

Louis Miguel H. Bernal

Top 3 Stock Indexes

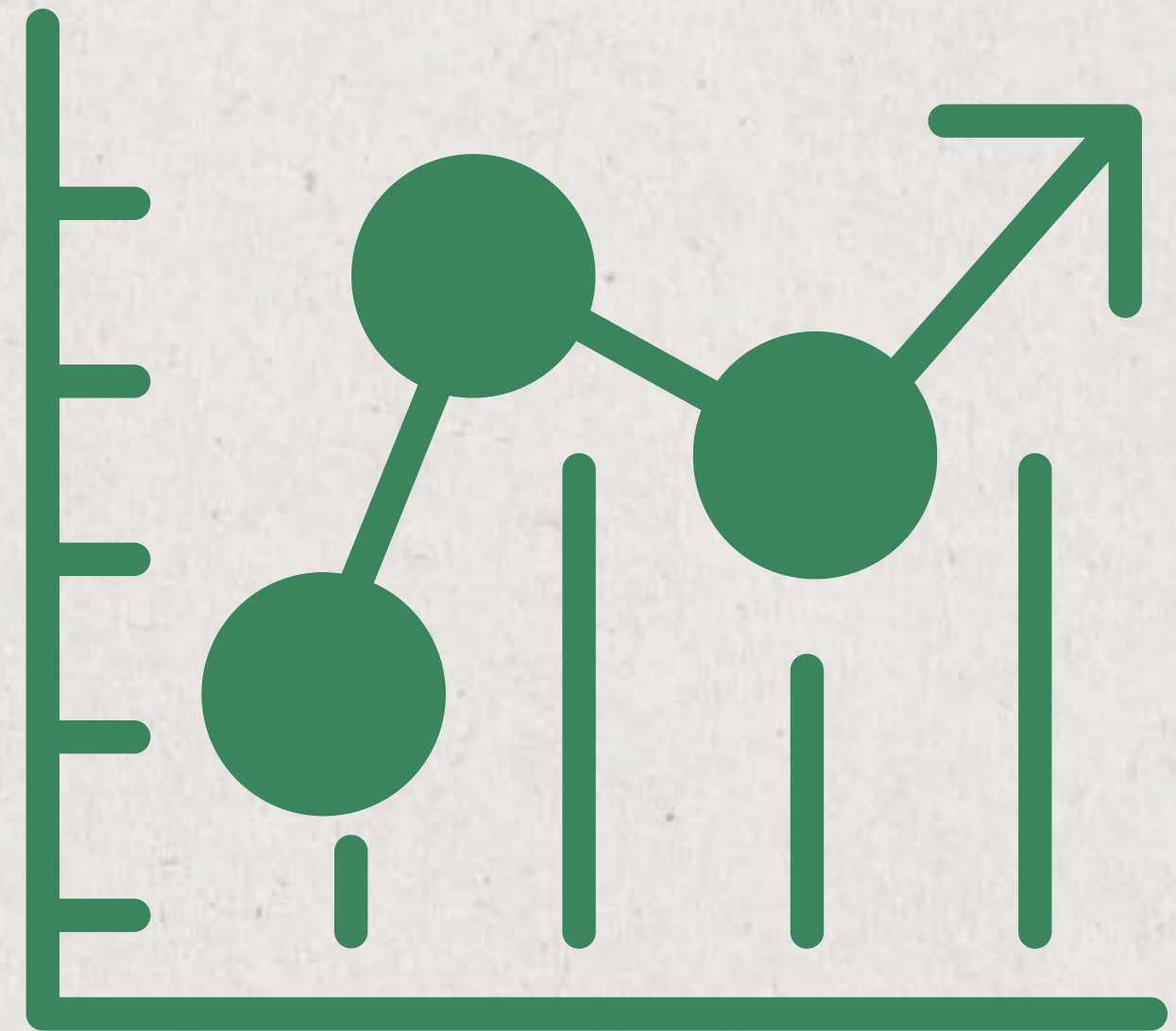
Analysis



Evolution of global markets

The S&P 500, Nasdaq Composite, and Dow Jones Industrial Average (DJIA) are all influential stock market indexes that track different aspects of the U.S. market. The S&P 500, considered a benchmark for the overall market, measures the performance of 500 large, publicly traded companies.

The Nasdaq Composite tracks a wider range of companies, over 3,000, listed on the Nasdaq exchange, with a heavy focus on technology stocks. The DJIA, on the other hand, is a narrower index of just 30 well-established, large companies across various industries.



Stock Price Visualization

A stock's opening price sets the initial trading benchmark. It reflects overnight news and impacts daily activity. Analysts use the gap between open and close to identify potential future price movements.

Market Cap

Market capitalization, or market cap, is a key metric in financial analysis, reflecting the total dollar value of a company's outstanding shares. It's calculated by multiplying the current share price by the number of outstanding shares.



Important Analysis and Calculations

Volume

Stock volume refers to the total number of shares traded in a specific period, typically a day. This metric serves as a gauge of market activity for a security. Higher volume during price movements is seen as a sign of conviction by traders, lending credence to the move's legitimacy.

