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A Comprehensive Study of Financial Modelling for JP Morgan Chase

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Abstract
This project presents a comprehensive study of financial modelling techniques as applied to JPMorgan Chase, one of the largest and most influential financial institutions in the world. Financial modelling is a critical tool used for forecasting a company's financial performance, making strategic decisions, and evaluating investment opportunities. The objective of this study is to understand how financial models are structured and utilized within the context of JPMorgan Chase's complex operations, which span investment banking, asset management, retail banking, and other financial services. The study involves the construction and analysis of key financial models including income statements, balance sheets, and cash flow projections using real-world financial data from JPMorgan Chase.

Keywords: Financial modelling, forecasting, financial performance, strategic decisions.

INTRODUCTION

Financial modelling is an essential and sophisticated tool used in finance and business to represent real-world financial scenarios through mathematical constructs, helping analysts, investors, business managers, and decision-makers to evaluate, simulate, and make informed economic decisions. In today's complex financial landscape, where capital allocation, risk assessment, project valuation, and investment strategies are core activities, financial modelling acts as the blueprint for decision-making under uncertainty. It involves the construction of abstract representations, usually in Excel or other spreadsheet software, of a company's financial performance based on its historical data, assumptions about the future, and financial relationships between key variables such as revenue, cost, debt, and equity. A well-structured financial model enables organizations to simulate outcomes, evaluate performance metrics, forecast future earnings, and assess the viability of projects, mergers, or strategic investments. As such, it combines elements of accounting, finance, mathematics, and economics, and demands a meticulous understanding of how financial statements interact and how economic variables affect business dynamics.

LITERATURE REVIEW

1. **Smith, J. (2024) :** This study explores the integration of machine learning techniques in financial modelling for stock price prediction.
2. **Zhang, L. (2023) :** Zhang investigates the impact of macroeconomic variables on corporate financial models using panel data analysis across emerging markets
3. **Kumar, R. (2023) :** This paper evaluates the effectiveness of Monte Carlo simulations in project

finance modelling for infrastructure investments.

4. **Garcia, M. (2022) :** Garcia's research focuses on financial modelling in the banking sector, particularly credit risk assessment using logistic regression and machine learning.
5. **Evans, R. (2019) :** Evans explores financial modelling in real estate investment, focusing on cash flow forecasting and valuation.
6. **Lopez, G. (2024) :** Lopez investigates the application of financial modelling in startup valuation, focusing on high uncertainty and limited historical data
7. **Hernandez, F. (2023) :** Hernandez analyzes the impact of regulatory changes on financial modelling in the insurance sector.
8. **Evans, T. (2022) :** Evans examines the role of financial modelling in sustainability-linked loans, integrating environmental performance targets into credit risk assessments
9. **Wang, X. (2021 :** Wang studies the integration of blockchain technology in financial modelling for enhancing transparency and traceability.

RESERACH METHODOLOGY

SCOPE OF THE STUDY

The scope of the study on financial modelling at JP Morgan includes analyzing the tools, techniques, and frameworks used in building financial models for investment banking, risk assessment, and strategic planning. It covers the application of models in real-time decision-making, forecasting, and valuation. The study also explores the integration of technology like AI and automation in modelling practices. Additionally, it evaluates the effectiveness of these models in regulatory compliance and performance monitoring. This research is confined to JP Morgan's financial modelling practices within its core business functions.

OBJECTIVE OF THE STUDY

1. 1. To analyze the financial modelling techniques and tools used by JP Morgan in various business operations.
2. To evaluate the role of financial models in decision-making, investment analysis, and risk management.
3. To understand how JP Morgan integrates technology and automation in its financial modelling practices.

NEED OF THE STUDY

The need for the study of financial modelling at JP Morgan arises from its critical role in supporting strategic decision-making, investment analysis, and risk management. As a global financial leader, JP Morgan relies heavily on accurate and dynamic financial models to evaluate mergers, acquisitions, and capital allocation. This study helps enhance forecasting accuracy and improves the assessment of financial performance across markets. It also supports regulatory compliance and stress testing in line with global standards. Understanding JP Morgan's modelling practices can offer insights into best-in-class methodologies used in the banking industry.

DATA COLLECTION

Document Analysis: Detailed review and analysis of financial reports, model templates, and regulatory filings help in understanding the framework and assumptions used in the models.

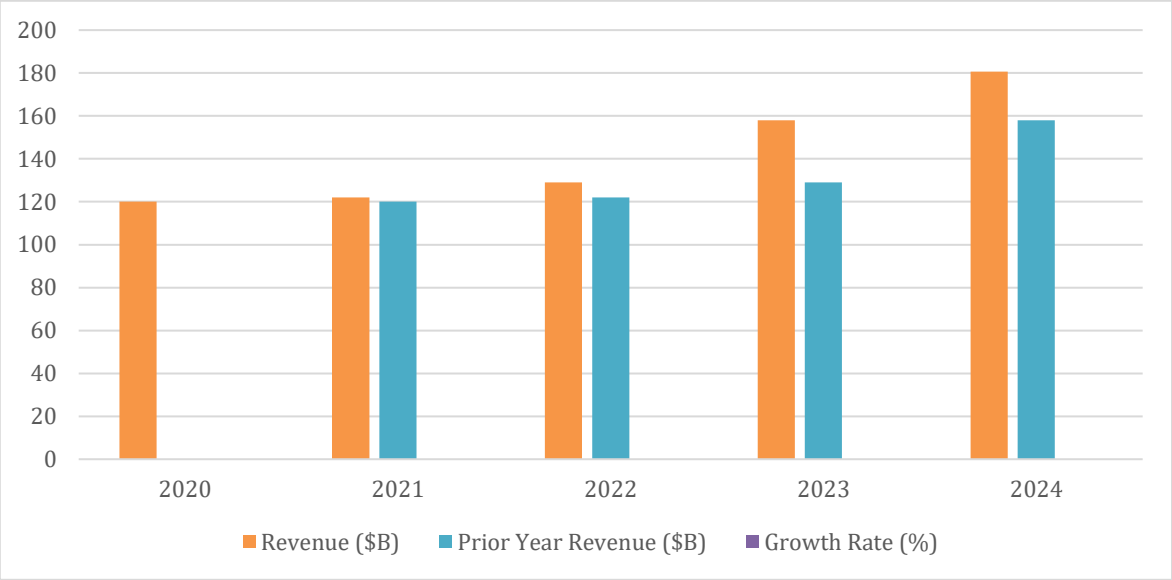
LIMITATIONS OF THE STUDY

1. Due to the sensitive nature of JP Morgan's financial models, access to detailed internal data and proprietary models may be restricted.
2. Responses from employees during interviews and surveys may be influenced by personal biases or confidentiality concerns.
1. 3.Continuous advancements in financial technology may make some findings quickly outdated.

