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Volkswagen Group Financial Statement and Ratio Analysis (FY2021–FY2025): Evaluating Financial Performance and the Sustainability of Its NEW AUTO Strategy

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Abstract. The global automotive industry is undergoing a profound transition driven by electrification, software-defined vehicles, and intensifying regional competition, which places sustained pressure on the margins and capital returns of incumbent manufacturers. This study examines the financial performance of Volkswagen Group over fiscal years 2021–2025 and evaluates the sustainability of its NEW AUTO strategy. Financial statement trend analysis, ratio analysis, and DuPont decomposition are applied to data drawn from the group's annual reports. Four research questions are addressed: the evolution of profitability, the DuPont driver behind the decline in returns, the contribution of NEW AUTO to long-term competitiveness, and the resulting investment stance. The results show that sales revenue rose from €250.2 billion in 2021 to €321.9 billion in 2025, while earnings after tax fell from €15.4 billion to €6.9 billion. Return on assets declined from 2.9% to 1.1% and return on equity from 10.6% to 3.4%, driven almost entirely by a fall in net profit margin from 6.2% to 2.1%, whereas asset turnover and financial leverage remained broadly stable. The analysis concludes that transformation costs have materialized ahead of their returns, and a conditional hold position on Volkswagen shares is supported.

Keywords: Volkswagen Group, Financial Statement Analysis, DuPont Analysis, NEW AUTO Strategy, Return on Equity

1. Introduction

The global automotive industry is undergoing a structural transformation driven by electrification, software development, changing regulation, and intensifying competition. As a capital-intensive and cyclical industry, automobile manufacturing requires continuous large-scale investment in production facilities, research and development, batteries, and new technologies. At the same time, the rapid rise of electric vehicle manufacturers, particularly those based in China, has placed additional pressure on incumbent producers. Incumbent automakers have historically combined adaptation with resistance strategies during low-carbon reorientation [1], and phase-out policies such as the European Union decision to end new registrations of internal combustion engine vehicles from 2035 accelerate the need for adaptation [2].

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Volkswagen Group, one of the largest automobile manufacturers worldwide, provides a representative case for examining this balance. According to the group's annual reports, sales revenue increased from €250.2 billion in 2021 to €321.9 billion in 2025, whereas earnings after tax declined from €15.4 billion to €6.9 billion over the same period [3]. Total assets expanded from €528.6 billion to €644.5 billion, indicating that capital commitment continued even as profitability weakened [3]. This divergence between growing scale and shrinking profit constitutes the central puzzle of the present study.

This paper investigates the financial performance of Volkswagen Group from 2021 to 2025 and evaluates whether the NEW AUTO strategy supports sustainable long-term development. Four research questions are addressed: the extent to which revenue growth has been converted into profit growth, the DuPont component primarily responsible for the decline in return on assets and return on equity, the contribution of NEW AUTO to long-term competitiveness, and the appropriate investment stance on Volkswagen shares. The study applies financial statement trend analysis, profitability ratio analysis, and DuPont decomposition to secondary data from the group's annual reports for 2021 through 2025 [3-7]. The findings are relevant for investors and for researchers interested in the financial consequences of strategic transformation in capital-intensive industries.

2. The economic characteristics of the global automotive industry

2.1. Capital-intensive and cyclical characteristics of the automotive industry

Automobile manufacturing is characterized by high fixed costs, long product development cycles, and substantial capital requirements for plants, tooling, and research. Demand for vehicles is strongly correlated with macroeconomic conditions, so industry profitability fluctuates with the business cycle. Because a large share of costs is fixed, changes in volume translate into disproportionate changes in profit, which makes operating leverage a central feature of the industry. This cost structure explains why capacity utilization and pricing discipline are decisive for automotive earnings, and why external shocks such as supply shortages or tariffs propagate rapidly into reported profit.

2.2. Scale economies and profitability in the automotive industry

Scale economies arise from platform sharing, purchasing power, and the spreading of fixed development costs across large volumes. Empirical research on car manufacturers demonstrates that profitability tends to move toward industry-level targets and that profit margin and asset turnover, the two DuPont components of return on assets, follow distinct adjustment dynamics across firms [8]. Ratio-based analysis of leading manufacturers has long been used to assess and predict performance in the industry, confirming that margin, turnover, and leverage jointly determine returns [9].

