COMMERCIAL RISK PROFILES IN GREEN VEHICLE AND EQUIPMENT LEASING: RISK FACTORS AND IMPLICATIONS FOR SME PORTFOLIOS

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Annotatsiya

Ushbu tezisda kichik va o'rta biznes (KOB) subyektlari portfeli misolida "yashil" transport vositalari va uskunalar lizingidagi tijorat xatarlari tahlil qilinadi. Yashil lizing bozorining kengayishi elektr transport va energiya tejamkor texnologiyalar kabi ekologik toza aktivlarni moliyalashtirish uchun yangi imkoniyatlar yaratadi, biroq lizing beruvchilar uchun o'ziga xos xatarlarni ham yuzaga keltiradi. Tadqiqotda qoldiq qiymat noaniqligi, texnologik eskirish sur'ati, garov ta'minotini realizatsiya qilish bilan bog'liq muammolar hamda KOB segmentida defolt ehtimoli ko'rib chiqiladi. Xulosalar lizing kompaniyalari risk-menejment tizimini takomillashtirishi, qoldiq qiymatni baholash modellarini qayta ko'rib chiqishi va portfel sifatini barqaror saqlashi zarurligini ko'rsatadi.

Kalit so'zlar: yashil lizing, tijorat xatarlari, qoldiq qiymat noaniqligi, KOB portfeli, elektr transport, texnologik eskirish.

Abstract

This paper examines the commercial risks that lessors face when financing green vehicles and equipment for small and medium-sized enterprises (SMEs). The growth of green leasing opens new ways to fund electric vehicles and resource-efficient machinery, but it also exposes lessors to risks that are less pronounced in conventional equipment leasing. The study focuses on four of them: uncertainty about residual values, the pace of technological obsolescence, thin secondary markets for repossessed assets, and the default risk of SME lessees. The analysis suggests that leasing companies need to adjust their risk-management practices, use more conservative and regularly updated residual value forecasts, and share part of the risk with public guarantee institutions in order to keep portfolio quality stable.

Keywords: green leasing, commercial risk, residual value uncertainty, SME portfolios, electric vehicles, technological obsolescence.

1. Introduction

The shift towards a low-carbon economy has turned the financing of clean assets into a practical task for financial intermediaries rather than only a policy objective. Leasing plays a particular role in this process. Because the lessor keeps legal ownership of the asset and can repossess it more easily than a secured lender can seize collateral, leasing allows financially constrained firms to acquire equipment they could not otherwise fund (Eisfeldt and Rampini, 2009). For this reason, leasing is one of the main alternatives to bank credit for SMEs (OECD, 2021). In the green segment, it enables SMEs to operate electric commercial vehicles, renewable energy installations and energy-efficient machinery without paying the full purchase price up front.

Green assets, however, change the risk profile of a leasing portfolio. Lessors know less about how these assets will hold their value, how quickly they will become outdated, and how SME lessees will perform while adapting to new technology. Green projects also tend to combine long payback periods with a short performance history, which makes private financiers cautious (Sachs et al., 2019). At the

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same time, standard underwriting and risk models are calibrated on historical data and do not fully reflect climate- and transition-related risks (Campiglio et al., 2018). This paper discusses the main commercial risk factors in green vehicle and equipment leasing to SMEs, with particular attention to residual value uncertainty, and outlines how lessors can manage them.

2. Literature Review and Problem Statement

Research on green finance consistently shows that financial constraints slow the adoption of environmental technologies and that the effect is strongest among smaller firms. Using data on EU manufacturing firms, Ghisetti et al. (2017) find that restricted access to finance lowers the probability that firms introduce environmental innovations. Cecere, Corrocher and Mancusi (2020) reach a similar conclusion for European SMEs and show that public funding is most effective when it complements other external sources of finance. Leasing can ease these constraints, but only if lessors are willing to carry the asset risk that comes with green equipment.

This asset risk is considerable. Unlike conventional machinery or combustion-engine vehicles, whose depreciation patterns are well documented, green technologies change quickly. Analysing about 24,000 used vehicle sales across several countries, Schloter (2022) estimates that electric vehicles depreciate by roughly 13.9% per year, compared with 10.4% for gasoline vehicles, and concludes that leasing and insurance companies should adapt their economic models accordingly. For a lessor, faster and less predictable depreciation means a higher probability that the asset will be worth less than the contracted residual value when the lease ends or when the asset has to be repossessed.

The credit side of the problem is equally important. SME lessees are more exposed than large firms to macroeconomic shocks, supply chain disruptions and regulatory changes, and the scarcity of historical performance data on green asset portfolios makes default prediction difficult (Sachs et al., 2019). As a result, many lessors limit their exposure to the segment. The problem addressed in this paper is therefore how residual value risk and SME credit risk interact in green leasing portfolios, and what lessors can do to manage this combination without withdrawing from the market.

3. Commercial Risk Profiles and Performance Mechanisms

The most specific risk in green vehicle and equipment leasing is residual value risk. For electric commercial vehicles and renewable energy equipment, it is difficult to estimate what an asset will be worth at the end of the lease term: battery technology is improving quickly, and technical standards and subsidy rules change frequently. If newer models make existing ones obsolete sooner than expected, the realised residual value falls below the level assumed at origination, and the lessor bears the loss (Schloter, 2022). Secondary markets for used green equipment are also still thin. When a lessee defaults or returns the asset, the lessor may need more time to sell it and may have to accept a substantial discount. This weakens the main advantage of leasing over lending, namely the ability to recover value through repossession (Eisfeldt and Rampini, 2009).

The second source of risk is the lessee. SMEs that switch to green assets often go through a transition period in which cash flows are under pressure: staff need training, operating routines change, and productivity may fall temporarily. Credit scoring models that rely mainly on past financial statements and short-term liquidity ratios capture these dynamics poorly and may either overstate or understate the risk of such firms. In addition, the maintenance and repair of green equipment usually require specialised skills and spare parts that many SMEs lack. Poor maintenance accelerates asset degradation, which in turn lowers the residual value. Credit risk and asset risk therefore reinforce each other: a lessee in financial difficulty is also more likely to return the asset in worse condition.

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To protect portfolio performance, lessors need instruments that address both sides of this relationship at once. These include monitoring of asset condition and utilisation, flexible restructuring options for lessees facing temporary difficulties, and risk-sharing arrangements with third parties.

4. Conclusion and Recommendations

Demand for green leasing among SMEs is growing, but the commercial risks involved require lessors to change how they assess and price such transactions. Residual value uncertainty, rapid technological obsolescence and the specific vulnerabilities of SME lessees cannot be managed adequately with models calibrated on conventional assets. Lessors need better data on the depreciation of green assets, closer cooperation with dealers and secondary-market buyers, and underwriting approaches that account for transition-related risks (Campiglio et al., 2018; Schloter, 2022). Three practical recommendations follow for leasing companies and regulators:

1. **Residual value management.** Apply conservative residual value assumptions to electric vehicles and green equipment, and revalue assets regularly during the lease term so that expected losses from obsolescence are recognised early (Schloter, 2022).
2. **Adjusted underwriting.** Supplement traditional SME credit scoring with an assessment of the lessee's technical capacity to operate and maintain the asset, together with indicators of the project's environmental and energy performance (Campiglio et al., 2018; Sachs et al., 2019).
3. **Risk sharing.** Cooperate with state development funds and credit guarantee schemes to share part of the losses on green leasing portfolios, following established principles for public guarantee schemes (World Bank Group, 2015; Taghizadeh-Hesary and Yoshino, 2019).

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