

Sustainability-Linked Loans for EV Manufacturers: An Emerging Trend in Banking

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ABSTRACT

Purpose—This study explores the impact of sustainability-linked loans (SLLs) on the electric vehicle (EV) manufacturing sector and examines how these loans influence environmental and social governance (ESG) practices and support sustainability in banking.

Design/Methodology: Qualitative analysis has established an upward trend in finance within the automotive sector. Industry reports and case studies on banks' pioneering SLLs for EV manufacturers are reviewed. This provides insight into the vital aspects of loan structures, key performance indicators (KPIs), and regulatory frameworks.

Findings—EV manufacturers are motivated to enhance sustainability by having SLLs, often with the financial advantage of achieving ESH. It has been proven that these loans have benefited manufacturers by bringing financial incentives with sustainability goals into line, which eventually contributes to the transition to a green economy.

Research limitations—This study relies primarily on qualitative case analysis, so the findings might not be generalizable. Further quantitative research will be necessary to measure the direct impact of SLLs on the financial performance of EV manufacturers.

Practical implications—The paper underscores the importance of SLLs in helping EV manufacturers meet sustainability targets, offering a framework for other industries seeking similar incentives. Banks can adopt these practices to attract environmentally responsible investments.

Originality/value—This paper focuses on SLLs in the EV sector. Therefore, it provides industry-specific insights into sustainable finance's role in supporting the green transition and offers valuable implications for policymakers and industry stakeholders.

Research type—Qualitative research

Keywords: Sustainability-linked Loans, Electric Vehicle Manufacturing, Green Finance, ESG Practices, Sustainable Banking.

INTRODUCTION TO SUSTAINABILITY-LINKED LOANS FOR EV MANUFACTURERS

Sustainability-linked loans for electric vehicle manufacturers have become an emerging trend in the banking industry. Companies have been seen to promote sustainability in the automobile sector with increasing production of electric vehicles (Bhuiya and Russel, 2023; Zhang et al., 2024; Zhai et al., 2024; Shirai, 2023; Nica, 2023). The existence of such a market is evidenced by the growing number of loan-linked operations with electric car companies, together with financial institutions offering lucrative interest rates to this segment (Liu, 2014). The green economy concept has influenced the banking industry to place a significant emphasis on companies with an inclination towards managing and focusing investments and operations on ecology,

society, and governance. This has also been demonstrated by the efforts made by major credit institutions to finance firms based on the environmental impact criteria, as they have more demand from both investors and companies that require green and social financing (Park and 2020; Xing et al., 2021; Umar et al., 2021; Muganyi et al., 2021; Zhou et al., 2021; Shi et al., 2022).

Climate change has led to the development of clean and sustainable environments (Jaiswal et al., 2022; Ekins & Zenghelis, 2021; Mondejar et al., 2021; Fritsche et al., 2020; Gunnarsdóttir et al., 2021). Electric vehicles (EVs) have been proven to have helped reduce prescribed carbon dioxide; they are seen as a better transport solution than conventional vehicles. Consequently, investment-related investment is expected to have a higher priority given by the automotive industry compared to other energy options (Dua et al., 2024; Wang et al., 2021; Li, 2020; Baars et al., 2021; Shahzad & Cheema, 2024). Instead, automotive manufacturers around the world prefer such energy options. This is expected because investments in electric car technology are subject to valuation (Ho & Huang, 2022). Therefore, this project concentrates more on the issue of loan terms, relying on whether the assets are more environmentally friendly during the company's subliminal period. In Section 2, we briefly describe the electric vehicle industry and the target corporation of this project. In Section 3, we will continue to discuss the specific characteristics of sustainability-linked loans and their impact on the electric vehicle manufacturing sector. Sustainability-linked loans are a growing trend in the banking sector, particularly for electric vehicle manufacturers (Yao et al., 2023). The emergence of these loans aims to encourage sustainable practices and promote environmental responsibility in the industry. However, in the banking industry, this type of loan is still an unaccustomed concept that aims to encourage environmentally responsible practices and motivate sustainability. The terms of these loans will provide a substantial advantage to companies meeting specified sustainability targets and goals. Prior to the theoretical and empirical analysis of the existing association between corporate financing and sustainability, there was literature on these elements independently. Finally, Section 4 discusses the declaration of the end.

