Daily Asset Prices 4/1-4/7

\[ P_t = \frac{D_t}{1 + r} + \frac{\varepsilon_t(P_{t+1})}{1 + r} \] (1)

Asset pricing model, where \( r \) is a constant interest rate, \( D \) is the dividend, and \( \varepsilon_t(.) \) is the subjective expectations operator.

Use the identity:

\[ P_{t+1} - P_t = (\varepsilon_t(P_{t+1}) - P_t) + [P_{t+1} - \varepsilon_t P_{t+1}] \] (2)

Note that:

\[ P_{t+1} = \frac{D_{t+1}}{1 + r} + \frac{\varepsilon_{t+1}(P_{t+2})}{1 + r} \] (3)

Substituting (1) and (3) into (2) yields:

\[ P_{t+1} - P_t = (\varepsilon_t(P_{t+1}) - P_t) + \left( \frac{1}{1 + r} \right) \left[ (D_{t+1} - \varepsilon_t D_{t+1}) + (\varepsilon_{t+1} P_{t+2} - \varepsilon_{t+1} P_{t+2}) \right] \] (4)

Equation (4) indicates that price changes are composed of an expected component (in the parentheses), “news” (first term in the square brackets) discounted appropriately, and revisions in expectations of the future asset price (second term in the square brackets), also discounted.

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