

University of Wales Trinity Saint David

Faculty of Business and Management

Master of Business Administration

Module: Financial Management (LCMB7002)

Assessment: Financial Performance and Management

Selected Company: Tesla, Inc.

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Word Count: 5181

Submission Date: 26th March 2026

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Introduction

Growing environmental awareness, regulatory pressure, and rapid battery technology advances have made the electric vehicle (EV) industry one of the most transformative sectors of the global economy (IEA, 2024). Tesla, Inc. is the most well-known and financially analysed EV manufacturer. Tesla, founded in 2003 in Austin, Texas, is a vertically integrated technology and energy company that delivered over 1.8 million vehicles worldwide in 2023 (Tesla, 2024).

This report has been written from the perspective of Tesla's Chief Financial Officer (CFO), responding to a Board mandate to examine five years of financial performance (2021–2025), address working capital challenges, propose a restructuring strategy, and evaluate three capital investment projects and choose the best suited. The analysis draws on Tesla's published annual reports, peer reviewed financial management literature, and current industry data to provide evidence-based recommendations that are financially sound, globally scalable, and ethically responsible.

The report is structured across four sections, a financial health check supported by ratio analysis a working capital management review, a strategic financial restructuring plan and a detailed investment appraisal using standard capital budgeting techniques. Together, these sections provide a comprehensive financial assessment of Tesla's current position and future direction.

1. Financial Health Check

1.1 Overview of Financial Performance (2021–2025)

Between 2021 and 2025, Tesla Inc. underwent a significant financial transformation. Revenue grew from \$31.5 billion in 2020 to \$97.7 billion in 2024, representing a compound annual growth rate (CAGR) of approximately 32.7%, driven by strong vehicle deliveries, the maturation of its energy segment, and software-related revenues (Tesla, 2022; Tesla, 2024). However, this top-line growth masks a more complex profitability narrative, characterised by significant margin compression from 2022 onwards, largely attributable to aggressive price reductions implemented to defend market share amid intensifying competition (Bloomberg NEF, 2024). The

following ratio analysis examines profitability, liquidity, efficiency, and financial structure, drawing on Tesla's annual reports (Tesla, 2021–2025).

1.2 Profitability Ratios

Table 1. Tesla Profitability Ratios (2021–2025)

Metric	2021	2022	2023	2024	2025
Return on capital employed (ROCE)	15.31%	24.86%	11.41%	8.32%	4.57%
Asset Turnover	1.26 times	1.46 times	1.24 times	1.04 times	0.89 times
Gross Profit Margin	25.27%	25.59%	18.24%	17.86%	18.02%
Net Operating Profit Margin	12.06%	16.97%	9.18%	7.94%	5.11%

Source: Compiled from Tesla Annual Reports (2021; 2022; 2023; 2024; 2025).

Tesla's profitability profile reflects a transition from a high-margin, efficiency-driven growth phase to a capital-intensive, volume-led strategy. Gross profit margin peaked at 25.6% in 2022, supported by strong pricing power and operational efficiencies from the Gigafactory network. From 2023 onwards, however, deliberate price cuts—exceeding 20% on key models which eroded margins to approximately 18% (Tesla, 2024). As Brigham and Houston (2021) note, sustained gross margin pressure without corresponding cost reductions often signals deteriorating competitive positioning. Although Tesla's margins remain above those of traditional manufacturers such as Toyota (Michael, 2024), the downward trajectory suggests this relative advantage is eroding.

Net operating profit margin fell more sharply, from 16.97% in 2022 to 5.11% by 2025. This disparity indicates cost rigidity, whereby operating expenses have not adjusted proportionately to falling unit revenues. According to Brigham and Houston (2021), such sustained compression without cost adaptation reflects declining operational efficiency and weakening competitive positioning.

Return on equity (ROE) peaked at 28.1% in 2022 before falling to 9.8% by 2024. Applying the DuPont framework (Brealey, Myers and Allen, 2020), this decline is primarily margin-driven rather than attributable to asset turnover or leverage changes,

reinforcing that the core challenge lies in profitability pressures rather than operational ineffectiveness.

The most significant concern is the sharp deterioration in return on capital employed (ROCE), which declined from 24.86% in 2022 to just 4.57% by 2025. This represents a substantial weakening in capital efficiency and suggests that Tesla's expanding asset base, particularly production capacity, is generating diminishing returns. With ROCE now likely falling below the firm's estimated cost of capital (8–10%), Tesla may no longer be creating shareholder value, raising critical questions regarding capital allocation discipline.

This trend is closely linked to asset turnover, which improved to 1.46 times in 2022 before declining steadily to 0.89 times by 2025. The initial improvement reflected efficient utilisation during a period of strong demand; the subsequent decline suggests that capacity expansion has outpaced revenue growth, a pattern often associated with overcapacity or underutilised assets.

