

JPMORGAN CHASE & CO.

Group 2

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Introduction:

History of JP Morgan:

- JP Morgan Chase is one of the largest banking institutions in the world. It was founded in 1799 by Aaron Burr, who was then Vice President of the United States. The bank initially operated as The Manhattan Company, established to provide clean water to New Yorkers.
- In 1823, The Manhattan Company merged with another bank to form the Merchant's Bank. The Merchant's Bank later became known as the National City Bank of New York. The bank continued to grow and influence, becoming one of the most powerful financial institutions in the world.
- In 1871, John Pierpont Morgan took control of the banking firm Drexel, Morgan & Co.
- He renamed it JP Morgan & Co. and began expanding the company's reach and influence.
- Morgan was instrumental in financing many of America's largest corporations, including General Electric and US Steel.
- He played a key role in stabilizing the country's financial system during times of crisis such as the Panic of 1907.

Current Operations of JP Morgan:

Today, JP Morgan is a global financial services firm with operations in more than 100 countries. The organization offers a wide range of financial services to both individual and institutional clients, including investment banking, asset management, commercial banking, and treasury services.

In recent years, JP Morgan has focused on expanding its digital capabilities and investing in new technologies. The organization has also placed a strong emphasis on sustainability and social responsibility, launching initiatives to address climate change and promote economic inclusion.

Macroeconomic Environment and Business Cycle:

The macroeconomic environment plays a significant role in the operations of JP Morgan. The organization is highly sensitive to changes in interest rates, inflation, and other

economic indicators. In addition, the business cycle can have a major impact on the demand for financial services.

Currently, the global economy is experiencing a period of uncertainty and volatility. The ongoing COVID-19 pandemic has disrupted many industries and created significant challenges for businesses around the world. As a result, JP Morgan and other financial services firms are facing a challenging operating environment.

Industry Environment and Competitors:

JP Morgan operates in a highly competitive industry, with many other financial services firms vying for market share. Some of the top competitors of JP Morgan include Bank of America (Bank of America had a 10.7% market share in the US banking industry as of Q4 2021), Wells Fargo (Wells Fargo had a 6.6% market share in the US banking industry as of Q4 2021), and Citigroup (Citigroup had a 4.1% market share in the US banking business as of the fourth quarter of 2021). These organizations offer similar financial services and compete aggressively for customers.

Despite the intense competition, JP Morgan has maintained a strong position in the market. The organization is currently the largest bank in the United States by assets, and it has a significant presence in key financial markets around the world.

Ratio and Valuation Analysis

❖ Balance Sheet:

Financial Highlights

As of or for the year ended December 31,
(in millions, except per share, ratio data and headcount)

	2022	2021	2020
Selected Income statement data			
Total net revenue	\$ 128,695	\$ 121,649	\$ 119,951
Total noninterest expense	76,140	71,343	66,656
Pre-provision profit ^(a)	52,555	50,306	53,295
Provision for credit losses	6,389	(9,256)	17,480
Net income	\$ 37,676	\$ 48,334	\$ 29,131
Per common share data			
Net income per share:			
Basic	\$ 12.10	\$ 15.39	\$ 8.89
Diluted	12.09	15.36	8.88
Book value per share	90.29	88.07	81.75
Tangible book value per share (TBVPS) ^(a)	73.12	71.53	66.11
Cash dividends declared per share	4.00	3.80	3.60
Selected ratios			
Return on common equity	14%	19%	12%
Return on tangible common equity (ROTCE) ^(a)	18	23	14
Liquidity coverage ratio (average) ^(b)	112	111	110
Common equity Tier 1 capital ratio ^(c)	13.2	13.1	13.1
Tier 1 capital ratio ^(c)	14.9	15.0	15.0
Total capital ratio ^(c)	16.8	16.8	17.3
Selected balance sheet data (period-end)			
Loans	\$1,135,647	\$1,077,714	\$1,012,853
Total assets	3,665,743	3,743,567	3,384,757
Deposits	2,340,179	2,462,303	2,144,257
Common stockholders' equity	264,928	259,289	249,291
Total stockholders' equity	292,332	294,127	279,354
Market data			
Closing share price	\$ 134.10	\$ 158.35	\$ 127.07
Market capitalization	393,484	466,206	387,492
Common shares at period-end	2,934.2	2,944.1	3,049.4
Headcount	293,723	271,025	255,351

(a) Pre-provision profit, TBVPS and ROTCE are each non-GAAP financial measures. Refer to Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures on pages 58-60 for a discussion of these measures.

