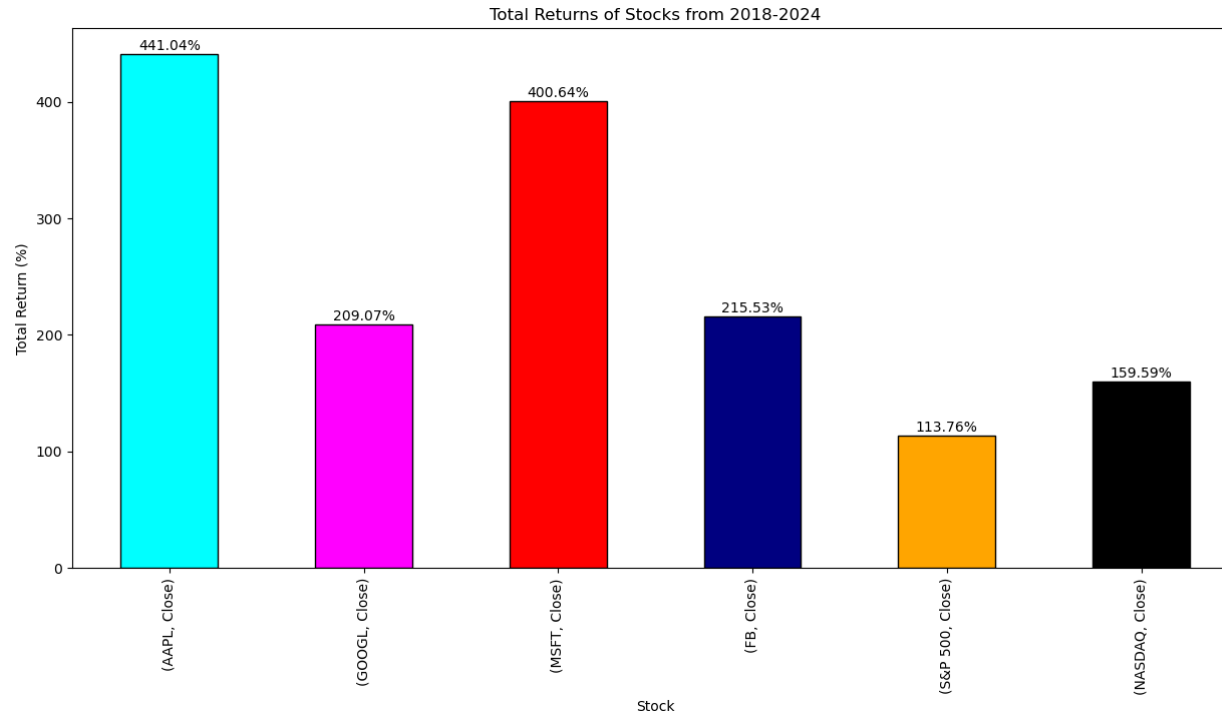


# The Growing Role of AI in the Stock Market

- Importance of AI in Shaping Financial Markets
- Description of time frame, price fluctuation pattern, similarities
- Focus on key companies: Apple, Meta, Google, Microsoft



# Why AAPL, FB/META, GOOGL, & MSFT?



- Leaders in AI innovation and commercialization
- Releases of key AI products (ChatGPT, Gemini/Bard, Microsoft Copilot+)
- Significant influence on U.S. stock markets

# Release day Impact of Major AI Products

	AAPL	GOOGL	MSFT	FB	S&P 500	NASDAQ
	Close	Close	Close	Close	Close	Close
Date						
2022-11-28	144.220001	96.050003	241.759995	108.779999	3963.94	11049.500000
2022-11-29	141.169998	95.190002	240.330002	109.459999	3957.63	10983.780273
2022-11-30	148.029999	100.989998	255.139999	118.099998	4080.11	11468.000000
2022-12-01	148.309998	100.989998	254.690002	120.440002	4076.57	11482.450195
2022-12-02	147.809998	100.440002	255.020004	123.489998	4071.70	11461.500000