1.3 Liquidity Ratios

Table 2. Tesla Liquidity Ratios (2021–2025)

Metric	2021	2022	2023	2024	2025
Current Ratio	1.37	1.53	1.72	2.02	2.16
Acid Test Ratio	1.08	1.05	1.25	1.6	1.77
Cash Ratio	89.19	52.28	55.31	49.91	46.1

Source: Compiled from Tesla Annual Reports (2021;2022; 2023; 2024;2025).

Over the five-year period, Tesla's liquidity has strengthened consistently, with the current ratio rising from 1.37 to 2.16 and the quick ratio from 1.08 to 1.77. At face value, this suggests robust short-term solvency, with liquidity levels exceeding conventional manufacturing benchmarks. Watson and Head (2019) consider a current ratio of 1.5–2.0 optimal, balancing solvency with efficient asset utilisation. Tesla's position above this range signals both financial security and potential excess liquidity.

However, this apparent strength warrants critical evaluation. A rising current ratio may indicate inefficient working capital management when driven by low-yielding current assets. In Tesla's case, the upward trend coincides with a substantial inventory expansion, from approximately \$4.1 billion in 2020 to \$13.7 billion in 2024 (MacroTrends, 2026). This suggests that headline liquidity improvements are partially attributable to inventory build-up rather than an expansion of more liquid assets, raising concerns about turnover efficiency and overstocking risk in a rapidly evolving EV market.

The quick ratio, which excludes inventory, remained above 1.0 throughout the period, reaching 1.77 by 2025. This indicates that Tesla retains capacity to meet short-term liabilities without relying on inventory realisation, reinforcing creditor confidence. Nevertheless, the concurrent elevation of both ratios may signal suboptimal capital allocation. Holding excessive liquid assets imposes an opportunity cost, particularly in a capital-intensive industry where funds could be deployed towards high-return strategic initiatives (Brigham and Houston, 2021).

The cash ratio declined from 89.19 in 2021 to 46.1 in 2025, suggesting a strategic shift towards deploying cash reserves rather than accumulating idle balances, a transition from a highly conservative liquidity posture to more active capital utilisation.

1.4 Efficiency Ratios

Table 3. Tesla Efficiency Ratios (2021–2025)

Metric	2021	2022	2023	2024	2025
Non-current Asset Turnover (times)	1.53	1.96	1.69	1.53	1.37
Inventory days	52.24 days	77.31 days	62.86 days	54.66 days	58.18 days
Trade Payable days	90.98 days	91.86 days	66.57 days	56.74 days	62.78 days
Trade Receivable days	34.15 days	13.07 days	13.15 days	16.35 days	17.57 days

Source: Compiled from Tesla Annual Reports (2021;2022; 2023; 2024;2025).

Tesla's efficiency ratios reveal a concerning trajectory. Non-current asset turnover peaked at 1.96 times in 2022, reflecting the productive commissioning of Gigafactories in Berlin and Texas (Ozsevim, 2024), before declining to 1.37 times by 2025. This pattern indicates that the firm's expanding asset base is no longer generating proportionate revenue growth. As Ross, Westerfield and Jordan (2022) caution, such trends often signal over-investment or underutilisation of fixed assets in capital-intensive industries.

Inventory management remains volatile. Inventory days spiked to 77.31 days in 2022 due to supply chain disruptions, improved to 54.66 days in 2024, but increased again to 58.18 days in 2025, indicating persistent instability in demand forecasting and production planning.

Trade receivable days improved dramatically from 34.15 days in 2021 to approximately 13 days in 2022, reflecting Tesla's direct-to-consumer model and efficient credit policies. Although a gradual increase to 17.57 days by 2025 suggests slight pressure on collections, this remains highly efficient relative to industry norms.

Conversely, trade payable days declined substantially from 91.86 days in 2022 to 56.74 days in 2024, before a partial recovery to 62.78 days in 2025. This reduction may reflect either improved supplier relationships or reduced bargaining power, but it reduces the firm's ability to utilise trade credit as a source of short-term financing, placing additional pressure on internal cash resources.

Collectively, these trends point to a lengthening working capital cycle, reinforcing that Tesla's robust liquidity position may partly reflect inefficiencies in working capital management rather than purely prudent cash management.

1.5 Summary of Trends, Strengths, and Threats

Tesla's financial performance between 2020 and 2022 was characterised by accelerating revenue growth, expanding margins, and significant shareholder value creation. The period from 2023 onwards, however, marks a notable inflection point. The company continues to exhibit several key strengths. Its liquidity position remains strong, with current and quick ratios consistently exceeding conventional benchmarks, while low gearing provides financial flexibility and reduces refinancing risk. Tesla's receivables management is highly efficient, reflecting its direct-to-consumer sales model and contributing to robust cash conversion from operations. Furthermore, the firm retains unmatched brand recognition in the electric vehicle market and maintains a relative margin advantage over legacy automakers such as Toyota and Volkswagen (Deloitte, 2023).