(b) Refer to Liquidity Risk Management on pages 97-104 for additional information on this measure.

(c) Refer to Capital Risk Management on pages 86-96 for additional information on these measures.

❖ Income Statement:

Selected income statement data

Year ended December 31, (in millions, except ratios)	2022	2021	2020
Revenue			
Lending- and deposit-related fees	\$ 3,316	\$ 3,034	\$ 3,166
Asset management, administration and commissions	3,754	3,514	2,780
Mortgage fees and related income	1,236	2,159	3,079
Card income	2,679	3,563	3,068
All other income ^(a)	4,104	5,016	5,647
Noninterest revenue	15,089	17,286	17,740
Net interest income	39,928	32,787	33,528
Total net revenue	55,017	50,073	51,268
Provision for credit losses	3,813	(6,989)	12,312
Noninterest expense			
Compensation expense	13,092	12,142	11,014
Noncompensation expense ^(b)	18,379	17,114	16,976
Total noninterest expense	31,471	29,256	27,990
Income before income tax expense	19,733	27,806	10,966
Income tax expense	4,862	6,876	2,749
Net income	\$ 14,871	\$ 20,930	\$ 8,217
Revenue by line of business			
Banking & Wealth Management ^(c)	\$ 30,262	\$ 23,980	\$ 22,955
Home Lending	3,674	5,291	6,018
Card Services & Auto ^(d)	21,081	20,802	22,295
Mortgage fees and related income details:			
Production revenue	497	2,215	2,629
Net mortgage servicing revenue ^(e)	739	(56)	450
Mortgage fees and related income	\$ 1,236	\$ 2,159	\$ 3,079
Financial ratios			
Return on equity	29 %	41 %	15 %
Overhead ratio	57	58	55

(a) Included operating lease income of \$3.6 billion, \$4.8 billion and \$5.4 billion for the years ended December 31, 2022, 2021, and 2020.

❖ Cash Flow:

JPMorgan Chase & Co. Consolidated statements of cash flows

Year ended December 31, (in millions)	2022	2021	2020
Operating activities			
Net income	\$ 37,676	\$ 48,334	\$ 29,131
Adjustments to reconcile net income to net cash provided by/(used in) operating activities:			
Provision for credit losses	6,389	(9,256)	17,480
Depreciation and amortization	7,051	7,932	8,614
Deferred tax (benefit)/expense	(2,738)	3,748	(3,573)
Other	5,174	3,274	1,649
Originations and purchases of loans held-for-sale	(149,167)	(347,864)	(166,504)
Proceeds from sales, securitizations and paydowns of loans held-for-sale	167,709	336,413	175,490
Net change in:			
Trading assets	(31,449)	85,710	(148,749)
Securities borrowed	20,203	(45,635)	(20,734)
Accrued interest and accounts receivable	(22,970)	(12,401)	(18,012)
Other assets	(2,882)	(11,745)	(42,430)
Trading liabilities	11,170	(23,190)	77,198
Accounts payable and other liabilities	58,614	43,162	7,415
Other operating adjustments	2,339	(398)	3,115
Net cash provided by/(used in) operating activities	107,119	78,084	(79,910)
Investing activities			
Net change in:			
Federal funds sold and securities purchased under resale agreements	(54,278)	34,473	(47,115)
Held-to-maturity securities:			
Proceeds from paydowns and maturities	48,626	50,897	21,360
Purchases	(33,676)	(111,756)	(12,400)
Available-for-sale securities:			
Proceeds from paydowns and maturities	39,159	50,075	57,675
Proceeds from sales	84,616	162,748	149,758
Purchases	(126,258)	(248,785)	(397,145)
Proceeds from sales and securitizations of loans held-for-investment	44,892	35,845	23,559
Other changes in loans, net	(128,968)	(91,797)	(50,263)
All other investing activities, net	(11,932)	(11,044)	(7,341)
Net cash (used in) investing activities	(137,819)	(129,344)	(261,912)
Financing activities			
Net change in:			
Deposits	(136,895)	293,764	602,765
Federal funds purchased and securities loaned or sold under repurchase agreements	8,455	(20,799)	31,528
Short-term borrowings	(8,984)	7,773	4,438
Beneficial interests issued by consolidated VIEs	2,205	(4,254)	1,347
Proceeds from long-term borrowings	78,442	82,409	78,686

❖ Financial Ratio:

1) Liquidity Ratios

1) Liquidity Ratio: This ratio indicates a company's capacity to fulfil its short-term financial commitments when they come due.

a) Current Ratio = Current Assets / Current Liabilities

Particulars	Values
Current Assets	2,053,156
Current Liabilities	3,077,546
Current Ratio	0.67

b) Acid-test / Quick Ratio (Current Assets - Inventory) / Current Liabilities: Because inventory is less liquid than other current assets, the current ratio is tougher than the current ratio.

