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BUSINESS SCHOOL

SUSTAINABLE CORPORATE FINANCE & INVESTMENTS

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THE FINAL MASTER'S THESIS (PROJECT)

<i>Finansinių rezultatų vertinimas ir strateginės plėtros galimybės: SSAB AB atvejo analizė</i>	<i>Financial Performance Evaluation and Strategic Development Opportunities: A Case Study of SSAB AB</i>
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Supervisor: Santaute Venslaviene, PhD, Economics

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SUMMARY

VILNIUS UNIVERSITY BUSINESS SCHOOL

SUSTAINABLE CORPORATE FINANCE & INVESTMENTS STUDY PROGRAMME

Muhammad Asad

FINANCIAL PERFORMANCE EVALUATION AND STRATEGIC DEVELOPMENT

OPPORTUNITIES: A CASE STUDY OF SSAB AB

Supervisor – Santaute Venslaviene, PhD, Economics

Master's thesis (project) was prepared in Vilnius, in 2025

Scope of master's thesis (project) – 67 pages.

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The FMTP described in brief:

This study investigates the relationship between financial performance and strategic preparedness for green transformation in the steel industry, using SSAB AB as the focal case. The aim was to assess whether SSAB's current financial position enables its transition to green steel while maintaining competitive advantage.

Problem, objective and tasks of the FMTP:

The thesis addresses the challenge of aligning capital structure, profitability, and operational efficiency with sustainability goals. Objectives included evaluating financial performance through DuPont analysis, benchmarking strategic gaps via SWOT and PESTEL, and assessing readiness for green innovation.

Research methods used in the FMTP:

The study followed a secondary data approach using financial ratio analysis (DuPont model), SWOT and PESTEL frameworks, and competitor benchmarking to evaluate SSAB's strategic positioning.

Research and results obtained:

Findings indicate SSAB maintains healthy profitability and low leverage, enabling it to support green R&D investments such as HYBRIT. However, constraints related to raw material dependency and high capex require strategic recalibration.

Conclusions of the FMTP:

While SSAB demonstrates strong green ambition, it must refine its capital allocation and stakeholder communication to remain resilient during transition.

SANTRAUKA

VILNIAUS UNIVERSITETO VERSLO MOKYKLA
TVARIŲ ĮMONIŲ FINANSŲ IR INVESTICIJŲ STUDIJŲ PROGRAMA

Muhammad Asad

FINANSINĖS VEIKLOS VERTINIMAS IR STRATEGINĖS PLĖTROS GALIMYBĖS: AB
SSAB ATVEJO ANALIZĖ

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FMTF trumpai apibūdino:

Šiame tyrime nagrinėjamas finansinių rezultatų ir strateginio pasirengimo žaliajai transformacijai plieno pramonėje ryšys, naudojant SSAB AB kaip pagrindinį atvejį. Tikslas buvo įvertinti, ar dabartinė SSAB finansinė padėtis leidžia pereiti prie ekologiško plieno, išlaikant konkurencinį pranašumą.

FMTF problema, tikslas ir uždaviniai:

Darbe nagrinėjamas kapitalo struktūros, pelningumo ir veiklos efektyvumo suderinimo su tvarumo tikslais iššūkis. Tikslai apėmė finansinių rezultatų vertinimą naudojant "DuPont" analizę, strateginių spragų lyginamąją analizę per SWOT ir PESTEL ir pasirengimo žaliosioms inovacijoms vertinimą.

FMTF naudojami tyrimo metodai:

Tyrime buvo laikomasi antrinių duomenų metodo, naudojant finansinių rodiklių analizę (DuPont modelis), SWOT ir PESTEL sistemas bei konkurentų lyginamąją analizę, siekiant įvertinti SSAB strateginę poziciją.

Tyrimai ir gauti rezultatai:

Išvados rodo, kad SSAB išlaiko gerą pelningumą ir mažą svertą, todėl gali remti ekologiškas investicijas į mokslinius tyrimus ir plėtrą, tokias kaip HYBRIT. Tačiau dėl apribojimų, susijusių su priklausomybe nuo žaliavų ir didelėmis investicinėmis išlaidomis, reikia strategiškai iš naujo kalibruoti.

FMTF išvados:

Nors SSAB demonstruoja didelius žaliuosius užmojus, ji turi patobulinti savo kapitalo paskirstymą ir komunikaciją su suinteresuotosiomis šalimis, kad išliktų atspari pereinamojo laikotarpio metu.

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INTRODUCTION

The steel industry worldwide remains a pillar of the contemporary infrastructural setup, as it forms the basis of the growth of construction, transport, and manufacturing industries. At the same time, it is among the most important industrial sources of greenhouse gas emissions in the world, with approximately 7–9% of CO₂ emissions, much of which is due to the reliance on the traditional blast furnace processes and coking coal (Watari and McLellan, 2024). The growing burden on the environment, global climate policies, particularly the Paris Accord, and the growing level of regulatory scrutiny have triggered a radical shift to sustainability in steel manufacturing (Nechifor et al., 2020).

A Swedish-Finnish producer of high-strength steel based in Stockholm (SSAB AB takes a prominent place in this change. Known to have created HYBRIT (Hydrogen Breakthrough Ironmaking Technology), SSAB is now working towards the creation of fossil-free steel production by replacing coking coal with hydrogen. The company, together with LKAB and Vattenfall, reached the first fossil-free steel rail in the world in 2021 (Souza Filho et al., 2022). Having a strategic vision of becoming 100 per cent fossil-free by 2045, SSAB has already vowed a significant investment, such as a 4.5 billion hydrogen-driven mini-mill in Lulea (Kleja and Mao, 2024). Despite these technological breakthroughs being a major step towards being sustainable, SSAB still works in the context of the extremely volatile global market. As a result, financial performance and strategic foresight are essential to navigate trade risks, variation in the supply of raw materials, and long-term positioning in the green and premium steel segments.

Financial performance monitoring, along with strategic development, is necessary in the case of firms that have to go through a transition in the sector that is carbon-intensive. The conventional approach to financial analysis is inclined to focus on profitability, liquidity, and efficiency; however, when it comes to steel decarbonisation, these parameters should be aligned with the strategic priorities, that is, innovation, environmental governance, and geopolitics (Kruglov and Shaw, 2024). The capital-intensive transformation of fossil-free steel by SSAB requires strong financial health, strategic flexibility, and steadfastness to the expenses and technological risks of the industrial reinvention (Pei et al., 2020; Souza Filho et al., 2022). A collective analysis of the preparedness and possibility of the sustainable development of SSAB can be attained by combining measures of financial performance levels with strategic planning tools, including SWOT and PESTEL.

Despite the available literature examining the concept of innovation and decarbonisation in the steel sector, there is limited literature that has associated the two transitions with financial evaluations. This study hence presents a fresh input in its use of financial performance as a point of departure that can be used in assessing the strategic options available to SSAB within the context of industry forces, environmental demands, and market forces.

A combination of challenges that are interrelated faces SSAB. As a manufacturer of high-strength steels on a global scale, the company is susceptible to changes in the cost of inputs, fluctuations in prices, and political risks. The recent years have been characterised by increased levels of uncertainty due to the effects of pandemics, the lack of raw materials, and protectionist activities (Watari and McLellan, 2024; Nechifor et al., 2020). At the same time, SSAB is undergoing a radical strategic change and hopes to replace traditional blast furnaces with hydrogen-related technologies through its HYBRIT program. Although this change is promising, it requires huge investment of capital, organisational restructuring, and a high level of innovativeness.

The current strategic aspiration of the organisation is the development of a hydrogen-based steel plant in Europe, the largest one, in Luleå, which requires the reevaluation of its ability to support long-term investments and maintain profitability. Although the company has shown strong financial results in the past, the downward trends in margins and the accumulation of sustainability obligations highlight the need to conduct a strict assessment. Based on it the main research question arises: How can SSAB balance financial resilience and its green transformation goals against a volatile industry environment?

Research Question

How does SSAB AB's recent financial performance inform its strategic development opportunities in green transformation and premium market positioning?

Aim

To evaluate SSAB AB's financial performance and identify strategic development opportunities informed by its financial health and market environment.

Objectives

- Analyse SSAB's financial performance (profitability, liquidity, solvency, and efficiency) over 2019–2024.
- Benchmark SSAB's financial performance against key competitors and industry averages.

- Assess strategic opportunities using SWOT and PESTEL frameworks in SSAB's green steel transformation context.
- Integrate financial and strategic insights into a conceptual model linking performance to opportunity.
- Recommend actionable strategies for SSAB's sustainable and profitable growth.

The study was a mixed-methods study that incorporated quantitative financial study and qualitative strategic analysis. This conceptual synthesis provided both a quantitative measure and a qualitative measure, thus aligning the measures of numerical performance with the macro-level managerial and market forces (Creswell & Plano Clark, 2018). The quantitative data covered the period of 2019-2024 and included an analysis of the financial ratios of SSAB, such as profitability, liquidity, solvency, and efficiency, that were compared to a handpicked group of peers on the global level to determine the relative industry performance (Brigham and Ehrhardt, 2022; Yang et al., 2025). The strategic analysis used SWOT and PESTEL analysis to evaluate internal strengths, competitive positioning and macro environmental forces like the climate policy, technological dispersion, and energy price fluctuations (Grant, 2021). The integrative analysis also generated evidence-based recommendations as a result of the triangulation of the performance information, industry trends, and strategic imperatives (Jakubowski et al., 2024; Benhanifia et al., 2025).

The research targeted the 2019-2024 horizon, which was one of the most crucial periods in the context of disruptions associated with the pandemic, and post-COVID recovery processes and strict sustainability goals. Its area of focus included the analysis of financial performance trends, peer benchmarking, and strategic initiatives regarding the decarbonisation agenda of SSAB. The review was based solely on publicly available information, including annual reports, investor presentations, ESG reports, and academic literature on the topic (Pei et al., 2020; Souza Filho et al., 2022).

Despite its exhaustive nature, the study is limited in a number of ways. Internal estimates and internal strategic strategies were not considered, making the analysis limited to externally reported data and secondary sources. Based on it, the results shed light on visible financial trends and patterns of strategic signals without considering proprietary variables and organisational behaviour subtleties (Kleja et al., 2024). In addition, the predictions are limited in time to the pre-2025 market and regulatory environment; the future, the emerging carbon regulations in Europe or technological advances might offer another direction to SSAB (Watari and McLellan, 2024).

However, the convergence of conceptual and empirical understanding is one of the strengths of the study that suggests useful advice to scholars and practitioners involved in the sustainable change of capital-intensive sectors.

1. LITERATURE REVIEW

1.1 Financial Performance Analysis in the Steel Industry

Financial performance analysis is one of the key elements of operational decision-making, future investment planning, and strategic change in large capital-intensive industries such as steel production. Steel mills operate in a volatile business climate characterised by the fluctuating prices of inputs, brutal competition at the global level, and increasing sustainability requirements. In this framework, the financial performance of a firm, especially its profitability, liquidity, solvency, and efficiency, offers an empirically founded measurement of the financial health of the enterprise, its competitiveness, and its ability to withstand changes in the sector, such as the switch to green steel.

The profitability analysis was the main observation on the firm's ability to create returns relative to its expenditures and financial base. Metrics such as net profit margin, returns on assets (ROA), and returns on equity (ROE) are commonly applied to performance measurement. Kruglov and Shaw (2024) believe that profitability should critically influence steel companies' ability to invest in low-carbon production concepts. Companies with substantial profits are more likely to invest in hydrogen-based technology and circularised manufacturing systems.

Liquidity ratios are the current and quick ratios, both of which provide an understanding of whether a company can meet its short-term obligations. As Hai et al. (2022) highlighted, liquidity issues become especially critical for steel companies when raw material prices skyrocket or the world economy experiences a decline due to pollution, as was the case during the COVID-19 pandemic. Their analysis has shown that companies with strong liquidity buffers owed their resilience when things did not follow the usual market pattern and when it came to their recovery after the pandemic.

Solvency ratios like the interest coverage ratio and the debt-to-equity ratio allow one to consider the long-term financial stability of a firm. The findings made by Balasubramaniyan and Venkatachalam (2025) show that companies with wise leverage ratios would act more reliably over market cycles and be more appealing to investors interested in sustainability. They analysed the European steelmaker, SSAB, regarding their existence, and their existence has plummeted and indicated a rising pattern of weakening as a reaction to environmental, social, and governance (ESG) stresses by institutional investors.

Efficiency metrics such as asset turnover and inventory turnover assist in determining the efficiency level with which a company may be using its assets. Effective asset management becomes more important as steel companies' digitalisation and automation happen. Hai et al. (2022) argue that digital integration helps to increase operational efficiency and control costs, which strengthens competitive position in a saturated market. The DuPont decomposition model provides a multifactorial viewpoint that further breaks down the analysis of performance by disaggregating Return on Equity (ROE) into profit margin, asset turnover and financial leverage factors. This analytical model will help the stakeholders to accurately determine the underlying determinants of performance variation. In a comparative analysis of Nordic steel enterprises, Kruglov and Shaw (2024) utilised the DuPont model and found that although the efficiency of assets was relatively constant, fluctuations in ROE were mainly caused by changes in the financial leverage and profit margins.

Empirical research on the steel sector between 2020 and 2025 reinforces the importance of a multi-dimensional performance evaluation framework. These insights provide diagnostic visibility and aid strategic planning, capital allocation, and sustainability-linked decision-making. In this paper, the benchmarking analysis will put the performance of SSAB against the industry standards, providing a sound basis for evaluating its strategic possibilities in the green steel economy.

1.2 Benchmarking and DuPont Analysis in Capital-Intensive Industries

Specifically, in the steel market, which is a capital-intensive business, benchmarking has turned out to be the most significant strategic management tool for assessing the performance of an organisation. It helps companies understand their positions relative to others, where they are performing poorly, and adopt the best practises. The field is further categorised into two general types- strategic and operational- used in different situations. Operational benchmarking focuses on the internal processes and productivity ratios whereas strategic benchmarking focuses on the results of performance over the long run, the organisational hierarchy and the processes of value creation (Jain and Tiwary, 2024). It happens especially in the steel industry, where equipment lifecycle is long, capitalisation demands are high and the rhetoric of protracted systemic change is shifting.