	AAPL	GOOGL	MSFT	FB	S&P 500	NASDAQ
	Close	Close	Close	Close	Close	Close
Date						
2023-03-28	157.649994	101.029999	275.230011	200.679993	3971.27	11716.080078
2023-03-29	160.770004	101.389999	280.510010	205.350006	4027.81	11926.240234
2023-03-30	162.360001	100.889999	284.049988	207.839996	4050.83	12013.469727
2023-03-31	164.899994	103.730003	288.299988	211.940002	4109.31	12221.910156
2023-04-03	166.169998	104.360001	287.230011	213.070007	4124.51	12189.450195

	AAPL	GOOGL	MSFT	FB	S&P 500	NASDAQ
	Close	Close	Close	Close	Close	Close
Date						
2023-10-30	170.289993	124.459999	337.309998	302.660004	4166.82	12789.480469
2023-10-31	170.770004	124.080002	338.109985	301.269989	4193.80	12851.240234
2023-11-01	173.970001	126.449997	346.070007	311.850006	4237.86	13061.469727
2023-11-02	177.570007	127.489998	348.320007	310.869995	4317.78	13294.190430
2023-11-03	176.649994	129.100006	352.799988	314.600006	4358.34	13478.280273

	AAPL	GOOGL	MSFT	FB	S&P 500	NASDAQ
	% Change	% Change	% Change	% Change	% Change	% Change
Date						
2022-11-28	nan	nan	nan	nan	nan	nan
2022-11-29	-2.11	-0.90	-0.59	0.63	-0.16	-0.59
2022-11-30	4.86	6.09	6.16	7.89	3.09	4.41
2022-12-01	0.19	0.00	-0.18	1.98	-0.09	0.13
2022-12-02	-0.34	-0.54	0.13	2.53	-0.12	-0.18

	AAPL	GOOGL	MSFT	FB	S&P 500	NASDAQ
	% Change	% Change	% Change	% Change	% Change	% Change
Date						
2023-03-28	nan	nan	nan	nan	nan	nan
2023-03-29	1.98	0.36	1.92	2.33	1.42	1.79
2023-03-30	0.99	-0.49	1.26	1.21	0.57	0.73
2023-03-31	1.56	2.81	1.50	1.97	1.44	1.74
2023-04-03	0.77	0.61	-0.37	0.53	0.37	-0.27

	AAPL	GOOGL	MSFT	FB	S&P 500	NASDAQ
	% Change	% Change	% Change	% Change	% Change	% Change
Date						
2023-10-30	nan	nan	nan	nan	nan	nan
2023-10-31	0.28	-0.31	0.24	-0.46	0.65	0.48
2023-11-01	1.87	1.91	2.35	3.51	1.05	1.64
2023-11-02	2.07	0.82	0.65	-0.31	1.89	1.78
2023-11-03	-0.52	1.26	1.29	1.20	0.94	1.38

OpenAI's  
ChatGPT

Google's  
GEMINI/BARD

Microsoft's  
CoPilot +

- Open AI's ChatGPT's Nov 28-Dec 02, 22 release
- Google's Gemini/Bard's March 30-April 03, 23 release
- Microsoft's Copilot's Oct 30-Nov 03, 23 release
- Each release increased trading volume, rate, and stock value

# Market Impact of Major AI Product Releases

- ChatGPT (late 2022) and integration with Microsoft Copilot+
- Google's Gemini/Bard and its Impact on search and advertising
- Meta's AI algorithms driving platform engagement
- Each release increased trading volume, rate, and stock value (white background)

	AAPL	GOOGL	MSFT	FB	NASDAQ
	% Change	% Change	% Change	% Change	% Change
Date					
2022-11-29	nan	nan	nan	nan	nan
2022-11-30	32.97	117.57	165.06	81.38	44.87
2022-12-01	-36.03	-34.28	-45.28	-15.68	-22.47

	AAPL	GOOGL	MSFT	FB	NASDAQ
	% Change	% Change	% Change	% Change	% Change
Date					
2023-03-30	nan	nan	nan	nan	nan
2023-03-31	38.88	11.42	30.78	12.53	16.51
2023-04-03	-17.13	-32.09	-24.06	-29.54	-12.76