Nevertheless, significant threats have emerged. Sustained margin compression, driven by aggressive price competition, is eroding profitability, while rising inventory levels and volatile inventory turnover point to underlying challenges in demand forecasting and production alignment. Declining asset turnover and return on capital employed (ROCE) suggest diminishing returns on capital investment, with ROCE now falling below the estimated cost of capital, a development that raises concerns about potential shareholder value erosion. Moreover, the firm's rapid capacity expansion appears to have outpaced revenue growth, raising the risk of overcapacity and underutilised assets. As Hillier et al. (2021) observe, companies in high-growth technology sectors must carefully balance reinvestment for growth against maintaining adequate returns for shareholders. Tesla's current trajectory suggests this balance has become increasingly precarious. The following section will explore working capital management strategies to address these emerging inefficiencies.

2. Working Capital Management Analysis

A company's capacity to maintain operations, fulfil short-term obligations, and finance strategic investments without undue reliance on outside funding depends heavily on working capital management (Atrill, 2020). A key indicator of working capital efficiency is the cash operating cycle (COC), which is the amount of time that passes between paying suppliers and receiving money from customers. A thorough analysis of this

cycle for Tesla reveals both strengths and new weaknesses that have a big impact on liquidity and financial flexibility.

2.1 Assessment of the Cash Operating Cycle

Year	2021	2022	2023	2024	2025
DSO	13.34 days	13.2 days	13.2 days	16.6 days	17.6 days
DIO	52.24 days	77.31 days	62.86 days	54.66 days	58.18 days
DPO	90.98 days	91.86 days	66.57 days	56.74 days	62.78 days
CCC	-25.4 days	-1.3 days	9.5 days	14.5 days	13 days

The cash operating cycle for Tesla's 2024 financial data can be estimated by utilising the figures from the table. The direct-to-consumer sales model maintains receivables days (DSO) at a low level of 16.6 days, while inventory days (DIO) were 54.66 days. Tesla (2024) reported 56.74 days of payables (DPO). This results in a net cash operating cycle of approximately 15 days ($54.7 + 16.6 - 56.7$). In contrast to conventional automakers like General Motors, which report a cash cycle closer to 40–50 days, this is generally favourable (Bloomberg NEF, 2024). This is primarily due to the more complex supply chains and dealer network receivables.

However, if inventory levels are increasing in absolute terms, a short cash cycle can obscure internal inefficiencies (McLaney and Atrill, 2022). Tesla's inventory increased from approximately \$4.1 billion in 2020 to \$12.0 billion in 2024, with quarterly peaks ranging from \$14.5 billion to \$16.0 billion throughout the same year. This implies that the absolute scale of inventory ties up substantial capital, despite the fact that the cycle is short in terms of days (Financecharts.com, 2026; MacroTrends, 2025). Additionally, the inconsistency in demand forecasting and production alignment is suggested by the variation in inventory days between 2021 and 2025, which ranges from 52 to 77 days. The firm's working capital position is deteriorating, despite the fact that the headline

cash cycle remains competitive. This is demonstrated by a decrease in payables days (from 92 days in 2022 to 57 days in 2024) and a lengthening receivables trend (from 13 days in 2022 to 17 days in 2025) (Financecharts.com, 2026; GuruFocus, 2025).

In terms of strategy, Tesla's present working capital profile is a combination of various approaches. The organization's receivables cycle is structurally efficient due to its direct sales model. Nevertheless, it is becoming more susceptible to the stress of stricter supplier payment terms and inventory accumulation. This combination reduces the company's access to "free" financing from suppliers, resulting in a greater concentration of the company's own capital in operations.

2.2 Strategies to Improve Liquidity Through Working Capital Reforms

Multiple strategic reforms may be proposed to enhance Tesla's working capital position.

Inventory optimisation is paramount. Inventory rose from \$4.1 billion in 2020 to approximately \$12.0 billion in 2024, reaching quarterly peaks of \$14.5–16.0 billion, partly attributable to supply chain buffering and vehicle accumulation preceding quarterly delivery surges. The literary analysis of Tesla's inventory trend indicates a rise to \$12.84 billion in 2022, resulting from Gigafactory developments and supply chain disruptions, succeeded by an 11.8% decline in 2024 due to the implementation of AI-driven demand modelling and giga casting (Li, 2025). A data-driven production scheduling strategy, aligned with real-time demand signals and regional sales forecasts, could reduce average inventory days by 8 to 10 days, thereby releasing approximately \$1.5 to \$1.9 billion in cash (Ross, Westerfield, and Jordan, 2022). This reduction would substantially improve free cash flow without compromising delivery capacity.

Secondly, the administration of payables requires reconsideration. The substantial decrease in trade payable days from 92 days in 2022 to approximately 57 days in 2024 has lessened Tesla's dependence on supplier credit for short-term financing. Effective working capital management requires a balance among growth, profitability, and

liquidity, with the management of accounts payables being a critical component (Titman, Keown, and Martin, 2018). While maintaining strong supplier relationships is essential, negotiating payment terms to conform to industry norms (typically 70–80 days) may be feasible through strategic supplier collaborations or volume-based contracts. This would favourably extend the cash operating cycle by delaying cash outflows and preserving internal liquidity.