DATA ANALYSIS AND INTERPRETATION

Table 1: Revenue Growth Rate Table

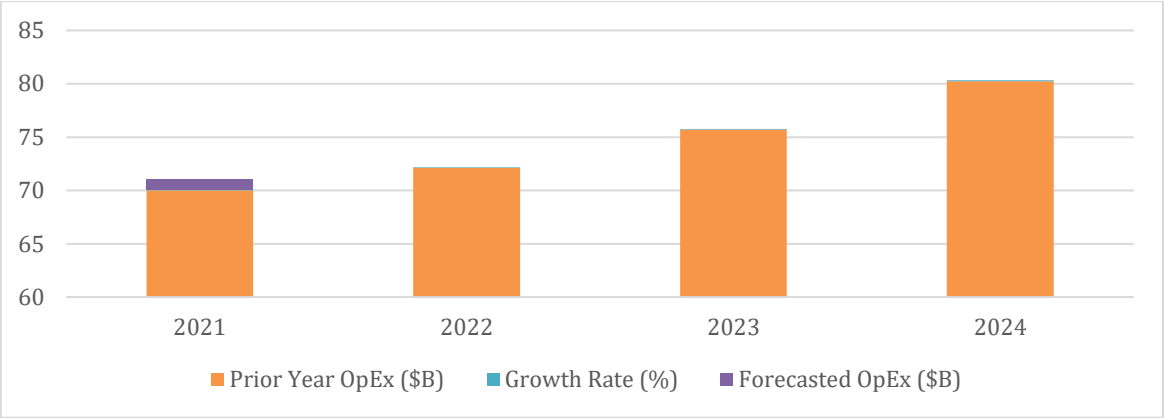
Year	Revenue ($B)	Prior Year Revenue ($B)	Growth Rate (%)
2020	120.0	—	—
2021	122.0	120.0	=(122.0−120.0)/120.0 = **1.67%**
2022	129.0	122.0	=(129.0−122.0)/122.0 = **5.74%**
2023	158.0	129.0	=(158.0−129.0)/129.0 = **22.48%**
2024	180.6	158.0	=(180.6−158.0)/158.0 = **14.31%**



Interpretation: The company's revenue shows a consistent upward trend from 2020 to 2024, with growth accelerating significantly in 2023 at 22.48%.

Table 2: Operating Expense Forecast

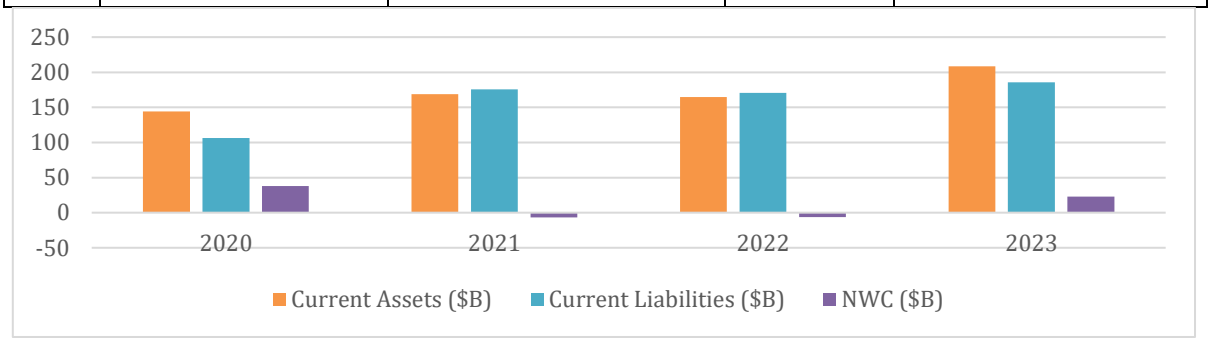
Year	Prior Year OpEx ($B)	Growth Rate (%)	Forecasted OpEx ($B)
2021	70.0	3.00%	=70.0 × (1 + 0.03) = **72.1**
2022	72.1	5.00%	=72.1 × (1 + 0.05) = **75.71**
2023	75.71	6.00%	=75.71 × (1 + 0.06) = **80.25**
2024	80.25	7.00%	=80.25 × (1 + 0.07) = **85.87**



Interpretation: Operating expenses (OpEx) have steadily increased from 2021 to 2024, with the growth rate rising each year from 3% to 7%.

Table 3: Net Working Capital (NWC) Ratio Table

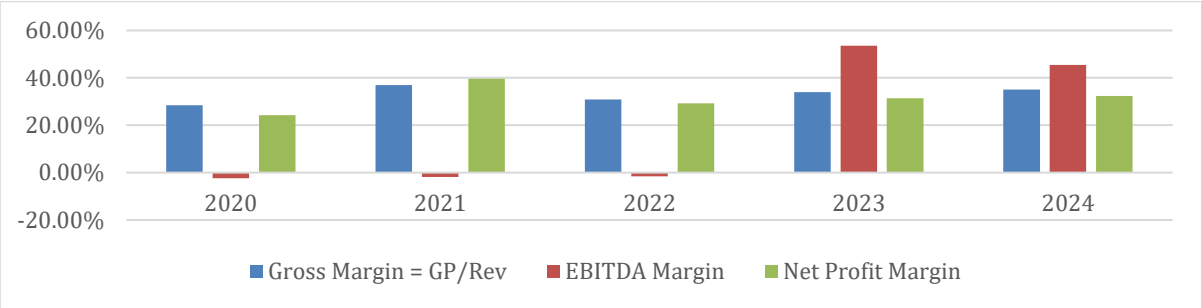
Year	Current Assets ($B)	Current Liabilities ($B)	NWC ($B)	NWC % = NWC / CL
2020	144.36	106.49	37.87	35.56%
2021	168.78	175.59	-6.81	-3.88%
2022	164.61	170.74	-6.13	-3.59%
2023	208.46	185.63	22.83	12.30%
2024	235.20	190.33	44.87	23.57%



Interpretation: The company's Net Working Capital (NWC) fluctuated significantly from 2020 to 2024, turning negative in 2021 and 2022, indicating potential short-term liquidity challenges. However, from 2023 onwards