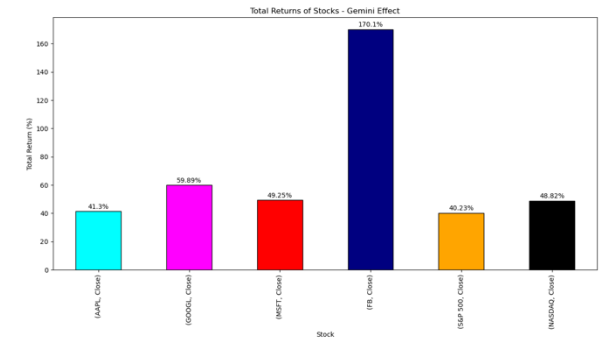
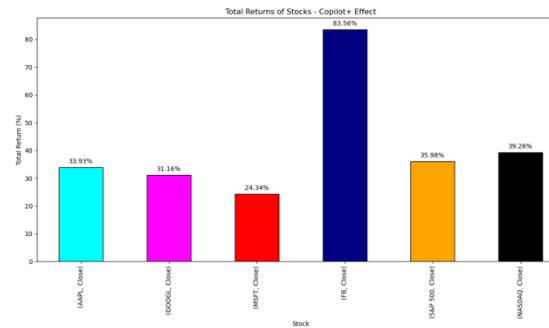
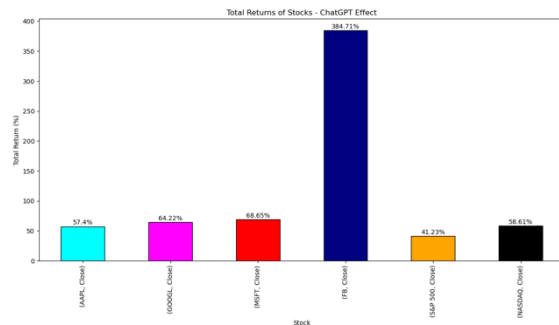
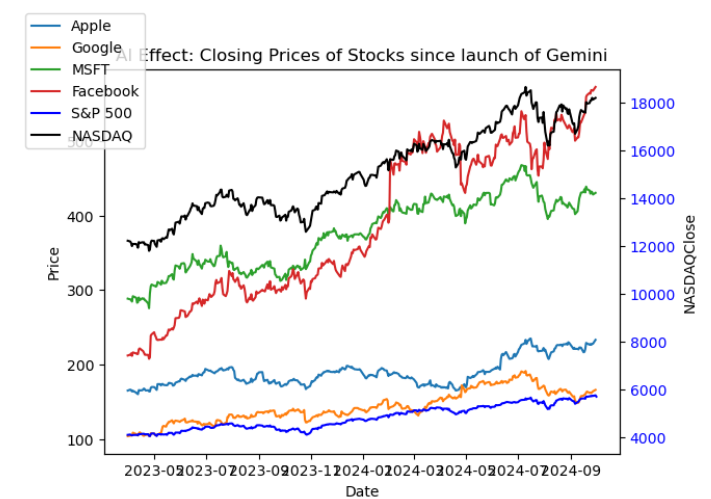
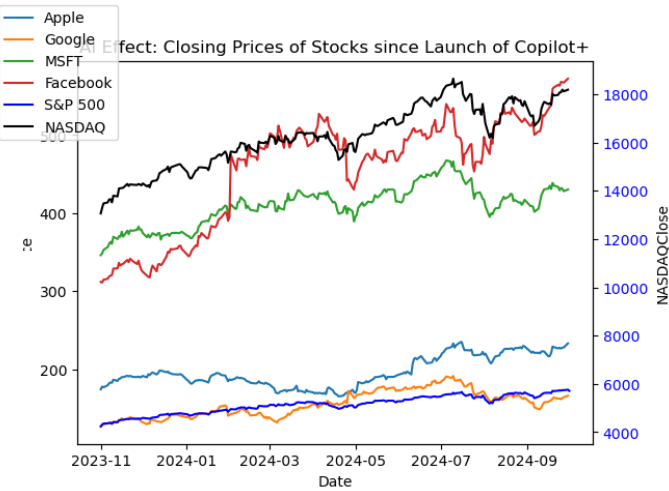
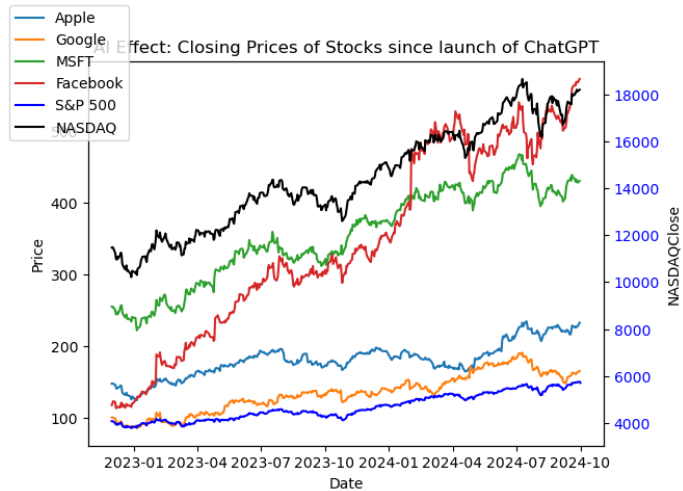
	AAPL	GOOGL	MSFT	FB	NASDAQ
	% Change	% Change	% Change	% Change	% Change
Date					
2023-10-31	nan	nan	nan	nan	nan
2023-11-01	26.96	14.42	38.95	5.15	5.32
2023-11-02	35.83	-9.83	-13.53	5.86	9.19