2.3. Technological transformation and electrification

The shift from internal combustion engines to battery electric vehicles represents a paradigmatic change rather than an incremental improvement. Strategic intentions embedded in patenting behavior show that incumbent manufacturers historically protected the internal combustion paradigm while hedging into electric mobility [10]. Electrification also restructures global value

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chains, altering inter-plant competition, employment, and supply relationships as value creation shifts toward batteries and electronics [11].

2.4. Volkswagen's competitive position

Volkswagen Group occupies a strong incumbent position, with a multi-brand portfolio spanning volume, premium, and luxury segments and a global production and distribution network. Case-study evidence from the United Kingdom indicates that incumbent automakers and their suppliers remain dominant, multi-level actors in automotive transitions, supported by scale, regulatory relationships, and accumulated capabilities [12]. Volkswagen's scale therefore constitutes a genuine competitive advantage, although the same scale implies high fixed costs and significant exposure to the disruption of established technologies.

3. Volkswagen's NEW AUTO strategy

3.1. Strategic background of NEW AUTO

NEW AUTO was presented in July 2021 as the group's strategy through 2030, with the declared aim of transforming Volkswagen into a software-driven mobility company. The strategy anticipated a gradual shift of profit pools from internal combustion vehicles to battery electric vehicles and subsequently to software and services, with battery electric vehicles targeted to reach roughly half of group sales by 2030 [13].

3.2. Portfolio and brand group strategy

The group manages its brands through brand groups, namely Core, Progressive, Sport Luxury, and Trucks, together with the mobility services business. This structure is intended to sharpen accountability, realise synergies within each group, and allow differentiated positioning across price segments.

3.3. Electrification and BEV strategy

The electrification pillar includes the Modular Electric Drive Matrix platform, a unified battery cell intended for up to 80% of group models, and plans for six European gigafactories with a combined capacity of 240 GWh [13]. Patent-based evidence indicates that the automotive supply industry has progressively reoriented innovation towards electric vehicles, supporting the technological feasibility of such a transition [14]. Modeling of automaker electrification decisions nonetheless shows that high production and infrastructure costs, as well as fierce product competition, can delay full electrification even when subsidies are available [15].

3.4. Software development and CARIAD

CARIAD, the group's software subsidiary, is responsible for developing a unified software platform and electronic architecture. A case study of CARIAD's make-or-buy decision illustrates the organizational difficulty of building software capabilities inside a hardware-oriented incumbent and documents the unit's restructuring after repeated delays [16]. Software remains strategically necessary but financially burdensome in the short run.

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3.5. China strategy and increasing competition

China has long been the group's largest single market, with equity-accounted joint ventures historically serving as a substantial source of profit. The group has adopted an "in China, for China" approach centered on local development, partnerships and cost reduction. Competitive dynamics in the Chinese electric vehicle market, exemplified by BYD's market evolution, demonstrate how domestic champions have rapidly gained share at the expense of foreign incumbents [17]. China's electric vehicle sector was built through sustained missions, capacity building and policy experimentation, which created a formidable competitive environment for foreign manufacturers [18].

4. Financial statement trend analysis of Volkswagen Group, 2021–2025

4.1. Revenue and earnings trends

Sales revenue increased by approximately 29% over the five years, from €250.2 billion in 2021 to €279.1 billion in 2022, €322.3 billion in 2023, and a peak of €324.7 billion in 2024, before easing to €321.9 billion in 2025 [3-7]. Earnings after tax moved in the opposite direction. Profit stood at €15.4 billion in 2021 and €15.9 billion in 2022, rose to €17.9 billion in 2023, and then fell sharply to €12.4 billion in 2024 and €6.9 billion in 2025 [3-7]. Revenue growth therefore did not translate into sustainable profit growth, the 2025 profit level represents less than half of the 2021 outcome despite revenue being nearly 30% higher.

