

## **DIPLOMA SUMMER 2009 EXAMINATION**

---

### **BONDS AND FIXED INTEREST MARKETS**

---

**DATE OF EXAM**      Thursday 25 June 2009

**3 HOURS**              10.00 am – 1.00 pm

**RUBRIC**              SECTION A - *ALL* questions in this section are to be answered  
SECTION B – *ALL* questions in this section are to be answered  
SECTION C – *TWO* questions in this section are to be answered

**Candidates are reminded that no marks will be awarded for illegible work**

---

#### **NOTES TO CANDIDATES**

1. Please insert your Candidate Number on the Answer Book cover. *Do not insert your name.*
2. Show *all* workings in your Answer Book.
3. Candidates may attempt the sections in any order. Please indicate clearly in your Answer Book which questions you are answering.
4. Please insert in the box provided on the cover of your Answer Book the numbers of the questions you have attempted in the order in which they appear in the Answer Book.
5. You may use the calculator provided or one approved by the Securities & Investment Institute.
6. You must hand your Answer Book to an invigilator before you leave the Examination Hall. *Failure to do so will result in disqualification.*
7. Once submitted, the examination scripts become the property of the Securities & Investment Institute and will not be returned to candidates.

**Answer ALL questions in this section**

- 1 Answer the following questions about the 5-year maturity benchmark bond which has the following properties:

Trade date:	13/4/09
Settlement date:	14/4/09
Maturity date:	31/3/14
Coupon:	1.75% S.A. ACT/ACT
Issue date:	31/3/09
Next coupon date:	30/9/09
Clean price:	99-11
Trade amount:	\$10m nominal

What is the:

- a) Clean price consideration
- b) Accrued coupon
- c) Settlement amount *(3 marks)*

- 2 You are a Gilt Edged Market Maker (GEMM) at a large commercial bank and you are bidding in an auction of a new 10-year maturity gilt issue. The properties of the gilt are as follows:

Maturity:	10-years
Coupon:	3.25% paid S.A. ACT/ACT
Your bid price:	99.21 (clean price)
Amount bid for:	£100m nominal
Modified Duration:	8.05

- a) What is your interest rate sensitivity (in £) for a 1bp change in the yield-to-maturity of the gilt (BPV of .01% also referred to as DV01) assuming that your tender is accepted? *(2 marks)*
- b) You believe that you can sell the gilts to a pension fund at a clean price of 99.2402. If you are able to complete this transaction and assuming that you purchase the gilts in the auction what is your profit? *(2 marks)*

- 3 You are a fund manager responsible for running a convertible bond fund. One of your investment banking contacts calls you to ascertain your potential interest in a convertible issue for which he has been mandated. He gives you the following information:

Issuer:	A- rated major retailer
Maturity:	5-years
Premium:	15%
Spread to 5-year gilt:	3.50%
Coupon:	4%
Equity yield:	2.50%

You believe that the recession has a further 6 months to run and then the economy will begin a steady but not spectacular recovery. You are attracted by the bond for two significant reasons and see one potential negative point. Describe the positives and negatives of investing in this issue. *(8 marks)*

- 4 Define each of the following terms and give a brief description of each of their uses.

a) R.P.I. *(2 marks)*

b) C.P.I. *(2 marks)*

c) Quantitative easing *(2 marks)*

d) Real interest rates *(2 marks)*

- 5 A FTSE 250 company has two borrowing obligations which are fully utilised. The first obligation is an evergreen facility from its bank and the second one is a five-year maturity bond issue constituted under a trust deed. The terms of the loan facility requires interest cover of 1 ½ times and both facilities have cross default clauses. The Finance Director of the company is concerned that the severity of the recession will cause the company to make a loss in the coming year's accounts.

a) What actions should the Finance Director take? *(2 marks)*

b) If the Finance Director is unsuccessful in these actions what are the consequences for the company? *(2 marks)*

- 6 A European utility company has €250m of 18-month maturity floating rate notes outstanding on which the company is paying 3-m EURIBOR +40bp. The FRNs were issued 18-months ago and the credit spread compares very favourably with a similar issue that could be undertaken today. The current credit spread would be 125bps.

