

Optimising Lease Prices for Automobile Leasing Firms in China: A Data-Driven Analysis of Vehicle Depreciation and Lease Price Patterns

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Abstract

The paper addresses vehicle depreciation and pricing issues in the automobile leasing industry in China. Under the current industry climate, operating lease firms face large residual value risk and therefore, how to price contracts that minimises such risk is an important question for sustainable industry. By analysing market data of used vehicles, an exponential decay function was developed to model the price dynamics across different brands and model series. Specifically, we estimate depreciation rate directly from the data. In addition, by considering all revenue and cost components and converting all of them into present value terms, appropriate deposits and rents combinations were sought under 3 different scenarios such that a leasing firm would first of all break-even, secondly to make 5% profits and lastly to make 20% profits. Length of contracts, age of vehicles and purchase cost factors were also considered to detect any further patterns in rents. The research outcomes will provide guidance on lease pricing given the current economic/industrial climate, thereby improving firms' pricing strategies, profitability and sustainability.

Keywords: Automobile Leasing, Pricing, Operating Leases, Depreciation, Contract