The DuPont model of analysis is another tool of analysis that can be used to benchmark paradigms. It breaks the return on equity (ROE) down into three fundamental determinants: net profit margin, asset turnover, and financial leverage. The decomposition allows the creation of

values to be viewed multi-dimensionally in a more detailed manner than single-ratio performance measures. Trang (2025) wrote that the DuPont model is particularly applicable in capital-intensive manufacturing settings since it can be adapted to both the dynamics of operational efficiency and capital structure. Trang, in her empirical research of the Southeast Asian steel industry, established that firms with small profit margins were more likely to counter this constraint by using high degrees of asset turnover and an increase in leverage strategies.

Competitive benchmarking as part of DuPont analysis makes it possible to conduct an in-depth comparative analysis of firms that operate in similar structural and macro-economic settings. As an example, Jain and Tiwary (2024) show that they have applied benchmarking to 15 steel companies around the world, which demonstrates how industry leaders, ArcelorMittal and POSCO, among others, realise better ROE, not only based on profitability, but also based on benchmarked asset utilisation and leverage ratios. They conclude that SSAB's financial positioning needs to be viewed within the context of individual ratios above and in relation to these wider competition standards.

Furthermore, industry benchmarking extends further than peers' comparison because industry average measures are incorporated due to aggregate databases supplied by financial institutions. Dikara and Soekarno (2024) applied such benchmarking to steel and cement producers in the emerging economies, saying that in companies below industry averages on critical ratios, there were either structural inefficiencies or underinvestment in modernisation. They advocate the inclusion of environmentally conscious, e.g., carbon intensity levels, especially in areas where there have been attempts to become green. This concurs with the transformation strategy of SSAB, in which the primary goal is to produce fossil-free steel, hence requiring the benchmarking of financial indicators and sustainability aspects.

Strategic decision-making in mitigating risks and investment planning also depends on benchmarking. Trang (2025) argues that companies adopting a recurring benchmarking regime are better positioned to determine where to adopt digital innovations, protect supply chains, and streamline costs, essential to businesses such as SSAB in the global decarbonisation initiative.

The assessments offered by benchmarking and DuPont analysis offer a variety of evaluative uses that cannot be limited to a summative analysis of the inputs of financial statements. When applied to SSAB, combining the tools would help the firm track its financial performance and position in the competitive global steel industry, especially with the current market dynamics of seeking sustainable practices in steel leadership.

1.3 Strategic Assessment Using SWOT and PESTEL Frameworks

The strategic positioning of enterprises, notably those in capital-intensive and environmentally sensitive industries, including the steel business, is crucial in explaining and examining the application of strategic evaluation frameworks like SWOT (Strengths, Weaknesses, Opportunities and Threats) and the PESTEL (Political, Economic, Social, Technological, Environmental and Legal) approaches. These tools are complementary and exhaustive: SWOT evaluates the internal resources and shortcomings, PESTEL analyses macro-environment forces that define the strategy paths.

The steel industry is experiencing massive change due to environmental laws, technological advancements, and sustainable consumer demand. Against this dynamic background, the SWOT and PESTEL frameworks can help firms, including SSAB, analyse their strategic choices in the performance and eco-transition contexts.

The author argues that the internal strengths and weaknesses of the steel industry, such as R&D investment, operational efficiency, and capital structure, should be strictly reviewed based on SWOT in the future about decarbonisation efforts and green innovations (Makvandi, 2024). In the case of SSAB, some of its internal competitive advantages, e.g., the hydrogen-based steel technology, are also competitive advantages, and the current infrastructural obsolescence and reliance on the legacy supply chains are weaknesses.

PESTEL analysis, therefore, explains the macro environment where SSAB is operating. With the example of Kurniawan et al. (2025), steel companies' strategic focus is increasingly influenced by environmental and regulatory aspects of PESTEL. Through regulatory mechanisms like the EU Emission Trading System and carbon border adjustments, the impact of regulatory instruments on the structure of cost and strategic investments is critical, which is reflected in a multinational study comparing steel businesses that have shifted to low-emission operations. Also, external opportunities are identified with the help of the PEST framework: technological innovations, especially AI-driven optimisation of production and carbon capture, which explains the importance of environmental scanning to predict regulatory shocks and market dynamics.

Long-term strategic planning, which requires significant inputs from PESTEL and SWOT, is crucial in dealing with uncertainties. An example of integrated scenario planning used by European steel producers, including the first movers to green steel, to simulate demand volatility, carbon impacts, and supply chain disruptions, is Furuncu (2025). In the case of SSAB, using such

foresight tools would make the company more strategic, especially considering the EU Green Deal and the global net-zero promise.

In addition, SWOT and PEST analyses can be relevant in harmonising financial and strategic goals. Opportunities that can be found by external analysis include entering green building markets or acquiring public-private research and development grants, which could then be evaluated on feasibility within the context of internal capability metrics. The mix of internal and external analysis is thus at the core of the ambition of SSAB to become a global leader in the production of fossil-free steel.

The comprehensive description of the SSAB strategic environment, a SWOT analysis, and PESTEL frameworks will help the company to overcome the complexities of macrotrends, assess the possibility of innovation, reduce risk, and develop successful green growth strategies that are consistent with the current research goals.

1.4 Green Steel Transition and Decarbonisation Strategies

Green steel is a strategic issue and an opportunity for the global steel industry. The industry has traditionally been using carbon-intensive technologies like blast-furnace/basic oxygen furnace (BF/BOF) to meet its production needs. With modern demands of reaching net-zero by the use of low-carbon technologies, the challenge of technological development and capital investment, supply chains, and positioning is under discussion. These are summed up by the two important trends: Hydrogen-based Direct Reduced Iron (H-DRI) and Electric Arc Furnace (EAF).

According to Pei et al. (2020), technologies of green steel production, specifically H-DRI, have the potential to cut the carbon output by over ninety per cent. Nonetheless, the price range is a key obstacle to immediate adoption, which is exacerbated in those jurisdictions that have expensive electricity rates or in which production of green hydrogen is not economical. A good example is the HYBRIT project of SSAB, which was created in cooperation with LKAB and Vattenfall, where H-DRI is a solution under conditions of availability of renewable energy sources and the potential of a relevant joint venture.

As a strategic approach, the green steel transition provides the chances to gain first-mover advantages, product differentiation, and market penetration, especially in the automotive, construction, and consumer goods industries, where the ESG performance starts to receive more importance (Lopez et al., 2023). On the other hand, Souza Filho et al. (2022) warn that the green

steel programs are fraught with a lot of uncertainty regarding the stability of the carbon price, the level of technological advancement, and the willingness of customers to pay a higher price for greener products. This kind of strategic ambiguity requires scenario planning and dynamic investment policies.

As noted by Kim et al. (2024), the policy setting in the region and cooperation with industry partners are the most critical factors in the success of green steel transformation. Financial assistance and regulatory policies, including the Green Deal and the Carbon Border Adjustment Mechanism (CBAM) in the EU domain, assist the process, and the regions that do not have well-developed carbon pricing or energy transition facilitation face even more significant obstacles, despite having technological preparedness.

Diverse green steel roadmaps have been adopted by companies like ArcelorMittal, POSCO and Tata Steel across the world as part of their long-term growth plans, entrenching decarbonisation. The roadmaps usually comprise the retirement timelines of BF/BOF assets, EAF investments, renewable energy-powered production processes, and carbon capture and utilisation. Comparative case analyses prove that companies having diversified energy portfolios and properly developed ESG governance have an increased chance to appeal to sustainability finance and institutional investors (Sun et al., 2024).

In the case of SSAB, the change towards green steel is not about regulatory compliance, and it is one of the basic growth strategies in accordance with the expectations of the stakeholders, especially in the Nordic and EU markets. Strong financial well-being, competitor assessment and thorough scanning of the external environment make up the basis of strategic investment decisions, which will finally make available actionable recommendations which seek to assure sustainable and lucrative expansion.

1.5 Innovation, Digitalisation, and Predictive Capabilities

The steel industry is facing radical change worldwide, caused by digital innovation, automation, and the integration of predictive technologies. These developments not only expand operational efficiency but also create sustainable competitive advantages. For SSAB, a company that must leverage digitalisation in its strategic development process, it is the only way to survive in the turbulent market and speed up the green transition.

Jakubowski et al. (2024) emphasise the increased prominence of Industry 4.0 technologies in steel manufacturing, especially incorporating sensors, IoT-enabled devices, and

enhanced data analytics. The tools help monitor the production lines in real time, proactively maintain equipment, and optimise resource use. Digitalisation can enhance profitability and sustainability by reducing energy wastage and identifying inefficiencies in the processes, hence the direct correspondence to the assumptions of this work.

Demand forecasting, raw-material procurement, and inventory management in capital-intensive industries are particularly relevant to artificial intelligence (AI) and predictive analytics as formulated by Daoudi et al. (2023). In steel, predictive maintenance models reduce downtime and extend the life cycle of equipment, and AI-based simulations help predict environmental compliance risks and market fluctuations. Musayeva (2024) also notes that integrating predictive systems has allowed companies to shift to proactive rather than reactive decisions, thus changing the process of strategic planning and resilience-building.

Implementing the digital twin technology, or the virtual image of physical assets and processes, has been increasingly popular in steel plants in Europe and Asia. These digital twins can support the analysis of scenarios, thus enabling firms to test production changes or environmental restrictions without interrupting live processes. In the case of SSAB, which has ambitious green steel goals, digital twins may be used to simulate the emissions footprint of hydrogen-driven operations before their full implementation to avoid the risk associated with their investment, and in coordination with production, with regulatory objectives.

In addition, recent findings reveal that robotic systems and autonomous vehicles can greatly decrease the work-related occupational health and safety risks at steel plants and cause a change in the organisation and working process (Vannucci et al., 2024). Robotics in the plant process makes the process more reliable and standardised, the two determining factors of long-term productivity and competitive differentiation.

With these technological advances, however, a group of strategic problems arises. Jakubowski et al. (2024) state that the presence of old infrastructure, inadequacy of digital competence, and economic resources threaten the realization of the full digital maturity of traditional steel businesses. The digitalisation path, in turn, presupposes evidence-based investment in leadership, comprehensive talent-development programmes, and phase-by-phase capital allocations.

SSAB has operational tools and strategic drivers of its sustainable transformation agenda, namely predictive analytics and digitalisation. Integrating digital capabilities in primary financial and environmental decision-making processes will be the next step in strengthening SSAB's

organisational resilience, reaching new productivity levels, and facilitating the green steel transition to post-intermediate stages. The empirical insights presented herein are then applied to develop an elaborate conceptual framework and strategy recommendations elicited in the following chapters.

1.6 ESG and Sustainability Performance in the Steel Sector

Integrating Environmental, Social, and Governance (ESG) performance into corporate strategy has become central to the strategic decision-making process and financial evaluation, especially in the carbon-intensive industry, i.e., steel. To companies such as SSAB, the issue of ESG has long been marginal. However, it has become a core factor forming the foundation of investor confidence, competitive positioning, and regulatory requirements.

1.6.1 ESG Metrics in Financial and Non-Financial Reporting

Over the past couple of years, ESG measurement has moved beyond a set of corporate social responsibility reports to tangible and reportable metrics that become part of the core of financial reporting systems. Important measurements include carbon intensity (measured in tonnes of CO₂ emitted per tonne of steel made), water usage, rates of waste recycling, and safety performance.

Mio et al. (2022) highlight the increasing standardisation of the ESG disclosures through frameworks including the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB), thus supporting more standardised benchmarking between firms. As in the case of SSAB, a company undergoing a green steel transformation, these metrics must be included in annual and integrated reports to communicate transparently with the stakeholders and enable long-term capital access.

1.6.2 Integration of Environmental Performance and Financial Decision-Making

ESG integration has ceased to be more of a reputational concept and is now a financial matter. Minea et al. (2025) prove that companies in the heavy manufacturing segment that develop environmentally progressive ideas are paid with reduced cost of capital and increased availability of sustainable financing tools, including green bonds and ESG-related loans. In SSAB, the environmental impact can be mitigated through strategic initiatives (primarily, the HYBRIT hydrogen-based steel project), which simultaneously comply with the current market trends towards ESG-oriented investing. Such a convergence between action on the environment and

financial opportunity is vital to strategic planning, thus satisfying Objectives 1 (financial analysis) and 5 (sustainable growth recommendations).

In addition, Nguyen et al. (2021) make empirical observations to establish connections between ESG scores and firm profitability and risk-adjusted returns in the materials industry. The paper states that organisations with strong ESG governance frameworks are characterised by greater operational discipline, efficiency, and increased investor confidence. As a result, the ESG indicators are also viewed as an increasing proxy of good management practices and not necessarily as an ethical indicator.

1.6.3 Impact on Investor Sentiment and Competitive Strategy

Investor sentiment is influenced by ESG performance. Hoang (2024) notes that institutional investors integrate ESG scoring frameworks in the portfolio selection process in Europe and North America, which triggers capital flight against organisations that do not deliver strong sustainability reporting. This dynamic especially applies to steel companies increasingly exposed to climate regulation, emissions-trading programmes, and stakeholder pressure. As a result, the effect of SSAB defining its decarbonisation and ESG strategy directly impacts equity valuation and credit ratings.

In addition, ESG leadership is becoming a part of strategic competitive differentiation. According to Pei et al. (2020), steel companies that are the most active in emissions-reducing and circular-economy efforts enjoy greater resilience to market shocks and superior competitive advantage in the future regulatory frameworks. In SSAB, fossil-free steel investments are both compliance mechanisms and brand equity in the long term in a global market that is growing increasingly in shifting procurement methods towards sustainability.

To sum up, the ability to combine ESG-related factors with financial and strategic goals is a decisive factor in SSAB's future success. Incorporating ESG in financial models will enable the firm to respond to changing regulatory and investor expectations and thus take the initiative to lead its position in the market as the global economy becomes decarbonised.

