MAN 307 BUSINESS FINANCE STUDY QUESTIONS

These questıons are just study questıons.Final exam questions will be different .

1. A government bond issued in France has a coupon rate of 5 percent, a face value of 100 euros, and matures in five years. The bond pays annual interest payments. Calculate the price of the bond (in euros) if the yield to maturity is 3.5 percent.
   1. 100.00
   2. **106.77**
   3. 106.33
   4. 105.00

The annual interest payment = (100) × (0.05) = 5 euros; price = PV.

Using a financial calculator: PMT = 5; I = 3.5; FV = 100; N = 5.

Compute: PV = 106.77 euros. Alternatively, PV = (5/1.035) + (5/(1.0352)) + (5/(1.0353)) + (5/(1.0354)) + (105/(1.0355)) = 106.77.

1. A government bond issued in France has a coupon rate of 5 percent, a face value of 100.00 euros, and matures in five years. The bond pays annual interest payments. Calculate the yield to maturity of the bond (in euros) if the price of the bond is 106.00 euros.
   1. 5.00%
   2. 3.80%
   3. **3.66%**
   4. 6.00%

The annual interest payment = (100) × (0.05) = 5 euros.

Using a financial calculator: PMT = 5; FV = 100; & N = 5; and PV = -106.

Compute: I = 3.66%.

1. You buy a 12-year 10 percent annual coupon bond at par value, $1,000. You sell the bond three years later for $1,100. What is your rate of return over this three-year period?
   1. **40 percent**
   2. 10 percent
   3. 20 percent
   4. 30 percent

Rate of return = (coupon income + price change)/investment.

Rate of return = (300+100)/1,000 = 40%.

1. If a bond pays interest semiannually, then it pays interest
   1. once per year.
   2. **every six months.**
   3. every three months.
   4. every two years.
2. A three-year bond with 10 percent coupon rate and $1,000 face value yields 8 percent. Assuming annual coupon payments, calculate the price of the bond.
   1. $857.96
   2. $951.96
   3. $1,000.00
   4. **$1,051.54**

PMT = 100; FV = 1,000; N = 3; I = 8.

Compute: PV = 1,051.54.

1. A five-year treasury bond with a coupon rate of 8 percent has a face value of $1,000. What is the semiannual interest payment?
   1. $80
   2. **$40**
   3. $100
   4. $50

Annual interest payment = 1,000(0.08) = $80.

Semiannual payment = 80/2 = $40.

1. A three-year bond has an 8.0 percent coupon rate and a $1,000 face value. If the yield to maturity on the bond is 10 percent, calculate the price of the bond assuming that the bond makes semiannual coupon payments.
   1. $857.96
   2. **$949.24**
   3. $1,057.54
   4. $1,000.00

the semiannual payment = (1,000) × (0.08/2) = $40.

The semiannual yield = (10%)/2 = 5%.

Using a financial calculator, PMT = 40; FV = 1,000; N = (3 × 2); I = 5,

Compute PV = 949.24.

1. A four-year bond has an 8 percent coupon rate and a face value of $1,000. If the current price of the bond is $878.31, calculate the yield to maturity of the bond (assuming annual interest payments).
   1. 8 percent
   2. 10 percent
   3. **12 percent**
   4. 6 percent

PV = -878.31; N = 4; PMT = 80; FV = 1,000. Compute I = 12%.

9. A five-year bond with a 10 percent coupon rate and $1,000 face value is selling for $1,123. Calculate the yield to maturity on the bond assuming annual interest payments.

* 1. 10.0 percent
  2. 8.9 percent
  3. **7.0 percent**
  4. 5.0 percent

PV = −1,123; FV = 1,000; PMT = 100, and N = 5. Compute I = 7.0%.

1. Which of the following statements about the relationship between interest rates and bond prices is true?
   1. **There is an inverse relationship between bond prices and interest rates, and the price of long-term bonds fluctuates more than the price of short-term bonds for a given change in interest rates (assuming that the coupon rate is the same for both).**
   2. There is an inverse relationship between bond prices and interest rates, and the price of short-term bonds fluctuates more than the price of long-term bonds for a given change in interest rates (assuming that the coupon rate is the same for both).
   3. There is a direct relationship between bond prices and interest rates, and the price of short-term bonds fluctuates more than the price of long-term bonds for a given change in interest rates (assuming that the coupon rate is the same for both).
   4. There is a direct relationship between bond prices and interest rates, and the price of long-term bonds fluctuates more than the price of short-term bonds for a given change in interest rates (assuming that the coupon rate is the same for both).
2. Consider a bond with a face value of $1,000, an annual coupon rate of 6 percent, a yield to maturity of 8 percent, and 10 years to maturity. This bond's duration is
   1. 8.7 years.
   2. **7.6 years.**
   3. 10.0 years.
   4. 6.5 years.

