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Q NO. 1

Suppose interest rate initially is 10 percent across all maturities. A one-year discount bond pays $2200 at maturity. A five-year discount bond pays $3221.02 at maturity. Calculate the ***present value of both discount bonds if (a) interest rate rises to 12 percent (b) falls to 8 percent.***

SOLUTION*:*

INTEREST RATE	***ONE YEAR PER PER DISCOUNT BOND***	***5 YEARS PER DISCOUNT BOND***
12%	$\frac{2200}{1.12}$ *=1964.285714*	$\frac{3221.02}{(1.12)^5}$ *= 1827.69*
8%	$\frac{2200}{1.08}$ *= 2037.037*	$\frac{3221.02}{(1.08)^5}$ *=2192.213*

Q NO.4 (PART A)

If we look in the expert system the credit system is left to be taken by branch lending officer and he grand credit on the basis of his expertise subjective judgment and weighting other certain key factor taking an example will clear this more lets take an ***example Meezan bank using expert system to grant to grant credit in which their credit risk officer after evaluating each and every thing grant the loan despite of major short coming banks are still coming it. Because the branch lending officer is much aware of his*** *customer*

PART (B)

Standardize Rating approach weight the loan secured by mortgages on residential property at 35% because a residential property occupied by the browser or on rent is easy to be acquired in response of failure of credit return but on the contrary the commercial property has been a recurring cause of troubled asset in banking industry over the past few decades , the Basel Committee holds to the view that mortgages on commercial real estate do not, in principle, justify other than a 100% weighting of the loans secured and it's very difficult for banks to vacate commercial properties so their risk is weighted 100% by basel committee.

PART (C)

IF the weather creates a significant uncertainty about the volume of corns that will be harvested then farmer is not required into short contract in order to hedge the price risk on his or her expected production the reason is that if the weather is bad and the production will be less then the expected production of the corn then what farmer expected. Corn production will be overall low and its price becomes high. Due to the bad weather the other farmers may also be effected due to the bad weather. The farmers problem arising from the bad harvested will be made worse by losses short future position.

Q NO.2 (PART A)

*Long-term bonds have a greater duration than short-term bonds. Duration measures the sensitivity of a bond's price to changes in interest rates. For instance, a bond with a duration o**f 2.0** will lose $2 for every 1% increase in rates. Because of this, a given interest rate change will have a greater effect on long-term bonds than on short-term bonds. This concept of duration can be difficult to conceptualize but just think of it as the length of time that your bond will be affected by an interest rate change. For example, suppose interest rates rise today by **0.25%.** A bond with only one coupon payment left until maturity will be underpaying the investor by **0.25%** for only one coupon payment. On the other hand, a bond with 20 coupon payments left will be underpaying the investor for a much longer period. This difference in remaining payments will cause a greater drop in a long-term bond's price than it will in a short-term bond's price when interest rates rise.*

(ii)

There is a greater probability that interest rates will rise (and thus negatively affect a bond's market price) within a longer time period than within a shorter period. As a result, investors who buy long-term bonds but then attempt to sell them before maturity may be faced with a deeply discounted market price when they want to sell their bonds. With short-term bonds, this risk is not as significant because interest rates are less likely to substantially change in the short term. Short-term bonds are also easier to hold until maturity, thereby alleviating an investor's concern about the effect of interest rate-driven changes in the price of bonds

Q NO.2 (PART B)

As the data is given to us

$$NF=\frac{QS}{QF}X\frac{\Delta S}{\Delta F}$$

$$\frac{1500}{200}X\frac{0.7}{0.1}=\mathbf{5.25}$$

Because we are using long hedge in a cash market using risk minimizing hedge means that we should take part in short position in future market.

Q NO.3

Calculate the effective maturity/ duration of a five-year 1 percent coupon bond with a face value of $100.

STEP 1

YEAR	***PAYMENT***	***PRESENT VALUE OF PAYMENT BY DISCOUNTING***
1.	*1*	*0.990*
2	*1*	*0.980*
3	*1*	*0.97059*
4	*1*	*0.96098*
5	*101*	*96.098*
		100

STEP 2

Year	*payment*	*payment of value*	*relative value*$=\frac{present\ value\ of\ payment}{value\ of\ the\ bond}$
1	*1*	*0.990*	$\frac{0.990}{100}$ *=0.0099*
2	*1*	*0.980*	$\frac{0.980}{100}$*= 0.0098*
3	*1*	*0.97059*	$\frac{0.97059}{100}$ *=0.0097059*
4	*1*	*0.9608*	$\frac{0.96098}{100}$*=0.0096098*
5	*101*	*96.098*	$\frac{96.098}{100}$*=0.96098*
		=100	***= 1.0***

STEP 3

YEAR	***RELATIVE VALUE***	***YEAR X RELATIVE VALUE***
1	*0.0099*	*0.0099*

2	*0.0098*	*0.0196*
3	*0.0097059*	*0.0291177*
4	*0.0096098*	*0.03843492*
5	*0.96098*	*4.8049*
		=4.9019

THE effective maturity of 5year of the bond with the 1 percent coupon bond will be 4.9019