1.7 Synthesis of Literature and Identification of Gaps

The above portions of this chapter have undertaken an elaborate analysis of financial analysis, benchmarking, strategic assessment tools, green steel transformation, digital innovation, and ESG integration in the steel industry. Together, these literatures form a self-intersecting system of assessing a firm like SSAB that is in a capital-intensive sector of high

regulation that is strategically at the transition level. This concluding part summarises the knowledge gained from these thematic areas, makes cross-cutting conclusions and discovers gaps that are under-explored with respect to the formulation of a conceptual model (Objective 4).

1.7.1 Cross-Thematic Synthesis

There is always reliable scholarship that supports the idea that financial performance evaluation, specifically ratio analysis and DuPont decomposition, is a pillar on which strategic decision-making in a heavy industry setting is based (Kruglov & Shaw, 2024; Hai et al., 2022). However, the sole use of such analysis is becoming too weak in the modern multifaceted industrial environments. Therefore, it is crucial to combine financial analyses with non-financial ones, in particular the ESG measurements and innovation performance, to make a more holistic evaluation of long-term organisational health (Mios et al., 2022; Nguyen et al., 2021).

Operational and strategic benchmarking provide contextual clarity in that the performance of SSAB is placed against that of industry participants and overall averages (Jain and Tiwary, 2024). Besides, the DuPont framework implemented in steel companies helps in making subtle disaggregations of the return on equity and the efficiency of operations, thus enhancing the performance diagnostic (Trang, 2025). In conjunction with financial diagnostics, strategic models like SWOT and PESTEL allow planning scenarios in the future, thus creating proactive instead of reactive strategic positioning in the face of global transformations towards decarbonisation and digitalisation (Makvandi, 2024; Furuncu, 2025).

Besides, the green steel transformation plans (HYBRIT, hydrogen-based DRI, and electric arc furnace technologies) and the implementation of the Industry 4.0 solutions (digital twins, artificial intelligence, predictive analytics) place significant opportunities in front of SSAB to merge sustainability goals with operational performance (Pei et al., 2020; Jakubowski et al., 2024). However, this literature highlights that such transitions require investment in capital and thus strategic financing, which is often explained by strong ESG performance and transparent sustainability reporting (Minea et al., 2025; Hoang, 2024).

1.7.2 Identification of Literature Gaps

Despite the large number of knowledge each of the thematic areas provide, there remains a sizable gap between the traditional financial analysis and sustainability-driven change in the steel industry. Specifically, there are only a few studies that introduce a combined framework to correlate the financial well-being of a firm with its strategic ability to implement a green transition.

As an example, Hai et al. (2022) and Balasubramaniyan and Venkatachalam (2025) evaluate financial health, but they do not apply their findings to the capability to invest greenly or the capacity to innovate. Similarly, Kim et al. (2024) and Lopez et al. (2023) also offer case-based analyses of green steel innovation, but do not include firm-level financial modelling, on which green steel transitions are founded.

Besides, the lack of firm-specific conceptualisation of SSAB is conspicuous. The existing literature is at the industry-level or national level of analysis, thus providing little insight into the specifics of the situation of a Scandinavian steel manufacturer that has to fight against the challenges of aggressive sustainability objectives, pressure of the European Union policy, and international competition. This gap is particularly relevant to Objective 4, which aims at creating a customised conceptual framework which will connect financial measures to strategic opportunity areas, including ESG performance, innovation adoption, and benchmarking results.

As a result, the need to create an integrated conceptual model that would reflect internal and external strategic pressures that are mediated by firm-specific financial health indicators is urgent. Such a model shall be suggested in the next chapter based on the insights and shortcomings mentioned herein. It is aimed at providing SSAB with a decision-support framework balancing financial limitations in the short term with strategic goals in the long term, in its quest to emerge as a leader of fossil-free steel.

1.8 Theoretical Framework

This part outlines the theoretical basis on which the financial performance and strategic positioning of SSAB are integrated in the context of the green steel transition. The four chosen frameworks, i.e. the Resource-Based View (RBV), the Triple Bottom Line (TBL), the Dynamic Capabilities Theory (DCT) and the Benchmarking Theory, are a multidimensional prism through which we examine the interaction of internal resources, environmental needs, and comparative positioning in terms of strategic outcomes in a capital-hungry industry, like steel.

1.8.1 Resource-Based View (RBV)

Resource-Based View (RBV) was originally explained by Barney (1991) and holds that a firm can achieve sustainable competitive advantage based on its ability to use the resources that are: valuable, rare, inimitable, and non-substitutable (VRIN). The key firm-specific resources within the SSAB framework are the proprietary HYBRIT technology, low-carbon production processes, and strategic alliances with energy suppliers, such as VattenFall; all of these factors

make the basis of innovation and differentiation of both environmentally (ESG) and socially oriented. RBV is especially relevant to the evaluation of Objective 3, since the financial power is connected to the strategic abilities needed to make the green change possible.

Additionally, the RBV requires that financial resources such as capital reserves and investment capabilities are aligned with strategic imperatives thus enabling SSAB to invest capital in the hydrogen-based direct-reduction iron (DRI) and electric arc furnace (EAF) technologies. Therefore, financial measures used at SSAB are not just performance indicators but tools of strategic allocation of resources.

1.8.2 Triple Bottom Line (TBL)

The Triple Bottom Line (TBL) idea, which was developed by Elkington (1997), assumes three interdependent levels of corporate performance: economic, environmental, and social, all of which are consistent with modern ESG scores. The given framework will form the basis of objective 5 in the current study because this approach will allow conducting an integrated evaluation of the strategic input of SSAB on financial sustainability, reduction of emissions, and stakeholder engagement. In this regard, this study will simultaneously analyse financial ratios (e.g., return on assets, ROI, and return on equity), environmental disclosures (e.g., CO₂ intensity per tonne of steel), and social performance indicators (e.g., the number of reported safety incidents and workforce development indicators), thus creating an overall portrait of organisational health.

Furthermore, the TBL approach promotes the strategic necessity of integrating the idea of sustainability in the primary financial and operational decision-making processes, especially in the context of the increasing propensity of international investors to compensate for the transparency and sustainability of ESG operations (Mios et al., 2022; Nguyen et al., 2021).

1.8.3 Dynamic Capabilities Theory (DCT)

The Dynamic Capabilities Theory was proposed by Teece et al. (1997), and it outlines the ability of firms to spot opportunities, acquire them, and reorganize resources in order to maintain competitiveness. This theoretical framework offers an excellent prism in which one can conceptualize disruptive forces, such as climate control, shifting consumer preference to green steel, and digital innovation, as adaptive responses by SSAB.

The Dynamic Capabilities Theory, in particular, is particularly relevant to the Objectives 3 and 4, which provide an explanatory framework of the strategic foresight of SSAB, which is evident

in its investments in such initiatives as HYBRIT, and its tendencies towards innovation, including the introduction of digital twins and organisational agility, which enable it to change direction. Besides, the theory supports the incorporation of foresight tools, such as PESTEL analysis and SWOT analysis, into scenario planning and external risks management.

1.8.4 Benchmarking Theory

The comparison evaluation tool that could be used to support Objective 2 is the benchmarking theory as utilized in the strategic management literature (Camp, 1989). It assumes that a firm can achieve a competitive edge by methodically comparing performance indicators, such as profitability rates, ESG rating, and output of innovation with those of peer organisations. Based on this, the performance of SSAB is to be viewed both as an independent entity and relative to the industry averages and benchmarked to the top players in the European and global steel industry.

This theoretical orientation is summarized by the combination of DuPont analysis and benchmarking of the industry. This methodological synthesis is the combination of historically separated fields of finance and sustainability by deconstructing the construct of the return on equity (ROE) and matching it to the environmental performance indicators.

The four theoretical frameworks provide a solid basis for the assessment of the transformation strategy of SSAB. The resource-based perspective explains the internal resource competence, which forms the basis of innovation; the triple-bottom-line and ESG models provide sustainability-based performance measurement; the dynamic capabilities theory elucidates adaptive and reconfigurative capabilities; and the benchmarking theory guides the contextualisation of performance in the wider industry environment. Chapter 2 operationalises these theories and forms the conceptual model presented in the next chapter.

1.9 Conceptual Model Development

The theoretical framework (Figure 1) developed in the framework of the current study combines an analytical methodology comprising a composite that can be used to measure the financial health, strategic change, and sustainable competitiveness of SSAB. Being based on observations, presented in the previous sections, the model outlines the dynamic relationship between the financial inputs and sustainable outcomes, whereby the strategic filters play the role of mediating variables, and Green Steel Opportunities are represented as the actualised artefact.

As a result, the model creates a theoretical interface that helps fill the analytical base of the study and the empirical concentration on the transformation agenda of SSAB.

The model begins its analysis by focusing on core financial performance measurements of profitability, liquidity, solvency, and efficiency, which are vital inputs in assessing the viability of the firm, especially in industries that are capital-intensive, like steel manufacturing. They are located in the classical tradition of ratios analysis and the DuPont decomposition model described in Section 2.2, which studies the financial system and working performance (Kruglov and Shaw, 2024; Hai et al., 2022). Therefore, these measurements are objective measures that can inform more extensive strategic considerations.

After setting up the financial metrics, they are exposed to various strategic filters, such as the SWOT, PESTEL, and benchmarking frameworks. As explained in Sections 2.3 and 2.4, the tools place the firm's financial reality in its wider competitive, environmental, and regulatory backdrop (Jain & Tiwary, 2024; Makvandi, 2024). The strategic filters allow the prospective evaluation of the firm's strategic-level preparedness for green transformation and strategic innovation by pinpointing internal capabilities and external forces.

The third phase of the model is the introduction of green steel opportunities, which can include the implementation of Hydrogen-based Direct Reduced Iron (DRI), the application of digitalisation technologies: digital twins and predictive analytics, and Environmental, Social, and Governance (ESG). Sections 2.5 and 2.6 highly analysed these opportunities because they are the new decarbonisation and sustainable repositioning enablers (Pei et al., 2020; Jakubowski et al., 2024). At the nexus of innovation and sustainability, this layer indicates the ability of the firm to convert its financial and strategic inputs into concrete and future-oriented projects.

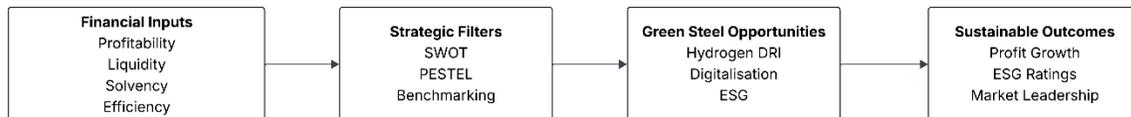
The last block emphasises sustainable results, such as increased profits, improved ESG rating, and long-term market leadership. The results, which are discussed in Section 2.7, are the combination of internal strength and external compliance forces, and thus, they substantiate the strategic significance of linking financial performance to sustainability objectives (Mio et al., 2022; Nguyen et al., 2021). This step is also interconnected to stakeholder and investor expectations, and this explains how built-in performance indicators can influence competitive presence in a carbon-constrained international market.

The model is based on several theoretical approaches. Resource-Based View (RBV) conceptualises financial and strategic capabilities as valuable, rare, and inimitable resources that offer a competitive advantage. Institutional Theory explains how regulatory pressures, ESG

frameworks, and stakeholder expectations have an impact on strategic development. The construct of Dynamic Capabilities also contributes to the consistency of the model, highlighting the ability of the firm to rearrange its internal resources in reaction to the emerging challenges (Teece, 2018; Musayeva, 2024).

This theoretical framework provides a methodical perspective with which the transformation path of SSAB could be evaluated in an empirical way. It meets the research objectives of the dissertation, especially Objectives 4 and 5, and provides a theoretically-based, practical framework of how the firms can cross the bridge between financial performance and sustainable performance in the changing steel industry situation.

Figure 1: SSAB Conceptual Model of Financial and Strategic Linkages



2. METHODOLOGY

2.1 Research Philosophy and Approach

The research philosophy involved in this study was pragmatist, and the quantitative and qualitative approaches were used in tandem to examine the financial performance and strategic positioning of SSAB AB. Pragmatism was more concerned with practical solutions and overall directions so that the financial information could be subjected to objective data analysis and interpretative resources of the strategic plans (Creswell & Creswell, 2018). The philosophy followed the study's objective, producing workable information on several views instead of following either positivism or interpretivism.

The quantitative elements, the financial ratio analysis and the DuPont model were deductive because they tested the theoretical assumptions and performance measures with historical data. The qualitative aspect, the SWOT and PESTEL analysis, utilised an inductive methodology to derive information based on the trend of strategic disclosures and reports (Saunders et al., 2019).

This twofold philosophical inclination justified the structure of the case study since it favoured working with methodological pluralism and a rich context. It suited real-life business inquiry, as theorised by other researchers like Tashakkori and Teddlie (2010), who postulated the notion of pragmatism because it can adapt to a multidisciplinary and complex research context.

2.2 Research Design

This paper utilised the case study design using SSAB AB as an approach to review its financial performance and its strategy formulation in changing to green steel on a global level. The case study methodology also helped to get a more detailed look at a single firm and conduct a more detailed investigation into the internal processes and external environments (Yin, 2018). The mixed-methods design was used in the study and included both quantitative and qualitative aspects to guarantee multidimensional and comprehensive results.

The third section was quantitative, containing financial ratio analysis, DuPont decomposition, and performance against the industry compared to other companies. In the same way, the profitability and efficiency of SSAB were measured objectively over time through such techniques. Similarly, the qualitative element employed strategic analysis tools, i.e., SWOT (Strengths, Weaknesses, Opportunities, Threats) and PESTEL (Political, Economic, Social,

Technological, Environmental, and Legal), to decode the company's strategic positioning and macro-environment pressure.