4.2. Operating result and operating margin

The operating result moved from €19.3 billion in 2021 to €22.1 billion in 2022 and a peak of €22.5 billion in 2023 before declining to €19.1 billion in 2024 and €8.9 billion in 2025. The operating return on sales accordingly fell from 7.7% in 2021 and 7.9% in 2022 to 7.0% in 2023, 5.9% in 2024, and only 2.8% in 2025 [3-7]. The gross margin narrowed from 18.9% in 2021 to 15.9% in 2025, confirming that the pressure originates at the operating level rather than below it [3, 7]. The 2025 result absorbed expenses related to United States import tariffs, restructuring measures, and provisions for CO2 fleet regulations, together with a near-collapse of the Sport Luxury brand group's contribution [7].

4.3. Asset growth and capital intensity

Total assets grew from €528.6 billion in 2021 to €644.5 billion in 2025, an increase of roughly 22% [3, 7]. Equity rose from €146.2 billion to €203.1 billion over the same period, lifting the equity ratio from 27.6% to 31.5% [3, 7]. The balance sheet thus expanded and strengthened even as earnings contracted, confirming that the group's problem lies in converting assets and revenue into profit rather than in its scale or solvency.

5. Profitability and DuPont analysis

5.1. ROA and ROE trends

DuPont analysis decomposes return on equity into net profit margin, asset turnover, and financial leverage, and is widely applied to evaluate automobile manufacturers [19, 20]. Return on assets

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stood at 2.9% in 2021, 2.8% in 2022, and 3.0% in 2023, then fell to 2.0% in 2024 and 1.1% in 2025. Return on equity followed the same pattern, declining from 10.6% in 2021 to 8.9% in 2022, recovering slightly to 9.4% in 2023, and dropping to 6.3% in 2024 and 3.4% in 2025. The full decomposition shows net profit margin falling from 6.2% to 2.1% across the five years, asset turnover moving from 0.47 to 0.54 and back to 0.50, and the equity multiplier declining from 3.6 to approximately 3.2. A global panel study of automotive firms confirms that return on assets in this sector is shaped jointly by operational efficiency, financial structure, and strategic investment, with research intensity depressing short-term returns [21].

5.2. Net profit margin analysis

Net profit margin fell continuously from 6.2% in 2021 to 2.1% in 2025. The decline was modest until 2023, when the margin still stood at 5.5%, and accelerated in 2024 and 2025 as transformation costs, tariffs, restructuring charges, and weaker joint venture contributions converged [6, 7]. The margin path explains nearly all of the deterioration in both return measures.

5.3. Asset turnover analysis

Asset turnover improved from 0.47 in 2021 to 0.54 in 2023 and stabilized at approximately 0.50 in 2024 and 2025. The group therefore did not suffer a collapse in asset utilization, revenue generation per euro of assets remained broadly stable despite the expanding balance sheet.

5.4. Financial leverage analysis

The equity multiplier, measured as total assets over equity, declined from 3.6 in 2021 to approximately 3.2 from 2022 onward, reflecting the equity build-up [3-7]. Leverage therefore amplified returns less in later years but did not drive the decline. Evidence from the Indian automobile sector similarly indicates that capital structure effects on performance are secondary to operating profitability in explaining return movements [22].

5.5. Overall DuPont interpretation

The decomposition unambiguously identifies net profit margin as the driver of the decline in return on assets and return on equity. Asset turnover was stable and leverage slightly lower. The profitability problem of Volkswagen is thus a margin problem, rooted in costs and prices rather than in asset efficiency or financing structure.

6. Explaining the profitability decline: strategy, investment, and external pressure

6.1. Increasing R&D and transformation investment

Research and development costs in the Automotive Division reached €21.0 billion in 2024 and €19.4 billion in 2025, equivalent to 7.2% and 6.7% of sales revenue, respectively [6, 7]. These expenditures, directed toward electric platforms, batteries, and software, depress current earnings while their benefits accrue over future periods.

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6.2. CARIAD and software development costs

CARIAD recorded operating losses of €2.4 billion in 2024 and €2.2 billion in 2025, and the newly established battery business field lost a further €1.1 billion and €1.4 billion in those years [6, 7]. Together these transformation units absorbed more than €3.5 billion of operating results in 2025, an amount exceeding one-third of the decline in group earnings after tax between 2021 and 2025. The CARIAD experience illustrates the cost of building software capability within an incumbent organization [16].