The Rise of Electric Vehicles (EVs) and the Need for Sustainable Financing

The market for electric vehicles (EVs) is growing. (Muratori et al.2021; Sanguesa et al.2021; Alanazi, 2023; Ravi & Aziz, 2022; Danielis et al.2020) The number of cars on the road worldwide is expected to double by 2040. By then, approximately 40% of all car sales will be EVs. This is particularly true in regions such as China, where companies such as Tesla, NIO, and Xpeng lead the charge (He, 2023). The transition from fossil-fuel-based vehicles to EVs, which is often seen as contributing to Sustainable Development Goals by reducing air pollution, is accompanied by an increasing need for financing. This emphasizes the need for sustainable financing that supports the transition to electric mobility (Xing et al., 2020). Vehicle financing is a major business for commercial banks worldwide. But with the exception of some manufacturers, the bulk of the cars sold are still sold by 'traditional' companies financed in ways that are increasingly under public scrutiny for their sustainability. Chen pointed out that the investment landscape for vehicle companies is shifting, with a growing focus on electric vehicles as a more sustainable option than conventional vehicles (Chen, 2023). Since it is increasingly clear that limiting global warming to 1.5°C requires making the global vehicle fleet emission-free before 2040, increased sales of electric vehicles are necessary to meet global climate targets. Enhancing citizens' environmental awareness and providing long-term strategic support for EVs can further stimulate their adoption (Lai et al., 2015).

With increasing transport emissions goals, cars have become a major concern from a climate perspective. Lenders and car manufacturers are key to decreasing the negative impact of passenger cars on our climate. Javanmardi et al. argued that the shift from combustion engine vehicles to electric vehicles is a critical component of sustainable development as it addresses urgent global concerns related to climate change and public health (Javanmardi et al., 2023). Financing affects car manufacturing. The financial health of companies, as evidenced by their market values and debt levels, will influence their ability to invest in infrastructure and technology, which can further enhance EV adoption (He, 2023). Greening the car industry requires sectors other than retail, such as manufacturing and transition. Mierlo et al. (2021) identified key barriers to the market introduction of electric vehicles, including purchase price, driving range, and charging infrastructure availability. Since the costs of this transition are not generated by the retail or end-of-the-line, companies, governments, and private investors generally target the retail sector with higher sustainable lending criteria. As consumers become increasingly aware of the environmental impact of their choices, demand for

cleaner transportation options increases (Neupane, 2024). Suffice to say, this argument does not apply to most borrowers. Therefore, commitment from the financial services sector is necessary to increase the number of electric vehicles on the roads.

Ali and Naushad emphasized that financial incentives are a key factor in encouraging consumers to switch to electric vehicles, suggesting that these incentives resonate with earlier studies on consumer behavior (Ali & Naushad, 2022). Both car manufacturers and the retail sector have the same financing requirements. The availability of sustainable financing is important in the car industry. Kovačić et al. highlighted the importance of understanding consumer preferences and socio-economic factors that influence their decisions (Kovačić et al., 2022). Approximately 15-20% of car manufacturing costs are in working capital, and thus depend on general financial needs. Yet, in discussions with manufacturers, we have learned that the current availability of finance is not the most pressing concern. Rather, banks' requirements regarding sustainability have changed. Policymakers must navigate the complexities of promoting EV adoption while ensuring that the necessary infrastructure is in place to support this transition (Wiratmoko, 2023). Numerous respondents indicated that pressure on banks provides a unique way for manufacturers to respond. However, this is the initial and difficult financing of production, which is a sticking point. In other words, banks require a sustainable business to become financially involved. Manufacturers increasingly expect the finance sector to be involved in the financing of working capital in electrified vehicles, especially given the investments that these banks have made in promoting electric mobility. At the same time, this is likely to require an additional subordination agreement within the manufacturer's funders.

Banks are essential for providing financing solutions that can lower barriers to EV adoption. As highlighted by Huangfu et al., the new energy vehicle industry requires substantial financial support for technological innovation and industrial upgrades (Huangfu et al., 2023). This need is particularly acute for emerging enterprises in the EV sector, which often face challenges in securing traditional financing due to perceived risks. Banks can mitigate these risks by developing tailored financing products that cater to the needs of both EV manufacturers and consumers. For instance, offering lower interest rates or extended loan terms for EV purchases can incentivize consumers to choose electric over conventional vehicles. Moreover, diversification of financing channels is crucial for banks to manage the risks associated with EV financing. Zulkhibri and Sukmana discuss how financing rates can significantly impact lending behavior in a dual-banking system, indicating that banks must carefully balance their portfolios to avoid overexposure to any single sector (Zulkhibri & Sukmana, 2016). By diversifying their lending practices and incorporating EV financing into their portfolios, banks can reduce their overall risk, while contributing to the growth of sustainable transportation. This diversification is particularly important in light of the potential for non-performing loans (NPLs) associated with financing in emerging sectors such as EVs, as noted by Widarjono and Sidiq, who emphasize the risks of high sectoral financing concentration leading to increased NPLs (Widarjono & Sidiq, 2022).