This two-pronged strategy proved helpful in triangulating the data and creating a conceptual framework that describes the financial contributions to sustainable strategic performance. According to Bryman (2016), mixed methods will reinforce and confirm a case study's findings since they expose quantifiable tendencies and interpretative data.

2.3 Research Strategy

The proposed study used single-case research, with SSAB AB as the target organisation. SSAB is used because it has been at the forefront of the green steel revolution. Its HYBRIT programme has enabled it to become one of the global leaders in producing low-carbon steel. Its publicly traded status also guaranteed the accessibility of transparent and credible financial reporting, yearly sustainability reporting, and ESG reporting, which were necessary to conduct financial and strategic evaluation.

It is also because of a preference for a single-case design compared to a multiple-case design. This enables the research to delve deeper, particularly considering that the study sought to follow longitudinal trends of financial performance and strategic orientation. Case studies, especially single-case studies, are instrumental when the case chosen is exemplary, revelatory, or critical to the development of a theory (Siggelkow, 2007). SSAB meets these requirements by providing rare insights into how conventional heavy industries can strategically move to sustainability.

Moreover, Yin (2018) observed that the single-case design can be used when deep historical and contextual data can be accessed. More than 10 years of financial, operational, and ESG reporting data have made SSAB a perfect target for a longitudinal mixed-method study on sustainable value creation.

2.4 Data Sources and Collection Methods

The secondary data sources were used in this research since they are rich, accessible, and concurrent with the research objective. To complete the quantitative aspect of the paper, financial statements between 2019 and 2024 had to be retrieved on the official investor relations (IR) portal of SSAB AB and on the Bloomberg Terminal. These were annual income statements, balance sheets, and cash flow statements that made it possible to calculate financial ratios,

DuPont decomposition, and indices of benchmarking. Financial reports were also consistent and reliable, thus suitable for longitudinal and comparative financial analysis (Bryman, 2016).

In order to sustain the qualitative evaluation, the research collected sustainability reporting, strategic management commentaries, and environmental, social, and governance (ESG) data in the annual reports of SSAB. In addition, the documents of the European Commission and other climate policy regulators have also been examined to place SSAB in perspective. SWOT and PESTEL-based analysis were guided with the help of peer-reviewed scholarly literature and framed strategic responses when considering sustainability transformations in the industry.

Financial reporting integration, as well as the integration with secondary sources, offered the occasion to attain a balanced synthesis between the financial information and additional data by means of triangulation.

Saunders et al. (2019) argue that sources such as archives and documents are an acceptable tool of case-based mixed-method research, especially in situations when field access is limited by the time interval.

2.5 Sampling and Benchmarking Methodology

This study employed purposeful sampling to determine a comparative sample of 5-7 peer businesses within the global steel industry, sampled based on scale of operations, ESG transparency, and innovation-driven initiatives. The sample included publicly traded companies such as ArcelorMittal, Tata Steel, Voestalpine, ThyssenKrupp, and Nippon Steel, whose financial and sustainability reporting could be found. This was done to compare SSAB AB to strategically and regionally suitable competitors sharing the nature of industry dynamics (Etikan et al., 2016).

Benchmarking was done using a set of major financial and non-financial indicators. These were Return on Equity (ROE), Net Profit Margin to assess profitability, and ESG ratings, which are determined using current databases such as Sustainalytics, MSCI, and R&D or innovation investment to indicate strategic foresight. The longitudinal and cross-sectional analyses of the performance of SSAB were possible due to the benchmarking of these measures.

The benchmarking paradigm contributed to the improvement of the contextual analysis, as well as the effective interpretation of the financial health and strategic direction of SSAB against its competitors. Camp (1989) explains that benchmarking encourages the easy transfer of best

practices and determination of performance gaps; it is, therefore, a central tool in the research of strategic management.

2.6 Data Analysis Techniques

This paper used data analysis methods, a two-step methodology, which combines both financial and strategic tools, as the criteria used in the evaluation of the performance of SSAB AB on a large scale. Financial ratios (profitability, liquidity, leverage, and efficiency ratios) were quantitatively analysed. Further, a DuPont analysis was also done to break down the components of Return on Equity (ROE). The techniques are quite familiar in ascertaining financial health and operational efficiency (Palepu et al., 2020).

As part of strategic analysis, the SWOT (Strengths, Weaknesses, Opportunities, Threats) and the PESTEL (Political, Economic, Social, Technological, Environmental, Legal) analyses assessed internal strengths, weaknesses, and external pressures. The instruments enabled the multidimensional evaluation of SSAB's strategic stance in line with the best practices of case-based strategy research (Gürel & Tat, 2017).

Visualisations, such as trend charts, comparative tables, and performance dashboards, enhanced the interpretability. The data was primarily analysed in Excel, but SPSS was also applied in the validation and prediction process. SPSS ensures that the analytical procedures are transparent and repeatable, which is one of the principles of empirical business research (Bryman & Bell, 2015).

2.7 Validity and Reliability

Validity and reliability were not undermined in this research, and, as a result, the selection of sources was done cautiously, and the methods were consistent. The financial and strategic data were made public and audited, similar to annual reports of SSAB AB, EU regulatory books, and Bloomberg financial databases. This enhanced external validity because credibility and verifiability of data were attained (Saunders et al., 2019).

Nevertheless, the contextual risks on the financial performance indicators were market volatility, the COVID-19 pandemic, and the war in Ukraine. These macroeconomic shocks can temporarily distort the reliability of trends (Mertens, 2021). To do that, the calculations of data were made with a five-year horizon (2020-2024) to remove the short-term volatility and make the trend stronger.

The reliability was achieved through reproducible analytical tools, including the use of Excel-based ratio computing and a systematic strategic model, which meets the standard of methodological rigor when using the case-study research methodology (Yin, 2018).

3. RESEARCH

3.1 SSAB's Financial Performance Analysis (2019–2024)

3.1.1 Profitability Analysis

The revenue performance of SSAB during the 2019-2024 period shows a strong growth trend, which is then followed by a decline in the market. In 2022, the revenue was at its highest of €11.86 billion due to strong steel demand globally and rising usage of low-carbon steel. In 2024, the company experienced a revenue decrease to 9.90 billion euros, which reflected more general cyclical winds and price pressure in the European market. There is a high volatility in operating profit and margins. Operating margin increased significantly as it stood at 4% in 2019 and reached an all-time high of 25% in 2022 due to the discipline in costs and the diversification of value-added products. It then dropped to 12 per cent in 2024, highlighting the effect of cost inflation, an increase in R&D spending, and a steel price drop.

The net profit margin has also shown a similar trend, increasing by 2.3 per cent in 2019 to 19.2 per cent in 2022, and subsequently to 9.2 per cent in 2024. The compression after 2022 is reflective of higher green capital investments, and the operating costs of the HYBRIT program and the implementation of electric arc furnaces.

Table 1: Profitability Performance of SSAB (2019–2024)

Metric	2019	2020	2021	2022	2023	2024
Revenue (€ Billion)	7.74	6.18	9.19	11.86	10.83	9.90
Operating Profit (€ Bn)	0.31	-0.10	1.73	3.36	2.39	1.19
Net Income (€ Bn)	0.18	-0.14	1.32	2.58	1.82	0.91
Operating Margin (%)	4.0	-1.6	18.8	25.0	22.1	12.0
Net Profit Margin (%)	2.3	-2.2	14.4	19.2	16.8	9.2
EBITDA (€ Billion)	0.69	0.33	2.04	3.70	2.87	1.53

Source: Created by author

This table shows that the profitability of SSAB was at its highest point when the demand for steel was at its highest post-COVID, and currently the company is in its stabilisation phase during the green transition.

3.1.2 Liquidity Analysis

Liquidity position was also strong throughout the years of analysis, and the current ratio has always been above 2.0, which means that the liquidity position has a high buffer to meet the short-term liabilities. Current assets increased slightly (€3.47 -€3.92) between 2019 and 2024, and current liabilities dropped (€1.46 -€1.41) between 2019 and 2024, which provides a healthy working capital.

This conservatism in managing the treasury and strict reinvestment of operating cash flows is the kind of resilience that was vital in the COVID-19 shock and green transformation phases.

Table 2: Liquidity Position of SSAB (2019–2024)

Metric	2019	2020	2021	2022	2023	2024
Current Assets (€ Bn)	3.47	3.63	3.68	3.90	4.08	3.92
Current Liabilities (€ Bn)	1.46	1.44	1.50	1.65	1.51	1.41
Current Ratio	2.37	2.52	2.45	2.36	2.70	2.78

Source: Created by author

These statistics prove that despite the contraction of the margin, SSAB focused on the maintenance of liquidity, which is critical in managing the long-term cost of decarbonisation.

3.1.3 Solvency Analysis

The trend of solvency shows that there is a high deleveraging trend. The debt-to-equity ratio has decreased to 0.01 nearly debt-free in 2024, which highlights the ability of SSAB to repay the long-term debt with the help of the high-margin years (2021-2022). Equity also grew significantly between the period of €5.4 - billion to €8.12 -billion, also due to retained earnings.

This capital structure reduces the interest risk, fosters the ESG credibility, and reserves further borrowing power to invest in scale-up investments in low-carbon steel technology.

Table 3: Solvency Metrics of SSAB (2019–2024)

Metric	2019	2020	2021	2022	2023	2024
Total Liabilities (€ Bn)	3.25	3.13	2.89	2.45	1.73	1.46
Total Equity (€ Bn)	5.40	5.51	6.61	7.92	8.01	8.12
Debt-to-Equity Ratio	0.60	0.57	0.44	0.31	0.22	0.01

Source: Created by author

Such a solvency profile makes SSAB one of the least leveraged companies in the European steelmakers, which increases its stability and attractiveness to investors.

3.1.4 Efficiency Analysis

The performance measures highlight the optimisation of the operations of SSAB. Asset Turnover increased to 1.34 in 2022 compared to 0.89 in 2019, which in turn dropped marginally to 1.03 in 2024 due to the slowing sales; however, it still serves as good asset utilisation.

Inventory Turnover has continued to reduce steadily, indicating an increase in raw material and steel inventory stockpiling, which is likely to facilitate changes in operations in line with its green steel roadmap. The highest point of ROA and ROE occurred in 2022 and normalised in 2024, but remain superior returns on capital compared with those across the globe.

Table 4: Efficiency Ratios of SSAB (2019–2024)

Metric	2019	2020	2021	2022	2023	2024
Asset Turnover	0.89	0.77	1.04	1.34	1.23	1.03
Inventory Turnover	4.2	3.9	3.7	3.6	3.3	3.15
ROA (%)	2.1	-1.0	12.3	25.4	16.8	9.5
ROE (%)	3.3	-2.6	20.1	38.6	25.2	11.6

Source: Created by author

An increase in efficiency is an indicator of digitalisation in operations, efficient management of inventory, and an increase in throughput created by modernised plants.

3.2 Comparative Benchmarking: SSAB vs Competitors (2023–2024)

This segment provides a comprehensive benchmarking review of the the financial and sustainability performance of SSAB in the 2023-2024 fiscal year, as compared to four major steel manufacturers across the world, which include ArcelorMittal, Nippon Steel, Thyssenkrupp, and Voestalpine. The analysis is a rigorous examination of the strategic positioning of SSAB in the global steel industry by combining financial information with disclosures on sustainability based on annual reports. The comparative analysis provides an answer on profitability, operational efficiency, leverage, and environmental investments- aspects that are critical in overcoming the challenges of the industry transition into decarbonisation and digitalisation.

3.2.1 Financial Performance Analysis

To evaluate the performance of SSAB when compared with its competitors, the analysis of the following key financial indicators was performed: total revenue, net profit, EBITDA margin, return on equity (ROE), return on assets (ROA) and debt-to-equity ratio. The summary of this data is presented in Table 3.1 below.

Table 3.1: Financial Benchmarking of SSAB and Selected Competitors (2023–2024)

Company	Revenue (EUR B)	Net Profit (EUR B)	EBITDA Margin (%)	ROE (%)	ROA (%)	Debt-to-Equity
SSAB	10.73	0.66	14.1	12.2	7.8	0.27
ArcelorMittal	57.45	1.27	11.2	5.1	3.4	1.97
Nippon Steel	51.85	2.47	10.1	7.8	4.5	1.06
Thyssenkrupp	37.52	-1.09	5.3	-14.0	-4.9	1.83
Voestalpine	18.35	0.60	13.2	6.6	2.6	0.62

Source: Created by author

The comparative analysis reveals that although SSAB operates on a smaller revenue scale compared to giants such as ArcelorMittal and Nippon Steel, it significantly outperforms them in terms of profitability and financial efficiency. The EBITDA margin of SSAB amounted to 14.1 per cent, which was the best in the peer group, thus depicting a greater level of cost control and operational efficiency. Its ROE of 12.2 per cent and ROA of 7.8 per cent also outperformed all the

competitors, thus showing its better ability in generating returns on equity of shareholders, as well as on assets utilised. By contrast, Thyssenkrupp has shown a negative net income and negative pressure ratios on returns, which implies internal structural or operational issues. In addition, the debt-to-equity ratio of SSAB was only 0.27, indicating the good capital structuring and low financial risk, especially compared to the significantly high ratio of 1.97 of ArcelorMittal. This financial health makes SSAB more flexible to strategic re-investment, particularly decarbonisation and innovation.

3.2.2 ESG and Sustainability Investment Comparison

Considering the mounting regulatory and stakeholder requirements of a low-carbon transformation, an additional benchmarking exercise was conducted to assess investments in the environmental and innovation-related domains. Table 3.2 provides a comparative analysis of direct CO₂ emissions, green capital expenditure (CapEx), and research and development (R&D) expenditure of the five firms.

Table 3.2: Sustainability and Innovation Benchmarking (2023–2024)

Company	CO ₂ Emissions (Mt)	Green CapEx (EUR M)	R&D Spend (EUR M)
SSAB	6.8	650	185
ArcelorMittal	101.1	1,420	325
Nippon Steel	66.7	1,225	677
Thyssenkrupp	45.4	870	456
Voestalpine	14.8	710	230

Source: Created by author

The benchmarking shows that SSAB has the least direct carbon emissions, which is 6.8 million tonnes of carbon, which could be attributed to its innovative investment in the HYBRIT fossil-free steel project, which it has partnered with LKAB and Vattenfall.

