Guideline Answers to Practice Questions for Final Examination  
Fall, 2001

Multiple Choice

1. C 8. C
2. C 9. A
3. C 10. D
4. D 11. A
5. A 12. E
6. A 13. A

Problems

1. The Fiji$ is selling at a 3% premium, one year forward. That means: \( \frac{F - S_0}{S_0} = 0.03 \)

Therefore: \( F = 1.03 \cdot S_0 \) 
Now we can check for IRP

\[
\frac{F}{S_0} = 1.03 \quad \frac{1 + r_h}{1 + r_f} = \frac{1.15}{1.10} = 1.045
\]

The IRP does not hold; \( \frac{F}{S_0} < \frac{1 + r_h}{1 + r_f} \)

There is opportunity for arbitrage. Here is how to take advantage of it:

(a) Borrow Fiji$1,000,000 @10% interest. In one year, you will need to pay back Fiji$1,100,000.

(b) Convert Fiji$1,000,000 to US$ at spot rate. You now have US$(1,000,000*S_0). At the same time, enter into forward agreement to buy Fiji$ a year from now at the forward rate.

(c) Invest US$(1,000,000*S_0) in US at 15% interest. In one year, you will have US$(1,150,000*S_0).

(d) Take money from US bank, convert it back to Fiji$ @ forward rate. You will have \( \frac{1.150,000 \cdot S_0}{0.103} = Fiji$1,116,505 \).

(e) Pay back what you owe to the Fiji bank, which is Fiji$1,100,000. The difference (Fiji$16,505) is yours to keep.

2. The answer is in your class notes.
3. Since the British Pound is selling at a discount 6 months forward, we know that
\[
\frac{F - S_0}{S_0} \left( \frac{360}{180} \right) = -0.03, \text{ which means } F = 0.985 \cdot S_0.
\]
Calculate the periodic interest rates, \(r_h\) and \(r_f\), and check for IRP.

\[
\frac{F}{S_0} = 0.985 \quad \frac{1 + r_h}{1 + r_f} = \frac{1.04}{1.065} = 0.976 \quad \text{IRP doesn’t hold. } \frac{F}{S_0} > \frac{1 + r_h}{1 + r_f}, \text{ opportunity for arbitrage.}
\]

Here is how to take advantage of it:

(a) Borrow US$1,000,000 for 6 months @8% APR. In 6 months, you will need to pay back US$1,040,000.

(b) Convert US$1M to BP at spot rate. You have \(B_t \left( \frac{1,000,000}{S_0} \right)\). Invest this in British bank for 6 months at 13% APR. At the same time, enter into forward agreement to buy US$/sell Brit. Pounds 6 months forward.

(c) In 6 months, you will have \(B_t \left( \frac{1,065,000}{S_0} \right)\). Convert this back to US$ at the forward rate. You will have US$ \( \frac{1,065,000 \cdot F}{S_0} \) = \( 1,065,000 \times 0.976 = US$1,049,025.\)

(d) Pay back what you owe, which is US$1,040,000. The difference (US$9,025) is your profit.

4. (a) Look at your notes.
(b) \[S_1 \frac{1 + i_h}{1 + i_f} = S_1 \frac{1.03}{1.05} = S_1 = $1.2267\]

5. (a) quarterly req. return on common equity=7.1%
annual req. return on c.e=28.4%
total mkt value of equity=$50M
(b) quarterly req. return on preferred equity=4%
annual req. return on preferred equity=16%
total mkt value of preferred equity=$12.5M
(c) periodic YTM on bonds=3.644%
annual YTM on bonds=7.29%
total mkt value of debt=$42M
(d) total mkt value of firm=$104.5M
plug in info from a, b, c, d to find WACC.