Understanding Sustainability-linked Loans in the Banking Sector

Sustainability-linked loans are a product of growing importance in banking to ensure sustainability in all sectors of the economy. (Chan, 2021; Pohl et al., 2023; Dembele et al., 2021; Khutorna and Herasymenko 2023) What distinguishes these loans from traditional loans is the requirement for the borrower to monitor, report, and commit to improving their own performance in sustainability, following a set of Key Performance Indicators pre-agreed with the bank when negotiating the loan, which should be ambitious and at the same time realistic. KPIs can be related to environmental, social, and governance practices, for example, targets in terms of gender balance, renewable energy, energy consumption, etc.

Although qualitative studies have been conducted on this topic, data on existing loan agreements are scarce. Banks providing sustainability-linked bonds evaluate the sustainability of a borrower before approving a requested loan. Carrying out a set of interviews, it is shown that the cost of capital and access to finance are the two biggest financial incentives for borrowers to issue sustainability-linked bonds. Focusing on the green and social loans for renewable energy, it has also been shown that such characteristics matter for the pricing of the loans, especially if the company goes through a high exposure to 'green' funds, i.e., funds with strong mission relatedness.

Benefits and Challenges of Sustainability-linked Loans for EV Manufacturers

There are clear benefits for companies that meet their sustainability targets. Sustainability-linked loans can offer financial incentives to lower the cost of borrowing, for example, through margin reductions based on credit ratings. Such loans are structured to incentivize the borrower to achieve ambitious performance targets for ESG metrics that are material to the borrower's business (Auzepy et al., 2023; Carrizosa & Ghosh, 2023; Chan, 2021; Aleszczyk et al., 2022; Pohl et al., 2023). Such environmental, social, and governance (ESG) metrics pertain to the strategic direction of the company and provide a magnet for sustainable investors and consumer preferences for brands that possess a strong social and/or environmental ethics, overtaking traditional economic value generation as a leading business priority.

Given the pressing global climate change challenges, sustainability is increasingly at the forefront of company and government objectives. Premature obsolescence of products, sourcing and processing of critical minerals, and the transition to green technologies are all at the forefront of government policy both here and internationally. Financing instruments such as sustainability-linked loans promise the transition of company heads in the right direction, offering additional marketing and lending advantages for borrowing significant amounts of money. Credit for meaningful sustainability improvements may, for example, offer further financial benefits if a company is sold, resulting in less of a discount on borrowing. Simultaneous reductions in greenhouse gas emissions, if the feasible target is simultaneously met, would entitle a bonus subject to negotiations. While meeting such criteria may be mutually beneficial for lenders and borrowers, it remains to be determined whether they can effectively transition manufacturers to embrace a green and environmentally friendly journey enhanced by transparent communication between the two. By contrast, a cash-strapped manufacturer may also be inclined to take out such a loan, perhaps unable to afford the necessary consultancy and technology required to bring themselves in line with the tightening demands for sustainability. The knock-on costs to the borrower, including staff retraining, further research and development, and additional consultancy to monitor the success of their progress, could be overbearing, while the lure of a reduced service charge for the first five years may seem more attractive in the near term.

However, the cost pressure could soon mount, in step with the tighter terms of the loan and its precarious nature – in terms of penalties – that may befall the manufacturer if they have signed on the dotted line and are unable to meet their ongoing maintenance obligations. Not only may the company incur additional unforeseen penalties beyond five years that further erode any savings from the period of reduced cost borrowing, but it may also lose an additional reputation among their lenders to have performed greenwashing or not taking sustainability seriously. Clarity and transparency are needed in the alignment between environmentally engaged financial investors and the contracts they partake in, with manufacturers financially incentivized to move in the direction of sustainability, whether at speed or at a slower pace. Likewise, incoherent and fiduciary dysfunction using responsible holding tags will need to be avoided.

Regulatory Frameworks and Guidelines for Sustainability-linked Loans in the EV Industry

The current regulatory framework focuses on the provision of sustainable financing. Regulations in the field of capital markets begin to acknowledge sustainability-linked financing as innovative products of the lending sector. In the future, Europe and other parts of the world could harmonize the standards for how sustainability should be understood, reported, and accounted for. Agreement in this field would allow standard-setting organizations to create a level playing field in which all enterprises, regardless of their place of origin, could show a common understanding of what it means to borrow sustainably. Despite the focus on the 'best efforts' and 'voluntary harmony' principles, European Union legislation is beginning to govern the process of classification. As a result, the value and instruments of transitional finance tend to stabilize through regulatory documents and guidelines. From the perspective of regulators, their interest lies not in debtors, but in creditors.