TRADING VOLUME%  
IMPACT OF CHATGPT

TRADING VOLUME%  
IMPACT OF  
GEMINI/BARD

TRADING VOLUME%  
IMPACT OF COPILOT +

# Correlation with Stock Market Performance

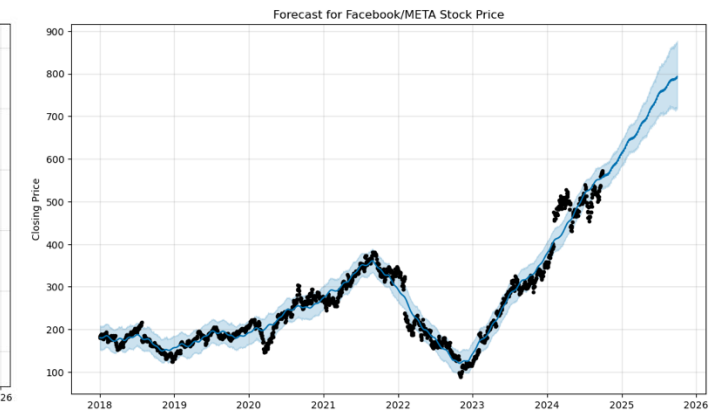
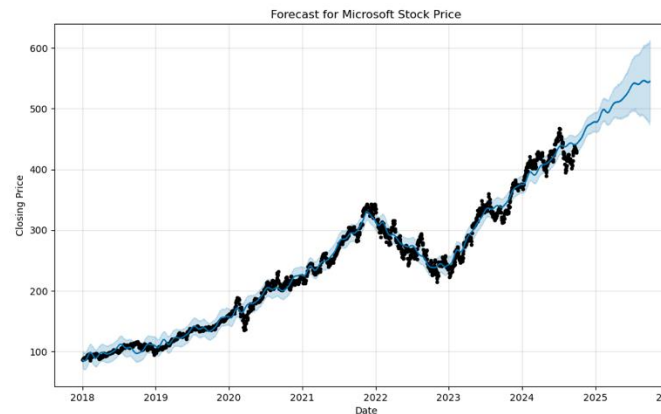
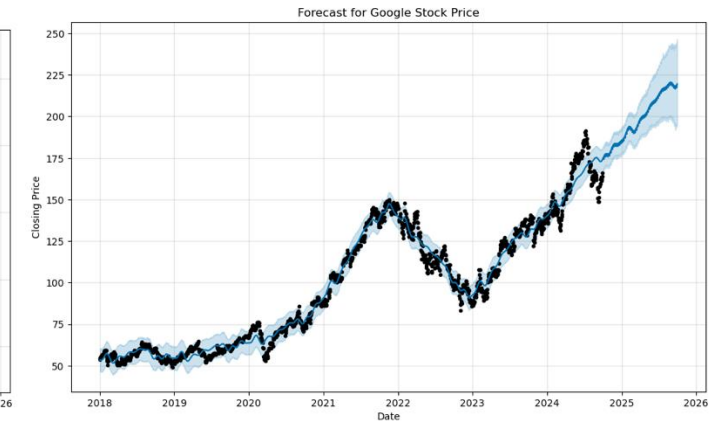


