SOLUTIONS MANUAL

INVESTMENTS

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NINTH EDITION

CHAPTER 2: ASSET CLASSES AND FINANCIAL INSTRUMENTS

PROBLEM SETS

1.   Preferred stock is like long-term debt in that it typically promises a fixed payment each year. In this way, it is a perpetuity. Preferred stock is also like long-term debt in that it does not give the holder voting rights in the firm.

   Preferred stock is like equity in that the firm is under no contractual obligation to make the preferred stock dividend payments. Failure to make payments does not set off corporate bankruptcy. With respect to the priority of claims to the assets of the firm in the event of corporate bankruptcy, preferred stock has a higher priority than common equity but a lower priority than bonds.

2.   Money market securities are called "cash equivalents" because of their great liquidity. The prices of money market securities are very stable, and they can be converted to cash (i.e., sold) on very short notice and with very low transaction costs.

3.   (a)   A repurchase agreement is an agreement whereby the seller of a security agrees to "repurchase" it from the buyer on an agreed upon date at an agreed upon price. Repos are typically used by securities dealers as a means for obtaining funds to purchase securities.

4.   The spread will widen. Deterioration of the economy increases credit risk, that is, the likelihood of default. Investors will demand a greater premium on debt securities subject to default risk.

5.

	Corp. Bonds	Preferred Stock	Common Stock
Voting Rights (Typically)			Yes
Contractual Obligation	Yes		
Perpetual Payments		Yes	Yes
Accumulated Dividends		Yes	
Fixed Payments (Typically)	Yes	Yes	
Payment Preference	First	Second	Third

6.   Municipal Bond interest is tax-exempt. When facing higher marginal tax rates, a high-income investor would be more inclined to pick tax-exempt securities.

7.   a.   You would have to pay the asked price of:

86:14 = 86.43750% of par = $864.375

b.   The coupon rate is 3.5% implying coupon payments of $35.00 annually or, more precisely, $17.50 semiannually.

c.   Current yield = Annual coupon income/price

= $35.00/$864.375 = 0.0405 = 4.05%

8.   P = $10,000/1.02 = $9,803.92

9.   The total before-tax income is $4. After the 70% exclusion for preferred stock dividends, the taxable income is: $0.30 \times \$4 = \$1.20$

Therefore, taxes are: $0.30 \times \$1.20 = \$0.36$

After-tax income is: $4.00 – $0.36 = $3.64

Rate of return is: $3.64/$40.00 = 9.10%

10.   a.   You could buy: $5,000/$67.32 = 74.27 shares

b.   Your annual dividend income would be: $74.27 \times \$1.52 = \$112.89$

c.   The price-to-earnings ratio is 11 and the price is $67.32. Therefore:

$67.32/Earnings per share = 11 $\Rightarrow$ Earnings per share = $6.12

d.   General Dynamics closed today at $67.32, which was $0.47 higher than yesterday's price. Yesterday's closing price was: $66.85

11.   a.   At t = 0, the value of the index is: (90 + 50 + 100)/3 = 80

At t = 1, the value of the index is: (95 + 45 + 110)/3 = 83.333

The rate of return is: (83.333/80) – 1 = 4.17%

      b.   In the absence of a split, Stock C would sell for 110, so the value of the index would be: $250/3 = 83.333$

              After the split, Stock C sells for 55. Therefore, we need to find the divisor (d) such that: $83.333 = (95 + 45 + 55)/d \Rightarrow d = 2.340$

      c.   The return is zero. The index remains unchanged because the return for each stock separately equals zero.

12.   a.   Total market value at $t = 0$ is: ($9,000 + $10,000 + $20,000) = $39,000

              Total market value at $t = 1$ is: ($9,500 + $9,000 + $22,000) = $40,500

              Rate of return $= (\$40,500/\$39,000) - 1 = 3.85\%$

      b.   The return on each stock is as follows:

$$r_A = (95/90) - 1 = 0.0556$$
$$r_B = (45/50) - 1 = -0.10$$
$$r_C = (110/100) - 1 = 0.10$$

              The equally-weighted average is:

              $[0.0556 + (-0.10) + 0.10]/3 = 0.0185 = 1.85\%$

13.   The after-tax yield on the corporate bonds is: $0.09 \times (1 - 0.30) = 0.0630 = 6.30\%$ Therefore, municipals must offer at least 6.30% yields.