First, the European Union is a party to the Paris Agreement; therefore, the Union is obliged to establish policies reducing emissions and, regarding greenhouse gases reduced under the Agreement, the European Union is entitled to ensure the necessary funds for their implementation (Haas & Sander, 2020; Kulovesi, 2024; Nisbet et al.2020; Roelfsema et al.2020). This situation leads to growth in investment in and by the union, which achieves environmentally friendly standards. Second, the European Union has promoted the

development of national regulations for environmentally friendly production in its third country. Therefore, a fundamental criterion is to obtain robust legal acts from the European Union regarding the possibility of obtaining and/or granting sustainability-linked loans. Banks, due to these regulations and as usual in banking, determine when to grant loans, their premiums, and the term of the loan. Loans straying from these situations are excluded from the banking market because of the disinterest of investors in truck production in terms of environmental liability. Regulations are similar to directive limited-state aid and additional aid. This entrusted these regulations with clear significance for investors and/or creditors, as they were effective in a very specific manner. The foreign customer proposed a grant for sustainability-linked loans. Of course, the bank was familiar with this directive from the day of its introduction, and thus, its impact on the market and its participants.

Impact Assessment and Reporting Mechanisms for Sustainability-linked Loans in the EV Sector

Considering the multiplying trends of sustainability-linked loans in the automotive sector, it is necessary to assess the aggregation and marginalized environmental impact of these loans (Biermans et al., 2023; Bhaskaran et al., 2023; Zerfass, 2022). Therefore, the purpose of this study is to illustrate the impact assessment and reporting mechanisms for a soft loan program designed to tackle the manufacturing of electric vehicles. Banks' offer of soft finance for electric vehicle manufacturers intends to promote environmental objectives (Cao et al., 2021; Asif et al. 2021; Lin et al., 2022). The effectiveness of loans in fostering a sustainable shift in the automotive sector can be evaluated against both the negative and positive impacts of funding. The funded projects are expected to lead to direct environmental benefits; therefore, the mechanisms should outline what is considered an environmental or electrically driven factory and how those impacts can be monitored. No standards are available for the aggregation of benefits linked to plants. Therefore, factory parameters reflecting direct CO₂ benefits are not defined (Müller et al., 2020; Weidner et al., 2021; Müller et al., 2020). These methodologies introduce a reasonable range of potential indicators encompassing the electricity storage capacity dimension. The values of these indicators could lead to different environmental benefits, although standardized and aggregated values have yet to be identified. Soft loans are increasing in popularity, as they represent one of the latest trends developed to shift the automotive sector to sustainability. The principle of sustainability-linked loans is to link the price of a corporate loan with corporate performance on specific environmental and sustainable development goals KPIs (Aleszczyk et al., 2022; Carrizosa & Ghosh, 2023; Chan, 2021) the loans are earmarked for working towards corporate general goals and are determined at the outset. It is recommended that reliable reporting mechanisms, including third-party evidence, be created that can be used to track corporate supply chain sustainability performance. Impact assessment can be beneficial in engaging or disengaging from borrowing, as well as in promoting non-financing statements that are part of the needs of the banking department's policy. It is a mechanism that offers support in giving the right direction of the life cycle management to the stakeholders, reflecting the winners and losers from the action, and allowing more precise targeting of the beneficiaries of a lending process.

Future Outlook and Potential Innovations in Sustainability-linked Financing for EV Manufacturers

In the current rapidly evolving market, where the environment has become of prime importance to consumers and manufacturers, the demand for sustainability-linked financing from a range of businesses is increasing. The introduction of sustainability-linked loan products shows the maturation of the market and the motivation for banks to expand and innovate. There are four main ways in which loans are structured: price adjustments, sustainability performance, sustainability targets, and technology alignment. It is expected that the innovations and popularity of these loans will continue to evolve alongside consumer preferences, economies, policies, and international collaborations. Going forward, some potential innovations and trends for sustainability-linked loans may be the increased use of technology and innovative methods for the efficient management and certification of information. It is probable that default rates will be highly competitive, almost automatically implying attractive environmental credentials compared to loans with or without less strict sustainability-linked terms. Increasing the co-development of finance solutions between banks and manufacturers results in loans that demonstrate the benefits of a holistic approach. Inclusion of details on how loans align with the principles of a circular economy. Likely integrated in the coming years with potential upcoming policies or regulations, thus reinforcing the benefits of sustainability-linked financing. The role of sustainability-linked and performance-focused loans in response to the evolving situation has the potential for significant growth or

relevance. As such, banks and manufacturers must respond by promoting their own ability to assess, develop, and arrange such loans and by meeting the criteria for access to such loans.

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