- Stock price trends during major AI announcements
- ChatGPT, Gemini/Bard Increased trading volumes and positive investor sentiment
- Outperformance of AI-focused companies

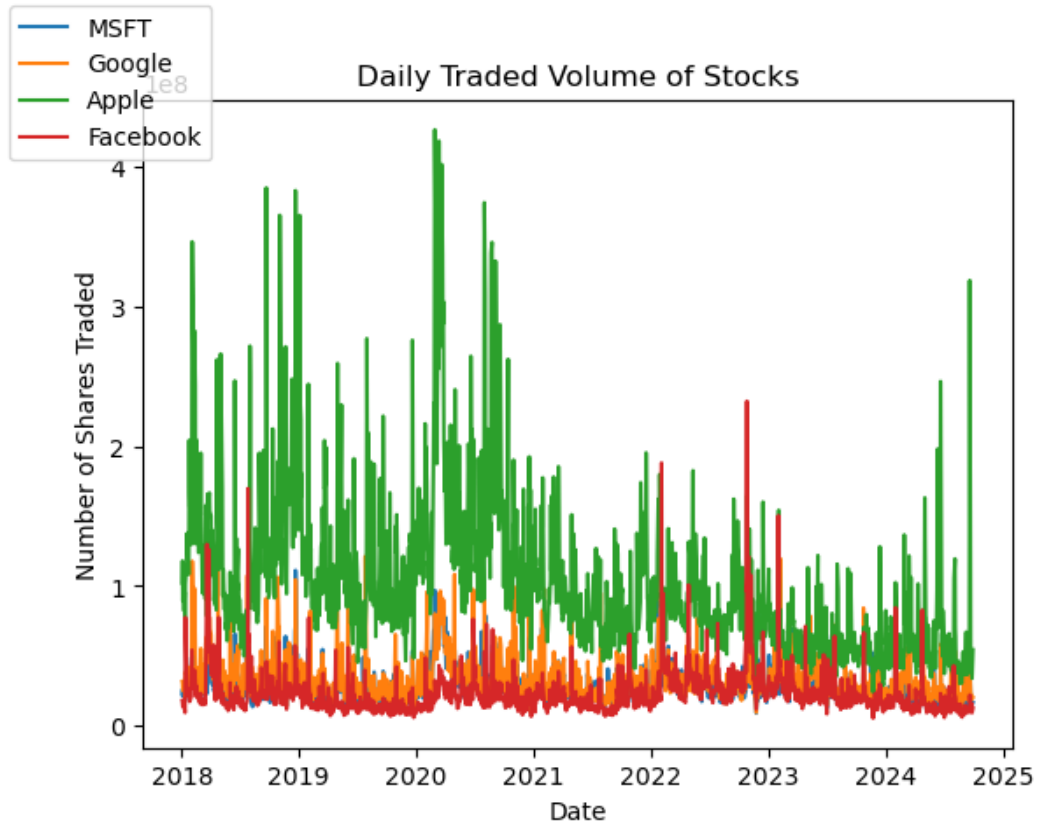


# The Future of AI in Stock Markets

- AI's Growing Role in Stock Performance Through Innovation
- Key factors for investors: monitoring AI products, regulations, market trend
- Projected stock futures of AI leaders Microsoft, Google, Apple and Meta