Step 1: N = 10; PMT = 60; FV = 1,000; I = 8. Compute PV = 865.80.

Step 2: Duration = [1(55.56) + 2(51.44) + 3(47.63) + 4(44.10) + 5(40.83) + 6(37.81) + 7(35) + 8(32.42) + 9(30.01) + 10(490.99)]/(865.80) = 7.6 years.

1. A bond has a face value of $1,000, an annual coupon rate of 7 percent, yield to maturity of 10 percent, and 20 years to maturity. The bond's duration is
   1. **10.0 years**.
   2. 7.4 years.
   3. 20.0 years.
   4. 12.6 years.

Step 1: N = 20; PMT = 70; FV = 1,000; I = 10. Compute PV = 744.59.

Step 2: Duration = [((1)(70)/1.1) + ((2)(70)/1.1^2) + . . . + ((20)(1070)/1.1^20)]/744.59 = 10 years.

1. A bond has a face value of $1,000, a coupon rate of 0 percent, yield to maturity of 9 percent, and 10 years to maturity. This bond's duration is
   1. 6.7 years.
   2. 7.5 years.
   3. 9.6 years.
   4. **10.0 years**.

Duration is equal to maturity for zero-coupon bonds.

1. A bond with duration of 10 years has a yield to maturity of 10 percent. This bond's volatility (modified duration) is
   1. **9.09 percent**.
   2. 6.80 percent.
   3. 14.6 percent.
   4. 10.00 percent.

Volatility (%) = duration/(1 + yield) = 10/1.10 = 9.09%.

1. A bond with duration of 5.7 years has a yield to maturity of 9 percent. The bond's volatility (modified duration) is
   1. 1.9 percent.
   2. **5.2 percent.**
   3. 5.7 percent.
   4. 9.0 percent.

Volatility = 5.7/1.09 = 5.2.

1. If a bond's volatility is 10.00 percent and the interest rate goes down by 0.75 percent (points), then the price of the bond
   1. decreases by 10.00 percent.
   2. decreases by 7.50 percent.
   3. **increases by 7.50 percent.**
   4. increases by 0.75 percent

Percentage change in bond price = -(volatility) × (change in interest rates) = -10 × (-0.75) = +7.5%

1. If a bond's volatility is 5.0 percent and its yield to maturity changes by 0.5 percent (points), then the price of the bond
   1. changes by 5.0 percent.
   2. **changes by 2.5 percent.**
   3. changes by 7.5 percent.
   4. will not change.

5 × 0.5 = 2.5%.

1. The volatility of a bond is given by
   1. duration/(1 + yield) only.
   2. slope of the curve relating the bond price to the interest rate only.
   3. yield to maturity only.
   4. **duration/(1 + yield) and slope of the curve relating the bond price to the interest rate only.**
2. If the nominal interest rate per year is 10 percent and the inflation rate is 4 percent, what is the real rate of interest?
   1. 10.0 percent
   2. 4.1 percent
   3. **5.8 percent**
   4. 14.0 percent

Using Irving Fisher's equation, 1 + rreal = (1 + rnominal)/(1 + rinflation) = 1.1/1.04 = 1.058; rreal = 5.8%.

20.Which bond is more sensitive to an interest rate change of 0.75 percent?

Bond A: YTM = 4.00%, maturity = 8 years, coupon = 6% or $60, par value = $1,000.

Bond B: YTM = 3.50%, maturity = 5 years, coupon = 7% or $70, par value = $1,000.

* 1. **Bond A**
  2. Bond B
  3. Both are equally sensitive.
  4. Cannot be determined

Volatility increases with duration. A relatively longer maturity or a relatively smaller coupon are both features that extend a bond's duration. The price of bond A decreases from 1,134 to 1,108. Bond B decreases in price from 1,158 to 1,121. Bond A drops by 4.67 percent while Bond B drops by 3.15 percent.