Interest Rate Risk

Reinvestment risk: the returns on funds to be reinvested will fall below the cost of funds.
Refinancing risk: the costs of rolling over funds or reborrowing funds will rise above the returns generated on investments.
Int rate risk is the risk incurred by an FI if it mismatches the maturities of it's A & L.
Market value risk: Interest rate increase, the market value of assets and liabilities decrease
Credit risk is é possibility that promised cash flows may not occur or may only partially occur.
2 types of credit risk:
1. Systematic credit risk affects all borrowers.
2. Firm-specific credit risk affects a particular company. NB:Firm-specific credit risk can be managed through diversification.
(b) Which types of FIs are more susceptible to this type of risk? Why? Answer: FIs that lend money for long periods of time, whether as loans or by buying bonds, are more susceptible to this risk than those FIs that have short investment horizons.
- Maturity Model
•MA–ML > 0: the FI is exposed to increasing interest rates. R asset decrease more
•MA– ML < 0: the FI is exposed to decreasing interest rates. R liability decrease more
•MA– ML = 0: the FI is 'immunised'.
For most FIs: MA– ML > 0.
Maturity matching does not always eliminate interest rate risk exposure, because:
a. The duration of A & L might be different,
b. The maturity model does not consider the leverage of the FI
- Duration Model
Duration and maturity: dD/dM>0
Duration and yield: dD/dR< 0
Duration and coupon interest rate: dD/dC< 0

Foreign Exchange Risk

Foreign exchange risk: The risk that changes in exchange rates can affect the value of an FI's Asset and/or Liabilities located abroad.
4 FX activities:Purchase&Sale of FX in order to (i)complete international commercial transactions (ii)invest abord in direct or portfolio investments (iii)hedge outstanding currency exposures (iv)speculate against movements in currencies. (Earn commission&profit in ask-bid spr)
Major reason for the slow growth in profits has been the decline in volatility of FX rates among major European currencies that has more than offset the increased volatility of FX rates among Asian currencies. The reduced volatility is related to the reduction in inflation rates in the European countries and the relatively fixed exchange rates that have prevailed as the European countries move toward full monetary union.
– Returns on foreign and domestic investment are not perfectly correlated. Because:
1st, FX rates are not perfectly correlated across countries. **2nd**, the underlying technologies of various economies differ, as do the firms in those economies
– Net long foreign assets>foreign liabilities
Appreciate euro/$ up, Δ into $ up, bank gain
– Net short foreign assets<foreign liabilities
Appreciate euro/$ up, Δ into $ up, bank lose. (means: decr in the foreign assets in $ value after conversion will be less than the decr in the value of the foreign liabilities in $ value after conversion)
Net Return=(Int.earn–Int Exp)/InitialOutlayx100%
• Measurement of an FI's FX exposure:
– **Dollar loss/gain in currency i = Net exposure in foreign currency i measured in local currency× shock (volatility) to the $(1.65*σFX)/foreign currency i exchange rate**
Factors directly affect the profitability of an FI's position in a foreign currency is a function of the size of the net exposure and the volatility of the foreign exchange ratio or relationship.
-On-Balanace-Sheet Hedging:
1) Requires matching currency positions and durations of FX A & L to control exposure to foreign interest rate risk **2)** A direct match of foreign A & L can result in positive profits for the FI (Need constant trading to equalise duration – High transaction cost) **DA>DL-Depre, DA<DL-Appre**
-Off-Balanace-Sheet Hedging:
• Uses forwards, futures, or options. Forward exchange rate allows FI to offset uncertainty regarding the future spot rate on a currency.
Disadv: Possibility of default (credit risk) by the counterparty in exacerbated in negotiated markets <forward contracts>but mitigated for exchange-traded inst<future contract>
– Interest Rate Parity Theorem (IRPT)
1+R$D=1/St*(1+R£L)*Ft
R$D: interest rate on Australian dollar securities for the FI at time t
St: $/£ spot exchange rate at time t
R£L: interest rate on UK loans at time t
Ft: $/£forward exchange rate at time t
• Implication: hedging in the forward exchange market allows investors to generate same return as in domestic market.
19. An FI has $100 000 of net positions outstanding in British pounds (£) and -$30 000 in Swiss Francs (CHF). The standard deviation of the net positions as a result of exchange rate changes is 1 % for the £ and 1.3 % for the CHF. The correlation coefficient between the changes in exchange rates of the £ and the CHF is 0.80.
*The risk exposure to the FI of fluctuations in the £/$ rate Since the FI has a positive £ position, an appreciation of the £ will increase the value of its £-denominated assets more than its liabilities, providing a net gain. The opposite will occur if the £ depreciates.