Particulars	Values
Current Assets	2,053,156
Inventory	0
Current Liabilities	3,077,546
Quick Ratio	0.67

c) Cash ratio = Cash + Cash Equivalents / Current Liabilities: It is the most stringent since it solely analyses a company's most liquid assets - cash, cash equivalents, and marketable securities.

Particulars	Values
Cash and Cash equivalents	\$ 567,234.00
Current Liabilities	3,077,546
Cash Ratio	0.18

2) Profitability Ratios

2) Profitability Ratio: It measures profitability, which is a way to measure a company's performance			
a) Gross Profit Margin = Gross Profit/Net Sales			
	Particulars	Values	
	Net Sales	61,985	
	Gross Profit	\$61,985.00	
	GPM	100.00%	
			Dividend Per Share 4
			Earning Per Share 9.18
			Dividend Payout Ratio 0.44
b) Net Profit Margin = Net Income/Total Revenue			
	Particulars	Values	
	Net Income	37,676.00	
	Total Revenue	128,695.00	
	NPM	29.28%	
c) Return on Assets = Net Income / Total Assets			
	Name	Values	
	Net Income	37,676	
	Total Assets	3,665,743	
	ROA	1.03%	
d) Return on equity = Net income / Shareholders' equity			
	Name	Values	
	Net Income	37,676.00	
	Shareholders' equity	292,332	
	ROE	12.89%	
e) Operating profit margin = Operating profit / Total revenue			
	Name	Values	
	Operating Profit	\$ 72,263.00	
	Total Revenue	128,695	
	Operating profit margin	56.15%	
			Plowback Ratio \$ 0.56
			Interest Rate \$ 26,097.00
			Before income interest tax \$ 46,166.00
			Operating Earning \$ 72,263.00
f) Earnings per share (EPS) = Net income / Average number of outstanding shares			
	Name	Values	
	Net Income	37,676	
	Avg Outstanding Shares	4,105	
	EPS	9.18	

3) P/E Ratio

3) P/E Ratio = Market value per share/Earnings per share (EPS)			
	Name	Values	
	Market Value Per Share	141.22	(CURRENT PRICE DATE(19-04-2023))
	EPS	9.18	
	PE Ratio	15.39	

4) Dividend Payout Ratio

4) Dividend Payout Ratio = Dividends / Net income				
	Name	Values		
	Dividends	4.00		
	Net Income	37676.00		
	Dividend Payout Ratio	0.01%		

