ACI

3I0-008 Exam

ACI DEALING CERTIFICATE

Question: 1

How many USD would you have to invest at 3.5% to be repaid USD125 million (principal plus interest) in 30 days?

INTEREST RATE CONVERSIONS

Converting between bond basis and money market basis (Act/360)

$$\text{rate}_{\text{bond basis}} = \text{rate}_{\text{money market basis}} \frac{365}{360}$$

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Converting between annually and semi-annually compounding frequencies

$$\text{rate}_{\text{annually-compounded}} = \left(1 + \frac{\text{rate}_{\text{semi-annually compounded}}}{2}\right)^2 - 1$$

$$\text{rate}_{\text{semi-annually compounded}} = \left(\sqrt{1 + \text{rate}_{\text{annually compounded}}} - 1\right)2$$

The formulae for converting between annually and semi-annually compounded rate apply only to rates quoted on a bond basis, not a money market basis.

MONEY MARKET

Certificates of deposit

$$\text{proceeds at maturity} = \text{face value}\left(1 + \frac{\text{coupon x term}}{\text{annual basis}}\right)$$

$$\text{secondary market proceeds} = \frac{\text{proceeds at maturity}}{1 + \frac{\text{yield x day count}}{\text{annual basis}}}$$

Discount-paying instruments quoted as a true yield

$$\text{secondary market proceeds} = \frac{\text{face value}}{1 + \frac{\text{yield x day count}}{\text{annual basis}}}$$

Discount-paying instruments quoted as a rate of discount

$$\text{discount amount} = \text{face value}\ \frac{\text{rate of discount x day count}}{\text{annual basis}}$$

$$\text{secondary market proceeds} = \text{face value}\left(1 - \frac{\text{rate of discount x day count}}{\text{annual basis}}\right)$$

$$\text{true yield} = \frac{\text{rate of discount}}{1 - \frac{\text{rate of discount x day count}}{\text{annual basis}}}$$

Forward price of sell/buy-back

$$\text{forward price} = \frac{(\text{repurchase price} - \text{accrued interest on collateral at termination})}{\text{nominal price of collateral}}100$$

FORWARD-FORWARDS & FORWARD RATE AGREEMENTS

forward - forward rate =

$$\left[\frac{1+\dfrac{\text{interest rate}_{\text{long period}}\ \text{x day count}_{\text{long period}}}{\text{annual basis}}}{1+\dfrac{\text{interest rate}_{\text{short period}}\ \text{x day count}_{\text{short period}}}{\text{annual basis}}}-1\right]\frac{\text{annual basis}}{\text{day count}_{\text{forward-forward period}}}$$

$$\text{FRA settlement amount} = \text{notional principal amount}\ \frac{\left(\dfrac{(\text{FRA rate} - \text{settlement rate})\ \text{x day count}}{\text{annual basis}}\right)}{\left(1+\dfrac{\text{settlement rate x day count}}{\text{annual basis}}\right)}$$

price =

$$100\left[\left(\frac{\text{coupon}}{\text{yield}}\left(1-\frac{1}{(1+\text{yield})^{\text{remaining coupons}}}\right)\right)+\frac{1}{(1+\text{yield})^{\text{remaining coupons}}}\right]$$

Dirty price of bond with annual coupons

dirty price =

$$\frac{\text{first cashflow}}{(1+\text{yield})^{\frac{\text{days to next coupon}}{\text{annual basis}}}}+\frac{\text{second cashflow}}{(1+\text{yield})^{1+\frac{\text{days to next coupon}}{\text{annual basis}}}}+\Lambda+\frac{n^{th}\text{ cashflow}}{(1+\text{yield})^{(n-1)+\frac{\text{days to next coupon}}{\text{annual basis}}}}$$

Duration at issue or on a coupon date

Macaulay Duration =

$$\frac{\left[\begin{array}{l}(\text{present value of first coupon amount}\times\text{time to first coupon})+\\ \quad(\text{present value of second coupon amount}\times\text{time to second coupon})+\ldots\\ \quad\quad+(\text{present value of }(\text{last coupon amount}+\text{nominal amount})\times\text{time to last coupon})\end{array}\right]}{\text{net present value of bond}}$$

$$\text{Modified Duration}=\frac{\text{Macaulay Duration}}{\left(1+\frac{\text{yield}}{\text{compoundin g frequency}}\right)}$$

Calculating zero-coupon yield from an annual yield-to-maturity (bootstrapping)

zero - coupon yield for n - year term

$$=\left(\sqrt[n]{\frac{\text{final coupon amount}+\text{nominal amount}}{\text{implied present value of final coupon and nominal amount}}}-1\right)100$$

FOREIGN EXCHANGE

Forward FX rate

$$\text{forward rate} = \text{spot rate}\ \frac{1 + \dfrac{\text{interest rate}_{\text{quoted currency}} \times \text{day count}}{\text{annual basis}_{\text{quoted currency}}}}{1 + \dfrac{\text{interest rate}_{\text{base currency}} \times \text{day count}}{\text{annual basis}_{\text{base currency}}}}$$

