Cash Conversion Systems in Corporate Subsidiaries

Presented by:
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This talk focuses on a cash conversion system in a subsidiary of a parent company, where there is an active internal capital market, but otherwise the subsidiary has no access to additional external funds. The cash conversion system consists of a treasury, a single-product Make-to-Stock inventory, and a receivables pool. It implements a perpetual flow cycle, where funds convert to product and back to funds. The parent company aims to maximize equilibrium (long-run) financial metrics in terms of net profit rate and rate of return. To this end, we model this system as a discrete-state continuous-time Markov process, and compute its equilibrium state distribution. These are then used to derive statistics of the equilibrium cash conversion cycle, and define equilibrium financial rate metrics. We further optimize the financial and operational designs of the system, and specifically, the internal capital allocation and inventory base stock level. Finally, noting the potential for friction in the parent-subsidiary relationship, we study numerically the impact of moral hazard and internal capital market inefficiency on optimal designs.