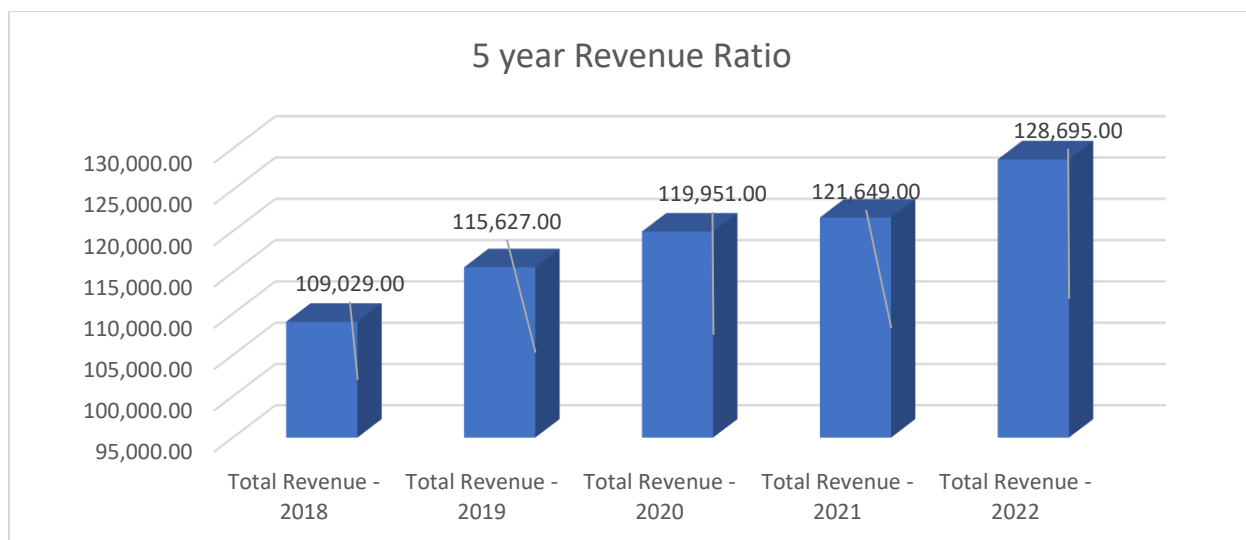
5) Debt to Equity Ratio

5) Debt to Equity Ratio = Total Debt (total Liabilities)/ Shareholders' Equity				
	Name	Values		
	Total Debt	466,727		
	Shareholder's equity	292,332		
	Debt to Equity	159.66%		

6) Organization's sustainable growth rate

6) Growth Rate(Considering Total Revenue as a factor for 5 years)				
	Name	Values		
	Total Revenue - 2018	109,029.00		
	Total Revenue - 2019	115,627.00		
	Total Revenue - 2020	119,951.00		
	Total Revenue - 2021	121,649.00		
	Total Revenue - 2022	128,695.00		
	Growth Rate	3.37%		

According annual reports of JPM



❖ CAPM

Average(Rm)	1.01
Monthly(Rm)	0.56%
Annual(Rm)	6.92%

1. A stock has a beta of 1.10 (April 12, 2023). The expected return on the market is 6.92% and the risk-free rate is 3.486%. According to CAPM, what is the expected rate of return on this stock?

β	1.10	https://finance.yahoo.com/quote/JPM?p=JPM
Rm	6.92%	
Rf	3.61%	https://finance.yahoo.com/quote/%5EFVX?p=%5EFVX
Ra	7.25%	

2. A stock has an expected return of 6.92%. The expected return on the market is 7.26% and the risk-free rate is 3.486%. According to CAPM, what is the beta value of this stock?

Ra	7.25%	
Rm	6.92%	
Rf	3.61%	https://finance.yahoo.com/quote/%5EFVX?p=%5EFVX
β	1.10	https://finance.yahoo.com/quote/JPM?p=JPM

3. A stock has an expected return of 7.25%. The expected return on the market is 6.92% and the beta value is 1.10. According to CAPM, what is risk free rate of this stock?

Ra	7.25%
β	1.10
Rm	6.92%
Rf	3.62%

4. A stock has an expected return of 7.25%. The expected return on the market is 6.92% and the beta value is 1.10. According to CAPM, what is risk free rate of this stock?

Ra	7.25%
β	1.10
Rf	3.62%
Rm	6.92%

Sustainable Dividend Growth Model

7.27%

(Plowback ratio x Return on equity)

Technical Analysis

❖ **Monte-Carlo Simulation** **For 2022**

	A	B	C	D	E	F	G
1	Date	Adj Close	Periodic Daily Return			Average	0.00062
2	2022-01-03	154.3914	-0.037208823			Variance	0.00035
3	2022-01-04	160.2443	0.01845134			Std. Dev	0.01874
4	2022-01-05	157.3147	-0.010568053			Drift	0.00045
5	2022-01-06	158.986	-0.009859381				
6	2022-01-07	160.5613	-0.00095682				
7	2022-01-10	160.715	-0.001015566				
8	2022-01-11	160.8783	-0.00565572				

Forecast for 2023

	Date	Projection
	2023-01-01	152.75383
	2023-01-02	153.79396
	2023-01-03	145.68797
	2023-01-04	144.26064
	2023-01-05	144.17693
	2023-01-06	142.70199
	2023-01-07	140.34771
	2023-01-08	139.32696
	2023-01-09	138.59336
	2023-01-10	138.81363
	2023-01-11	141.55645
	2023-01-12	142.56606
	2023-01-13	145.5232
	2023-01-14	149.92201
	2023-01-15	148.40481
	2023-01-16	148.12213
	2023-01-17	150.02288
	2023-01-18	152.35481
	2023-01-19	149.50871
	2023-01-20	152.13852
	2023-01-21	154.8408
	2023-01-22	155.54823

