

This conclusion follows because in equilibrium, $E [R_{t+1}^k] / R_{t+1}$ determines all moments of the distribution of R_{t+1}^k / R_{t+1} .⁵

Equation (10) implies that in equilibrium, each entrepreneur's expenditure on capital is proportional to his net worth, with the proportionality coefficient determined by the expected discounted return on capital. Aggregating across entrepreneurs, this gives us a supply of capital for period $t + 1$ which is increasing in the expected return $E [R_{t+1}^k]$ and aggregate net worth N_t .

The return on capital R_{t+1}^k is determined in a general equilibrium framework. As a result, the gross return to an entrepreneur from holding a unit of capital from t to $t + 1$ is given by⁶

$$E [R_{t+1}^k] = E \left[\frac{A_{t+1}f'(K_{t+1}) + q_{t+1}(1 - \delta) + q_{t+1}\Phi\left(\frac{I_{t+1}}{K_{t+1}}\right) - \frac{I_{t+1}}{K_{t+1}}}{q_t} \right]. \quad (11)$$

This corresponds to a standard demand for capital in period $t + 1$ which is decreasing in the expected return $E [R_{t+1}^k]$

As before, shocks to entrepreneurs' net worth N_t are persistent since they affect capital holdings and therefore net worth N_{t+1}, N_{t+2}, \dots in following periods. Because of the technological illiquidity of capital captured by $\Phi(\cdot)$, there is now an additional amplification effect: The decrease in aggregate capital implied by a negative shock to net worth reduces the price of capital q_t . This lower price further decreases net worth, amplifying the original shock.

Kiyotaki and Moore (1997) (hereafter KM97) depart from the costly state verification framework used in the papers above and adopt a collateral constraint on borrowing due to incomplete contracts. In addition, KM97 depart from a single aggregate production function. In their economy output is produced in two sectors, where one is more productive than the other. This allows a focus on the dual role of durable assets as (i) a collateral for borrowing and (ii) an input for production. Another important difference to the previous models is that in KM97 total aggregate capital in the economy is fixed at \bar{K} . Effectively this means that investment is completely irreversible and capital is

⁵In principle, optimal entrepreneur leverage can depend on higher moments of the distribution of returns as well. However, these effects are small in a log-linearized solution when the aggregate shocks are small.

⁶BGG express the return as $R_{t+1}^k = \frac{A_{t+1}f'(K_{t+1}) + \bar{q}_{t+1}(1 - \delta)}{q_t}$, where \bar{q}_{t+1} is the price at which entrepreneurs sell capital to the investment sector. If the investment sector breaks even, then this definition of returns is equivalent to (11).