CHARTERED INSTITUTE FOR
SECURITIES & INVESTMENT

DIPLOMA SUMMER 2010 EXAMINATION

BONDS AND FIXED INTEREST MARKETS

DATE OF EXAM	Wednesday 23 June 2010
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 Chartered Institute for Securities & Investment.
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 Chartered Institute for Securities & Investment and will not be returned to candidates.

PLEASE TURN OVER WHEN INSTRUCTED

SECTION A TOTAL 45 MARKS

Answer ALL questions in this section

1 Explain how the UK Balance of Payments is affected by a falling Pound. Describe THREE secondary effects which might occur. *(5 marks)*

2 What is your total money return from a £10m nominal floating rate note that you purchased at par one year prior to its maturity date? The FRN paid 3-month £ LIBOR +250 bps. Assume, for this calculation, that you can re-invest the coupons at LIBOR.

The LIBORs were set as follows:

Quarter 1	**Quarter 2**	**Quarter 3**	**Quarter 4**
1.55% for 91 days	1.65% for 91 days	1.71% for 92 days	1.78% for 91 days

(4 marks)

3 Match the coupons to the gilts:

Coupons: 8% 6% 4 ¾% 2 ¾% 0%

Gilt	**Maturity**	**Clean Price**	**Yield-to-Maturity**	**Coupon**
Gilt A	7th March 2014	99.35	2.82%	
Gilt B	25th August 2017	133.60	3.60%	
Gilt C	7th December 2039	101.13	4.66%	

(4 marks)

4 A fund manager owns £10m nominal of Virgin Media Finance plc 7% 15th January 2018 maturity bonds priced at 101.50 to yield 6.7% with a modified duration of 6.09 years. The fund manager has also purchased £10.15m of 5-year maturity CDS referencing Virgin Media Finance plc. The CDS has a CS01 (credit spread sensitivity for a 0.01% change in the CDS price) of £4,660.

a) Which risk has the fund manager hedged? *(2 marks)*

Spread risk

Market risk

Default risk

b) Explain why the risk identified has been hedged. If the event hedged occurs, what are the consequences? *(2 marks)*

5 A 10-year maturity convertible bond was issued five years ago and contained the following clauses in the prospectus:

- Coupon 5% p.a. annual ACT/ACT.
- Hard call – 3 years.
- The issuer can call the convertible bond at par if the share price of the issuer trades at an average price of 110% of the conversion price for 30 days.
- Conversion price per share £5.00.
- After five years the investor can put the convertible bond back to the issuer at par.

a) The company is now loss making, the shares are trading at £1.60 with no prospect of a dividend for the next two years. A straight bond recently issued by the company at a price of 99.75 carried a coupon of 9.75%.
What action would the investor take? Give TWO reasons why. *(2 marks)*

b) The average share price of the issuing company has been £5.58 over the last 30 days. The issuing company wants to strengthen its balance sheet by decreasing its debt to equity ratio.
What action would the issuer take? Give TWO reasons why. *(2 marks)*

6 What is the DV01 (Basis Point Value of 0.01%) of $10m nominal of a 7 year maturity zero coupon US Treasury Bond with a 3.50% p.a. semi-annual ACT/ACT yield-to-maturity? *(3 marks)*

7 a) What does the term "riding the yield curve" mean? *(2 marks)*

b) How does riding the yield curve benefit a UCITS compliant long only bond fund that has to report NAV on a current value basis if:

- the yield curve is upward sloping. *(2 marks)*

- the yield curve remains constant for a one month period. *(2 marks)*

8 A Gilt Fund owns £25m nominal of the 2 ¾% January 2015 gilt trading at a price of 99.93. The fund manager decides to purchase a 96.00 put to 102.00 call strike price 1-year collar, the prices of which are as follows:

- Call income received 22 basis points (5 redemption yield points)
- Put cost paid 38 basis points (8.5 redemption yield points)

a) Describe the risk reward profile of the position (owning the gilt and collar combined). *(2 marks)*

b) How would the strategy have performed (relative to the gilt) and why, if in a year's time, the clean price of the gilt is 105? *(2 marks)*

c) How would the strategy have performed (relative to the gilt) and why, if in a year's time, the clean price of the gilt is 93? *(2 marks)*