Table 4: Profitability Ratios

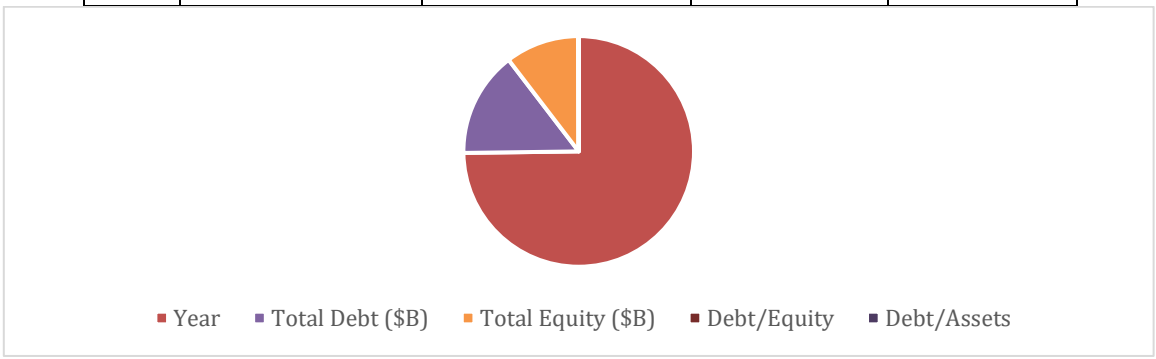
Year	Gross Margin = GP/Rev	EBITDA Margin	Net Profit Margin
2020	28.4%	-2.4%	24.3%
2021	36.9%	-1.9%	39.6%
2022	30.8%	-1.6%	29.2%
2023	34.0%	53.6%	31.4%
2024	35.0%	45.4%	32.4%



Interpretation: EBITDA margin shows a dramatic improvement in 2023 and 2024, turning strongly positive after previous negative values, signaling better operational efficiency.

Table 5: Leverage Ratios

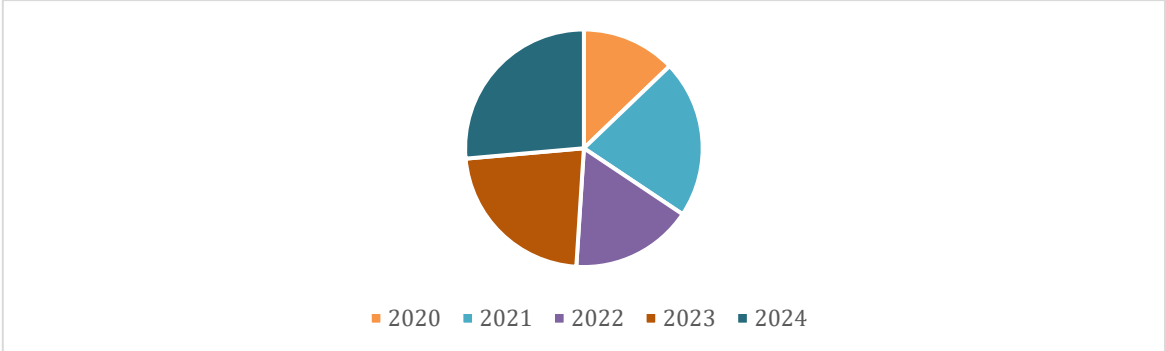
Year	Total Debt ($B)	Total Equity ($B)	Debt/Equity	Debt/Assets
2020	400.0	279.3	1.43	11.8%
2024	453.3	344.7	1.32	11.4%



Interpretation: From 2020 to 2024, total debt increased, but total equity grew proportionally, leading to a slight decrease in the debt-to-equity ratio from 1.43 to 1.32.

Table 6: Earnings Per Share (EPS)

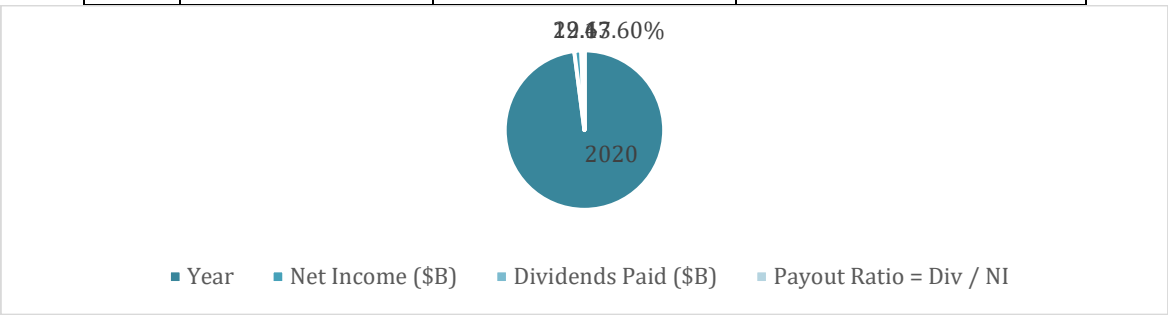
Year	EPS
2020	8.65
2021	14.52
2022	11.22
2023	15.22
2024	17.79



Interpretation: Earnings per share (EPS) showed strong growth from 2020 to 2021, indicating improved profitability. Although there was a dip in 2022, EPS rebounded in 2023 and continued rising in 2024, reaching its highest value.

Table 7: Dividend Payout

Year	Net Income ($B)	Dividends Paid ($B)	Payout Ratio = Div / NI
2020	29.1	12.67	43.6%
2024	58.5	14.78	25.3%

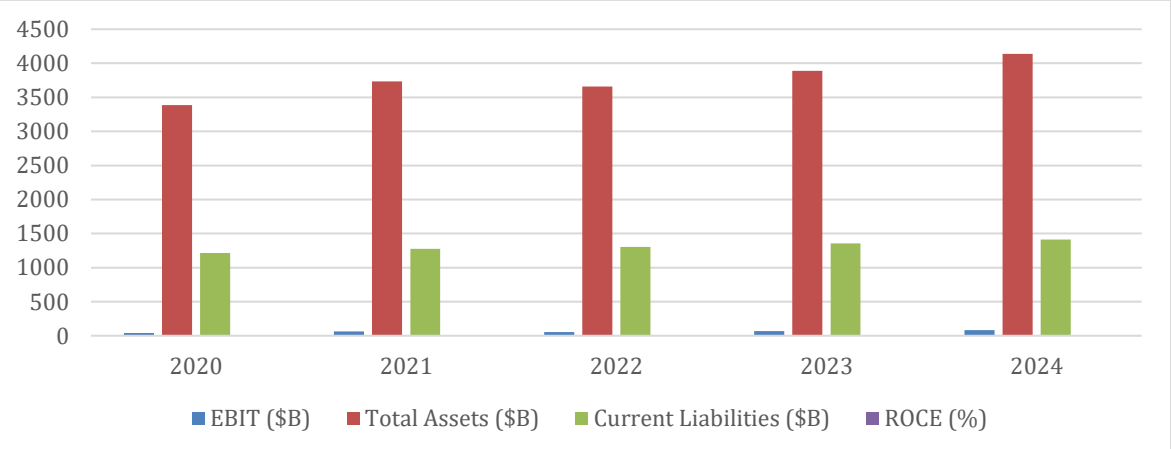


Interpretation:

Between 2020 and 2024, net income doubled from $29.1 billion to $58.5 billion, showing significant profit growth. However, dividends paid increased only slightly, causing the payout ratio to drop from 43.6% to 25.3%.