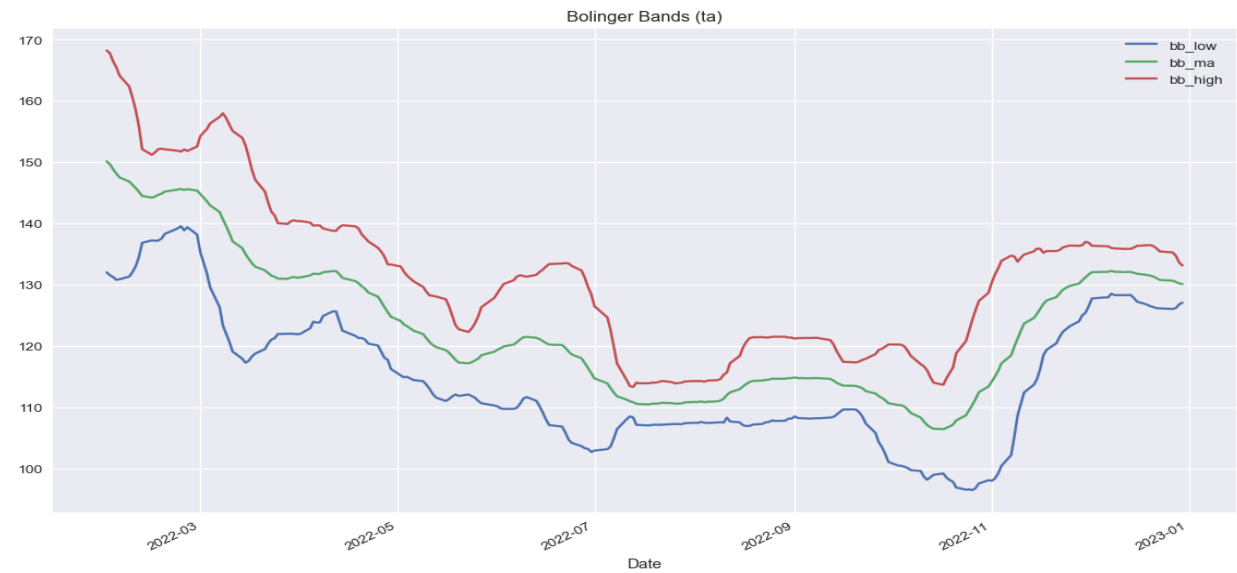
Using 10,000 Simulation

	131.1473					
1	146.798	-4.92%			Average	194.8617
2	90.93953	-41.10%			Std. Dev	72.01846
3	152.0759	-1.50%				
4	227.9881	47.67%			Avg. R	26.21%
5	211.1514	36.76%			Std. Dev. R	0.466467
6	140.6614	-8.89%				
7	160.2217	3.78%			Positive	68.150%
8	105.8974	-31.41%			5%	63.1500%