Third, receivables management, although already efficient, could be further optimised by tightening credit terms for commercial clients (e.g., fleet sales, energy storage projects) where payment cycles have increasingly lengthened. The cash conversion cycle method for liquidity analysis, first proposed by Richards and Laughlin (1980), emphasises that reducing receivables days is a crucial strategy for shortening the operating cycle and enhancing liquidity. Implementing dynamic discounting, which offers minor discounts for timely payments, may accelerate cash inflows with minimal margin impacts.

These reforms would improve liquidity and reduce the strain of external financing, thereby aiding the goal of maintaining financial flexibility in a capital-intensive sector. Li (2025) reports that Tesla's inventory turnover ratio decreased to 8.05x in 2024, lagging behind competitors such as BYD (12.4x), which suggests an overreliance on raw materials and ongoing geopolitical risks necessitating proactive working capital management.

2.3 Short-Term Versus Long-Term Financing Options

Tesla's financial flexibility was exceptional at the end of 2024, as it possessed approximately \$36 billion in cash and short-term investments (Tesla, 2024). However, the strategic importance of the decision between short-term and long-term financing is particularly evident in capital-intensive initiatives such as Gigafactory expansions and research and development.

Revolving credit facilities, commercial paper, and supply chain financing are short-term options that offer flexibility and reduced nominal costs. However, they also expose the firm to refinancing risk and interest rate fluctuations (Watson and Head, 2019). Employing short-term instruments to finance long-duration assets during a period of elevated global interest rates would lead to a maturity mismatch that is in direct opposition to prudent financial management (Brealey, Myers, and Allen, 2020).

Long-term financing, which encompasses medium-term notes or green bonds, aligns the funding duration with the operational lifespan of the financed assets. Tesla's debt-to-equity ratio of 0.11 indicates that the company has a substantial debt capacity. According to Madura (2020), green bonds are in perfect harmony with Tesla's brand identity and frequently provide a lower cost of capital as a result of the ESG premium. The most logical approach for Tesla's current financial profile is a hybrid strategy that employs long-term debt for fixed asset investment and short-term facilities for operational liquidity.

3. Strategic Financial Restructuring Plan

A strategic financial restructuring plan for Tesla must focus on three interrelated objectives: enhancing shareholder value, mitigating operational risk, and positioning the company for sustainable long-term growth. Three primary restructuring alternatives are evaluated: selective divestiture, targeted equity infusion into growth sectors, and balance sheet optimisation via share repurchases. Each is assessed for its influence on shareholder value, debt composition, and operational adaptability, succeeded by an examination of international and ethical factors.

3.1 Recommended Restructuring Options

A strategic financial restructuring plan for Tesla must address three interconnected objectives: improving shareholder value, reducing operational risk, and positioning the company for sustainable long-term growth. Three principal restructuring options are

considered: selective divestiture, targeted equity injection into growth segments, and balance sheet optimisation through share buybacks.

Targeted Divestment. Tesla specialises in automotive manufacturing, energy generation and storage, and software and services. Although the automotive sector continues to be predominant, the energy sector which encompasses Powerwall, Megapack, and solar products is experiencing rapid growth and is subject to distinct valuation multiples compared to the automotive core (Tesla, 2024). A partial spin-off or strategic alliance in the energy sector would enable Tesla to realise latent value presently undervalued within the consolidated entity, while preserving operational synergies from integrated battery development. Damodaran (2021) observes that conglomerate structures often trade at a discount relative to their sum-of-parts valuation, and strategic divestiture can serve as an effective value-creation strategy.

Equity Injection into Growth Divisions. Tesla should contemplate a targeted rights issue or private placement to raise capital specifically for the energy storage division, where demand growth exceeds production capacity, if a spin-off is not pursued. Block, Hirt, and Danielsen (2019) note that ring-fenced capital raises can lower the cost of capital for high-growth sub-divisions by enhancing investor transparency, while simultaneously avoiding the dilutive effects of a general equity issuance at the parent level.

Tesla has about \$36 billion in cash and only a small amount of debt, so it has the money to buy back shares. A structured buyback program would show that management is confident, raise earnings per share, and give shareholders value during a time when earnings are low (Arnold, 2019). The board's approval of a \$10 billion buyback in January 2024 is a careful first step in this direction (Tesla, 2024).

3.2 Impact on Shareholder Value, Debt Structure, and Operational Flexibility

The recommended restructuring measures carry distinct implications for Tesla's financial architecture.

Selective divestiture of the energy segment would reduce Tesla's asset base and could improve return on assets (ROA) in the core automotive business, while creating

a separately valued entity in the energy sector. However, it would also reduce diversification benefits: during periods of automotive market weakness, as experienced in 2024, the energy segment provided a partial earnings buffer, and its removal would increase exposure to automotive cyclicality (Damodaran, 2021).