14.   Equation (2.2) shows that the equivalent taxable yield is: $r = r_m /(1 - t)$

      a.   4.00%

      b.   4.44%

      c.   5.00%

      d.   5.71%

15.   In an equally-weighted index fund, each stock is given equal weight regardless of its market capitalization. Smaller cap stocks will have the same weight as larger cap stocks. The challenges are as follows:
- Given equal weights placed to smaller cap and larger cap, equal-weighted indices (EWI) will tend to be more volatile than their market-capitalization counterparts;

- It follows that EWIs are not good reflectors of the broad market which they represent; EWIs underplay the economic importance of larger companies;
- Turnover rates will tend to be higher, as an EWI must be rebalanced back to its original target. By design, many of the transactions would be among the smaller, less-liquid stocks.

16. a.   The higher coupon bond.

     b.   The call with the lower exercise price.

     c.   The put on the lower priced stock.

17. a.   You bought the contract when the futures price was $3.835 (see Figure 2.10). The contract closes at a price of $3.875, which is $0.04 more than the original futures price. The contract multiplier is 5000. Therefore, the gain will be: $0.04 \times 5000 = \$200.00$

     b.   Open interest is 177,561 contracts.

18. a.   Since the stock price exceeds the exercise price, you exercise the call.
           The payoff on the option will be: $21.75 − $21 = $0.75
           The cost was originally $0.64, so the profit is: $0.75 − $0.64 = $0.11

     b.   If the call has an exercise price of $22, you would not exercise for any stock price of $22 or less. The loss on the call would be the initial cost: $0.30

     c.   Since the stock price is less than the exercise price, you will exercise the put.
           The payoff on the option will be: $22 − $21.75 = $0.25
           The option originally cost $1.63 so the profit is: $0.25 − $1.63 = −$1.38

19. There is always a possibility that the option will be in-the-money at some time prior to expiration. Investors will pay something for this possibility of a positive payoff.

20.

	Value of call at expiration	Initial Cost	Profit
a.	0	4	-4
b.	0	4	-4
c.	0	4	-4
d.	5	4	1
e.	10	4	6
	Value of put at expiration	Initial Cost	Profit
a.	10	6	4
b.	5	6	-1
c.	0	6	-6
d.	0	6	-6
e.	0	6	-6

21.   A put option conveys the *right* to sell the underlying asset at the exercise price. A short position in a futures contract carries an *obligation* to sell the underlying asset at the futures price.

22.   A call option conveys the *right* to buy the underlying asset at the exercise price. A long position in a futures contract carries an *obligation* to buy the underlying asset at the futures price.

CFA PROBLEMS

1.   (d)

2.   The equivalent taxable yield is: $6.75\%/(1 - 0.34) = 10.23\%$

3.   (a) Writing a call entails unlimited potential losses as the stock price rises.

4.   a.   The taxable bond. With a zero tax bracket, the after-tax yield for the taxable bond is the same as the before-tax yield (5%), which is greater than the yield on the municipal bond.

      b.   The taxable bond. The after-tax yield for the taxable bond is:
            $0.05 \times (1 - 0.10) = 4.5\%$

      c.   You are indifferent. The after-tax yield for the taxable bond is:
            $0.05 \times (1 - 0.20) = 4.0\%$
            The after-tax yield is the same as that of the municipal bond.

        d.   The municipal bond offers the higher after-tax yield for investors in tax brackets above 20%.

5.   If the after-tax yields are equal, then: $0.056 = 0.08 \times (1 - t)$

This implies that $t = 0.30 = 30\%$.