6.3. China competition and declining JV profit

The share of the operating result generated by the equity-accounted Chinese joint ventures fell from approximately €3.0 billion in 2021 and €3.3 billion in 2022 to €2.6 billion in 2023, €1.7 billion in 2024, and only €1.0 billion in 2025 [3-7]. This erosion reflects the rapid rise of domestic electric vehicle manufacturers and the resulting price competition [17, 18]. Because joint venture profit carries no corresponding consolidation of revenue, its decline directly reduces net profit margin.

6.4. External shocks and fixed-cost pressure

External factors compounded the strategic cost burden. United States import tariffs, provisions for CO2 fleet regulations, and restructuring expenses weighed on the 2025 result, while the Sport Luxury brand group's operating result fell from €5.3 billion to €0.1 billion [7]. Incumbent manufacturers have historically deployed political strategies to slow technology-forcing regulation, which suggests that policy-related pressure is a persistent rather than transitory feature of the industry [23]. Working capital research on automobile industries further indicates that receivables and payables management materially affects profitability in this sector, an area where efficient short-term financial management can partially offset margin pressure [24, 25].

7. Financial resilience and investment recommendation

7.1. Financial strength despite lower profitability

Despite the earnings decline, the group retains considerable financial resilience. Equity reached €203.1 billion at the end of 2025, the equity ratio stood at 31.5%, and net liquidity in the Automotive Division amounted to €34.5 billion [7]. Cash flow from operating activities remained positive at €15.0 billion in 2025 [7]. The group therefore faces a profitability and capital return challenge rather than a solvency challenge.

7.2. Investment recommendation: conditional hold

A conditional hold recommendation is supported. The shares are backed by a strong balance sheet, substantial liquidity, and an unmatched scale, but returns on assets and equity have fallen to levels that barely cover the cost of capital, and the strategic investments underpinning NEW AUTO have yet to generate commensurate returns. An outright buy is premature until margin recovery is visible, because returns of 1.1% on assets and 3.4% on equity do not adequately compensate for execution risk in the transformation program. An outright sell would disregard the group's financial strength, its diversified brand portfolio, and the optionality embedded in its electric, software, and battery investments, any of which could re-rate the shares if profitability is restored.

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7.3. Key indicators for future evaluation

Four indicators should guide future assessment: the trajectory of net profit margin and operating return on sales, the effectiveness of the German restructuring program in lowering fixed costs, the stabilization of Chinese joint venture profit, and the narrowing of losses at CARIAD and the Battery business. Sustained improvement in these indicators would support an upgrade of the recommendation, whereas continued margin erosion would undermine it.

8. Conclusion

This study has analyzed the financial performance of Volkswagen Group from 2021 to 2025 and evaluated the sustainability of its NEW AUTO strategy. With respect to the first research question, revenue growth of approximately 29% over five years was not converted into profit growth, earnings after tax fell from €15.4 billion to €6.9 billion. With respect to the second question, DuPont decomposition shows that the decline in return on assets from 2.9% to 1.1% and in return on equity from 10.6% to 3.4% is attributable almost entirely to the fall in net profit margin from 6.2% to 2.1%, while asset turnover stabilized around 0.50 and financial leverage remained close to 3.2. With respect to the third question, NEW AUTO addresses genuine strategic necessities in electrification, software, and China, but its costs, including multi-billion-euro losses at CARIAD and the battery business and elevated research and development spending, have materialized before its returns. With respect to the fourth question, the combination of a strong balance sheet, an equity ratio of 31.5%, and net liquidity of €34.5 billion on the one hand, and severely compressed margins on the other, supports a conditional hold recommendation rather than a buy or a sell [7].

This study is subject to limitations. The analysis relies on published consolidated figures and does not access segment-level cash flow detail or market valuation data, such as price-to-earnings ratios and dividend yields. The DuPont framework is applied at the group level, although the financial services business distorts automotive ratios, and year-end rather than average balance sheet values are used in the decomposition. Future research could extend the analysis to a cross-company comparison with Toyota, Stellantis and BYD, incorporate market-based valuation measures, and track whether the announced restructuring and software programs convert into measurable margin recovery. The central question for subsequent work is the speed at which strategic investment in capital-intensive incumbents can be transformed into sustainable profitability.

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