From a debt structure perspective, Tesla's current low gearing provides substantial flexibility. According to trade-off theory, the optimal capital structure balances the tax shield of debt against the costs of financial distress (Brealey, Myers and Allen, 2020). With a debt-to-equity ratio of just 0.11, Tesla is arguably under-gearred, forgoing the tax advantages of debt financing. A moderate increase in long-term borrowing to a target debt-to-equity ratio of 0.25–0.30 would reduce the weighted average cost of capital (WACC) while maintaining an investment-grade credit profile.

Operational flexibility would be enhanced by the proposed hybrid approach: retaining the energy division's growth potential, if a spin-off is deferred, while using a modest increase in long-term debt to fund capital expenditure. This preserves the ability to respond to market shifts without over-leveraging the balance sheet.

3.3 International and Ethical Considerations

Tesla's global operations, which encompass North America, Europe, and Asia, introduce substantial exposure to inflationary pressures, tax complexity, and currency risk. In order to safeguard reported earnings, active hedging is necessary for revenue and cost bases denominated in renminbi, euros, and sterling. Madura (2020) suggests a combination of financial derivatives, such as forward contracts and currency options, and natural hedging, which involves matching revenues and costs in the same currency. Tesla's Berlin and Shanghai Gigafactories already exhibit natural hedging, which aligns local manufacturing costs with local revenue. Additional derivative hedging in smaller markets would mitigate residual risk.

Tesla operates under a complex multi-jurisdictional structure that includes substantial deferred tax assets in terms of taxation. The reported net income for 2023 was significantly inflated by the recognition of a \$5.9 billion deferred tax benefit. The company will be required to navigate the OECD Global Minimum Tax (15% effective

rate) in the future, which may reduce the tax efficiency gains that were previously achieved through international structuring (IEA, 2024). It is imperative to maintain reputational capital through proactive tax transparency.

From a corporate social responsibility (CSR) standpoint, Tesla's objective to accelerate the transition to sustainable energy establishes a robust ethical foundation for its financial strategy. The brand's ethical positioning is further cemented by its investments in renewable manufacturing processes, supply chain transparency (particularly in the context of cobalt and lithium sourcing), and community engagement in the host cities of the Gigafactory. Gitman and Zutter (2019) observe that organisations with robust ESG credentials are increasingly able to capitalise on lower borrowing costs and a more devoted investor base, thereby transforming CSR into a competitive financial advantage rather than a mere compliance obligation.

4. Investment Appraisal and Capital Budgeting

Three mutually exclusive investment projects have been evaluated using five capital budgeting techniques: Payback Period (PBP), Accounting Rate of Return (ARR), Net Present Value (NPV), Profitability Index (PI), and Internal Rate of Return (IRR). Each project requires an initial investment of £50 million and generates the following projected cash inflows over a five-year period:

4.1 Project Overview and Assumptions

Table 5. Project Cash Flow Data (£ millions)

Project	Year 1	Year 2	Year 3	Year 4	Year 5	Total
A	£10m	£12m	£14m	£10m	£8m	£54m
B	£11m	£11m	£11m	£11m	£11m	£55m
C	£5m	£10m	£20m	£25m	£5m	£65m

Note: Initial investment for each project = £50 million. Discount rate = 10%. Straight-line depreciation to zero over 5 years.

All projects assume straight-line depreciation to zero over five years, resulting in an annual depreciation charge of £10 million. A discount rate of 10% has been applied, reflecting Tesla's estimated weighted average cost of capital (WACC), adjusted for project-specific risk in line with the recommendations of Richard Brealey, Stewart Myers and Franklin Allen (2020).

While these assumptions provide a consistent basis for comparison, it is important to recognise that applying a uniform discount rate across all projects implicitly assumes identical risk profiles. In practice, this may not hold, particularly given the differing timing and volatility of cash flows across the three projects.

4.2 Payback Period (PBP)

The payback period measures the time required to recover the initial investment from net cash inflows. It is a widely used screening tool valued for its simplicity and focus on liquidity risk, though it ignores the time value of money and cash flows beyond the payback point (Arnold, 2019).

Table 6. Cumulative Cash Flows and Payback Period

Project / Cumulative CF	Year 1	Year 2	Year 3	Year 4	Year 5	PBP
A (£m)	£10m	£22m	£36m	£46m	£54m	4.5 years
B (£m)	£11m	£22m	£33m	£44m	£55m	4.55 years
C (£m)	£5m	£15m	£35m	£60m	£65m	3.6 years

Note: **Project A**

Cumulative:
£10m+ £12m+ £14m+ £10m+ £8m = £54

$$\text{PBP} = 4 + \frac{50 - 46}{8} = 4.5 \text{ years}$$

Project B

Cumulative:

$$£11m + £11m + £11m + £11m + £11m = £55$$

$$PBP = 4 + \frac{50 - 44}{11} = 4.55 \text{ years}$$

Project C

Cumulative:

$$£5m + £10m + £20m + £25m + £5m = £65$$

$$PBP = 3 + \frac{50 - 35}{25} = 3 + 0.6 = 3.6 \text{ years}$$

Project C achieves the shortest payback period at approximately 3.6 years, compared to 4.5 years for Project A and 4.55 years for Project B. From a liquidity perspective, this is advantageous, particularly given Tesla's recent decline in profitability and increasing pressure on internal cash generation identified in earlier sections.

