

排污约束下企业的投资与定价

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Investment and pricing of corporation under pollution constraints

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摘要 考察了在政府对企业污染排放进行限制的条件下,当企业资本存在随机波动时企业如何进行动态投资和价值评估.运用随机动态最优控制方法,得到了企业价值的自由边界常微分方程以及相应的最优投资策略和治污策略.数值计算表明,在企业资本规模较小时,企业无排污支出,且排污约束对企业的投资和定价影响较弱,而当企业资本规模较大时,企业必须支付一定的治污费用以降低自身的污染排放量;同时,排污约束不仅显著降低了企业的总价值以及资本的平均和边际价值,还减小了企业的投资动机.

关键词: 排污约束 最优投资 企业价值 资本清算

Abstract: This paper considered an optimal problem of dynamic investment and value evaluation under uncertainty for a firm facing pollution constraints from the government. By the method of stochastic dynamic optimal controls, we derive free-boundary ordinary differential equation for the firm value, and the corresponding investment strategy and pollution control decision. The numeric results show that the corporation has no payout on the control of pollution constraints and the effect on investment, and pricing is not significant when the capital stock is low. However, if the capital stock is high enough, the firm optimally makes some payment to lower the emission and the corresponding constraints lower the firm's total value and the average and marginal value of the capital, and it also restrains the motivation of the investment.

Key words: pollution constraints optimal investment firm value capital liquidation

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