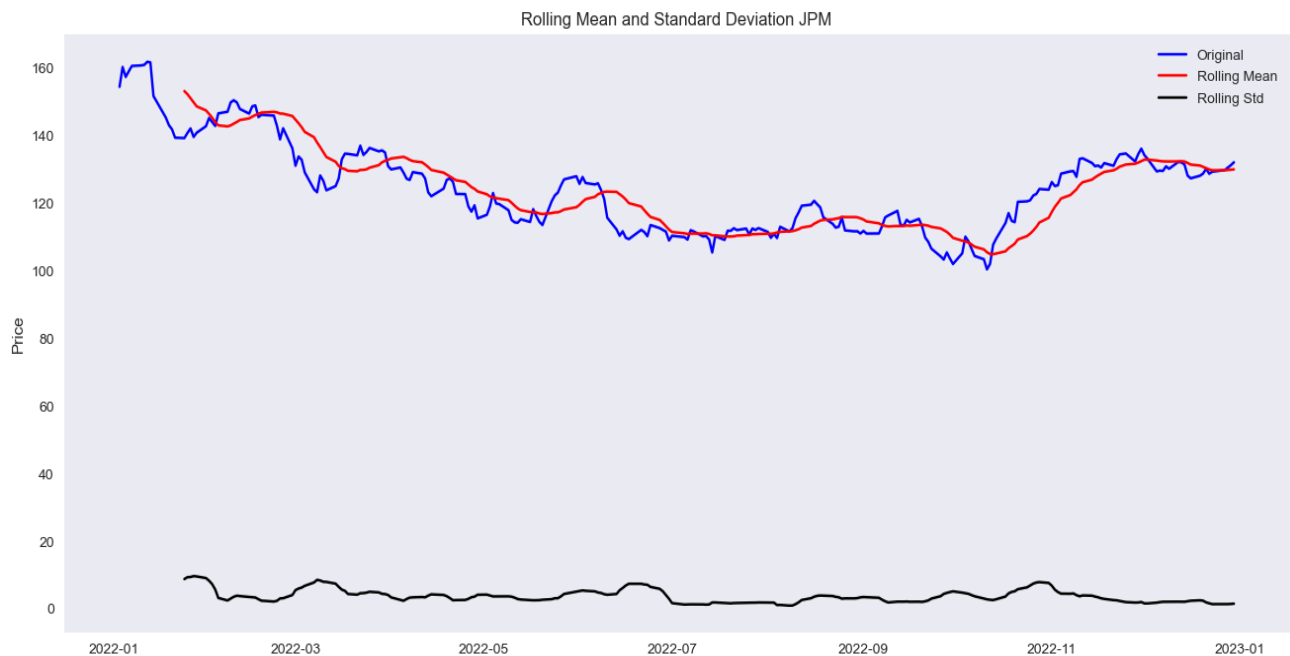


- **Based on the projection for 2023, it is evident that the price is expected to increase.**