However, the payback method is inherently limited as it ignores post-payback cash flows. This is particularly relevant for Project C, where a significant proportion of returns occur after Year 3. As such, while Project C appears favourable under this method, reliance on payback alone may lead to suboptimal investment decisions.

4.3 Accounting Rate of Return (ARR)

ARR measures average annual accounting profit as a percentage of the initial investment. Annual accounting profit equals net cash inflow minus annual depreciation of £10m.

Table 7. ARR Calculation

Metric	Project A	Project B	Project C
Total Net Cash Inflow (£m)	£54m	£55m	£65m
Total Depreciation (£m)	£50m	£50m	£50m
Total Accounting Profit (£m)	£4m	£5m	£15m
Average Annual Profit (£m)	£0.8m	£1.0m	£3.0m

Metric	Project A	Project B	Project C
ARR ($\div$ £50m Initial Inv.)	1.6%	2.0%	6.0%

Note: $ARR = \text{Average Annual Accounting Profit} \div \text{Initial Investment} \times 100$.

Project C produces the highest ARR of **6.0%**, substantially exceeding Projects A (1.6%) and B (2.0%). This confirms that Project C generates the greatest accounting profit relative to the capital deployed. Ross, Westerfield and Jordan (2022) caution that ARR ignores the time value of money and may favour projects with back-loaded profits, a characteristic that applies to Project C, and therefore ARR should be used in conjunction with discounted techniques.

4.4 Net Present Value (NPV) and Profitability Index (PI)

NPV remains the theoretically superior capital budgeting technique as it accounts for the time value of money and measures the absolute value created by an investment (Brealey, Myers and Allen, 2020). Discount factors at 10% are: Year 1 = 0.909; Year 2 = 0.826; Year 3 = 0.751; Year 4 = 0.683; Year 5 = 0.621.

Table 8. NPV and PI Calculations

Metric	Project A	Project B	Project C
PV Year 1	£9.09m	£10.00m	£4.55m
PV Year 2	£9.91m	£9.09m	£8.26m
PV Year 3	£10.51m	£8.26m	£15.02m
PV Year 4	£6.83m	£7.51m	£17.08m
PV Year 5	£4.97m	£6.83m	£3.11m
Total PV of Inflows	£41.31m	£41.70m	£48.02m
Initial Investment	£50.00m	£50.00m	£50.00m
NPV	-£8.69m	-£8.30m	-£1.98m
Profitability Index (PI)	0.826	0.834	0.960

Note: Discount rate = 10%. PV Year 2 for Project B = £11m $\times$ 0.826 = £9.09m. All three projects yield negative NPV at a 10% discount rate, indicating cash flows are insufficient to recover the full cost of capital at this rate. Project C has the least negative NPV.

This suggests that none of the projects fulfil Tesla's cost of capital and, according to conventional financial theory, should be dropped due to their potential to diminish shareholder value.

Nevertheless, Project C exhibits a superior performance in comparison, as it has the lowest negative NPV and the highest profitability index (0.960). The PI results confirm that Project C is the most efficient use of capital among the available options, as it generates the highest value per pound invested.

It is imperative to underscore that a PI below 1.0 still suggests value destruction, despite this relative advantage. Consequently, Project C is the least financially unattractive alternative; however, it does not qualify as a value-creating investment in accordance with the existing assumptions.

It is crucial to note that the negative NPVs may be indicative of overly conservative assumptions, particularly the 10% discount rate. It is possible to argue that the hurdle rate may overstate project risk, particularly for strategically essential investments, in light of Tesla's strategic position and the long-term growth potential of the EV market.

4.5 Internal Rate of Return (IRR)

The IRR is the discount rate at which NPV equals zero. Since all three projects have negative NPVs at 10%, their IRRs are below 10%. Using linear interpolation between 0% and 5%:

Table 9. IRR Interpolation

Metric	Project A	Project B	Project C
NPV at 0% discount rate	+£4.00m	+£5.00m	+£15.00m
NPV at 5% discount rate	-£3.01m	-£2.38m	+£5.61m
NPV at 10% discount rate	-£8.69m	-£8.30m	-£1.98m
Estimated IRR	≈ 2.9%	≈ 3.4%	≈ 8.7%

Note: IRR for Projects A and B interpolated between 0% and 5%; IRR for Project C interpolated between 5% and 10%. Formulae: $IRR(C) \approx 5 + 5 \times [5.61 \div (5.61 + 1.98)] = 5 + 3.7 = 8.7\%$.

Project C's IRR of approximately **8.7%** is substantially higher than those of Projects A (2.9%) and B (3.4%), and is closest to the 10% hurdle rate, confirming Project C as the preferred single-project investment under every criterion applied.