Correlation and Scatter Matrix

Stock correlation measures how closely two stocks move together. A correlation matrix summarizes these relationships for multiple stocks, allowing analysts to identify potential diversification benefits. By visualizing these correlations through a scatter matrix, analysts can gain a quick understanding of which stocks

Important Analysis and Calculations

Moving Averages

A moving average is a way of smoothing out data by taking a bunch of averages over smaller chunks of your entire dataset. There are different ways to do this, like taking a simple average, keeping a running total, or giving more weight to certain points.

Daily Percentage Gain

Measures a stock's price change over a single trading day relative to its opening price. This metric is crucial for understanding short-term price volatility and investor sentiment. Analysts monitor daily gains to assess a stock's momentum.

Volatility

Stock volatility refers to the magnitude of a stock's price fluctuations over time. It serves as a key risk indicator, with higher volatility suggesting greater price swings and uncertainty.

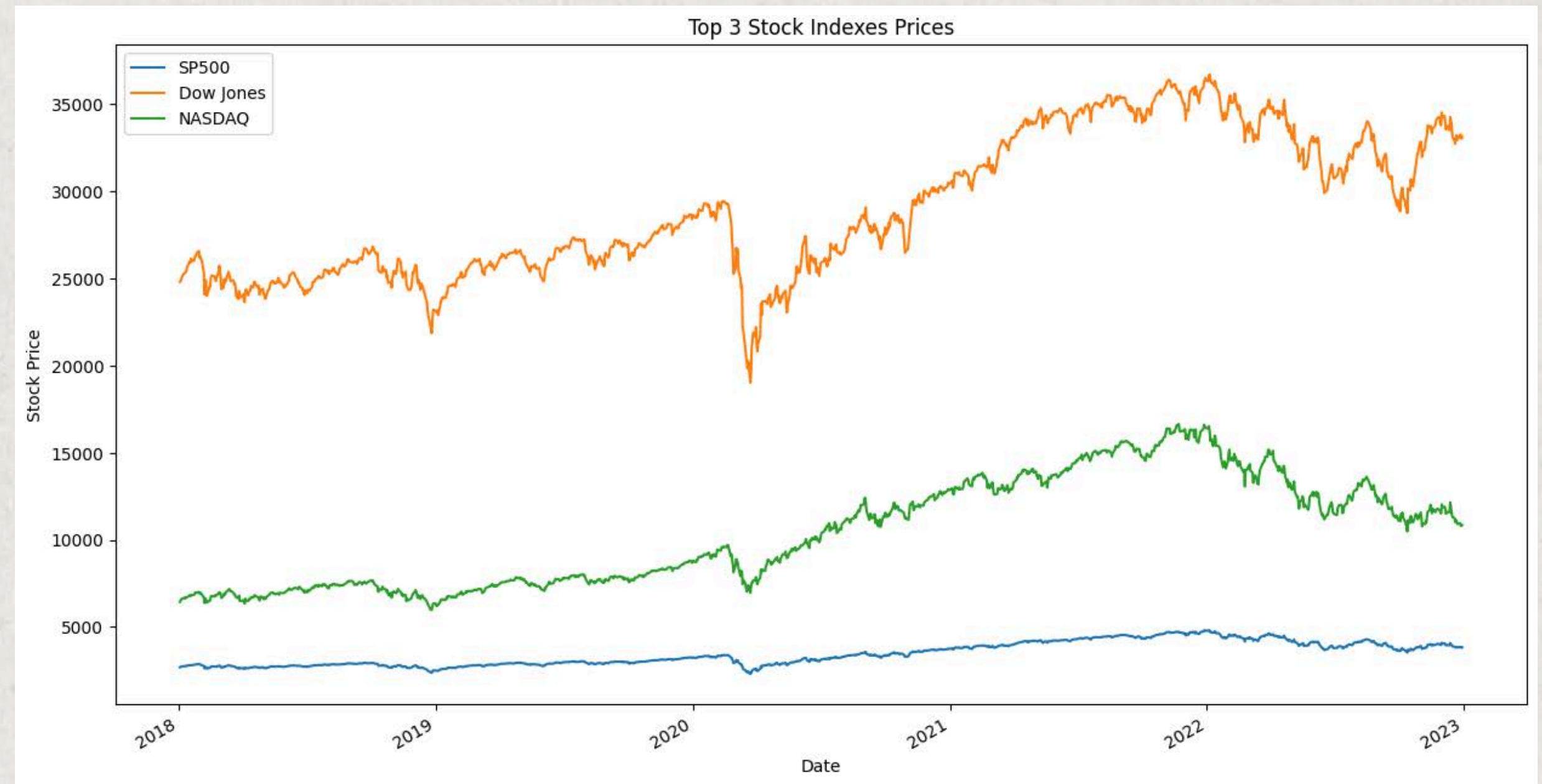
Cumulative Return

Reflects the total gain or loss of an investment over a specific period, regardless of its length. It captures both price changes and reinvested dividends, providing a more comprehensive picture of an investment's performance.

Stock Price

From 2018 to early 2020, the SP500, Dow Jones, and NASDAQ grew steadily until the COVID-19 pandemic caused sharp declines. The Dow Jones fell below 19,000, NASDAQ to around 6,900, and SP500 below 2,300.