Covered interest arbitrage

synthetic quoted currency interest rate =

$$\left[\left(\left(1 + \frac{\text{interest rate}_{\text{base currency}} \times \text{day count}}{\text{annual basis}_{\text{base currency}}}\right)\frac{\text{forward rate}}{\text{spot rate}}\right) - 1\right]\frac{\text{annual basis}_{\text{quoted currency}}}{\text{day count}}$$

synthetic base currency interest rate =

$$\left[\left(\left(1 + \frac{\text{interest rate}_{\text{quoted currency}} \times \text{day count}}{\text{annual basis}_{\text{quoted currency}}}\right)\frac{\text{spot rate}}{\text{forward rate}}\right) - 1\right]\frac{\text{annual basis}_{\text{base currency}}}{\text{day count}}$$

OPTIONS

Standard deviation

$$\text{standard deviation} = \sqrt{\frac{\sum_{t=1}^{n}(\text{return at time } t - \text{mean return})^2}{\text{number of observations} - 1}}$$

Calculating the volatility over a period from annualised volatility

$$\text{volatility over period } t = \text{annualised volatility}\sqrt{t}$$

Where t is in years or fractions thereof.

A. USD 124,641,442.43
B. USD 124,636,476.94
C. USD 124,635,416.67
D. USD 123,915,737.30

Answer: B

Question: 2

What is the day count/annual basis convention for euroyen deposits?

A. Actual/365
B. Actual/360
C. Actual/actual
D. 30E/360

Answer: B

Question: 3

Todays date is Thursday 12th December. What is the spot value date? Assume no bank holidays.

A. 14th December
B. 15th December
C. 16th December
D. 17th December

Answer: C

Question: 4

EURIBOR is the:

A. Daily fixing of EUR interbank deposit rates in the European market
B. Daily fixing of EUR interbank deposit rates in the London market
C. Another name for EUR EIBOR
D. The ECBs official repo rate

Answer: A

Question: 5

Which of the following rates represents the highest investment yield in the euromarket?

A. Semi-annual bond yield of 3.75 %
B. Annual bond yield of 3.75 %
C. Semi-annual money market yield of 3.75 %
D. Annual money market rate of 3.75 %

Answer: C

Question: 6

Which of the following are transferable instruments?

A. Eurocertificate of deposit
B. US Treasury bill
C. CP
D. All of the above

Answer: D

Question: 7

Which of the following is always a secured instrument?

A. ECP

B. Repo
C. Interbank deposit
D. CD

Answer: B

Question: 8

Which of the following is sometimes called two-name paper?

A. ECP
B. BA or bank bill
C. Treasury bill
D. CD

Answer: B

Question: 9

What usually happens to the collateral in a tri-party repo?

A. It is put at the disposal of the buyer
B. It is held by the seller in the name of the buyer
C. It is held by the tn-party agent in the name of the buyer
D. It is frozen in the sellers account with the tri-panty agent

Answer: C

Question: 10

Which type of repo is the least risky for the buyer?

A. Delivery repo
B. HIC repo
C. Tri-party repo
D. There is no real difference

Answer: A

Question: 11

A customer gives you GBP 25 million at 6.625% same day for 7 days. Through a broker, you place the funds with a bank for the same period at 6.6875%. Brokerage is charged at 2 basis points per annum. What is the net profit or loss on the deal?

A. Profit of GBP 299.66

B. Profit of GBP 203.77
C. Loss of GBP 299.66
D. Loss of GBP 203.77

Answer: B

Question: 12

What are the secondary market proceeds of a CD with a face value of EUR 5 million and a coupon of 3% that was issued at par for 182 days and is now trading at 3% but with only 7 days remaining to maturity?

A. EUR 4,997,085.03
B. EUR 5,000,000.00
C. EUR 5,071,086.45
D. EUR 5,072,874.16

Answer: D

Question: 13

A CD with a face value of USD50 million and a coupon of 4.50% was issued at par for 90 days and is now trading at 4.50% with 30 days remaining to maturity. What has been the capital gain or loss since issue?

A. +USD 373,599.00
B. +USD 186,099.00
C. -USD 1,400.99
D. Nil

Answer: C

Question: 14

The tom/next GC repo rate for German government bonds is quoted to you at 1.75-80%. As collateral, you sell EUR1O million nominal of the 5.25% bund July 2012, which is worth EUR 11,260,000, with no initial margin. The Repurchase Price is:

A. EUR 10,000,500.00
B. EUR 10,000,486.11
C. EUR 11,260,563.00
D. EUR 11,260,547.36

Answer: C

Question: 15

The one-month (31-day) GC repo rate for French government bonds is quoted to you at 3.75- 80%. As collateral, you are offered EUR25 million nominal of the 5.5% OAT April 2006, which is worth EUR 28,137,500. If you impose an initial margin of 1%, the Repurchase Price is:

A. EUR 27,947,276.43
B. EUR 27,946,077.08
C. EUR 27,950,071.43
D. EUR 27,948,871.97

Answer: D

Question: 16

If EUR/USD is quoted to you as 1.1050-53, does this price represent?

A. The number of EUP per USD
B. The number of USD per EUR
C. Depends on whether the price is being quoted in Europe or the US
D. Depends on whether the price is being quoted interbank or to a customer

Answer: B

Question: 17

How much is a big figure worth per million of base currency it EUR/GBP is 0.6990?

A. GBP 10,000
B. EUR 10,000
C. GBP 6,990
D. EUR 6,990

Answer: A

Question: 18

What is the incentive for market-making?

A. Bid/offer spread
B. Flow information
C. Relationships
D. All of the above

Answer: D

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