

UNIVERSITY OF BRADFORD

MAN4261M

BOND MARKET ANALYSIS & CREDIT RISK (MSc)

9th May 2014

16:00 – 17:30 hours

Main

This is a **CLOSED BOOK** examination

Answer **ALL** questions in Section A

Section A carries 36 marks

Answer **TWO** of **THREE** questions in Section B

Section B carries 40 marks

Answer **TWO** of **THREE** questions in Section C

Section C carries 24 marks

Section A

Answer **ALL** questions in Section A

1. Suppose that a 10% 15-year bond has the following call structure:

- not callable for the next 5 years;
- first callable in 5 years at \$105;
- first par call date is in 10 years;
- the price of the bond is \$127.5880.

Required:

a. Is the yield to maturity for this bond 7.0%, 7.4%, or 7.8%?

(12 marks)

b. Is the yield to first call for this bond 4.55%, 4.65%, or 4.85%?

(12 marks)

c. Is the yield to first par call for this bond 6.25%, 6.55%, or 6.75%?

(12 marks)

Section B

Answer **TWO** of **THREE** questions in Section B

1. Four portfolio managers are discussing the meaning of option-adjusted spread. Here is what each asserted:
 - Manager 1: “The option-adjusted spread is a measure of the value of the option embedded in the bond. That is, it is the compensation for accepting option risk.”
 - Manager 2: “The option-adjusted spread is a measure of the spread relative to the Treasury on-the-run yield curve and reflects compensation for credit risk.”
 - Manager 3: “The option-adjusted spread is a measure of the spread relative to the Treasury on-the-run yield curve and reflects compensation for credit risk and liquidity risk.”
 - Manager 4: “The option-adjusted spread is a measure of the spread relative to the issuer’s on-the-run yield curve and reflects compensation for credit risk and liquidity risk.”

Comment on each manager’s interpretation of OAS (i.e., the Option Adjusted Spread).

(20 marks)

2. Suppose that \$500 million of passthroughs are used to create a CMO (Collateralized Mortgage Obligation) structure with a PAC (Planned Amortization Class) tranche with a par value of \$350 million (PAC I), a support tranche with a schedule (PAC II) with a par value of \$100 million, and a support tranche without a schedule with a par value of \$200 million.

Required:

- a. Will the PAC I or PAC II have less average life variability? Why?

(10 marks)

- b. Will the support tranche without a schedule or the PAC II have the greater average life variability? Why?.

(10 marks)

3. Suppose that empirical evidence on prepayments for manufactured housing loans suggests that borrowers do not take advantage of refinancing when interest rates decline. Explain whether the zero-volatility spread approach or OAS (Option Adjusted Spread) approach is appropriate for valuing securities backed by manufacturing housing loans.

(20 marks)

Section C

Answer **TWO** of **THREE** questions in Section C

1. A portfolio manager is considering the purchase of a new type of bond. The bond is extremely complex in terms of its embedded options. Currently, there is only one dealer making a market in this type of bond. In addition, the manager plans to finance the purchase of this bond by using the bond as collateral. The bond matures in five years and the manager plans to hold the bond for five years. Because the manager plans to hold the bond to its maturity, he has indicated that he is not concerned with liquidity risk. Explain why you agree or disagree with the manager's view that he is not concerned with liquidity risk.

(12 marks)

2. Why are funded investors who borrow short term interested in a LIBOR yield curve rather than the Treasury yield curve?

(12 marks)

3. Answer both a and b below:
 - a. Why is modified duration an inappropriate measure for a high-coupon callable bond?

(6 marks)

 - b. What would be a better measure than modified duration?

(6 marks)