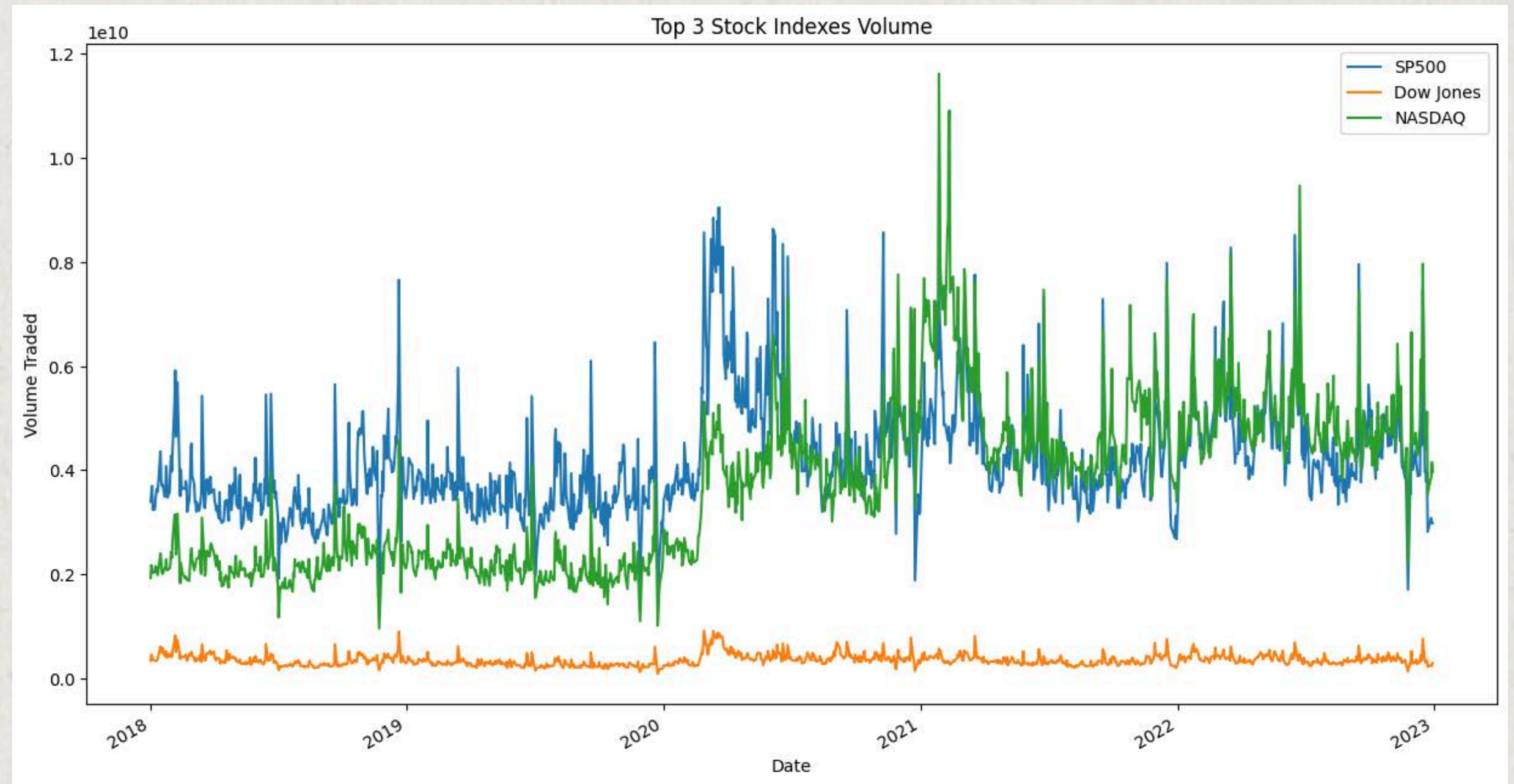
They rebounded strongly, peaking in late 2021 with the Dow above 35,000, NASDAQ over 15,000, and SP500 around 4,800. However, from 2022, they declined due to inflation, interest rate hikes, and geopolitical tensions, stabilizing at lower levels by early 2023.



Stock Volume

From 2018 to early 2020, SP500 and NASDAQ trading volumes were relatively stable with occasional spikes, while Dow Jones volumes were consistently lower. In early 2020, volumes spiked significantly across all indexes due to the COVID-19 pandemic.

