*Financial System – MOCK EXAM*

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**5 open questions**

1. Financial intermediaries play a role only in one segment of financial markets, namely the direct finance. True/False/Uncertain. Explain.

***FALSE****. Financial intermediaries play a role in both segments of finance. Direct finance: they help issuers (spenders) as well as savers by easing money transfers. Indirect finance: FIs borrow money from lenders indirectly, via financial intermediaries.*

1. Primary market typically involves investment banks who underwrite offerings, while both new issues and previously issued securities are traded on secondary market. True/False/Uncertain. Explain.

***FALSE****. New securities issues are typically sold to investment banks on primary markets. Securities previously issued are traded on secondary markets.*

1. Secondary markets are important as they help firms to get money. True/False/Uncertain. Explain.

***FALSE****. Firms don’t get money from secondary markets. Notwithstanding, they play a pivotal role in that they serve two important functions: on the one hand, they provide liquidity to financial instruments, making trades easier; on the other hand, they provide a valid base for company valuation (market price).*

1. Holding everything constant, the lower to yield to maturity of a bond the higher its price. True/False/Uncertain. Explain.

***TRUE****. Yield to maturity and bond price are negatively related. When the interest rates decrease, the PV of any given cash flow is higher; accordingly, the price of the bond must be higher.*

1. Nominal interest rates reflect more accurately the cost of borrowings as real interest rates include the expected changes in the price level. True/False/Uncertain. Explain.

***FALSE****.* $i\_{r}=i-π^{e}$*. Real interest rates are purged from the expected changes in the price level. Therefore, they better reflect the true cost of borrowing. Holding the nominal rates constant, the higher the inflation, the lower will be the real rates (i.e. the real cost of borrowing). Broadly speaking, when the real rate is low, there are greater incentives to borrow and less to lend.*

1. The duration of a bond reflects its interest rate sensitivity. True/False/Uncertain. Explain.

***TRUE****.* $\%ΔP≈-Dur\*\frac{Δi}{1+i}$*. For a given change in the interest rates, the higher the duration, the higher will be the change in the price of the bond*

1. Money market instruments are less risky than bond and equity market instruments but give investors a rate of return that is usually lower than that of equity and higher that of bonds. True/False/Uncertain. Explain.

***FALSE****. Risk on money market instruments < risk on bond market instruments < risk on equity instruments. Return on money market instruments < return on bond market instruments < return on equity instruments.*

1. AAA bonds, usually known as junk bonds, offers a high rate of return in exchange of a contained risk. True/False/Uncertain. Explain.

***FALSE****. Junk bonds are instruments rated below BBB. The term junk bonds identifies instruments characterized by a stressed situation which reflect into a high degree of risk and, in turn, in an extremely high expected return. On the opposite AAA bonds constitute the less risky category, the one that gives investors a low expected rate of return.*

1. By buying bonds, investors become owners of the company. By buying shares, investors become company creditors. True/False/Uncertain. Explain.

***FALSE****. Shareholders own a percentage interest in a firm. As owners, they have a claim on all firm’s assets and the right to vote for directors and other certain issues. On the opposite, bondholders are mere company creditors: therefore, they expect to earn a predetermined return, namely the interest rate on the bond (should they hold the bond until it goes to maturity) or a different rate of return in case they sell the bond before the maturity.*

1. By balancing the maturities of assets and liabilities, banks hedge against credit risk, while remain exposed to interest rate risk. True/False/Uncertain. Explain.

***FALSE****. By matching assets’ and liabilities’ maturities banks hedge against interest rate risk in that the quantity of assets that has to be reinvested equals the quantity of liabilities that has to be refinanced. Therefore, increases/decreases in interest rates are not expected to influence the interest margin. On the opposite, even though banks perfectly match assets’ and liabilities’ maturities, they remain exposed to credit risk which originates from the banking activities and hence it is related to banks’ assets.*

1. Government insurance on deposit protect investors in that it discourages risk taking by bankers. True/False/Uncertain. Explain.

***FALSE****. Depositors are protected by government insurance on deposits in that in case of bankruptcy they are insured up a to a certain loss (e.g. 100,000€, 250,000$...). The flip side of this mechanism is that it incentivizes bankers to engage in more risky assets aiming increase the overall bank return. Bankers are incentivized because the increase in downside risk is borne by insurers.*

1. When the riskiness on an investment increases and the level of the investment decreases, the amount of regulatory capital declines. True/False/Uncertain. Explain.

***UNCERTAIN****. The regulatory capital is defined according to the following formula:* $MRC\geq 8\%\*RWAs$*, where* $RWAs= \sum\_{i}^{}A\_{i}\*w\_{i}$*, where A and w identify the exposure and the regulatory weight. Thus when the riskiness on an investments increases, w increases too, and the minimum regulatory capital is expected to increase. However, a lower exposure implies a lower risk weighted assets and, hence, a reduction in the regulatory capital. Overall, the outcome on bank capital is uncertain in that the two forces pull in opposite directions and it is almost impossible to know ex-ante which of the two prevails.*

1. The ECB is in charge of monetary policy and its main objective is to manage short term interest rates.

True/False/Uncertain. Explain.

1. When the central bank buys treasury bonds on the market (money market operations) it creates monetary base. The likely effect is an increase in short term interest rates. True/False/Uncertain. Explain
2. The Interest rate applied by ECB on the marginal (standing) lending facility is the rate the ECB pays on the deposit that banks leave at the ECB. It is the ceiling of the corridor within the overnight money market rate can fluctuate. True/False/Uncertain. Explain.

**1 or 2 short exercises.**

1. Compute the present value of the following bond:
	1. 3 years to maturity;
	2. Annual coupon
	3. Coupon rate 3%
	4. Face value – 100
	5. Interest rate 2.5%
2. Suppose the following two bonds:
	1. Bond A
		1. 3 years to maturity
		2. Duration 2.3
	2. Bond B
		1. 3 years to maturity
		2. Duration 3

Which is the less risky bond?

Which is the zero-coupon bond?

1. Consider the cash flows reported in the table below. Assuming that market interest rates are 12% and that they remain constant over time:
	1. What price would you pay for these cash flows?
	2. What total wealth do you expect after 2.5 years if you sell the rights to the remaining cash flows?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | 0 | 1 | 2 | 3 | 4 |
| Cash flow |  | 160 | 170 | 180 | 230 |

1. Compute the price and the duration of the following bonds supposing that the interest rates are 12% and that they remain constant over time. Briefly comment the differences.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | 0 | 1 | 2 | 3 | 4 |
| Bond 1 | P? | 5 | 5 | 5 | 105 |
| Bond 2 | P? | - | - | - | 115 |
| Bond 3 | P? | 35 | 35 | 35 | 35 |