The Treasurer of the utility has budgeted interest rates for the next 18-months at 4%. She is considering whether to convert the FRN to a fixed rate borrowing and gets quotes for interest rates and FRAs as follows:

3-month EURIBOR:	1.43%
3 x 6 FRA:	1.28%
6 x 9 FRA:	1.43%
9 x 12 FRA:	1.53%
12 x 18 FRA:	1.95%

- a) Briefly describe an FRA (2 marks)
- b) What advice would you give the Treasurer? (4 marks)
- b) What is her interest cost for the first year assuming that she pays interest quarterly and wants to know the annual equivalent rate? (2 marks)
- c) If the Treasurer converts from a floating to a fixed rate what are the possible disadvantages? (2 marks)
- 7 Today is Tuesday 14th April 2009.
- a) Calculate the repayment amount for the following money market deposit - £1m placed at 1.56% for 3-months (1 mark)
- b) Calculate the repayment amount for the following money market deposit - \$1m placed at 0.45% for 1-month (1 mark)
- c) Calculate the price of a 5-year maturity zero coupon bond on an annual ACT/ACT basis if the bond has a yield-to-maturity of 2.45% (1 mark)
- d) Calculate the fair price of a Euro denominated 3 x 6 month FRA quoted on an ACT/360 basis if the 3-month deposit rate is 1.4280% (91 days) and the 6-month deposit rate is 1.6240% (183 days) (2 marks)
- e) A 10-year maturity gilt has a yield-to-maturity of 3.29% on a semi annual basis. What does this equate to on an annual basis? (1 mark)
- f) What price would you pay for a 5% coupon 2-year maturity annual ACT/ACT corporate bond if the 2-year government bond yield-to-maturity is 1.36% S.A. ACT/ACT and the company pays an annual credit spread of 2.1%? (2 marks)

***THIS PAGE IS INTENTIONALLY BLANK***

***PROCEED TO SECTION B OVERLEAF***

## Answer ALL questions in this section

- 8 You are a bond fund manager and you have just launched a UK Gilt Total Return Fund. Your fund is allowed to have a Modified Duration of between 3 and 7-years. You believe that the recession has a further 6-month to run and then the economy will start a slow recovery. You are aware that the UK Government has a significant amount of gilts to issue over the next 2-years and it is possible that inflation will become a problem in the future.

You can invest in any of the following benchmark gilts and the fund is permitted to use interest rate derivatives for duration adjustment purposes:

YIELD CURVE – UK GOVERNMENT BENCHMARK								
		DESCRIPTION		PRICE	SRC	UPDATE	YIELD	HEDGED YIELD
3MO	1	UKTB 0 07/13/09	B	99.8633	BGN	18:33	0.5615	0.5615
6MO	2	UKTB 0 10/12/09	B	99.5580	BVAL	16:00	0.9003	0.9003
1Y	3	UKT 4¾ 06/07/10	B	104.4574	BGN	18:33	0.8316	0.8316
2Y	4	UKT 4¼ 03/07/11	B	105.4910	BGN	18:33	1.3048	1.3048
3Y	5	UKT 03/07/12	B	108.1353	BGN	18:33	2.0877	2.0877
4Y	6	UKT 4½ 03/07/13	B	107.6548	BGN	18:33	2.4273	2.4273
5Y	7	UKT 5 09/07/14	B	113.1802	BGN	18:33	2.3812	2.3812
6Y	8							
7Y	9	UKT 4¾ 09/07/15	B	112.4228	BGN	18:33	2.6263	2.6263
8Y	10	UKT 4 09/07/16	B	108.5652	BGN	18:33	2.7134	2.7134
9Y	11	UKT 5 03/07/18	B	115.6432	BGN	18:33	2.9840	2.9840
10Y	12	UKT 4½ 03/07/19	B	110.8433	BGN	18:33	3.2117	3.2117
15Y	13	UKT 5 03/07/25	B	111.5625	BGN	18:33	4.0089	4.0089
20Y	14	UKT 4¾ 12/07/30	B	108.3398	BGN	18:33	4.1614	4.1614
30Y	15	UKT 4¾ 12/07/38	B	107.9254	BGN	18:33	4.2756	4.2756