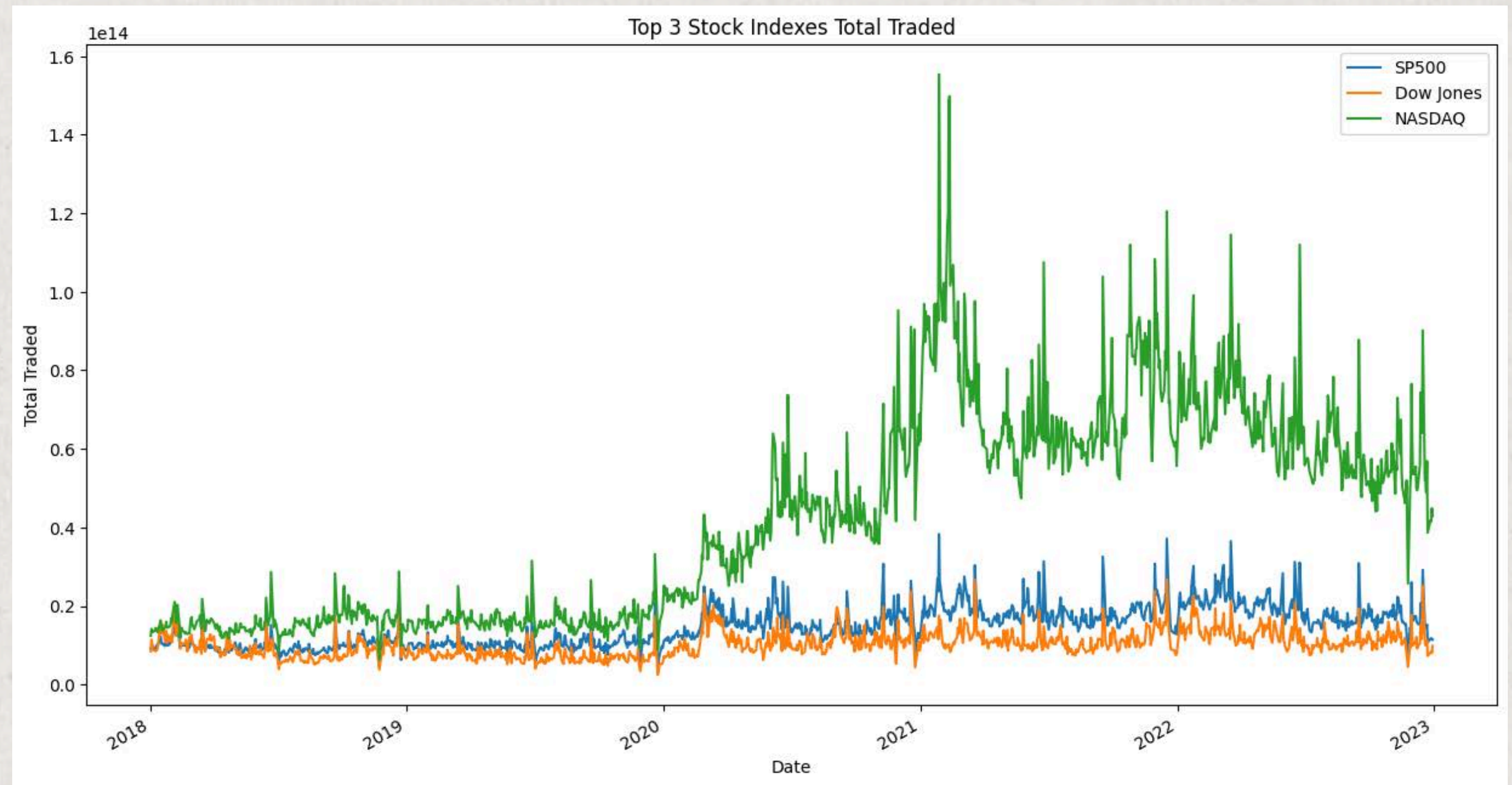
Post-pandemic, SP500 and NASDAQ volumes remained elevated with frequent peaks through 2021 and 2022. By early 2023, trading volumes declined slightly across all indexes, indicating a return to more typical activity levels.



Market Cap

The market capitalization of the SP500, Dow Jones, and NASDAQ shows NASDAQ with the highest trading volume, followed by the SP500, and the Dow Jones with the lowest. NASDAQ's high volume reflects strong interest in tech stocks, while the Dow's lower volume indicates less frequent trading activity.

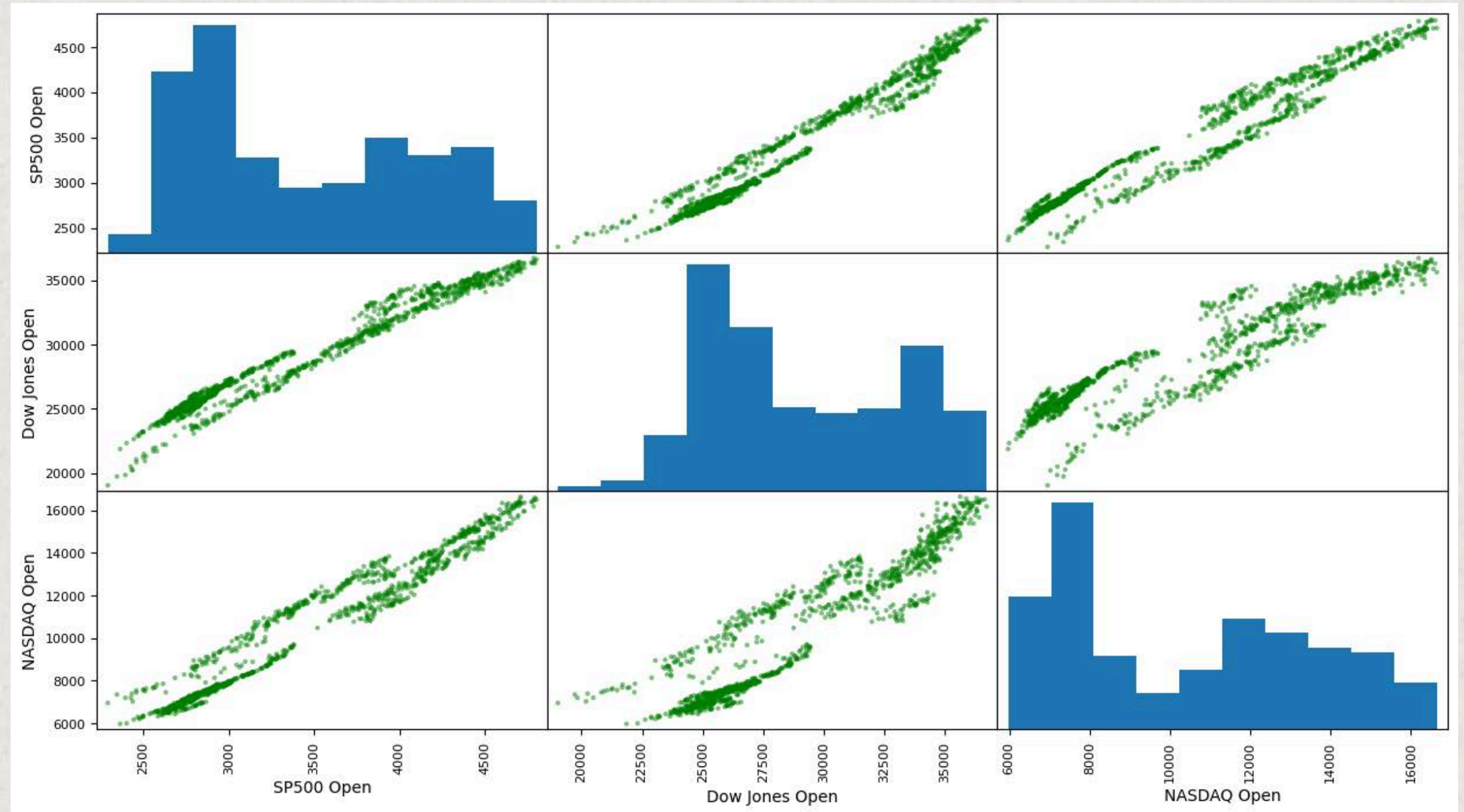
In early 2020, trading volumes spiked across all indexes despite the COVID-19 pandemic, reflecting increased market volatility. Post-pandemic, NASDAQ and SP500 volumes remained elevated with frequent peaks, while Dow Jones volumes stayed relatively steady. By early 2023, volumes had declined slightly, indicating a return to more typical market activity levels.