(b) The risk exposure to the FI of fluctuations in the CHF/$ rate? Since the FI has a negative net position in Swiss Francs, the value of its Swiss-denominated assets will increase in value but not as greatly as the value of its liabilities. Hence, an appreciation of the CHF will lead to a net loss. The opposite will occur if the currency depreciates.
(c) What is the risk exposure if both the £ and the CHF positions are aggregated? Use the formula:
$\sigma p = \sqrt{(100)^2(1)^2 + (-30)^2(1.3)^2 + 2(1)(1.3)(100)(-30)(0.8)} = \$72\ 671$
The FI's net position is actually $72 671. Without including correlation, the exposure is estimated at $100000-$30000=$70000.
The nature of an OBS activity and a FI can benefit from such activities. Ans:OBS activities are contingent commitments to undertake *future on*-BS investments. The usual benefit of committing to a future activity is the generation of immediate fee income without the normal recognition of the activity on the B.S

Various risks that these activities generate for an FI and explain how these risks can create varying degrees of financial stress for the FI at a later time. Ans: As such, these contingent investments may be exposed to credit risk (if there is some default risk probability), interest rate risk (if there is some price and/or interest rate sensitivity) and foreign exchange rate risk (if there is a cross-currency commitment).

Off- Balance Sheet Risk

FI can earn fee income, while not loading up or expending the balance.
If the bond issuer defaults on its bonds interest and principal payment, the contingent liability or guarantee become a actual or real liability • Commitments
– Interest rate risk
»fixed-rate loan commitment (interest rate risk)
»variable-rate loan commitment (basis risk)
R up but less than commitment FI earn less
R up more than commitment FI lose
Control this risk by using rate float w/t spot loan rate
– Draw-down risk
Stand ready to provide the maximum of commitment at any time. (Not draw-down lines in full)
Back-end fees are intended to reduce this risk.
– Credit risk
Credit rating of the borrower may deteriorate over the life of the commitment
Addressed though 'adverse material change in conditions' clause
– Aggregate funding risk
During a credit crunch, credit cost increase; bank may find it difficult to meet all commitments
• Derivatives:
(Futures and forwards, option, swaps)
– Over the counter instruments (Forwards): heavily exposed to risk of default by counterparties.
– Others: far less default risk.
Because of margin requirement and market to market: margin call.
• Causes of Derivatives loss (For credit risk)
– Breakdown of the monitoring system
– Unauthorised trading activities

9. 'Using the total face value of OBS commitments would overestimate their impact on FI profitability.' Discuss the arguments supporting and refuting this statement. **Supporting arguments:** Use of the face value to evaluate the impact of OBS items on FI profitability implies that there is a 100% likelihood that all contingencies will ultimately be exercised. However, since the probability that an OBS contingency is exercised is, in general, less than one, this would overestimate the impact of OBS items on FI profitability. Thus, the contingent-claims value is less than the face value of most OBSs items. **Refuting arguments:** OBS items impact on FI profitability when they enter the B.S (i.e. when contingencies are exercised). However, they also impact FI profitability when initially created. That is, even if there is no exercise, OBS items carry fees (both up front and back end) that increase the FI's cash flows. Typically, these fees are calculated on the basis of face value. Even if evaluating OBS items using their face values overestimates the expected on-BS entries upon exercise (as in the statement), this does not necessarily imply that using face values overstates their impact on FI profitability. This is because exercise generally takes place when advantageous to the option holder. OBS items are therefore exercised when it is most beneficial for the bank's customer. This is most likely when it is least