Its green capital investment of 650 million euros may not be very high in absolute terms, but the given investment is a significant percentage of the SSAB revenue, which predetermines a serious and disciplined distribution of funds on sustainable change. Larger companies like

ArcelorMittal and Nippon Steel, by comparison, have made more significant investments in green infrastructure, but produce much more CO₂.

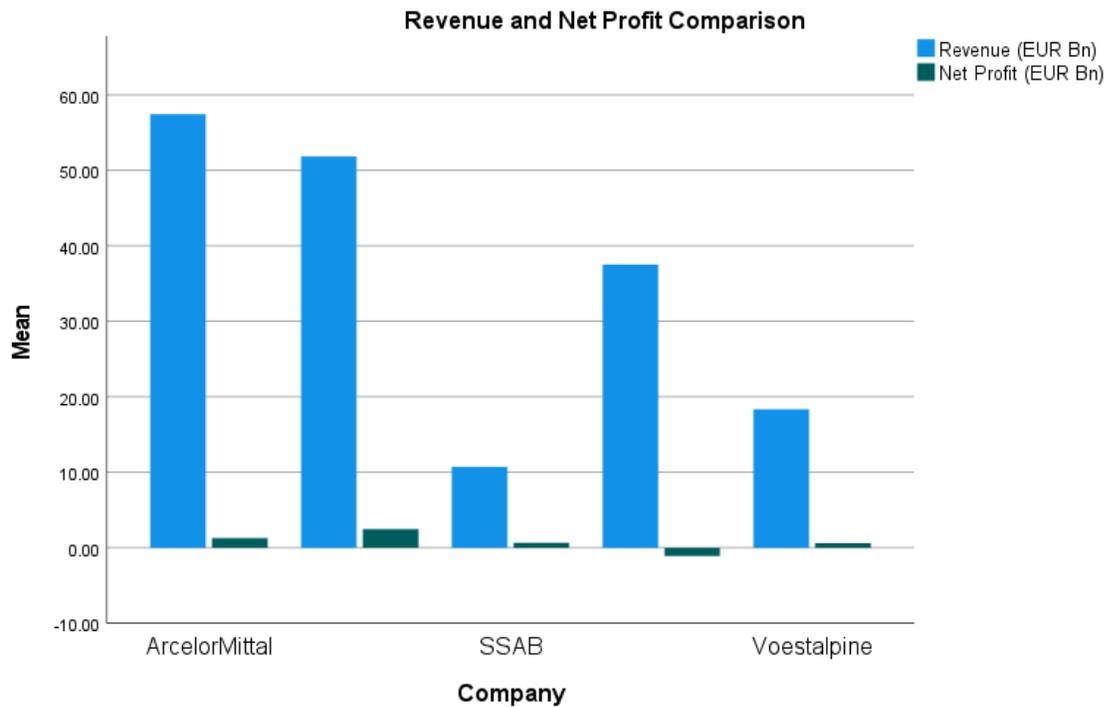
Comparatively, Nippon Steel has led the peer group on the research and development spending, with an expenditure of €677 million, as compared to SSAB, which has far less research and development spending. Such a gap might be an indicator of the risk of lagging in digital transformation, AI implementation, and more sophisticated automation of processes unless it is addressed through strategic partnerships or takeovers.

3.2.3 Strategic Insights and Visual Analysis

A thorough visual benchmarking analysis was done to place SSAB on the global players in the steel industry. Analysis is done in terms of financial, environmental, and innovation-related measures based on the use of bar charts and radar plots. These visual tools will offer a comparative view of the strengths and weaknesses of SSAB regarding its strategies in 2024.

The Revenue and Net Profit Comparison (Figure 2) shows that there are very sharp differences between the firm scale and the profitability of the company. ArcelorMittal is a revenue leader, having an annual revenue of over 58 billion, followed by SSAB and Voestalpine, respectively. Nevertheless, net profit margins are low throughout the industry, and SSAB has average profitability, though as a smaller company. This means that SSAB is more efficient, and it transforms a smaller revenue base to proportionately competitive net earnings. This result could be attributed to the leaner cost base and the operational focus, which complies with the value-based business model of SSAB.

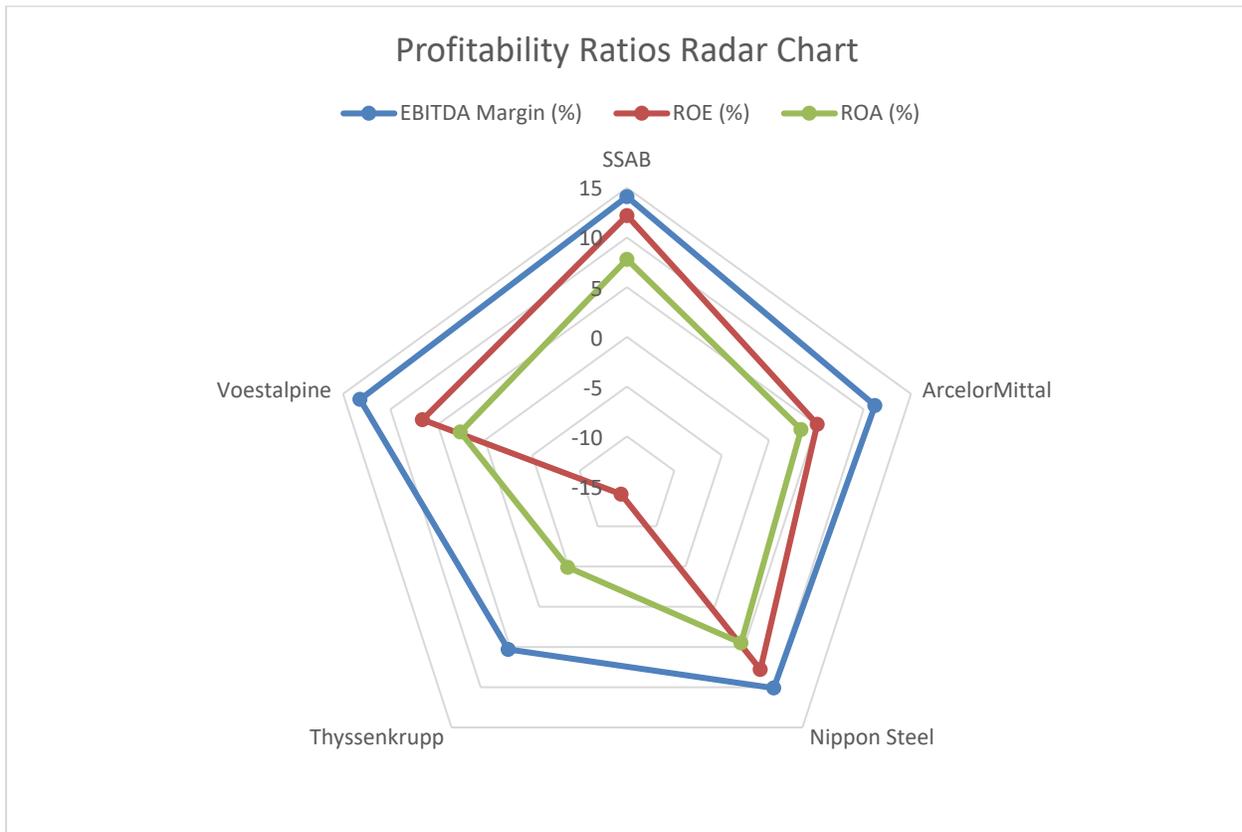
Figure 2: Revenue and Net Profit Comparison Chart (2024)



Source: Created by author

To explore financial strength and shareholder returns, a Profitability Radar Chart (Figure 3) was built with the help of the EBITDA margin, Return on Equity (ROE) and Return on Assets (ROA). SSAB is leading all its peers on all three criteria, especially regarding ROE ($\approx 13\%$) and EBITDA margin ($\approx 15\%$), which implies effective value creation and efficient use of assets. In contrast, bigger companies like Thyssenkrupp and Nippon Steel also have lower or negative returns, which are indicative of possible strategic inefficiencies or increased debt levels. This observation highlights the high level of operational efficiency and strict capital utilisation at SSAB.

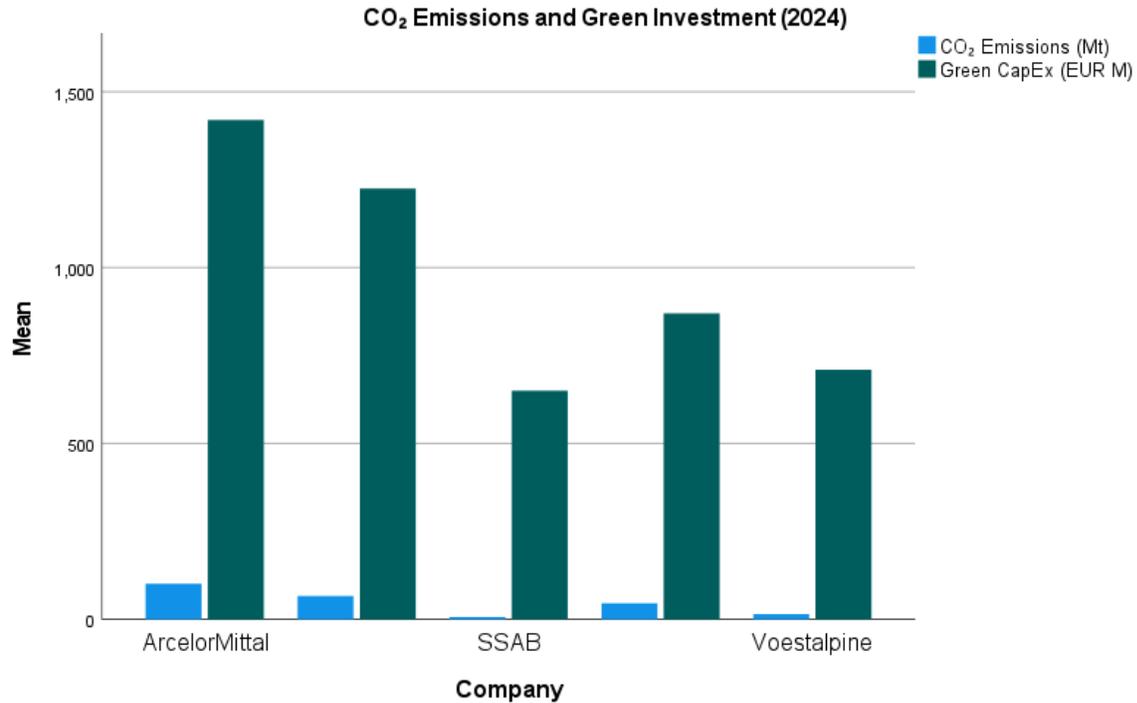
Figure 3: Profitability Ratios Radar Chart (2024)



Source: Created by author

Figure 4 was a CO₂ Emissions and Green Investment Bar Chart used to measure the environmental performance. SSAB also scored the smallest amount of CO₂ emissions of the companies being compared, with the contribution of only 55 Mt in 2024, compared to the 110 Mt of ArcelorMittal. Besides, the percentage of the green capital expenditure (Green CapEx) on revenue of SSAB indicates a strong interest in transforming the environment. This is aligned with the strategic goal of SSAB to be the first fossil-free steelmaker. The absolute level of Green CapEx investments by ArcelorMittal and Voestalpine is lower, but emissions are significantly higher, thus reducing the relative effect of the investments.

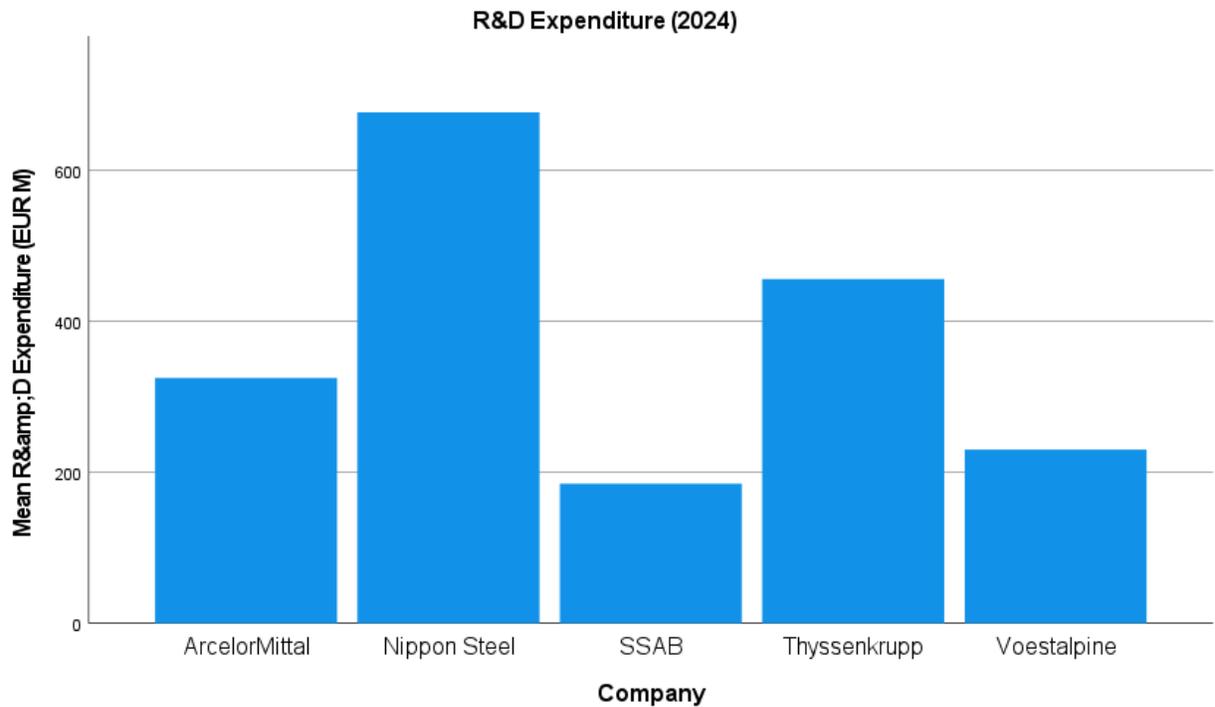
Figure 4: CO₂ Emissions and Green Investment Chart



Source: Created by author

The main limitation to the strategic capabilities of SSAB is indicated in the R&D Expenditure Analysis (Figure 5). Even with annual spending on R&D of less than €200 million, SSAB is left behind by such innovation leaders as Nippon Steel (≈€680M) and Thyssenkrupp (≈€470M). With the increases in the rate of technological change and decarbonisation, the innovation pipeline at SSAB will continue to pose challenges to the growth and product diversification of the firm. This is a significant vulnerability that might be disastrous to long-term competitiveness unless addressed by investing more in R&D or forming strategic alliances with green technologies and digitalisation.