Correlation and Scatter Matrix

The scatter plot matrix shows the relationships between the opening prices of the S&P 500, Dow Jones, and NASDAQ indices. Each off-diagonal scatter plot indicates a strong positive correlation, meaning that the indices tend to move together.

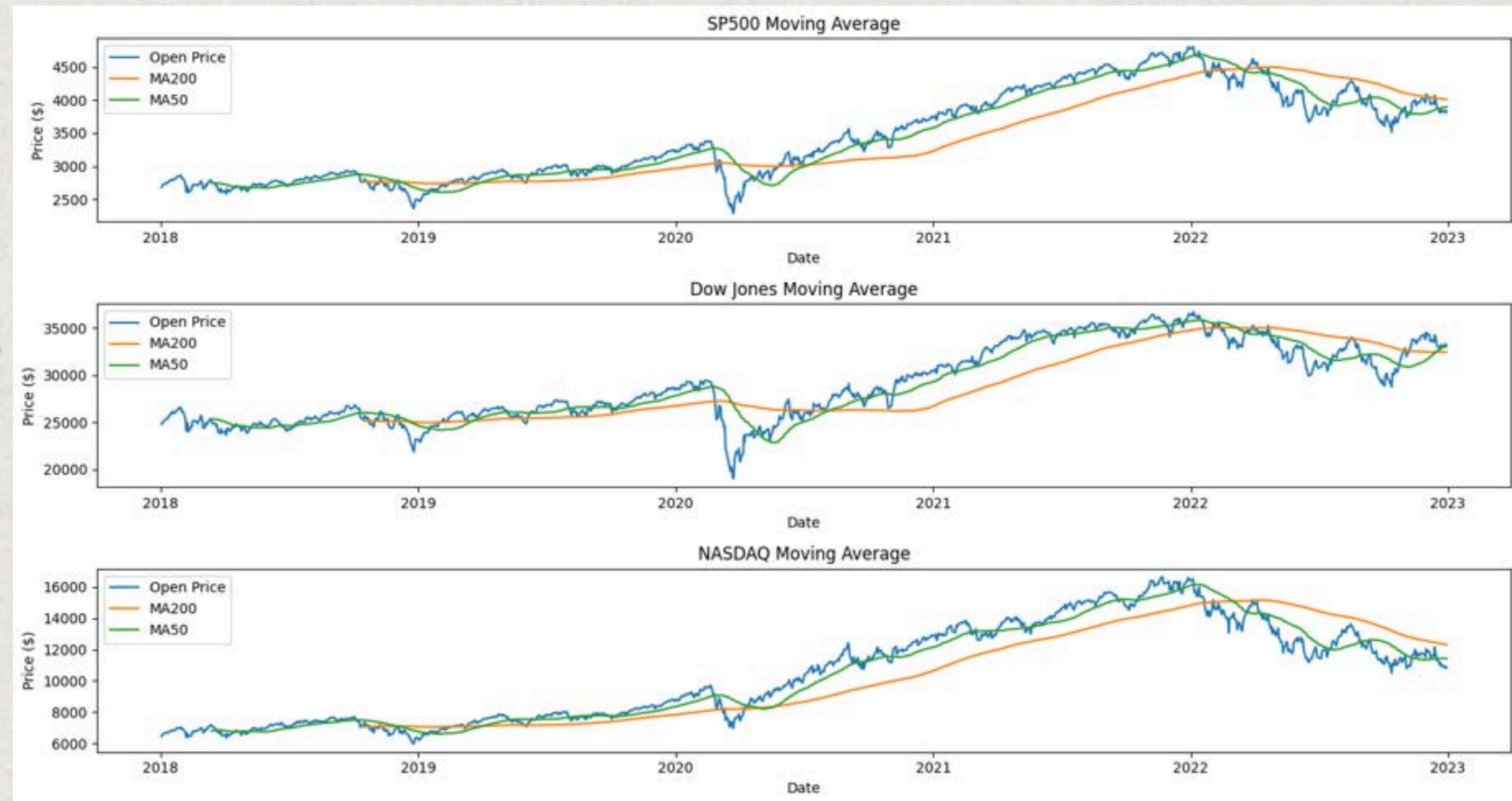
The diagonal histograms reveal the distribution of each index's opening prices. The S&P 500 and Dow Jones have relatively even distributions, while the NASDAQ shows a skew towards lower opening prices. This visualization highlights the tight interconnection and synchronized movements of these major stock indices.