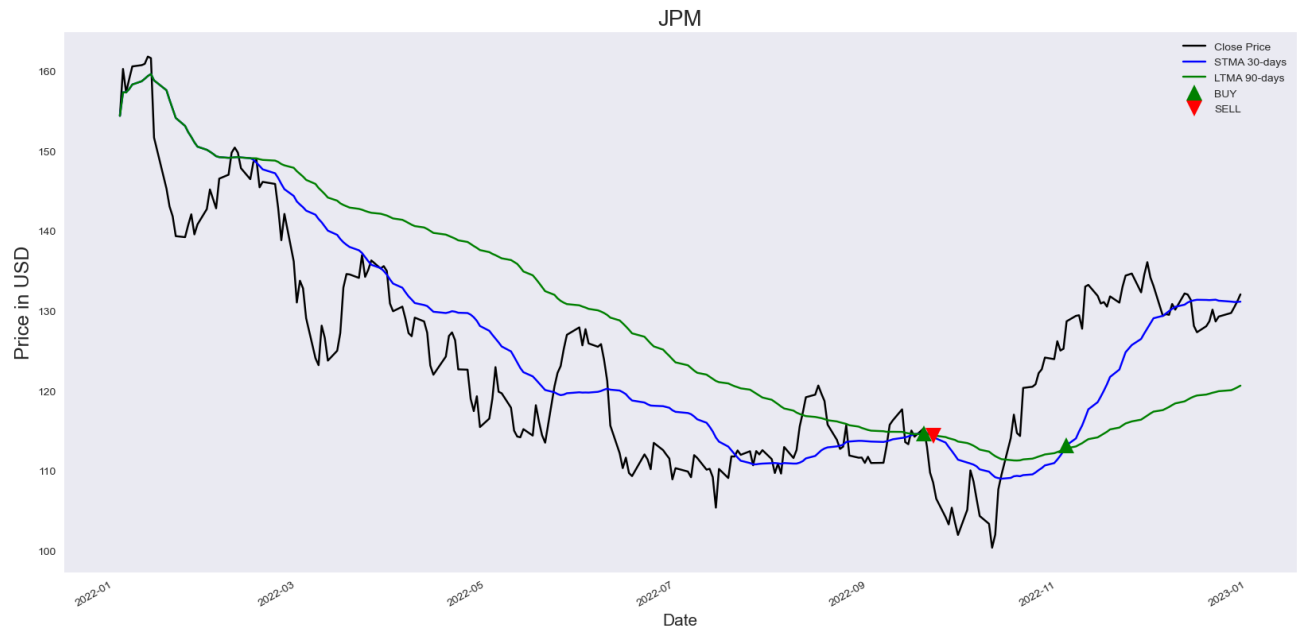
❖ Bollinger Bands



❖ Simple & Exponential Moving Average

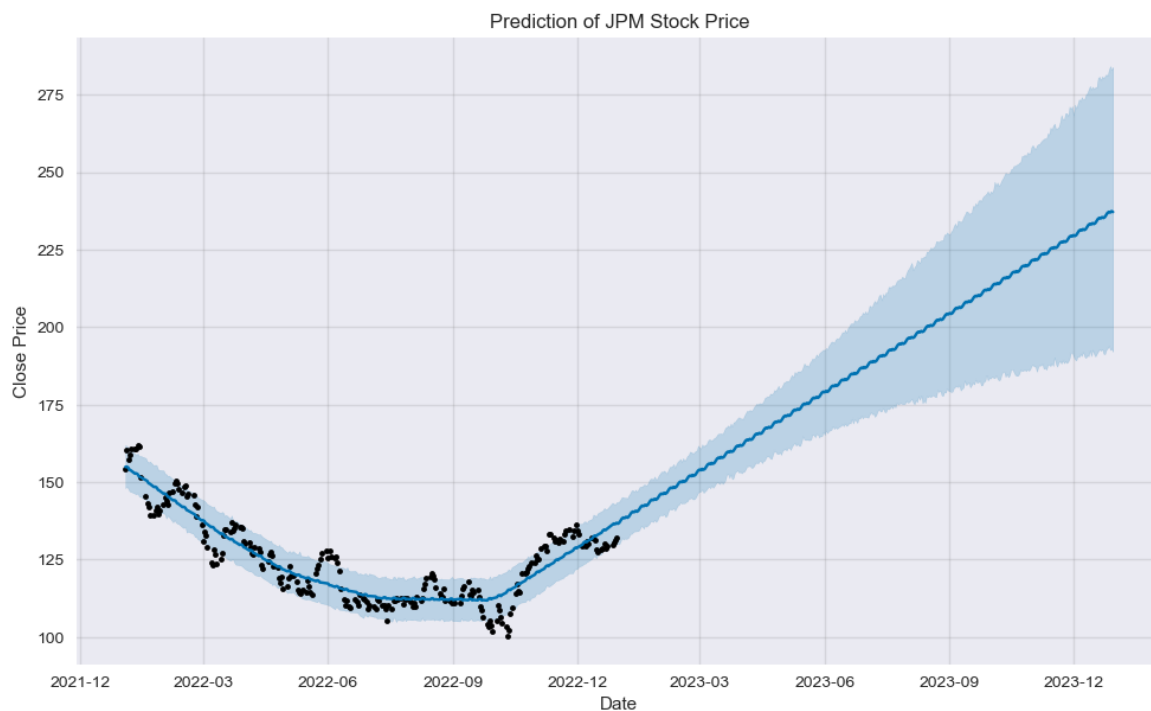


The stock price of the company was relatively stable between January 3 to January 7, 2022, with a slight increase on January 4. The short-term moving average and long-term moving average values for each day were almost the same, indicating that the stock price did not deviate much from its averages during this period. However, this short-term snapshot alone may not be enough to provide a comprehensive understanding of the stock's performance. Further analysis is required to make informed investment decisions.



The information provided is about a trading strategy that uses short-term and long-term moving averages to generate buy and sell signals for JPM stock. The strategy opened a buy position on September 19, 2022, but closed it on September 22, 2022, resulting in a loss. The strategy then opened another buy position on November 4, 2022. It's important to note that relying solely on technical indicators may not always be a reliable approach, and other factors should also be considered before making investment decisions.

❖ Forecasting using Facebook Prophet




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Out[23]:
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	ds	yhat	yhat_lower	yhat_upper
611	2023-12-26	236.854738	193.164540	281.152064
612	2023-12-27	237.165758	193.879038	283.137045
613	2023-12-28	237.006076	192.637330	284.234212
614	2023-12-29	237.397851	193.028122	282.972896
615	2023-12-30	237.147241	192.077787	283.969341

