Problem Set 11 Questions

Problem Set 11: Market Efficiency and Forward and Futures Contracts: Valuation

I. BKM, Chapter 22, Question 6.

II. It is now January. The current interest rate is 8% EAR. The June futures price for gold is $346.30, whereas the December futures price is $360. Is there an arbitrage opportunity here? If so, how would you exploit it?

III. The S&P portfolio pays a dividend of 2% annually. Its current value is 1020. The T-bill rate is 5% EAR. Suppose the S&P futures price for delivery in one year is 1060. Construct an arbitrage opportunity. Assume the dividend of 2% is paid in one year hence.

IV. BKM, Chapter 23, Question 6. For part c, assume that your portfolio consists of 60% in equities and 40% in T-bills.

V. The following formula converts discount bond discount factors to forward contract discount factors (it was introduced earlier in Lecture Notes 16-18):

\[ d_{t, t+ \tau}(0) = \frac{d_{t+ \tau}(0)}{d_t(0)} \]

Is this formula consistent with the spot futures parity theorem? Explain why or why not. (Hint. Think about \( d_{t, t+ \tau}(0) \) as referring to the forward price at time 0 for delivery of a \( \tau \)-discount bond at time \( t \).)

VI. BKM, Chapter 23, Question 12.

VII. Suppose it is possible to use IBM’s annual report after its release date to detect mispricing of IBM’s stock.

A. Does this indicate that the market is weak form inefficient? Why or why not?
B. Does this indicate that the market is semi strong form inefficient? Why or why not?
C. Does this indicate that the market is strong form inefficient? Why or why not?