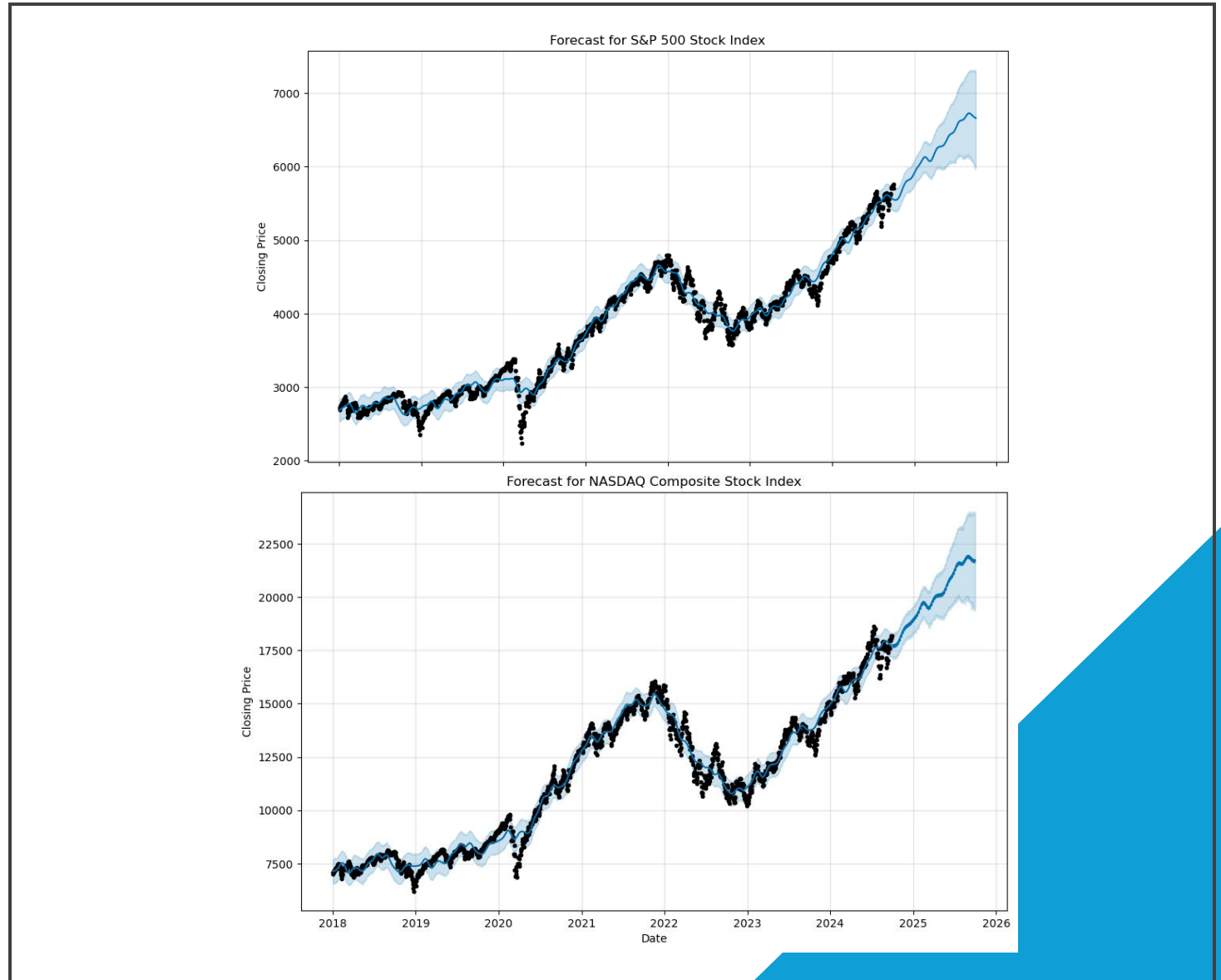
# AI Advancements, Volatility, Risks



- Ethical and regulatory concerns around AI
- Market volatility following controversial AI developments
- Stock declines during negative AI-related news

# Investor Optimism on AI Advancements

- AI product releases driving market momentum
- ChatGPT's integration boosting MSFT
- Gemini/Bard impacting GOOGL
- Correlation between AI news and trading volumes of S&P 500 and NASDAQ



# Key Takeaways and Reflections

- AI product releases (ChatGPT, Gemini/Bard, Copilot+) are major drivers of stock performance
- Companies leading AI innovation show strong market results
- Investors should closely monitor AI trends and regulations for future growth potential
  - Global markets, politics
  - Global AI trends
  - Global black swan events
- Future focus
  - AI chips and hardware for quantum computing
  - AI-enhanced cloud solutions
  - Autonomous driving
  - Fintech AI
  - Personalized healthcare

# References

- Alpha Vantage
- Bloomberg LP
- Kaggle
- Yahoo Finance