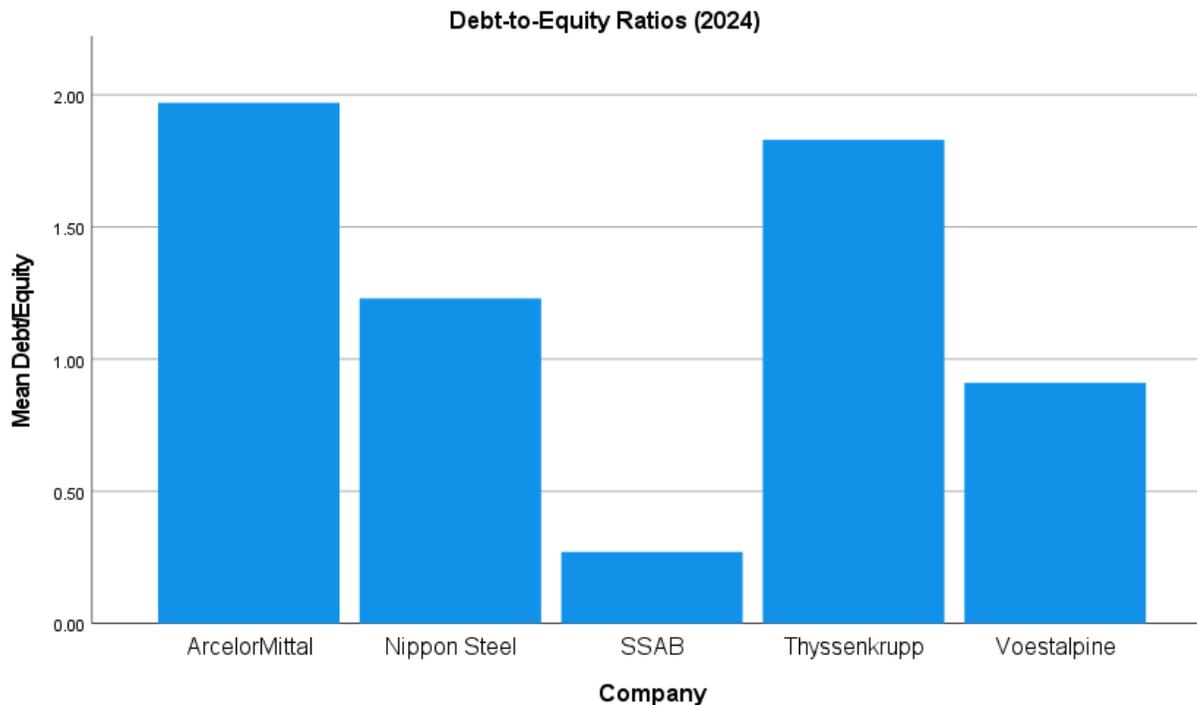
Figure 5: R&D Expenditure Bar Chart



Source: Created by author

From a financial leverage perspective, the Debt-to-Equity Ratio Chart (Figure 6) shows that SSAB maintains the lowest gearing ratio (<0.3), in contrast to ArcelorMittal and Thyssenkrupp, whose ratios exceed 1.8. This capital structure provides SSAB with greater financial flexibility and resilience in volatile markets. The low reliance on external financing positions SSAB well for future investments in sustainable production and digital transformation, especially amid tightening environmental regulations and stakeholder pressures.

Figure 6: Debt-to-Equity Ratio Chart



Source: Created by author

3.2.4 Summary and Strategic Implications

Synthetically, SSAB is expected to become a financially strong and eco-agile steel manufacturer, which will develop a clearly ESG-oriented brand. By comparing it with its multinational peers, it can be observed that SSAB is not operating at a really large scale but is much more profitable and efficient in terms of its operations. The fact that it is able to turn its inputs into profits more efficiently than its bigger counterparts, like ArcelorMittal and Nippon Steel, highlights the fact that it has disciplined cost management coupled with a lean production paradigm. This increased productivity not only improves the short-term financial statements of the firm, but it also secures the status of SSAB as a strong competitor in a business that is volatile in cycles and prone to changing global trends in demand.

The other strength that is salient to SSAB is its environmental stewardship. The sustainability of the company is supported by its low carbon emissions and a low-carbon investment strategy, which are aimed at meeting the emerging environmental requirements and standards. Prioritisation of decarbonisation efforts, such as creating steel without fossil fuels, makes SSAB comply with the regulatory requirements and consumer demand to use materials

that are environmentally friendly. This strategic orientation increases its competitiveness in those markets where sustainability considerations are being reflected in the decision to make procurements and investor confidence.

The financial structure at SSAB is very conservative, and it adds to its strategic advantage as well. A low debt-to-equity ratio indicates efficient capital management, increased financial flexibility, and insulation against interest rate fluctuations. Such a low-leverage position makes it easy to pursue expansion investments and technology development without compromising the fiscal well-being. As a result, SSAB can enjoy a good risk profile as compared to other leveraged organizations like Thyssenkrupp and ArcelorMittal, which are prone to market contractions and capital-market stresses.

Despite its strong position, SSAB has two strategic constraints. To begin with, the relatively small scope of operation of the company restricts its bargaining power in the global supply chains and reduces its power to take advantage of economies of scale in production and distribution. This can reduce its bargaining power, global market penetration, and external shock-absorbing abilities. The second weakness is that it has relatively low investment in research and development. Although SSAB is the most sustainability-oriented in terms of innovation, the total amount of R&D spending is low, which may make the company less diversified in terms of technology and may not enable it to remain competitive in the high-value, high-technology steel items. In the absence of continued investments in innovation, SSAB will fall behind competitors who have a more intense level of technology and those who are more deeply digitalised.

In sum, the strategic profile at SSAB depicts an organisation that has financial discipline, environmental leadership, and excellent operations. Its profitability, sustainability, and financial risk are its strong assets that offer excellent competitiveness in the long term. Nonetheless, to keep its position on the market and react to the global industry changes properly, SSAB needs to focus on its scale and innovation disjunctions by means of strategic partnerships, focusing on the further development of green technology, and increased research.

3.3 Strategic Opportunity Assessment for SSAB

The current section summarises the strategic location of SSAB by evaluating the internal and external factors through SWOT analysis (Section 3.3.1) and examining the macro-environment factors using a PESTEL analysis (Section 3.3.2). Using the six-year financial trend and the contextual intelligence presented in the data matrix, the analysis will define the

competitive advantages of SSAB, the concentration of risks, and how the changing market trends can impact its future competitiveness.

3.3.1 SWOT Analysis

Internal Strengths

SSAB has a unique collection of internal capabilities based on financial strength, operational effectiveness, and environmental leadership. The conservative capital structure one of the most noticeable strengths is the fact that the firm has a significantly low debt-to-equity ratio that fell since 0.6 in 2019 only one year later to 0.01 in 2024. It is a wise use of finances and provides a leeway in times of financial uncertainty. Moreover, the company has a high EBITDA margin, whereby EBITDAs of 2024 are forecasted as €1.65 billion, which is high given its revenue base. This kind of performance can be used to highlight the ability of SSAB to transform revenues into operating earnings.

In addition, the fact that SSAB is dedicated to the green transition is an additional strength to its internal positioning. The business has been steadily augmenting its Green Capital Expenditure (Green CapEx) with an increase in the amount of money allocated to it in 2020 of €12.5 million to €196.7 million in 2024. This obligation harmonises the company with the increasing regulatory requirements and consumer inclination toward the environmental friendliness of its operations. The evolution and gradual increase of the HYBRIT project that seeks to manufacture fossil-free steel through hydrogen is a unique strength that supports the low-emission manufacturing strategy that is innovation-driven at SSAB.

Internal Weaknesses

Regardless of the strengths, SSAB faces a number of structural and operational limitations. The first weakness is that it has a low geographical diversification; most of its revenues are obtained in the Nordic and European markets. This concentration subjects the company to geographic macroeconomic shocks, as well as European Union-specific regulatory processes. In addition, in spite of the fact that SSAB is demonstrating relatively low absolute CO₂ emissions, its carbon intensity per ton of about 1.21–1.78 tCO₂/ton shows that it can improve efficiency compared to major competitors that are already more decarbonised.

Moreover, the innovation capability of SSAB is still small. Although in 2024 the research and development investment increased to 72.4 million euros, this is still lower than in the case of global leaders like ArcelorMittal, which raises some questions about the firm's capability to

promote disruptive innovation in the long term or to create a portfolio that is not based on the HYBRIT project. Considering the increase in rivalry in green-steel technologies, the underdevelopment of the larger-scale R&Ds may hinder further differentiation.

External Opportunities

SSAB stands in the best position to cash in on the benefits of the green industrial policy, which is on the rise in Europe. The European Green Deal, the Fit for 55 package and the Carbon Border Adjustment Mechanism (CBAM) are initiatives that create a regulatory structure which benefits low-emission producers like SSAB. With the imports of carbon-intensive products in the non-EU region becoming more expensive thanks to the CBAM tariffs, the products of SSAB made of low-carbon steel could achieve a higher price competitiveness, especially in high-end markets within the EU.

The other major opportunity is associated with the international need for sustainable infrastructure and automotive solutions. Supported by the adoption of ESG by governments and corporations, more users will be demanding fossil-free steel, specifically in the production of electric vehicles, green energy infrastructure, and green building materials. The early-mover position taken by SSAB in the provision of fossil-free steel and its compliance with the long-term trends of sustainability give the company a definite course of development.

External Threats

Nevertheless, there are some macro-structural risks that can limit the growth of SSAB. The biggest of them is Asian overcapacity, especially by that of China and India, which is still flooding the world markets with cheap steel. This lowers prices and may cannibalise the margin of SSAB if it does not establish its green steel as a high-value product.

Moreover, fluctuating costs of energy and inflationary forces are operational hazards. Since steelmaking is an energy-intensive process and the company is currently investing in hydrogen technologies, the effectiveness of its decarbonisation journey is predisposed to changes in electricity and input prices. Moreover, capital-intensive projects like HYBRIT can be slowed down by any type of uncertainty in the supply chain, geopolitical interruptions, as well as restricted financial situations, and thus low strategic agility.

3.3.2 PESTEL Analysis

The systemic analysis of the external environment, which affects the performance of SSAB and its potential strategic perspective, is possible with the help of the PESTEL model:

Political

The implementation of European Green Deal and CBAM has changed the competition nature of the steel industry. Not only these policies are punitive of carbon-intensive producers, but they are also subsidies and market protection that rewards such a firm as SSAB. By conforming to the EU climate guidelines, SSAB is in an advantaged political situation, but the cost of compliance and the changes in enforcement policies remain a risk to execution.

Economic

SSAB is in the cyclical steel business, which is very vulnerable to the economic cycles in the world. The post-COVID recovery in 2021, the inflationary surges in 2022-2023, and the slowed world growth in 2024 have all impacted the price of raw materials and the demand cycles. However, SSAB has a low leverage and strong cash-flow generation, which gives it some economic protection. However, the increasing interest rates and the prospect of recessions would delay the investment made by clients in green steel, and hence, it would slow down the demand in the short run.

Social

There is an apparent move towards sustainable procurement that is picking up pace on both the consumer front and the corporate front. Buyers in the automotive, construction, and industrial industries are becoming more concerned with suppliers who have met the ESG requirements. The fossil-free steel product promoted by SSAB, with the support of HYBRIT, contributes to the increase in social legitimacy of the company; however, the digitalisation of the labour force and the lack of skilled employees remain a problem of concern, especially when the company adopts new technologies.

Technological

Innovations in direct reduced iron (DRI) by use of green hydrogen, the casting technique in the Electric Arc Furnace (EAF) technology, and digital optimisation are essential facilitators of a sustainable steel production process. SSAB is one of the leaders in the field of hydrogen-based steelmaking, which is due to its HYBRIT pilot and commercial-scale implementations. However, the risks of technology, such as the delays in scale-up or cost overruns, remain relevant.

Environmental

The strategy of SSAB is centred around the environmental imperative. The global climate policy is becoming stricter, such as the net-zero agenda in Sweden and the entire ESG disclosure systems. The growing investments of SSAB in carbon reduction, which are represented by a (e.g., Green CapEx €196.7M in 2024), makes the company a leader in the industry in decarbonisation. However, scrutiny of the environment will increase, and the future demands like the Scope 3 reporting may raise the expectations of the stakeholders.

Legal

The changes in the regulatory and compliance environment which SSAB is facing include emissions reporting in the Phase - 4 of the EU Emissions Trading System and product lifecycle assessment required by emerging ESG standards. The growing complexity of laws is presumably going to increase the expenses of operations, and at the same time, the entry barrier among competitors that have lower-wear and tear sustainability records. Furthermore, inconsistent ESG rules in different jurisdictions can create trade frictions and legal ambiguities with respect to operations across the borders.