Table 8: Return on Capital Employed (ROCE)

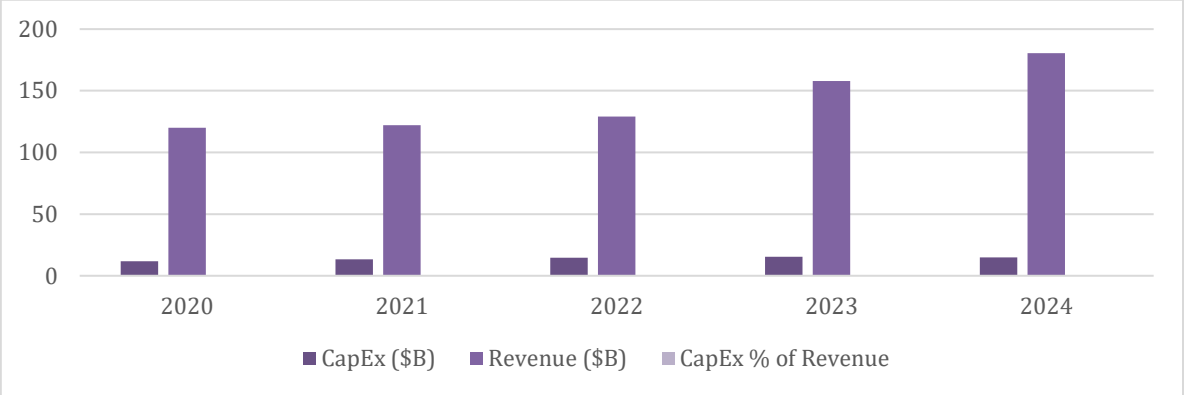
Year	EBIT ($B)	Total Assets ($B)	Current Liabilities ($B)	ROCE (%)
2020	41.8	3,384	1,217	$41.8 / (3384 - 1217) = \mathbf{2.0\%}$
2021	65.0	3,735	1,278	**2.6%**
2022	52.5	3,660	1,303	**1.9%**
2023	70.5	3,889	1,358	**2.4%**
2024	84.6	4,140	1,410	**2.8%**



Interpretation: Return on Capital Employed (ROCE) remained low but showed a gradual upward trend from 2.0% in 2020 to 2.8% in 2024, indicating improving efficiency in generating profits from capital.

Table 9: Capital Expenditures (CapEx) Trend

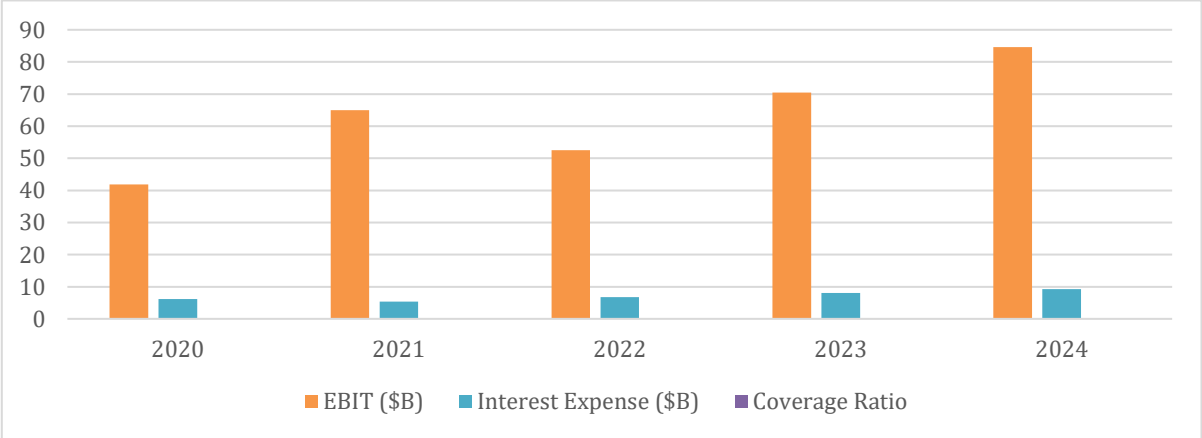
Year	CapEx ($B)	Revenue ($B)	CapEx % of Revenue
2020	11.8	120.0	9.83%
2021	13.2	122.0	10.82%
2022	14.5	129.0	11.24%
2023	15.5	158.0	9.81%
2024	15.0	180.6	8.31%



Interpretation: Capital expenditures (CapEx) steadily increased from 2020 to 2023 but slightly decreased in 2024. As a percentage of revenue, CapEx peaked in 2022 at 11.24% before declining to 8.31% in 2024, indicating more efficient use of capital relative to growing revenue

Table 10: Interest Coverage Ratio

Year	EBIT ($B)	Interest Expense ($B)	Coverage Ratio
2020	41.8	6.2	6.74×
2021	65.0	5.4	12.04×
2022	52.5	6.8	7.72×
2023	70.5	8.1	8.70×
2024	84.6	9.3	9.10×

