

## SOLUTIONS

## A) MULTIPLE CHOICE QUESTIONS (1 point each, no penalties, at least 5 to pass)

- 1 The third phase of a financial crisis is called, accordingly to the historical analysis...  
( d ) debt deflation
- 2 Commercial banks are obliged to hold a given percentage of deposits...  
( c ) as central bank reserves
- 3 Only when markets are not perfectly efficient, it is possible...  
( a ) to predict trends
- 4 In normal times (i.e. outside recessions or economic booms) mortgages see...  
( c ) fixed rates higher than floating ones
- 5 The strike price of a call option is the price at which...  
( c ) the writer gains the premium paid by the buyer
- 6 When interest rates increase sharply, the market price of a floating coupon bond...  
( c ) changes only a little
- 7 Accordingly to the liquidity preference theory in predicting interest rates, the longer the maturity date...  
( c ) the higher is normally (not always) the illiquidity premium
- 8 The main source of funding for commercial banks is represented by...  
( d ) deposits
- 9 In searching for the right mutual fund, one should prefer higher...  
( a ) Sharpe ratios
- 10 In a pay-as-you-go (PAYG) pension system...  
( b ) there is no accumulation/investment of contributions

## B) OPEN QUESTION (10 points, check your handwriting and don't exceed the space below)

Describe the factors impacting exchange rates in the long and in the short term.

|   |
|---|
| Very long term: (PPP) relative price levels only  |
| Long term: relative price levels, trade barriers, demand's preferences and productivity |
| Short term: interest rates and expected exchange rates (subject to long-term factors)   |
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## C) EXERCISE (10 points, briefly explain your calculations and don't exceed the space below)

I own three zero-coupons as in the attached table. Today interest rates are 4% (3%, 5%, 2%).

What is the price change of the portfolio if interests rise by +100 (-100, -50, +200) bps?

| ZC | TTM (years) | Price  | Quantity |
|----|-------------|--------|----------|
| A  | 1           | 96,154 | 20       |
| B  | 1,5         | 94,287 | 30       |
| C  | 2           | 92,456 | 40       |

|  |   |
|--|---|
| 1. PTF value: $96,154 \times 20 + 94,287 \times 30 + 92,456 \times 40 = 8.449,93$                                      |   |
| 2. PTF dur: $(96,154 \times 20 \times 1 + 94,287 \times 30 \times 1,5 + 92,456 \times 40 \times 2) / 8.449,93 = 1,605$ |   |
| 3. Change in price: $-1,605 \times 1\% / 1,04 = -1,54\%$   | 3. Change in price: $-1,605 \times (-1\%) / 1,03 = +1,56\%$ |
| 3. Change in price: $-1,605 \times (-0,5\%) / 1,05 = +0,76\%$  | 3. Change in price: $-1,605 \times 2\% / 1,02 = -3,15\%$    |