Moving Averages

The chart shows the moving averages of the S&P 500, Dow Jones, and NASDAQ indexes from 2018 to 2023. Each subplot includes the 50-day (green line) and 200-day (orange line) moving averages alongside the opening prices (blue line).

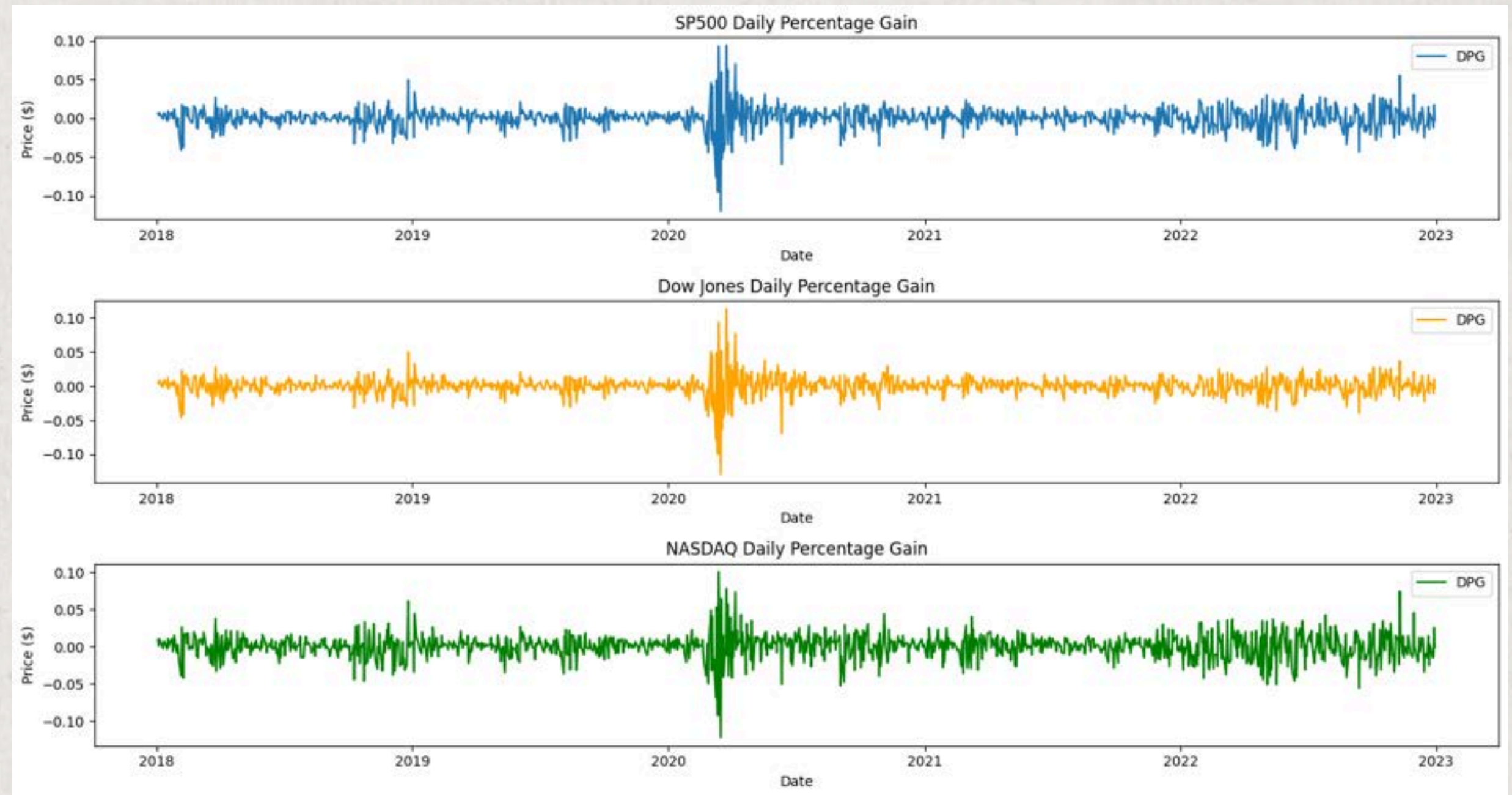
The S&P 500 and Dow Jones charts indicate a general upward trend until late 2021, with prices often staying above the 200-day moving average. The NASDAQ shows higher volatility, peaking in late 2021 and then declining, crossing below its 200-day moving average more frequently. This suggests that while all three indexes experienced growth, the NASDAQ had higher volatility and more pronounced fluctuations.