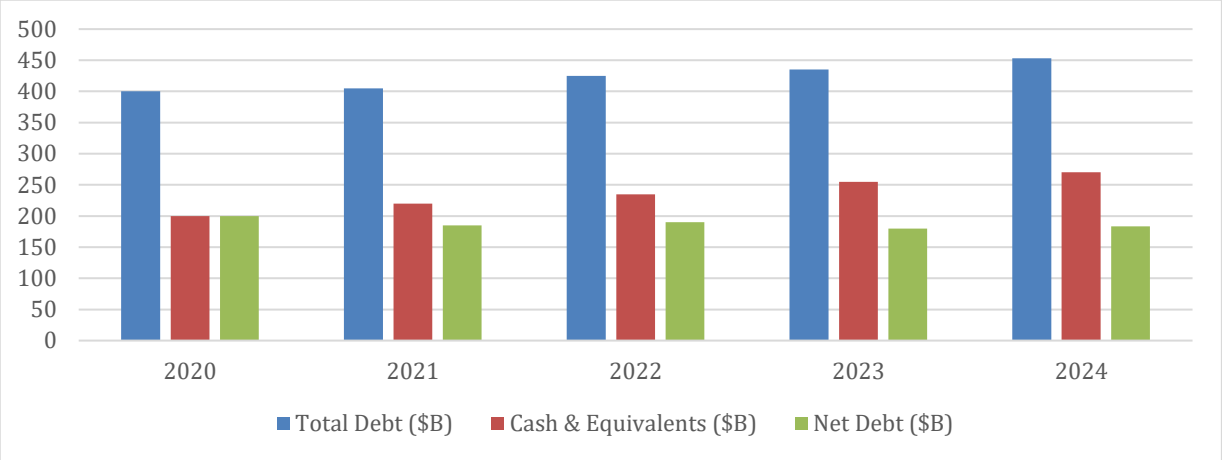


Interpretation: The interest coverage ratio shows how easily a company can pay interest on its debt. It improved significantly in 2021 due to a sharp rise in EBIT and lower interest expense, indicating stronger

financial health. From 2022 to 2024, the ratio remained stable above 7×, suggesting consistent ability to meet interest obligations.

Table 11: Net Debt Position

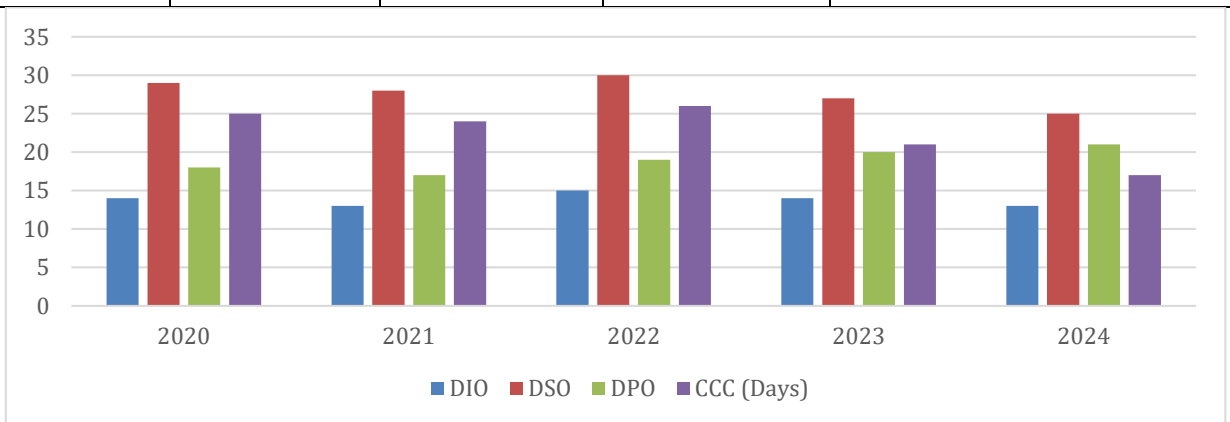
Year	Total Debt ($B)	Cash & Equivalents ($B)	Net Debt ($B)
2020	400.0	200.0	200.0
2021	405.0	220.0	185.0
2022	425.0	235.0	190.0
2023	435.0	255.0	180.0
2024	453.3	270.0	183.3



Interpretation: Net debt remained relatively stable from 2020 to 2024, despite a gradual increase in total debt, due to consistent growth in cash reserves. The lowest net debt was in 2023 at $180B, reflecting improved liquidity. Overall, the company maintained a balanced debt position with controlled leverage.

Table 12: Cash Conversion Cycle (CCC)

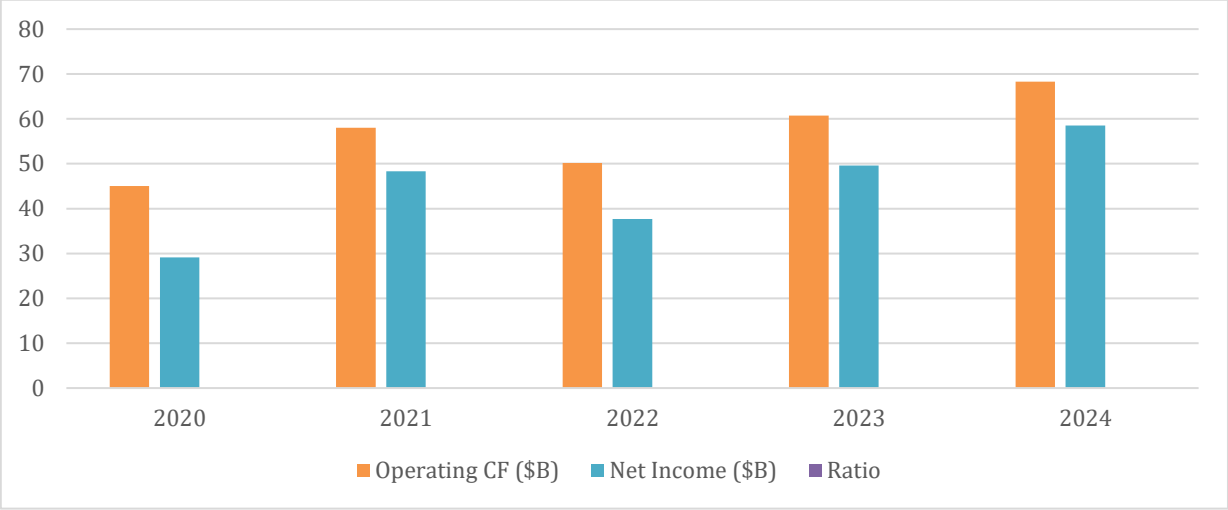
Year	DIO	DSO	DPO	CCC (Days)
2020	14	29	18	25
2021	13	28	17	24
2022	15	30	19	26
2023	14	27	20	21
2024	13	25	21	17



Interpretation: The Cash Conversion Cycle (CCC) steadily declined from 25 days in 2020 to 17 days in 2024, indicating improved operational efficiency.