9 Describe what happens to modified duration (increases or decreases) under the following conditions. Assume that only one factor changes at a time.

a) Term to maturity is increased. *(1 mark)*

b) Coupon is increased. *(1 mark)*

c) Yield-to-maturity increases. *(1 mark)*

10 A company had the following liabilities outstanding when it defaulted:

- Ordinary shares
- A 3-year maturity debenture secured by a fixed charge over its land and property
- HM Revenue and Customs for unpaid VAT and PAYE (sales tax and income tax withheld from employees but not yet paid to HMRC)
- A bank overdraft secured by a floating charge over the assets and undertakings
- Preference shares
- Subordinated Bonds

A receiver/liquidator has been appointed by the bank and has realised some funds. Describe how the money that has been received may be distributed including the priority of payment. *(6 marks)*

SECTION B TOTAL 25 MARKS

Answer ALL questions in this section

11 Today is 25 March 2010. A GEMM believes that gilt yields are likely to increase in the coming months as the market digests the amount of issuance that will be required to finance the budget deficit and as the effect of Quantitative Easing starts to unwind. The GEMM also believes that the curve will steepen. His overall view of the curve is as follows:

2 year yield-to-maturity will rise from 1.16% to 1.36%
5 year yield-to-maturity will rise from 2.96% to 3.20%
10 year yield-to-maturity will rise from 4.05% to 4.35%

The GEMM has to stay long £100m of the two year maturity gilt for inventory purposes but wants to hedge the risk by selling short either the five or ten year maturity gilt on a market neutral basis. Table 1 shows information about the on the run gilts.

25 March 2010 Coupon	Redemption Date	Yield to redemption	Dirty Price	Modified Duration	DV of .01% Per £1m nominal
3.25%	07 December 2011	1.16%	£ 103.51890	1.65	£ 170.81
2.75%	22 January 2015	2.96%	£ 99.07572	4.47	£ 442.87
4.50%	07 March 2019	4.05%	£ 103.34102	7.33	£ 757.49

a) Calculate the amount of nominal required to hedge the 2-year inventory with
   i) The 5-year maturity gilt *(1 mark)*
   ii) The 10-year maturity gilt *(1 mark)*

b) If the GEMM's yield curve projections are correct, which short position would be more profitable, the five year or ten year maturity gilt? (Ignore convexity.) *(2 marks)*

c) Assuming that the yield curve moves in the way that the GEMM has predicted, what will the combined profit and loss be for the inventory position and the short position for:
   i) The 5-year maturity gilt *(2 marks)*
   ii) The 10-year maturity gilt *(2 marks)*

d) The GEMM needs to finance the two year long inventory position and borrow the gilt that is used to hedge. Assume that this operation is executed using 7-day repo and the price for general collateral (GC) is quoted in the market as 0.53% to 0.58% on an ACT/365 basis. Assume that the GEMM finances the inventory long position at 0.58% and borrows the hedge gilt as a "special" at GC bid minus 0.02%.

   What is the cost over the seven days of the repo transaction of financing the inventory position and borrowing the 5 year maturity gilt as a hedge? Ignore coupon accruals for this calculation. *(3 marks)*

12 Today is 1 April 2010. You have been asked to comment on an investment in corporate bonds by a 53 year old experienced investor who has a SIPP (Self Invested Personal Pension) with your brokerage. The investor has a target retirement date of 55. The investor has reduced the equity asset allocation within his portfolio by selling some of the more speculative stocks that he owned and wants to invest up to 20% of his portfolio in corporate bonds. He has identified the following bonds, all of which rank senior unsecured except Bond 3. The total value of the portfolio is £10m:

Bond	**Issuer**	**S& P Rating**	**Maturity**	**Price**	**Coupon**	**Yield to maturity**	**Modified Duration**
Bond 1	ITV plc	B+	3 Oct 2011	104.75	4 ¾% Annual ACT/ACT Coupon steps up to 6% on 3 Oct 2010	2.69% Spread to Gilt is 1.91%	1.40
Bond 2	Ladbrokes Group plc	BB	11 July 2012	106.37	7.125% Annual ACT/ACT	4.10% Spread to Gilt is 2.70%	2.03
Bond 3	Skipton Building Society	AAA	20 Nov 2013 Covered Bond	99.4360	3 month £ LIBOR + 0.50% ACT/365 Current LIBOR is 0.52% p.a. (91 days)	Spread for life is 0.65%	3.41 for credit spread purposes only
Forward LIBORs are: 3 x 6 = 0.66% (91 days) 6 x 9 = 0.72% (92 days) 9 x 12 = 0.85% (91 days)							
Bond 4	Marks and Spencer plc	BBB-	24 Mar 2014	105.71	5.625% Annual ACT/ACT	4.04% Spread to Gilt is 1.70%	3.59
Bond 5	Tesco plc	A-	13Dec 2019	106.50	5 ½% Annual ACT/ACT	4.65% Spread to Gilt is 0.62%	7.54

a) Explain to your investor what would happen to the price of each bond if credit spreads were to increase over the next year. Do this by ranking the bonds (least sensitive to most sensitive) and provide a short explanation of how the credit spread sensitivity could be calculated. *(2 marks)*

b) Which, if any, of the bonds would you consider speculative with regard to the borrower's ability to repay? *(1 mark)*

c) The investor has asked you what return can be expected for the next twelve months if the asset allocation is spread equally between the five bonds. What do you calculate the first year return to be on an annual ACT/365 basis? *(2 marks)*

d) The investor asks if it is possible to achieve this return given that one of the bonds is an FRN. Explain how the interest rate return on the FRN could be secured and how the process works. *(2 marks)*

e) The investor has told you that he would like to retire in two years' time and will want to take the maximum 25% cash, tax free lump sum from his fund. He will be reducing the equity holdings in the portfolio by 15% over the next two years; the sale proceeds will be used to buy bank certificates of deposit.
He has asked whether it is possible to create a portfolio that becomes cash (via maturing bonds or with minimal interest rate sensitivity) to provide the remainder of the cash (£1,000,000) on his expected retirement date (or within 6 months). If it is possible, can a return of 3.25% p.a. be generated? If this approach is taken, what are the pitfalls? *(3 marks)*

f) Using the investor's preferred list of bonds, what asset allocation do you recommend, and why? *(4 marks)*

SECTION C TOTAL 30 MARKS

Answer TWO of the FOUR questions in this section.

Each question carries 15 marks.

13 Describe the role of the UK Debt Management Office, who it interacts with and why the DMO is critical to the health of the UK public finances. *(15 marks)*

14 A sophisticated UK high net worth individual has asked your advice about an investment in a 5-year maturity dual currency bond which will be issued in Sterling at a price of par by an A-rated utility. The coupon on the dual currency bond is 1% p.a. lower than that which is available on a straight issue by the same company.

The spot GBP/USD rate is 1.50 and the bond gives the investor the right to repayment either in Sterling or US Dollars at a rate of 1.50. The investor has a well diversified portfolio. This would represent 5% of the portfolio. The investor believes that Sterling may come under considerable pressure if the current deficit is not tackled.

Discuss the advantages and disadvantages for the investor in purchasing this bond. *(15 marks)*

PLEASE TURN OVER

15 Much has been written about the role played by credit default swaps (CDS), asset backed securities (ABS) and collateralised debt obligations (CDOs) in causing the credit crisis. Reforms of the market are being sought by regulators and politicians. The reforms range from the suggestion that naked CDS trades should not be allowed through to an outright ban on CDS and CDOs.

a) Describe how you would reform the market for single name and sovereign CDS and how your reforms would impact upon the market for single name corporate and sovereign CDS and CDS Indexes such as the iTRAXX family of indexes. *(8 marks)*

b) Discuss whether CDOs and ABS are valuable financing and risk management tools or simply financial engineering "toys". *(7 marks)*

16 The developed market economies are mainly running huge fiscal and balance of payments deficits which are being financed by the issuance of large amounts of government debt. Many developing economies are running trade and current account surpluses because of cheap labour markets or supplies of commodities and natural resources.

Discuss how this global trade and capital imbalance might impact upon the global bond markets, foreign exchange rates and the US Dollar as the world's reserve currency. *(15 marks)*