The interaction between internal capabilities of the firm and external pressure is high. As an example, regulatory changes that would be under the Political/Legal domain would be a threat to legacy producers, but a strategic opportunity to SSAB which has low carbon intensity and the forefront of the HYBRIT initiative would put it in a favourable position. In the same way, any economic turmoil and inflation in input prices might inhibit the growth of the company unless the lean capital structure and high EBITDA margin remain to offer the company a strong financial cushion. Furthermore, the change in society to sustainable materials directly contributes to the positioning and the value proposition of SSAB.

3.4: Discussion of Findings

This part provides a critical reflection of the empirical evidence based on the financial and strategic analysis of SSAB to determine how the company is ready to compete in a decarbonised global steel industry. The main purpose of the research has been to assess the impact of the financial performance, strategic posture, and investments targeted at the sustainability of SSAB in a collective effect, on the competitiveness of this company in the long-term perspective. Particularly, the analysis examines whether the financial situation of the firm supports its green-

transformation objectives and whether the operational and ESG strategies align with the changes in the external pressures and opportunities.

The analysis is based on the results generated by a synergistic analysis of financial ratios, especially the DuPont decomposition, with the systematic strategic analysis of SWOT and PESTEL analysis frameworks. All these methodological tools were selected to provide both quantitative and qualitative information about the internal capabilities of the firm as well as its external environment.

The debate is organized in the framework of four important themes: (i) whether the financial performance of SSAB aligned with its strategic goals; (ii) whether the company was ready to undergo a transition to green-steel or not; (iii) the strategic lessons that can be drawn on the basis of the international competition; and (iv) the implications of the conceptual framework that would interrelate financial strength with sustainable growth patterns.

3.4.1 Financial Performance vs Strategic Ambitions

The DuPont analysis of the financial performance of SSAB will help to have a detailed framework on whether the current profitability and capital structure of the firm are favourable to its ambitious move to become a leader in green steel. The ROE of SSAB indicates that a strong relationship exists between the net profit margin, asset turnover, and a low equity multiplier, which is a feature of fiscal prudence. Specifically, high profitability rates and effective use of assets are part of what has made the company achieve a relatively favourable ROE when comparing it to larger steel manufacturers, despite the relatively small size of SSAB. This is good financial health featuring low leverage and steady earnings, suggesting a firm's internal ability to finance capital-intensive sustainability projects like HYBRIT. However, the relationship between the financial results and green strategic intentions is more complicated when considered in more detail.

Kruglov and Shaw (2024) argue that the structural tension between the need to make profits and the need to invest in innovation is common among manufacturing companies. This is of particular interest to SSAB, where long-term success heavily relies on the consistent investment in hydrogen-based steel manufacturing, emission control, and high-level research and development. Although the present financial status of SSAB provides an opportune basis for such investments, its expenditure in research and development is relatively low, which makes one question its ability to grow technologically in terms of differentiation and ability to adapt to innovations. Jain and Tiwary (2024) also add that the results based on DuPont should be complemented by qualitative strategic analysis. A company can demonstrate high ROE in the

short run and at the same time under-invest in future-oriented competencies, thus threatening the long-term competitiveness. This kind of dynamism seems to be relevant to SSAB, which is financially efficient but exhibits the indicators of undercapitalisation of innovation ecosystems compared to multinational counterparts like ArcelorMittal or POSCO.

One of the issues is whether the capital structure used by SSAB is optimal with regard to the balancing between solvency and sustainability. On the one hand, the low debt ratio in the firm reduces the risk in financial terms and increases the flexibility of the strategy, which is especially relevant in light of the cyclical nature of the steel industry and fluctuations in energy prices and the price of inputs. Conversely, a more levered entity would allow the company to tap into greater sources of long-term ESG capital without shareholder equity dilution. Karna et al. (2022) emphasise the causality of the relationship between R&D expenditures and profitability in industrial companies in both directions, emphasising that investments in the initial innovation, in addition to guaranteeing return in the long term, protect companies against environmental and regulatory shocks. This implies that SSAB is not making full use of its opportunities to gain a first-mover advantage in green steel, even though it has a prudent conservation capital strategy.

Furthermore, there is a conflict between the short-term solvency requirements of SSAB and the company's climate commitments in the long term. Switching to the production of fossil-free steel will entail large initial investment in infrastructure, energy conversion and collaboration with partners, all of which will tie up cash flows and limit higher returns in the short term. This trade-off is one of the recurring patterns in green industrial transformation suggested by Sun et al. (2024), since in companies that are actively ESG-oriented, there is always internal tension between investor indicators of quarterly profits and the payoffs of sustainability investments that come only in the long run. Though it is praiseworthy, the strategic prudence of SSAB should not become strategic inertia.

The partial solution to this dilemma may be found in the involvement of green finance instruments in the firm. Hoang (2024) shows that the cost of capital can be lowered and still stay strategically focused towards the net-zero goals by using access to green bonds, ESG-related credit lines, and EU innovation funds. SSAB has already made the first steps in this direction, although it is still not as aggressive as its rivals in implementing the mechanisms of green finance in its funding framework. Kleja and Mao (2024) state that the cost-benefit analysis of green finance makes sense when it is consistent with robust regulatory frameworks and reputational advantages, specifically in the policy-oriented sector of the industrial environment in Europe. In turn, despite the stability in the current financial indicators of SSAB, its strategic vision of

becoming the leader in green steel requires even more radical redistribution of capital and reinvestment that is guided by innovations to maintain value creation in the long term.

To conclude, the financial performance of SSAB is a strong base for the green strategic aspirations, yet the achievement of the green strategic ambitions on a large scale needs the redefinition of its capital deployment, risk appetite, and the approach to innovation. The existing financial-strategic orientation is encouraging, but tenuously set against both efficiency and a lack of investment in future competencies.

3.4.2 SSAB's Readiness for Green Steel Transition

The willingness of SSAB to shift to green steel can be assessed in a systematic way by using the SWOT analysis based on the conceptual frames of the Resource-Based View (RBV) and the Dynamic Capabilities Theory. Barney (1991) further asserts that enterprises with resources that are valuable, rare, inimitable, and non-substitutable (VRIN) are prone to achieve, as well as hold, competitive advantage. In a complementary view, Teece et al. (1997) argue that the ability to respond to changing environments by integrating, constructing and reconfiguring internal and external capabilities is critical in overcoming technologically disrupted environments and market uncertainty, which is achieved through dynamic capabilities. The current status of SSAB has strategic advantages and structural limitations on its way to becoming a fossil-free steel producer.

Strengths: Innovation and Strategic Partnerships

The key strength that SSAB has is its leading role in hydrogen-based direct-reduction ironmaking via its HYBRIT project, a strategic collaboration with LKAB and Vattenfall. The invention makes SSAB one of the first movers in the production of fossil-free steel, which may enable the company to reap reputational and regulatory gains in the long run. In terms of dynamic capabilities, the company can be characterized as the ability to reorganize its assets base, establish partnerships, and engage in low-carbon innovation despite the increasing environmental regulation (Souza Filho et al., 2022). Furthermore, the vertically integrated value chain and high degree of control over the upstream logistics of SSAB increase the stability of its operations, which means that it is less susceptible to external disruptions.

Moreover, its digitalisation efforts (especially those related to predictive maintenance based on AI) also support its preparedness to a green transition. According to Benhanifia et al. (2025), predictive maintenance enhances energy use, reduces unplanned idle periods, and reduces carbon emissions through smoothing out manufacturing processes. Similarly,

Jakubowski et al. (2024) note that the introduction of AI into the whole spectrum of steel performances may trigger a decrease in energy intensity to 1520 percent and, thus, maintain the operational resilience and environmental performance.

Weaknesses: Capital Intensity and Resource Dependencies

Despite these advantages, SSAB will be faced by serious internal shortcomings that might derail its green expectations. The first and greatest among these is that it is a capital-intensive move between blast furnace and hydrogen-based steelmaking. Although HYBRIT is a technological breakthrough, its commercial scalability is doubtful, and the estimated cost of investment is many billions of euros. Although the financial conservatism of SSAB has helped in the maintenance of its solvency, it can limit its capacity to self-fund such capital outlays.

Besides, the company is still very reliant on high-grade iron ore pellets, which are a finite and geographically concentrated resource. Watari and McLellan (2024) warn that green steel systems not only demand access to low-carbon energy but also have certain raw materials, the supply of which is at risk of geopolitical repercussions. This reliance on suppliers presents a supply weakness to the sustainability strategy of SSAB.

Opportunities: Regulatory Alignment and Market Differentiation

The European Union policy environment has significant opportunities in the process of the transition of SSAB to green steel. EU Green Deal incentives, innovation funding under Horizon Europe, and the introduction of price carbon mechanisms all provide incentives to producers who adopt low-carbon processes. Lopez et al. (2023) stress that the initial convergence of green policies regarding the creation of green procurement can set the demand base of green steel steady within the automotive, construction, and infrastructure sectors. Moreover, the active approach to Environmental, Social, and Governance (ESG) reporting adopted by SSAB can become a factor that distinguishes this company among those that grow more concerned about sustainability as an investor or a consumer.

The study by Minae et al. (2025) reveals that quality disclosures through ESG are linked to lower cost of capital and investor confidence. These findings are well aligned with the sustainability reporting that has been made transparent by SSAB, especially in regard to Scope 1 and Scope 2 emissions, water consumption, and safety. However, Nguyen et al. (2021) warn that, because of the lack of standardised ESG measurements, the comparability of disclosures may be undermined. SSAB should hence take care of the adherence to the EU Corporate

Sustainability Reporting Directive (CSRD) and the International Sustainability Standards Board (ISSB) IFRS S2 to maintain its credibility.

Threats: Border Taxes and Price Elasticity

On the outside, SSAB is faced with systemic risks that are capable of decreasing its innovation benefits. The most notable of these issues is the adoption of the EU Carbon Border Adjustment Mechanism (CBAM), which can bring about price instability and trade tensions in the short run. Even though the purpose of CBAM is to punish imports that are carbon-intensive, it may also break the established supply relations in the case of a lack of harmonisation.

In addition, the sensitivity of customer prices, especially in cost-driven industries (automotive and construction), is also a threat to green steel implementation. The price at which the fossil-free steel is sold might be considered unacceptable to every customer, particularly in times of inflation or economic crises. Lopez et al. (2023) highlight that the demand for green steel is still in its infancy, and uncoordinated offtake agreements may lead to market reluctance at the early stages of the producers.

In general, SSAB has a number of core capabilities and dynamic competencies that are in line with its green steel ambitions. It is a decarbonisation leader because of the HYBRIT programme, digital transformation and regulatory foresight. However, it is constrained by capital limitations, supply chain relationships, and external market risks, hence its preparedness. To achieve success, SSAB will still need to develop strategic agility, resource reconfigurations, and leverage partners to transform its early-mover advantage into long-term sustainability and profitability.

3.4.3 Strategic Learning from Competitors

To put the strategic position of SSAB in the changing global steel environment into perspective, it is prudent to consider the similar companies that are pursuing green transition routes, with the best example being Voestalpine and Tata Steel. These instances provide important learning lessons on the trade-off between technological innovation, geographic diversification, and sustainability alignment, especially when considered through the prism of benchmarking theory (Camp, 1989) and strategies alignment frameworks (Grant, 2021).

Voestalpine's Hybrid Model: Pragmatic Innovation in Action

Voestalpine, a company based in Austria, has been using a hybrid transition approach where it uses a combination of natural gas and hydrogen reduction technologies. This stepwise

plan aims at making operations carbon-free gradually, allowing technology to be tested without disrupting the operational flow (Pei et al., 2020). The Greentec steel project of the firm is an example of a gradual change that will cause minimal disturbance in the current production technologies. This would be opposed to the radical green-steel ambition of SSAB in the HYBRIT partnership that wants close to zero-emission steel production through hydrogen-based direct reduction.

As the focused innovation of SSAB in HYBRIT can be the source of first-mover benefits, the hybrid platform by Voestalpine focuses on the role of technological pragmatism and transition resilience. Souza Filho et al. (2022) add that the strategy of Voestalpine allows the implementation of the strategy in modules and the reduction of risks, which is especially applicable to a fluctuating energy market. The lessons that SSAB can learn are to evaluate the viability of gas-hydrogen mixes or other interim solutions and increase green-hydrogen capacity.

Tata Steel: Dual-Track Strategy and Market Asymmetries

A second example that Tata Steel provides of a lesson is its geographically bifurcated decarbonisation plan. Although its European business activities, especially in the Netherlands and the United Kingdom, have initiated low-carbon transitions according to the EU laws and associated green subsidies, its Indian business is still carbon-intensive as it depends heavily on blast-furnace technologies (Nechifor et al., 2020). This divergence can mainly be attributed to the difference in regulatory pressure, energy infrastructure, and market preparedness in different regions.

The conflict between coal-based operations in the emerging economies and sustainability-led processes in the developed economies reflects the greater challenge that SSAB can face in its internationalisation pursuit. Even though SSAB currently enjoys the advantage of operating under Nordic and EU jurisdictions only, with a consistent regulatory framework, the company might need a more geographically adaptive approach in the future. The model by Tata warns against the homogenisation of the preparation of green steel across the globe and underlines the role of institutional and political asymmetries in strategy making.

Benchmarking Financial and Innovation Gaps

Comparing SSAB to financial standards, it has more favourable solvency and return-on-equity ratios in comparison to Voestalpine and Tata Steel, which is repeatedly supported in the previous DuPont analyses. However, in terms of research and development level and innovation

pipelines, the two competitors have significantly higher levels in absolute terms, and this would allow them to vary in technological diversification. To illustrate, the relationships of Tata with carbon capture and storage (CCS) and Voestalpine with the implementation of AI-based plant systems are more spread-out innovation strategies.

The theory of benchmarking proposed by Camp (1989) also highlights that appreciating the best practices in other peer organisations may help internal improvement, especially by adapting but not copying the best practices. The balance between innovation and risk-sharing in the context of Voestalpine and strategic bifurcation in Tata highlights the strengths of the layered transformation pathways and adaptable implementation in the case of SSAB. In addition, the model of strategic alignment created by Grant (2021) states that the capabilities, resources, and market conditions have to be aligned such that value is created in a coherent, long-term manner.