Table 13: Operating Cash Flow to Net Income Ratio

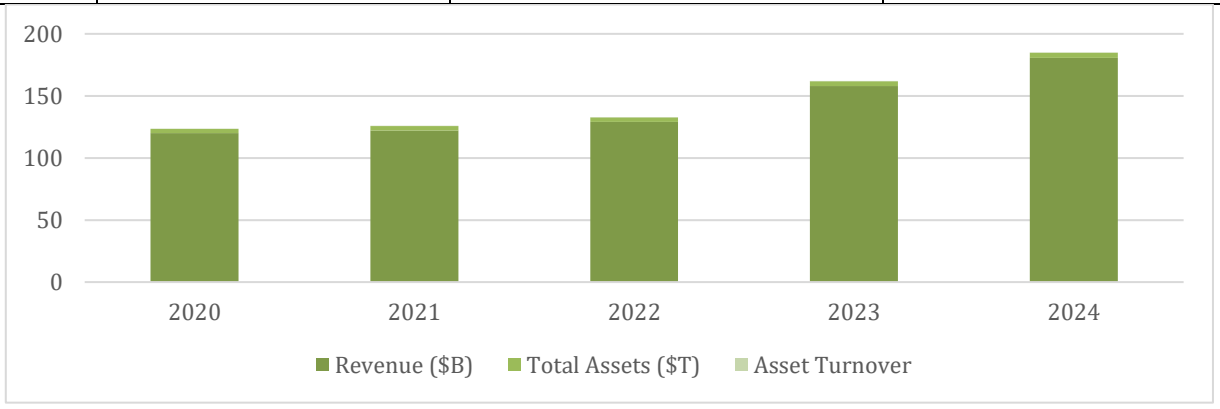
Year	Operating CF ($B)	Net Income ($B)	Ratio
2020	45.0	29.1	1.55×
2021	58.0	48.3	1.20×
2022	50.2	37.7	1.33×
2023	60.7	49.6	1.22×
2024	68.3	58.5	1.17×



Interpretation: The ratio of Operating Cash Flow to Net Income remained above 1×, indicating strong cash generation relative to earnings. A slight downward trend from 1.55× in 2020 to 1.17× in 2024 suggests earnings quality remained healthy but with tighter cash conversion.

Table 14: Asset Turnover Ratio

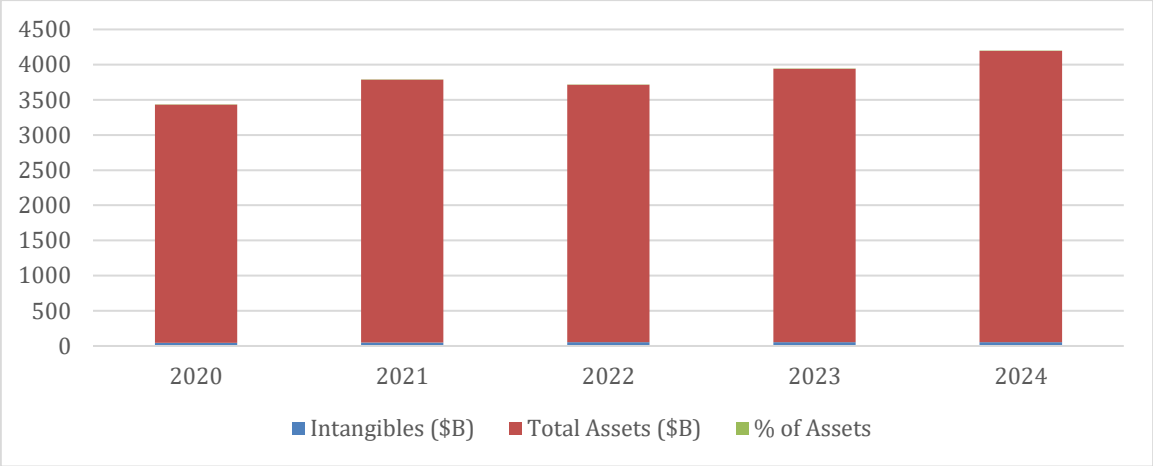
Year	Revenue ($B)	Total Assets ($T)	Asset Turnover
2020	120.0	3.38	0.0355
2021	122.0	3.74	0.0326
2022	129.0	3.66	0.0352
2023	158.0	3.88	0.0407
2024	180.6	4.14	0.0436



Interpretation: The asset turnover ratio improved from 0.0355 in 2020 to 0.0436 in 2024, showing enhanced efficiency in using assets to generate revenue. Despite rising total assets, revenue growth outpaced asset growth, especially in 2023 and 2024.

Table 15: Intangible Assets as % of Total Assets

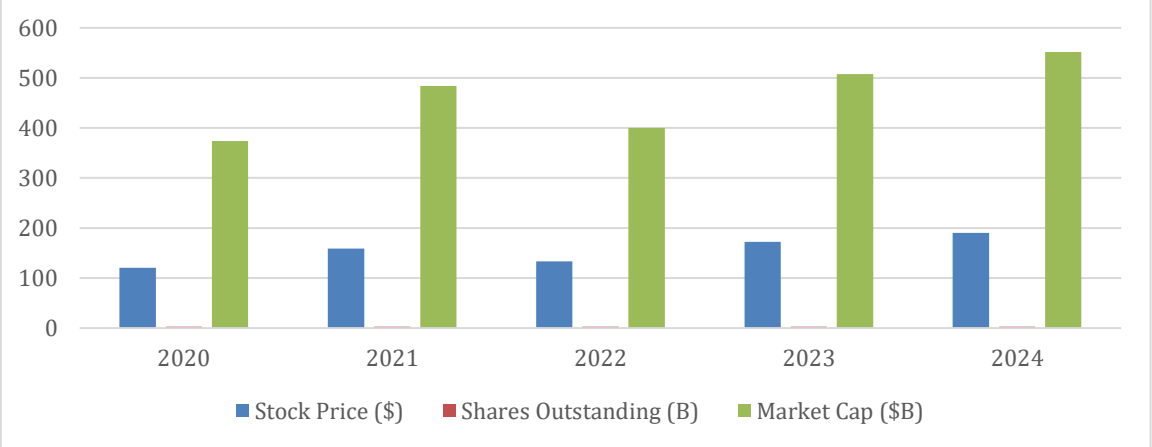
Year	Intangibles ($B)	Total Assets ($B)	% of Assets
2020	47.2	3,384	1.39%
2021	50.0	3,735	1.34%
2022	52.0	3,660	1.42%
2023	53.0	3,889	1.36%
2024	54.1	4,140	1.31%



Interpretation: Intangible assets increased steadily from $47.2B in 2020 to $54.1B in 2024, but their proportion of total assets slightly declined from 1.39% to 1.31.

