

Pricing of Financial Securities and Derivatives

Final Exam 20.12.2012

Time: 4 hours

Examinator: Henrik Palmén

Calculator may be used

Minimum to pass:

1. Final exam only: min. 50 p

2. Midterm + Final exam: Midterm min 25p and theory section in Final Exam min 20p, altogether min 50p

PART I: Calculation (If you have passed the midterm then you can skip this. You may try to increase your points from the midterm in which case the better result of those two will be credited in the final grading.

1. The yield on a 1-year zero-coupon bonds is currently 7%; the YTM on 2-year zeros is 8%. The treasury plans to issue a 2-year maturity coupon bond, paying coupons once a year with a coupon rate of 9%. The face value of the bond is \$100. (BKM 15.11) 15p
 - a) At what price will the bond sell?
 - b) If the expectations theory of the yield curve is correct, what is the market expectation of the price that the bond will sell for next year?
 - c) Recalculate your answer to b) if you believe in the liquidity preference theory and you believe the liquidity premium is 1%.
2. A \$100 million interest rate swap has a remaining life of 10 months. Under the terms of the swap, six-month LIBOR is exchanged for 7% per annum (compounded semi-annually). The average of the bid-offer rate being exchanged for six-month LIBOR in swaps of all maturities is currently 5% per annum with continuous compounding. The six-month LIBOR rate was 4.6% per annum two months ago. What is the current value of the swap to the party paying floating? What is its value to the party paying fixed? (Hull 7.3) 20p
3. A one-month European put option on a non-dividend-paying stock is currently selling for \$2.50. The stock price is \$47, the strike price is \$50, and the risk-free interest rate is 6% per annum. Set up an arbitrage strategy and calculate the profits? (Hull 10.12) 15p

PART II: Theory

1. Briefly explain the following words and expressions
 - a) Asked price
 - b) CDO
 - c) Zero rate
 - d) VIX Index
 - e) Credit contagion10p
2. Briefly (no more than 10 lines / answer!) answer the following questions. Remember to explain your answers!
 - a) The party with a short position in a futures contract sometimes has options as to the precise asset that will be delivered, where delivery will take place, when delivery will take place, and so on. Do these options increase or decrease the futures price? Explain your reasoning. (Hull 2.8)
 - b) The term structure of interest rates is upward sloping. Put the following in order of magnitude: The five-year zero rate, the yield on a five-year coupon-bearing bond, and the forward rate corresponding to the period between 4.75 and 5 years in the future. (Hull 4.7)
 - c) Evaluate the criticism that futures markets siphon off capital from more productive uses. (BKM 19.6)
 - d) Consider a stock without dividend payments. Is the price of an American call option higher than the price of an otherwise European call option? Why or why not?
 - e) Describe carefully how the value of credit default swaps are calculated (Hull, pp 524-525)? 20p

When answering the following two essay-type questions, start with a table of contents!

3. Recent trends. According to BKM four important trends have changed the contemporary investment environment? Which are the trends and how have they changed the financial sector? (BKM ch. 1.7) 10p
4. The subprime mortgage credit crises. Discuss the role of securitization in the credit crisis (2007-2008), how the crises evolved and what went wrong. (Hull ch. 8.2-8.3) 10p