4.6 Project Recommendation and Justification

The comprehensive evaluation above suggests Project C is Tesla's best investment. The shortest payback period (3.6 years), highest ARR (6.0%), lowest negative NPV (-£1.98 million), highest PI (0.960), and highest IRR (8.7%). No project meets the 10% discount rate threshold, but Project C comes closest, and its cash flows, with strong inflows in Years 3 and 4, match Tesla's medium-term revenue cycle as Gigafactory capacity increases and unit economics improve (Tesla, 2024). Non-financial risk-wise, Project C's back-loaded cash flow profile increases uncertainty in later years. Political risk, including US and EU EV subsidy changes, and consumer demand are factors (IEA, 2024). Tesla's brand loyalty and the EV market's secular growth trajectory mitigate short-term demand volatility (Deloitte, 2023). Project C aligns better with Tesla's financial performance since the company is capital-constrained compared to its peak profitability. In today's business environment, shorter payback periods preserve liquidity and higher IRRs indicate more efficient capital use (Pandey, 2021).

4.7 Capital Rationing: Optimal Combination of Projects

With a maximum capital budget of **£100 million**, Tesla can invest in any two of the three projects simultaneously (each costing £50 million). The three possible combinations and their combined NPVs are:

Table 10. Capital Rationing – Project Combinations

Combination	Total Investment	Combined NPV	Combined PI
A + B	£100m	-£16.99m	0.830
A + C	£100m	-£10.67m	0.893
B + C (Recommended)	£100m	-£10.28m	0.897

Note: Combined PI = Total PV of Inflows ÷ Total Investment.

Under capital rationing, the optimal approach is to rank projects by PI and select the highest-ranked combination within the budget constraint. Project C has the highest PI

(0.960), followed by Project B (0.834) and Project A (0.826). The **B + C combination** produces the least negative combined NPV (-£10.28 million) and the highest combined PI (0.897), making it the recommended pairing when the full £100 million budget is to be deployed. This combination balances the strong back-loaded performance of Project C with the steady, predictable cash flows of Project B, providing a measure of portfolio diversification against cash flow timing risk (Brigham and Houston, 2021). It is acknowledged that both combinations including Project C outperform the A + B pairing, confirming the dominance of Project C as the anchor investment.

4.8 Overall Conclusion

The investment appraisal reveals a critical strategic dilemma. While Project C and the B + C combination are relatively superior, none of the available investments generate positive economic value at the current cost of capital.

This suggests that Tesla faces a constrained investment environment in which financially optimal opportunities are limited. As a result, investment decisions must balance strict financial criteria with strategic considerations, including market positioning, technological development, and long-term growth.

Ultimately, this reinforces the importance of integrating financial discipline with strategic flexibility, ensuring that capital allocation decisions support both immediate financial stability and sustainable competitive advantage.

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Appendices

Table A1. Tesla Key Financial Figures 2021–2024 (USD Billions)

Item (USD Bn)	2020	2021	2022	2023	2024
Revenue	\$31.5	\$53.8	\$81.5	\$96.8	\$97.7
Gross Profit	\$6.6	\$13.6	\$20.9	\$17.7	\$17.9
Net Income	\$0.7	\$5.5	\$12.6	\$15.0	\$7.1
Total Assets	\$52.2	\$62.1	\$82.3	\$106.6	\$122.0
Current Assets	\$26.7	\$27.1	\$40.9	\$49.1	\$55.0
Current Liabilities	\$14.3	\$19.7	\$26.7	\$28.8	\$33.6
Inventories	\$4.1	\$5.8	\$12.8	\$13.6	\$13.7
Total Debt	\$9.6	\$6.8	\$3.6	\$2.4	\$7.6
Total Equity	\$22.2	\$30.2	\$44.7	\$62.6	\$72.0
Operating Cash Flow	\$5.9	\$11.5	\$14.5	\$13.3	\$14.9

Source: Compiled from Tesla Annual Reports (2022; 2023; 2024).

Table 2. Detailed Discounted Cash Flow Analysis – All Projects (£ millions)

Year	DF (10%)	A CF	A PV	B CF	B PV	C CF	C PV
1	0.909	£10m	£9.09m	£11m	£10.00m	£5m	£4.55m
2	0.826	£12m	£9.91m	£11m	£9.09m	£10m	£8.26m
3	0.751	£14m	£10.51m	£11m	£8.26m	£20m	£15.02m
4	0.683	£10m	£6.83m	£11m	£7.51m	£25m	£17.08m
5	0.621	£8m	£4.97m	£11m	£6.83m	£5m	£3.11m
Total		£54m	£41.31m	£55m	£41.70m	£65m	£48.02m
NPV			-£8.69m		-£8.30m		-£1.98m

Source: Author's calculations based on assessment data.

Table 3. Tesla Profitability Ratios (2021–2025)

Metric	2021	2022	2023	2024	2025
Return on capital employed (ROCE)	15.31%	24.86%	11.41%	8.32%	4.57%
Asset Turnover	1.26 times	1.46 times	1.24 times	1.04 times	0.89 times
Gross Profit Margin	25.27%	25.59%	18.24%	17.86%	18.02%
Net Operating Profit Margin	12.06%	16.97%	9.18%	7.94%	5.11%

Source: Compiled from Tesla Annual Reports (2021; 2022; 2023; 2024; 2025).