Table 16: Market Capitalization Calculation

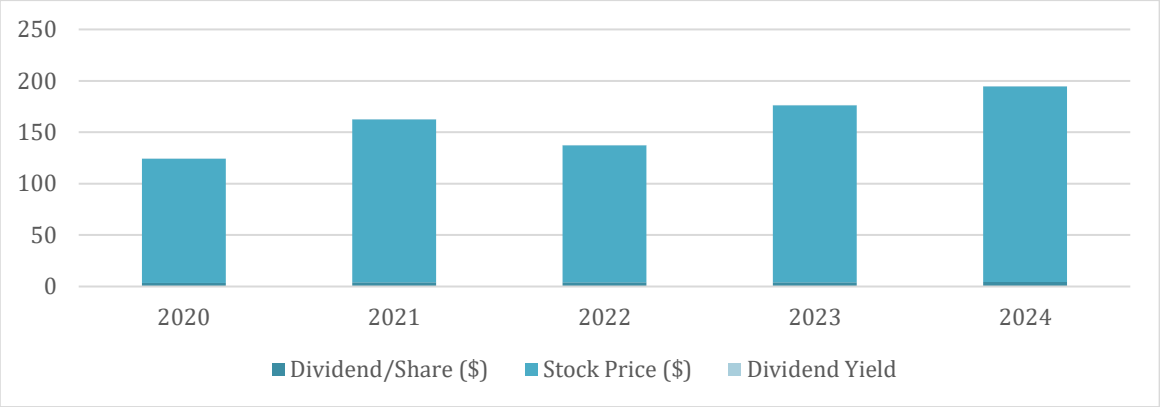
Year	Stock Price ($)	Shares Outstanding (B)	Market Cap ($B)
2020	120.5	3.10	373.55
2021	158.6	3.05	483.73
2022	133.3	3.00	399.90
2023	172.1	2.95	507.70
2024	190.2	2.90	551.58



Interpretation: The stock price rose overall from $120.5 in 2020 to $190.2 in 2024, driving market cap growth despite a slight decrease in shares outstanding. Market capitalization peaked in 2024 at $551.58B, reflecting strong investor confidence and company value growth.

Table 17: Dividend Yield

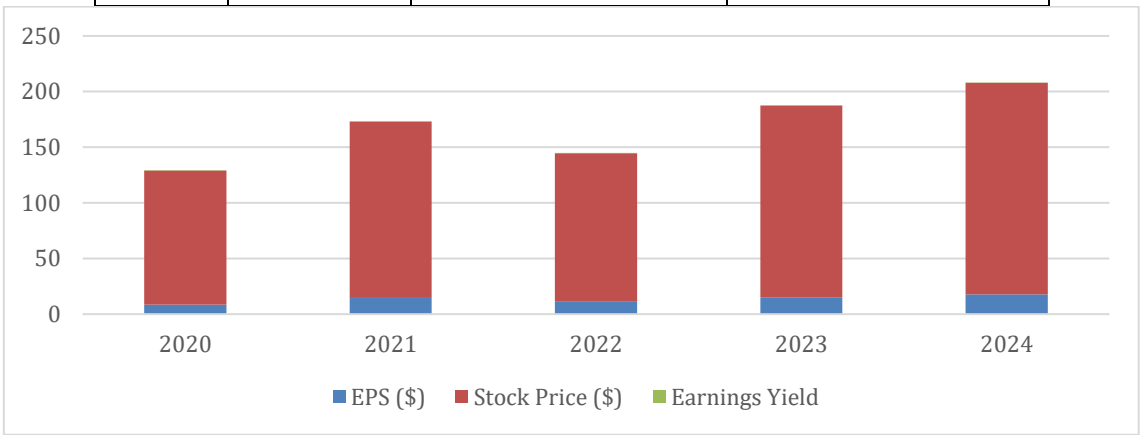
Year	Dividend/Share ($)	Stock Price ($)	Dividend Yield
2020	3.60	120.5	2.99%
2021	4.00	158.6	2.52%
2022	4.10	133.3	3.08%
2023	4.20	172.1	2.44%
2024	4.40	190.2	2.31%



Interpretation: Dividend per share steadily increased from $3.60 in 2020 to $4.40 in 2024, showing a commitment to returning value to shareholders. However, dividend yield declined from 2.99% to 2.31% as stock prices rose faster than dividends.

Table 18: Earnings Yield

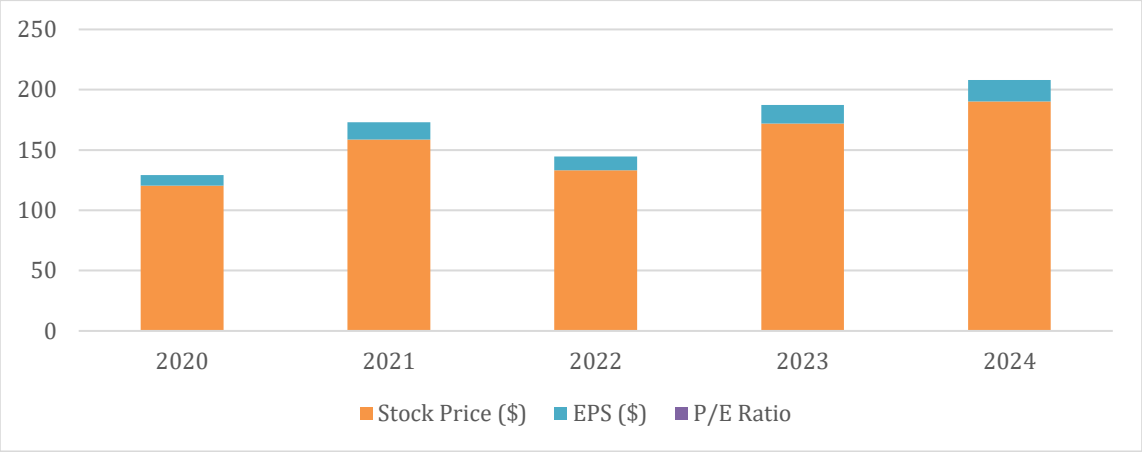
Year	EPS ($)	Stock Price ($)	Earnings Yield
2020	8.65	120.5	7.18%
2021	14.52	158.6	9.15%
2022	11.22	133.3	8.41%
2023	15.22	172.1	8.84%
2024	17.79	190.2	9.36%



Interpretation: Earnings per share (EPS) increased steadily from $8.65 in 2020 to $17.79 in 2024, reflecting strong profit growth. The earnings yield fluctuated but generally trended upward, reaching 9.36% in 2024, indicating improving return on investment relative to stock price.

