

CASH-FLOW BASED DYNAMIC INVENTORY MANAGEMENT

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We model a firm that uses its capital position to invest on a single-product inventory, in an environment that allows the firm to utilize debt to finance increased order quantities while excess cash can be deposited at a bank to earn interest. The demand is random and could be non-stationary over periods. The objective is to maximize the expected value of the capital at the end of a finite planning horizon. We show that the optimal policy is determined by a sequence of two threshold critical values. Furthermore, we develop two myopic ordering policies which respectively provide upper and lower bounds for each threshold values. Based on these bounds, an efficient algorithm is provided to compute the two threshold values. Finally with numerical studies we provide further managerial insights.