

Liquidity premium in the presence of dividend income. Consider a stock with a dividend yield d per period and with fundamental value μ_t at date t (equal to its midprice m_t at that date). Investors hold the stock for one period and can trade it at a constant percentage bid-ask spread s in each period. Their required rate of return on the stock is given, equal to r .

Ch 9, ex 1, part a

(a) Define the gross-of-transaction-cost return $1 + R$ in terms of μ_t , μ_{t+1} , and d .

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$$1 + R = \frac{\mu_{t+1}}{\mu_t} + d$$

Note that “gross-of-transaction-cost return” interpretation of R differs from how we interpreted R in lectures (which was “rate of price growth”).

Ch 9, ex 1, part b

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- Asset bought at t at price $a_t = (1 + s/2)\mu_t$,
- sold at $t + 1$ at $b_{t+1} = (1 - s/2)\mu_{t+1}$,
- yields d in the interim.
- Required return is $1 + r = \frac{b_{t+1} + d\mu_t}{a_t}$.
- Plugging in and rearranging:

$$1 + R = \frac{1}{1 - \frac{s}{2}} \left[(1 + r) \left(1 + \frac{s}{2} \right) - \frac{s}{2} d \right]$$

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- Liquidity premium is

$$R - r = \left(1 + r - \frac{d}{2}\right) \frac{s}{1 - \frac{s}{2}}$$

- Decreasing in d

- dividends do not suffer from stock illiquidity
- if larger share of the return is generated by the dividend, investors lose less from illiquidity and require smaller liquidity premium.