- a) Propose, with reasons, an asset allocation for the fund on a 1-year horizon. (5 marks)
- b) What is your weighted portfolio yield-to-maturity? (3 marks)
- c) Describe three ways in which you could reduce the impact of adverse interest rate movements. (6 marks)
- d) Give three reasons why an investor should choose your portfolio in preference to a bond fund that tracks a bond index and has a 5-year Modified Duration. (3 marks)

- e) How does your portfolio perform on a mark-to-market basis when compared to a bond index with a 5-year Modified Duration if:
- i) The yield curve rises in parallel by 1bp *(2 marks)*
  - ii) The yield curve falls in parallel by 1bp *(2 marks)*
  - iii) The yield curve steepens with long term rates rising faster than short term rates *(2 marks)*
  - iv) The yield curve flattens with short term rates rising faster than long term rates *(2 marks)*

## **SECTION C**

**TOTAL 30 MARKS**

**Answer TWO of the FOUR questions in this section.  
Each question carries 15 marks.**

- 9 a) Define Core Tier 1 Capital that a bank has and explain what it is used for. *(4 marks)*
- b) What must a bank do (under the Basel I or II Capital Accord) if its Tier 1 capital falls below 4% of weighted risk assets? *(4 marks)*
- c) A bank wants to improve its Tier 1 Capital. (Which type of instrument would best achieve this objective?)
- i) A 5-year maturity convertible bond *(1 mark)*
  - ii) A 3-year maturity mandatory convertible bond *(1 mark)*
  - iii) A 3-year maturity straight bond *(1 mark)*
- d) What alternative methods can be used by the bank to enhance its Tier 1 Capital? *(4 marks)*
- 10 The Bank of England has embarked on a policy of Quantitative Easing.
- a) Describe how Quantitative Easing works. *(6 marks)*
  - b) Describe what the Bank hopes to achieve through Quantitative Easing. *(6 marks)*
  - c) What are the dangers of Quantitative Easing? *(3 marks)*

**PLEASE TURN OVER**

- 11 The regulatory authorities in the UK, Europe and the US have insisted that the Credit Default Swap Market implements steps to have the market cleared and guaranteed by a Central Counterparty or Clearing House using an appropriate margining system.
- a) What advantage does a Clearing House offer over bilateral agreements? *(5 marks)*
  - b) What risks would the Clearing House run? *(5 marks)*
  - c) If you were the risk manager of the Clearing House how would you endeavour to minimise the risk to the Clearing House? *(5 marks)*
- 12 You are a Corporate Bond Fund Manager, managing an investment grade portfolio and you are reviewing your portfolio which contains the following corporate bond:

Issuer:	BBB- rated Construction Company
Maturity:	5-year bullet
Coupon:	5% annual ACT/ACT
Yield-to-maturity:	5.81% (3.43% credit spread over 5% coupon 2014 gilt)

The construction sector has been under severe pressure for the last 12-months and you suspect that the rating agencies will place the company's debt on credit watch in the near future. The credit spread on this bond has fluctuated between 3.40% and 3.50% over the last two months.

- a) Discuss the risks that you run by continuing to hold this bond in your portfolio and comment upon whether you believe that the fund is being adequately rewarded for these risks. *(5 marks)*
- b) If the company is placed on credit watch (negative) what are the implications for your fund which is UCITs 3 compliant? *(5 marks)*
- c) What action should you take? *(5 marks)*