Daily Percentage Gain

From 2018 to early 2020, the SP500, Dow Jones, and NASDAQ had stable daily percentage gains, with fluctuations mostly within -0.05 to 0.05. The COVID-19 pandemic in early 2020 caused a spike in volatility for all indexes, with gains and losses peaking around +/- 0.10, reflecting extreme market turbulence.

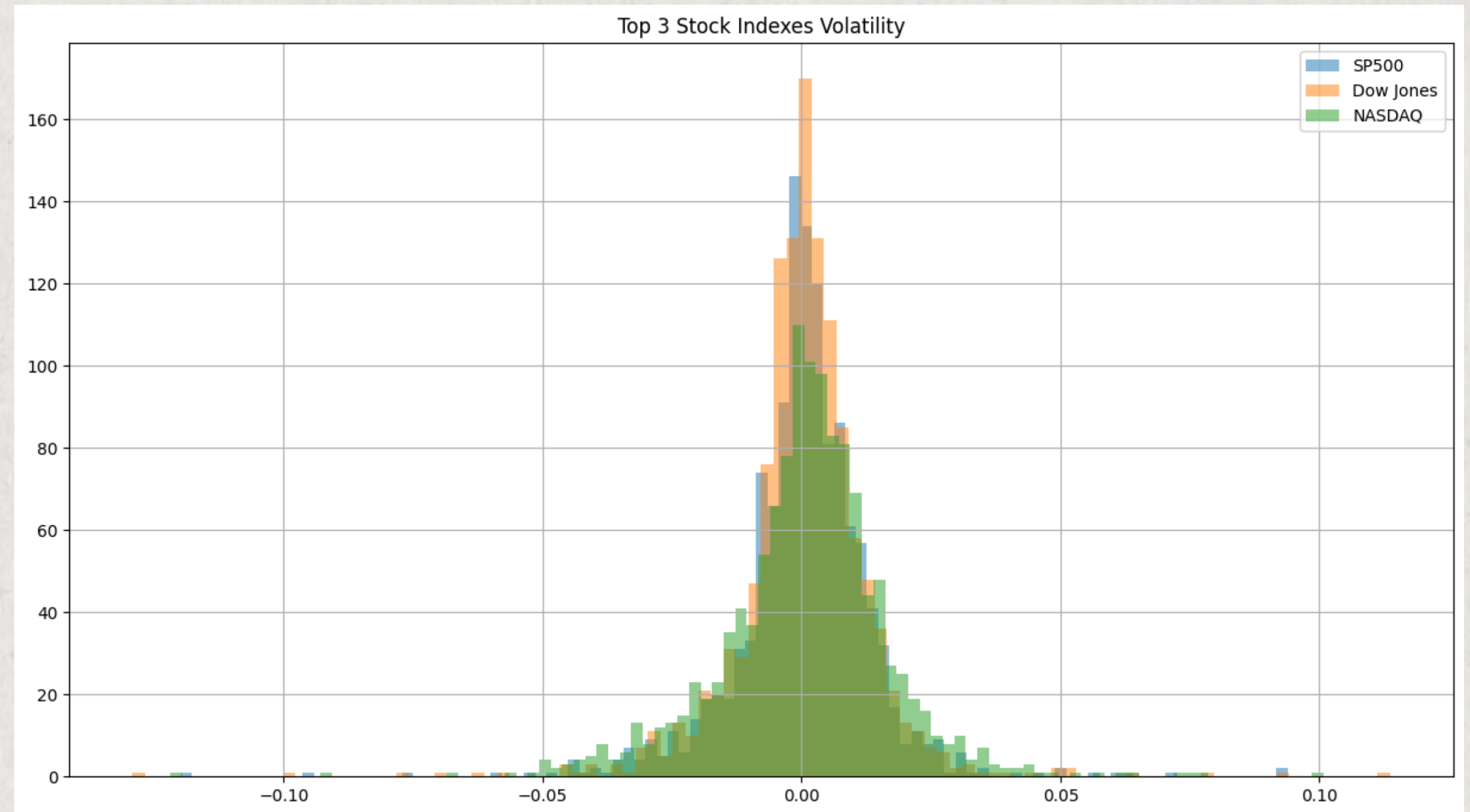
Post-2020, volatility decreased but remained higher than pre-pandemic levels, indicating ongoing market uncertainties. The NASDAQ showed the most pronounced volatility due to its tech sector influence, while the SP500 and Dow Jones had more stable but elevated fluctuations. By early 2023, markets had not returned to pre-pandemic stability, showing sustained higher activity.



Volatility

The histogram illustrates the volatility distributions of the S&P 500, Dow Jones, and NASDAQ indexes. All three distributions are centered around 0% daily change, indicating that most daily fluctuations are small. The S&P 500 and Dow Jones show similar patterns with moderate volatility, while the NASDAQ displays a broader distribution, suggesting higher volatility and more frequent larger daily changes.