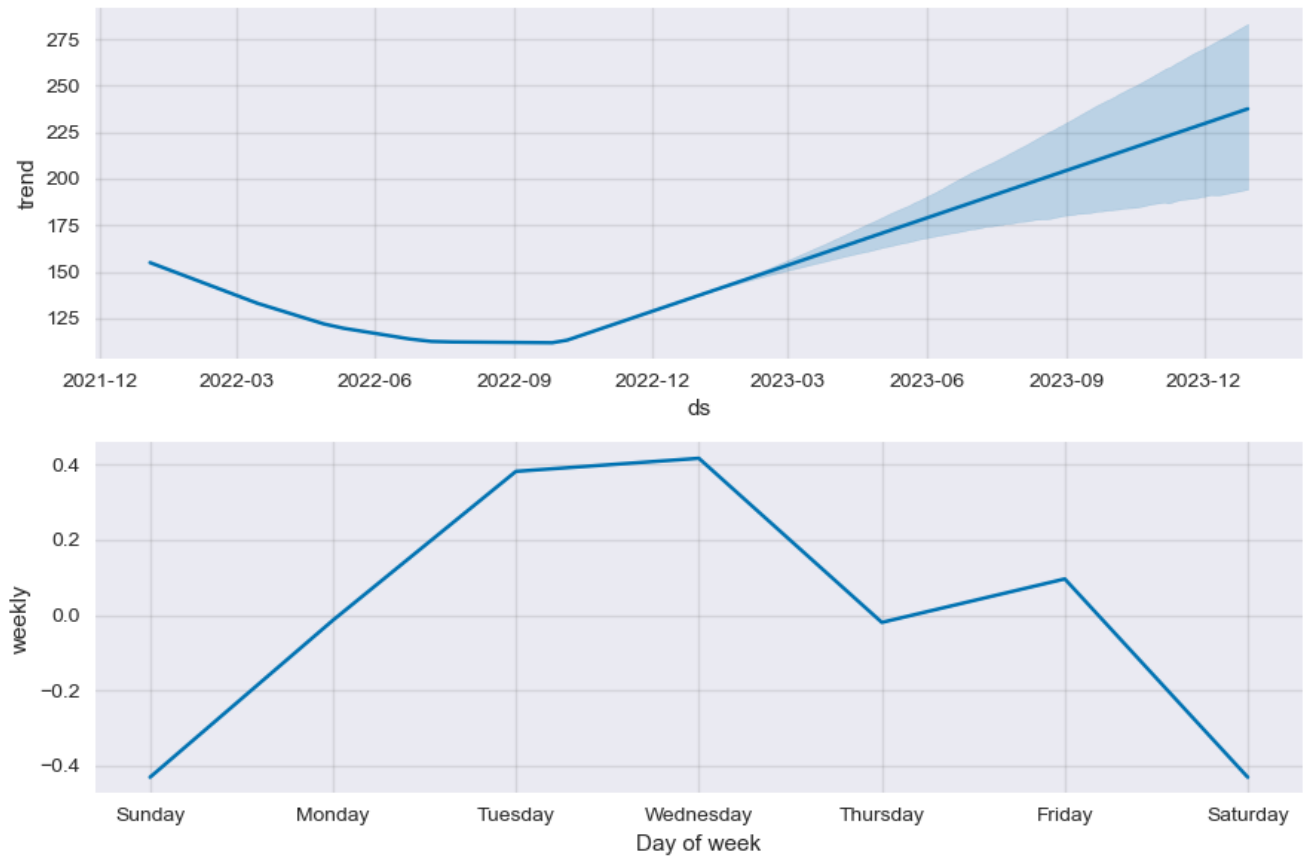
The forecast provides a prediction for the variable being forecasted (yhat) along with the lower and upper bounds of the forecast (yhat_lower and yhat_upper) for the dates ranging from December 26, 2023 to December 30, 2023.

It seems that the forecast is predicting an increase in the value of the variable being forecasted over the given time period. The lower and upper bounds can be used to estimate the level of uncertainty associated with the forecast.

Based on this data, the model predicts that JP Morgan's stock price have slight frequent changes in value throughout December 2023, with a predicted price

- on December 26th, 236.85,
- on December 27th, 237.16,
- on December 28th, 237.00,
- on December 29th, 237.39,
- on December 30th, 237.14

However, it's important to note that stock prices can be highly volatile and subject to many external factors, so these predictions may not necessarily be accurate.



- ***Based on the forecasting results, it can be inferred that the stock price is expected to exhibit an upward trend over the course of December 2023.***
- ***Based on the analysis, the data suggests a trend of price increase during weekdays, while a decrease in price during weekends.***

Recommendation & Conclusion

Recommendation

- Current stock price of JP Morgan on April 19th, 2023: \$141.22 USD.
- Forecasted increase of more than \$200 USD in 2023.
- Advisable to consider purchasing the stock at its current lower price and hold onto it.
- Expected to reach a higher price rate by the end of 2023, specifically on December 30th, 2023.
- Forecasted value on December 30th, 2023: \$237.14 USD.

Conclusion

- JP Morgan is a leading financial services firm with a long and storied history.
- The organization has played a significant role in many important events in American history.
- Despite facing significant challenges in the current macroeconomic and industry environments, JP Morgan has maintained a strong position in the market.
- The organization's focus on technology, sustainability, and social responsibility are key factors in its continued success in the years ahead.
- Based on JP Morgan's strong market position and positive forecasted price, the stock may present a favorable investment opportunity.