

Optimal Investment Timing and Liquidity

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Abstract

This study considers a firm's optimal investment timing problem when investment opportunities arrive in a random sequence and are irreversible. I analytically derive the project value and the investment threshold. The solutions converge to those of the real option value (ROV) method as the arrival rate of investment opportunities is higher, whereas the solutions converge to those of the net present value (NPV) method as the arrival rate of investment opportunities is lower. Further, I extend the results to a case with two project types, namely good and bad types. I analytically derive the condition under which the firm always forgoes bad-type projects. A notable result is that the firm accepts a bad-type project for a low arrival rate and a high state variable. The results reveal the effects of illiquidity on the real option valuation and build a bridge between the NPV and ROV methods.

Keywords

Real Option, Net Present Value, Illiquidity, and Search Model.

Biography

Michi Nishihara is an Associate Professor at Graduate School of Economics at Osaka University. He earned Doctor of Informatics from Kyoto University in 2008. His research interests include financial engineering, corporate finance, and operations research. He has published more than 30 papers in peer-reviewed journals, including European Journal of Operational Research, Journal of Banking and Finance, Journal of Corporate Finance, Journal of Economic Dynamics and Control, and Journal of Economics and Management Strategy.