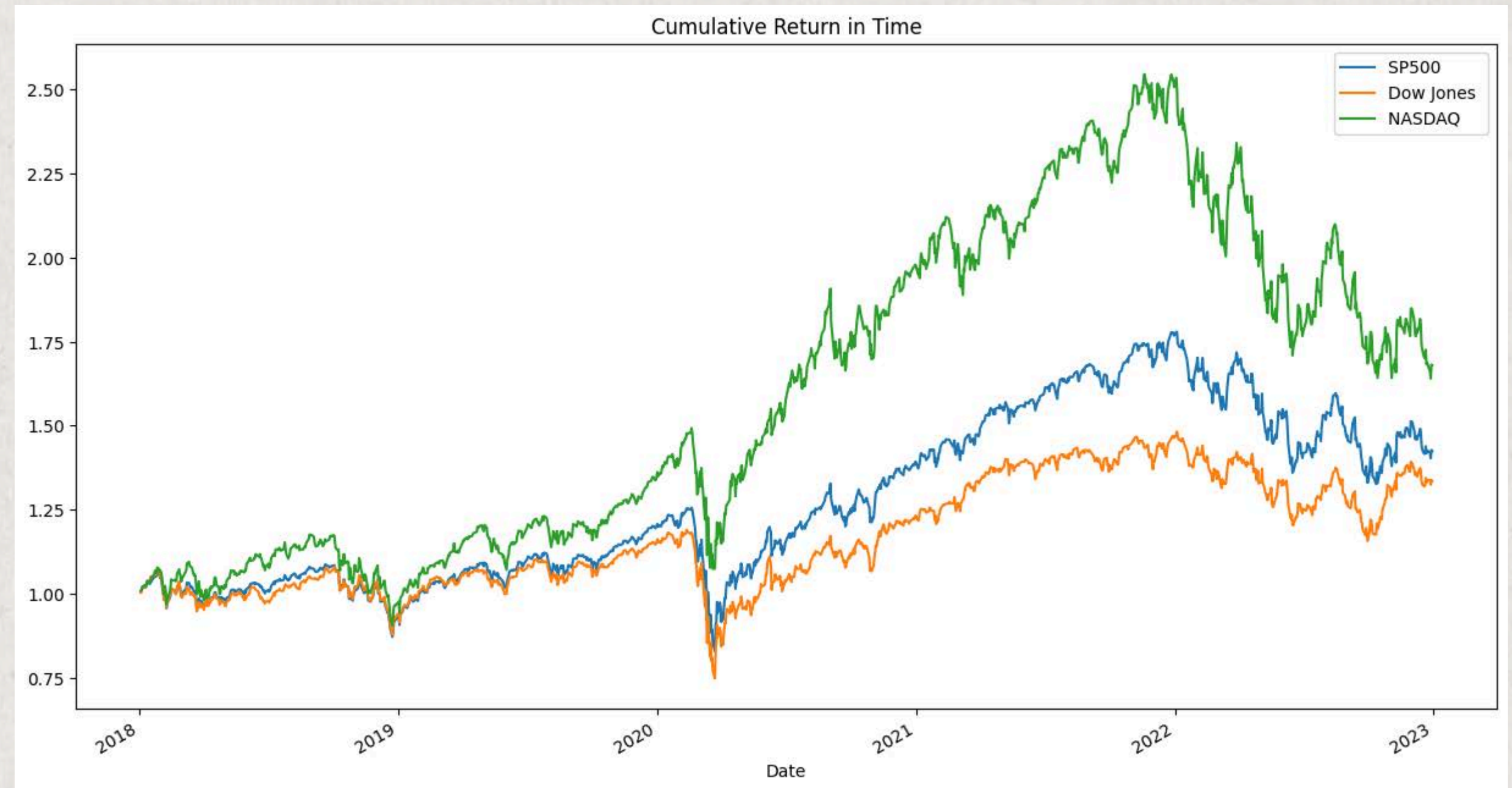
In summary, the S&P 500 and Dow Jones have similar, more stable volatility patterns, making them potentially more attractive for risk-averse investors. In contrast, the NASDAQ's higher volatility indicates a greater likelihood of significant daily changes, appealing to those seeking higher potential returns with an acceptance of increased risk.



Cumulative Return

The chart shows cumulative returns for the S&P 500, Dow Jones, and NASDAQ indexes from 2018 to 2023. The NASDAQ demonstrates the highest growth, peaking over 2.5 times its starting value, reflecting significant gains with higher volatility. The S&P 500 and Dow Jones show steadier growth, with the S&P 500 outperforming the Dow Jones.

Major market events, like the COVID-19 dip in 2020, are visible across all indexes. The NASDAQ's strong recovery and sustained growth highlight its higher potential returns and risk, whereas the S&P 500 and Dow Jones offer more stable but lower returns.



The Final Verdict

Based on the analysis of the provided charts, the NASDAQ index emerges as the best performer in terms of gains. The NASDAQ exhibited higher volatility compared to the S&P 500 and Dow Jones, with a broader distribution of daily changes. However, its cumulative returns from 2018 to 2023 were the highest, peaking above 2.5 times its initial value, significantly outperforming both the S&P 500 and Dow Jones.

Despite its higher volatility, the NASDAQ experienced substantial growth until late 2021. Although it showed more frequent crossings below its 200-day moving average, indicating volatility, its overall gains were superior. In conclusion, the NASDAQ, while more volatile, offered the highest potential returns, making it the best stock index based on gains.

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