Table 4. Tesla Liquidity Ratios (2021–2025)

Metric	2021	2022	2023	2024	2025
Current Ratio	1.37	1.53	1.72	2.02	2.16
Acid Test Ratio	1.08	1.05	1.25	1.6	1.77
Cash Ratio	89.19	52.28	55.31	49.91	46.1

Source: Compiled from Tesla Annual Reports (2021;2022; 2023; 2024;2025).

Table 5. Tesla Efficiency Ratios (2021–2025)

Metric	2021	2022	2023	2024	2025
Non-current Asset Turnover (times)	1.53	1.96	1.69	1.53	1.37
Inventory days	52.24 days	77.31 days	62.86 days	54.66 days	58.18 days
Trade Payable days	90.98 days	91.86 days	66.57 days	56.74 days	62.78 days
Trade Receivable days	34.15 days	13.07 days	13.15 days	16.35 days	17.57 days

Source: Compiled from Tesla Annual Reports (2021;2022; 2023; 2024;2025).

Year	2021	2022	2023	2024	2025
DSO	13.34 days	13.2 days	13.2 days	16.6 days	17.6 days
DIO	52.24 days	77.31 days	62.86 days	54.66 days	58.18 days
DPO	90.98 days	91.86 days	66.57 days	56.74 days	62.78 days
CCC	-25.4 days	-1.3 days	9.5 days	14.5 days	13 days

Table 6. Project Cash Flow Data (£ millions)

Project	Year 1	Year 2	Year 3	Year 4	Year 5	Total
A	£10m	£12m	£14m	£10m	£8m	£54m

Project	Year 1	Year 2	Year 3	Year 4	Year 5	Total
B	£11m	£11m	£11m	£11m	£11m	£55m
C	£5m	£10m	£20m	£25m	£5m	£65m

Note: Initial investment for each project = £50 million. Discount rate = 10%. Straight-line depreciation to zero over 5 years.

Table 7. Cumulative Cash Flows and Payback Period

Project / Cumulative CF	Year 1	Year 2	Year 3	Year 4	Year 5	PBP
A (£m)	£10m	£22m	£36m	£46m	£54m	4.5 years
B (£m)	£11m	£22m	£33m	£44m	£55m	4.55 years
C (£m)	£5m	£15m	£35m	£60m	£65m	3.6 years

Table 8. ARR Calculation

Metric	Project A	Project B	Project C
Total Net Cash Inflow (£m)	£54m	£55m	£65m
Total Depreciation (£m)	£50m	£50m	£50m
Total Accounting Profit (£m)	£4m	£5m	£15m
Average Annual Profit (£m)	£0.8m	£1.0m	£3.0m
ARR ($\div$ £50m Initial Inv.)	1.6%	2.0%	6.0%

Note: ARR = Average Annual Accounting Profit $\div$ Initial Investment $\times$ 100.

Table 9. NPV and PI Calculations

Metric	Project A	Project B	Project C
PV Year 1	£9.09m	£10.00m	£4.55m
PV Year 2	£9.91m	£9.09m	£8.26m
PV Year 3	£10.51m	£8.26m	£15.02m
PV Year 4	£6.83m	£7.51m	£17.08m

Metric	Project A	Project B	Project C
PV Year 5	£4.97m	£6.83m	£3.11m
Total PV of Inflows	£41.31m	£41.70m	£48.02m
Initial Investment	£50.00m	£50.00m	£50.00m
NPV	-£8.69m	-£8.30m	-£1.98m
Profitability Index (PI)	0.826	0.834	0.960

Note: Discount rate = 10%. PV Year 2 for Project B = £11m × 0.826 = £9.09m. All three projects yield negative NPV at a 10% discount rate, indicating cash flows are insufficient to recover the full cost of capital at this rate. Project C has the least negative NPV.

Table 10. IRR Interpolation

Metric	Project A	Project B	Project C
NPV at 0% discount rate	+£4.00m	+£5.00m	+£15.00m
NPV at 5% discount rate	-£3.01m	-£2.38m	+£5.61m
NPV at 10% discount rate	-£8.69m	-£8.30m	-£1.98m
Estimated IRR	≈ 2.9%	≈ 3.4%	≈ 8.7%

Note: IRR for Projects A and B interpolated between 0% and 5%; IRR for Project C interpolated between 5% and 10%. Formulae: $IRR(C) \approx 5 + 5 \times [5.61 \div (5.61 + 1.98)] = 5 + 3.7 = 8.7\%$.

Table 11. Capital Rationing – Project Combinations

Combination	Total Investment	Combined NPV	Combined PI
A + B	£100m	-£16.99m	0.830
A + C	£100m	-£10.67m	0.893
B + C (Recommended)	£100m	-£10.28m	0.897

Note: Combined PI = Total PV of Inflows ÷ Total Investment.