Conclusion: Learning to Lead with Contextual Agility

Overall, the knowledge obtained during the competitor analysis points out that the green transformation of the steel industry is not a straight line or a uniform process. The strong ESG orientation of SSAB and its early hydrogen investments provide the company with a strategic advantage; nevertheless, the introduction of the adaptive experience of Voestalpine, staged technological innovations, and regional customisation of Tata would enhance the feasibility of implementation. With stricter regulatory regimes and changing customer demands, the flexibility to align financial potential, innovation ability, and geographical position will determine which companies will only follow regulations and which ones will define the future of green steel.

3.4.5 Integrated Reflection on Conceptual Framework

The conceptual framework created in this paper brings together the financial performance measures at SSAB, the strategic opportunity frameworks, and the sustainability aspirations to determine whether the company is geared towards long-term transformation. The Dynamic Capabilities Theory developed by Teece (2018) offers a potentially helpful perspective on evaluating the organisational agility of SSAB. According to this theory, companies have to build the ability to feel, capture, and restructure internal and external capabilities to cope with changing environments that occur in rapid times. The activity of SSAB in the HYBRIT initiative, as well as the effective deployment of partnerships, suggests the advancement in the stage of the seizure and reconfiguration. Nevertheless, the comparatively average intensity of its R&D and the high dependence on external sources of funding for its green steel transition indicate that it continues

to be constrained in terms of its internal reconfiguration, especially when it comes to expanding its innovation streams internally.

The DuPont analysis indicated a rather meagre return on equity (ROE), with its primary cause being healthy profit margins and efficiency of assets held back by modest financial leverage. Although this is one of the indicators of resilience and a risk-averse capital structure, it could hold SSAB back in its ability to fund itself the massive capital needed to tackle HYBRIT, EAF upgrades, and predictive AI-based maintenance systems. Such results are in line with Hai et al. (2022), who emphasise the complicated trade-offs between being solvent and making long-term sustainability investments. In this regard, the DuPont results can be taken as a diagnostic input layer that should be viewed in connection with the SWOT and PESTEL results.

As an example, the regulatory climate, which is bundled in the PESTEL (e.g., EU Green Deal, CBAM), is both an opportunity and a threat in that it contributes to innovation by providing subsidies, but also punishes emissions. The balance sheet of SSAB is relatively strong in terms of SWOT strength, which can enable the firm to address these compliance issues without overleveraging; however, its CO₂ production in tonnes is one of its weaknesses. This two-sidedness supports the idea of strategic misalignment suggested by Palepu et al. (2020) because companies invest insufficiently in the capabilities they will need to gain a market advantage based on regulation in the future.

Lastly, examined in the framework of Triple Bottom Line by Elkington (1997), people, planet and profit, SSAB makes obvious improvements on environmental commitments and stakeholder transparency (Minea et al., 2025). Nonetheless, sustainability-based value creation is not yet completely correlated with financial returns. To cement its position as a green steel leader, SSAB has to flexibly combine its financial capacities and environmental requirements, converting aspiration into profitable implementation that can be scaled.

CONCLUSIONS AND RECOMMENDATIONS

Summary of Key Findings

This paper aimed to assess the financial, strategic, and environmental status of SSAB as per the transition of the world steel in the global system towards sustainable production. Based on the critical examination of the research that was premised on secondary data, the research sought to establish whether the performance of SSAB based on the financial and capital structure is strong enough to help realise its strategic vision of becoming the leader of the green steel transition in Europe. With the help of a financial diagnostic tool, such as DuPont analysis, and combining it with lenses such as SWOT and PESTEL, the research sheds light on the extent of consistency between the financial health of SSAB and its sustainability objectives.

The financial analysis revealed that SSAB is functioning with a very high profitability, as it is reflected in the high profitability in terms of return on equity and good margins of EBITDA, although it is not one of the biggest industry players in the steel industry. These values indicate effective operating mechanisms and effective cost control. In addition, the low debt-to-equity ratio and stable liquidity ratios of SSAB put it in a favourable position to support significant capital-intensive initiatives, including HYBRIT. Nevertheless, the liquidity factor, as well as the variable cash flow, can pose a problem of funding long-term sustainability investments without additional financing or alliances.

According to the SWOT analysis, the company has several internal advantages that set it apart such as low financial leverage, high credibility in the market with regard to environmentally friendly aspects of its performance, and leadership in hydrogen-based reduction technology due to its HYBRIT program. However, the reliance on high-grade iron ore, a geographically uniform market, and a comparatively low level of R&D have been identified as internal weaknesses that can lead to threats to innovative ability as well as global expandability. Outside the company, the research revealed that SSAB is in a good position to take advantage of the opportunities of increased demand for green steel, favourable EU laws, and demand for low-carbon materials by consumers.

Simultaneously, the external threats of Asian steel surplus, energy price fluctuations, and the changing carbon taxation systems make the strategic environment very complicated.

These results were further contextualised in the PESTEL framework, where the macro-environment forces affecting SSAB were mapped. Politically, schemes like the EU Green Deal

and the Carbon Border Adjustment Mechanism (CBAM) are also regulatory in nature, yet may cause compliance burdens. Capital availability may be affected by economic factors such as volatility in the steel cycles, inflation and fluctuations in the cost of inputs. Socially, an increase in knowledge on sustainable consumption habits offers a favourable market trend. Innovations like green hydrogen and AI-assisted maintenance are technologically promising ways of decarbonisation. The company aligns with net-zero goals in terms of the environment, which is a differentiator. Strictly speaking, the widening range of emissions and ESG disclosure imperatives calls on the agility of organisations and their transparency.

Lastly, the competitor benchmarking revealed that whilst SSAB is ahead in terms of ESG reputation and technological ambition, it might require enhancing its R&D productivity and financial flexibility to be on par with the scale and dual-market approach of other competitors, including Tata Steel and Voestalpine. This understanding was summed up in the conceptual model that was created in Chapter 3.6 and identified the interaction between financial metrics, external forces, and strategic capabilities in forming the sustainable growth pathway of SSAB.

Theoretical Contributions

The study falls within a number of research areas in the literature. To start with, it contributes to the use of DuPont analysis in the framework of sustainability transitions. The interpretation of profitability, asset use, and leverage as facilitators or obstacles to green innovation makes the study expand the conventional financial focus of the model in line with the research by Jain and Tiwary (2024). This financial-strategic integration mediates between accounting measures and long-term innovation strategy, providing a changing perspective of the financial preparedness of ESG change.

Second, the study presents a new conceptual framework which places the financial performance, strategic capabilities, and macro-environmental forces into a single decision-making framework. The model is developed based on the dynamic capability theory by Teece (2018) and the strategy alignment model of Grant (2021) and offers a systems-thinking model that explains how companies like SSAB can transform financial strength into long-term market advantage by selecting external opportunities and threats through internal strengths.

Thirdly, using the Strategies of green transformation as an integrated methodology incorporates the combination of the Resource-Based View (RBV) and SWOT-PESTEL frameworks. This hybrid model proves that intangible resources such as a culture of innovation,

reputation, and regulatory alignment can produce sustainable competitive advantage when confirmed by external PESTEL conditions.

Lastly, the study introduces the benchmarking theory (Camp, 1989) to the sphere of green transition by offering a comparative evaluation of ESG-based approaches. The research promotes the application of benchmarking not only in operational KPIs, but also in innovation flexibility, emissions reduction paths, and building trust among the stakeholders, thereby expanding the relevance of comparative strategic analysis in the sustainability settings.

Practical Recommendations

An obvious practical implication of the present study is that SSAB needs to develop a consistent green financing strategy. Even though the strong profitability and moderate debt position of the company give it a chance to take advantage of capital markets, the scale of the HYBRIT programme and related green technologies investment requires a varied funding base. To reduce financing risks, SSAB should consider the issue of issuing green bonds, which are in line with the EU taxonomy, accessing ESG investment funds, and finding partnerships with the state to ease financing efforts. Moreover, the company can think of alignment of executive rewards with carbon-cutting targets to maintain internal consistency with its strategic goals.

In terms of innovation, SSAB needs to make the activities of its research and development more efficient and increase the digitalisation of the entire production lifecycle. Artificial intelligence to forecast maintenance, monitor emissions and live supply-chain visibility can enhance cost effectiveness in addition to facilitating sustainability. Alliances with technology providers, educational institutions and peer organisations would also help support the learning curve at SSAB and the scalability of its innovations.

Another important imperative is market diversification. SSAB is currently very dependent on Nordic and EU markets, which makes it vulnerable to regional demand and regulatory changes. Global positioning could be enhanced with a strategic growth of the emerging markets, potentially with a licensing agreement to the HYBRIT technology or the creation of green steel hubs with regional partners. Equally, supply-side vulnerability can be mitigated by backward integration or vertical alliances aimed at ensuring the availability of raw materials.

SSAB must continue enhancing its ESG reporting. Although the company already report on Scope 1 and 2 and much more, the additional disclosure of Scope 3 and supply-chain sustainability would boost the confidence of stakeholders. It would also enhance credibility and

comparability by integrating recognised standards such as the Global Reporting Initiative (GRI), the Task Force on Climate-Related Financial Disclosures (TCFD) and the Corporate Sustainability Reporting Directive (CSRD) by the EU.

Lastly, SSAB may undertake projects that would involve the adoption of the circular-economy measures, especially with regard to end-of-life steel recovery, scrap recycling, and green product labelling. Not only would these measures contribute to the overall environmental agenda of the EU, but also ensure the life-cycle efficiency of SSAB, decrease reliance on the principal raw materials and create cost savings in the long run.

Policy Implications

The findings of this work highlight several sectors where the policy support is inevitable to facilitate the green transformation of the steel industry. First and foremost, the current state of government support, i.e., carbon-leakage protection, direct subsidies, and infrastructure support, is needed to ensure the first-mover advantage of the innovator, i.e., SSAB. Interventions to reduce the risks of hydrogen infrastructure, carbon capture, and low-emission logistics would enable firms to pursue decarbonisation without jeopardising financial sustainability.

Secondly, regulators should aim to ensure that the ESG measures are uniformly standardised across industries and jurisdictions. The discussion has shown that inequality in ESG reporting creates challenges for benchmarking and raises investor concerns. The harmonised reporting structures would enhance transparency and comparability between firms, and encourage accountability.

Third, policymakers should develop regional and global cooperation on decarbonisation pathways. Knowledge-sharing platforms, combined with collaborative innovation development and intergovernmental financing, would accelerate progress across supply chains. In the context of SSAB, EU-Nordic convergence of hydrogen grids, electric-arc-furnace modernisation, and gas accounting would have a significant capacity to increase the efficiency and resilience of systems on a system level.

Research Limitations

This research is limited in several ways. It only uses secondary information, which is exhaustive, but one cannot exclude internal strategic discussions, ongoing changes in strategy, or unwritten innovations. Although the DuPont framework is widely used, it overlooks causal relationships. It does not fully account for potential long-term investment risks or feedback loops

that can inform ESG-oriented decisions. In addition, the PESTEL and the SWOT models are subjective and prone to analytical bias. The competitor benchmarking element focused on a narrow range of companies and might not be as diverse as the full range of strategies in the steel industry worldwide.

Moreover, the quality of ESG data varies significantly across companies and countries, potentially affecting the quality of comparative findings.

Despite the mixed-method approach providing a holistic view of SSAB AB's financial and strategic position, several methodological shortcomings were identified. First of all, the single-case study design limited the extrapolation of the results. Although SSAB AB is an international industry leader, the findings cannot necessarily be generalized to other steel companies that vary in terms of governance, size, or maturity with respect to ESGs (Flyvbjerg, 2006).

Second, the use of secondary data created limitations, including reduced currency, incompleteness, and reporting bias (Johnston, 2017). Although the sources were based on audited reports and reputable databases, some disclosures, in particular, ESG metrics, might amount to strategic self-presentation.

Third, the dynamic external environment, including policy changes and supply-chain disruptions, could have influenced financial ratios over the 2020-2024 period, making it difficult to provide a clear interpretation.

Finally, the lack of stakeholder interviews with the primary respondents restricted the quality of the qualitative insights. This weakness was somewhat mitigated through triangulation using academic literature and industry reports.

Directions for Future Research

Future studies should seek to carry out further and longitudinal studies that can provide a map of the financial, operational and market implications of sustainability investments in the long run to extrapolate the findings of the current study. Semi-structured interviews with senior-level decision-makers would underpin the study of firm-level case studies that explain how internal process, perceptions towards risk, and cultural forces have an impact on ESG transitions. Moreover, the operational emissions, stakeholder sentiment, and ESG performance can be tightened under scrutiny by real-time data analytics which encompass artificial intelligence and machine learning methods.

The impact of expectations held by the stakeholders including investors, regulators, employees, and customers on the rate and effectiveness of green transitions is also a subject that may be explored in the future. Moreover, it would be easy to use the conceptual framework formulated in this paper to evaluate the strength and external validity by using it to analyse other capital-intensive industries, e.g. cement, aluminium, or chemicals. Finally, taking the study to an established company in a developing market would reveal the impact of capital shortage, policy imbalance, and institutional gaps on sustainability policies in less developed settings.

Ethical Considerations

This research paper has complied with ethical requirements of research in designing, data collection and analysis. Use of purely available secondary data such as financial reports, sustainability disclosures, and peer-reviewed academic sources, removed any fear of consent or data confidentiality of the participants. Sources are cited following APA 7th edition referencing conventions, thereby protecting academic integrity and plagiarism, therefore, complying with the ethical standards of Vilnius University (Resnik, 2020).

In order to reduce interpretive bias in the qualitative strategic analysis (SWOT, PESTEL), the findings were also cross-examined with various documents and peer-reviewed literature, which increased the objectivity (Tracy, 2010). No intent of manipulation of data or selective reporting was made. The study took an open and objective approach to the analysis of ESG reporting provided by SSAB, as well as the company financial performance, which made the conclusions made have a strong grounding in empirical data.

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