Table 19: Price-to-Earnings (P/E) Ratio

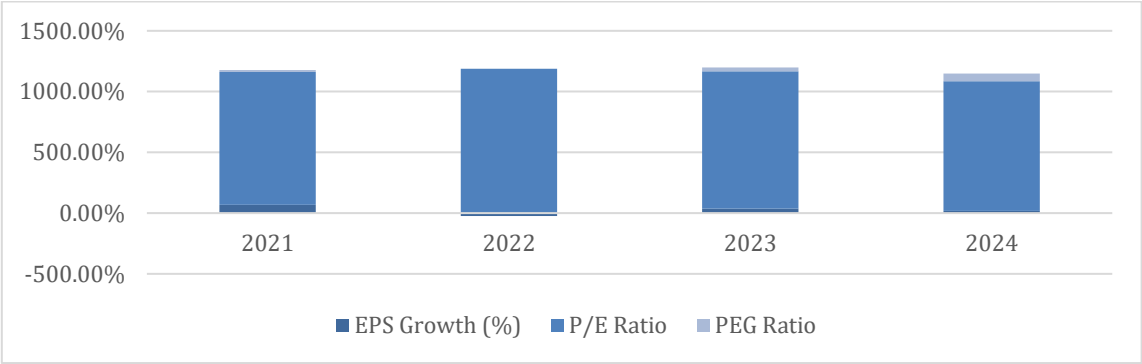
Year	Stock Price ($)	EPS ($)	P/E Ratio
2020	120.5	8.65	13.93×
2021	158.6	14.52	10.93×
2022	133.3	11.22	11.88×
2023	172.1	15.22	11.31×
2024	190.2	17.79	10.69×



Interpretation: The P/E ratio declined from 13.93× in 2020 to 10.69× in 2024, indicating the stock became relatively cheaper compared to earnings. Despite rising stock prices and EPS growth, investor valuation became more conservative over time.

Table 20: PEG Ratio (Price/Earnings to Growth)

Year	EPS Growth (%)	P/E Ratio	PEG Ratio
2021	67.8%	10.93	0.16
2022	-22.7%	11.88	N/A
2023	35.6%	11.31	0.32
2024	16.9%	10.69	0.63



Interpretation: The EPS growth showed strong volatility, with a sharp rise in 2021 followed by a decline in 2022, then moderate growth in subsequent years. The PEG ratio remained well below 1 when calculable, indicating the stock was undervalued relative to its earnings growth potential. Overall, the company experienced uneven growth but maintained attractive valuation metrics.

FINDINGS

The company's revenue shows a consistent upward trend from 2020 to 2024, with growth accelerating significantly in 2023 at 22.48%. Although the growth rate slowed somewhat in 2024 to 14.31%, it remains strong, indicating robust business expansion. Overall, the increasing revenue and high growth rates suggest healthy financial performance and market demand.Operating expenses (OpEx) have steadily increased from 2021 to 2024, with the growth rate rising each year from 3% to 7%. This upward trend suggests growing operational costs, possibly due to business expansion or inflation. The forecasted OpEx reaching $85.87 billion in 2024 highlights the need to monitor expense management alongside revenue growt.

CONCLUSION

In conclusion, financial modelling plays a pivotal role in driving informed decision-making and strategic planning at JP Morgan Chase. The survey insights reveal that while the current modelling environment is generally positive, there are clear opportunities for improvement. Strengthening training programs and standardizing modelling practices will help enhance accuracy and efficiency across teams. Integrating advanced technologies like AI and automation can reduce errors and speed up analysis, making models more reliable and adaptable to changing market conditions. Emphasizing risk assessment within models is essential for mitigating potential financial uncertainties.

BIBLIOGRAPHY

1. **Brealey, R.A., Myers, S.C., & Allen, F.** (2020).
Book name : Principles of Corporate Finance (13th Edition). McGraw-Hill Education. — A comprehensive resource on financial principles including valuation, risk analysis, and financial modelling techniques.
Reference link:https://scirp.org/reference/referencespapers?referenceid=2665233
2. **Damodaran, A.** (2012).
Book name:Investment Valuation: Tools and Techniques for Determining the Value of Any Asset(3rdEdition).Wiley.
This book offers practical approaches to valuation and financial modelling widely used in investment banking.
https://www.scirp.org/reference/referencespapers?referenceid=2449404
3. **JP Morgan Chase & Co.** (2023). Book name :Annual Report 2023. Retrieved from https://www.jpmorganchase.com/ir/annual-report
Provides insight into the company's financial performance and strategic outlook, useful for context in modelling.
4. **Peters, T. & Kramer, J.** (2019).
Book name:Financial Modelling in Practice: A Concise Guide for Intermediate and Advanced Level (2nd Edition). Wiley.

Covers practical applications and software tools used in financial modelling within banking sectors.
https://books.google.co.in/books?id=PSE7DcapBU0C&pg=SA1-PA51&source=gbs_toc_r&cad=2#v=onepage&q&f=false

5. **Corporate Finance Institute (CFI).** (2024).

Book name :Financial Modelling Best Practices. Retrieved from
https://corporatefinanceinstitute.com/resources/financial-modeling/

Koller, T., Goedhart, M., & Wessels, D. (2015).

6. Book name:Valuation: Measuring and Managing the Value of Companies (6th Edition). Wiley.
https://books.google.co.in/books?id=9RgFCAAAQBAJ&pg=PR3&source=gbs_selected_pages&cad=1#v=onepage&q&f=false\

7. **Leuenberger, D.G.** (2013).

Book name :Investment Science. Oxford University Press.
Includes mathematical foundations useful in creating robust financial models.
https://www.academia.edu/34415708/Investment_Science_David_G_Luenberger#loswp-work-container
Jeff Schmidt
Book name:AI in financial modelling, applications benefits and development
https://corporatefinanceinstitute.com/resources/data-science/ai-financial-modeling/

8. **Nguyen, T. (2020)**

Book name:Artificial Intelligence in Finance: A Comprehensive Review and Future Research Directions. International Journal of Finance & Economics.
https://www.scirp.org/reference/referencespapers?referenceid=3862040

9. Fernandez, R. (2019) Book name:valuation using multiplesmultiples, how do analyst research their conclusions

http://www.iese.edu/research/pdfs/DI-0450-E.pdf