

ANSWER OUTLINE

ECONOMICS 353

L. Tesfatsion/Fall 2007

EXERCISE 4: 6 Questions (8 Points Total)

DUE: Tues., Sept 25, 2007, 2:10pm

****IMPORTANT REMINDER: LATE ASSIGNMENTS WILL NOT BE ACCEPTED
– NO EXCEPTIONS****

EXERCISE INSTRUCTIONS:

- (1) Please **fill in your name and student ID number** on Side 1 of your bubble sheet and write **353 Exercise 4** in the top margin of Side 1.
- (2) Use a number 2 pencil to **mark your answers** on Side 1 of the bubble sheet to the first five questions Q1 through Q5, below, which are in multiple choice format.
- (3) The sixth question Q6 asks you to consider the current subprime mortgage crisis in the U.S. and its possible global ramifications. Please put your **name and student ID number** at the top of your answer sheet for Q6 along with **353 Exercise 4** and **separately** hand in this answer-sheet sheet for Q6 in addition to your answer bubble sheet for questions Q1 through Q5.
- (4) Each question Q1 through Q5 is worth 1 point, and Q6 is worth 3 points.

Q1 (1 point). By definition, which of the following statements are TRUE for COUPON BONDS?

- A. The borrower is required to make only one contract-specified payment, to be paid at the bond's maturity date.
- B. Mortgages are examples of coupon bonds.
- C C. The borrower makes a contract-specified payment in every payment period until the bond's maturity date, at which time the borrower also pays the face value of the bond.
- D. Both A and B are true.
- E. Both B and C are true.

Q2 (1 Point). The current yield on a coupon bond with a \$6,000 face value, a coupon rate equal to .08 (8 percent), and a current purchase price of \$9,600 is

- A. 8 percent
- B. 20 percent
- C. 10 percent
- D D. 5 percent
- E. None of the above

Q3 (1 Point). Letting “ * ” denote multiplication, if the annual interest rate is 4 percent, then the PRESENT VALUE TODAY of a payment stream (\$50, \$80) with \$50 to be received at the end of the first year and \$80 to be received at the end of the second year is given by

- A. $\$50 * (1 + 0.04) + \$80 * (1 + 0.04)^2$
- B. $\$50/(1 + 0.04) + \$80/(1 + 0.04)$
- C C. $\$50/(1 + 0.04) + \$80/(1 + 0.04)^2$
- D. $\$50 + [\$80/(1 + 0.04)^2]$

Q4 (1 Point). The (ANNUAL) YIELD TO MATURITY i on a COUPON BOND with a purchase price \$600, a face value \$200, a 3-year coupon payment stream (\$60, \$20, \$100), and a 3-year maturity is calculated as follows:

- A. i equals the annual interest rate that, when used to calculate the present value of the income stream (\$60, \$20, \$100), results in a present value equal to \$400.
- B. i equals the annual interest rate that, when used to calculate the present value of the income stream (\$60, \$20, \$100), results in a present value equal to \$800.
- C C. i equals the annual interest rate that, when used to calculate the present value of the income stream (\$60, \$20, \$300), results in a present value equal to \$600.
- D. i equals the annual interest rate that, when used to calculate the present value of the income stream (\$60, \$20, \$100), results in a present value equal to \$600.

Q5 (1 Point). Letting i denote the current nominal market interest rate (yield to maturity), in which of the following situations should a rational investor prefer to be a LENDER:

- A. $i = 4$ percent and the expected inflation rate = 3 percent
- B. $i = 13$ percent and the expected inflation rate = 11 percent
- C. $i = 25$ percent and the expected inflation rate = 20 percent
- D D. $i = 5$ percent and the expected inflation rate = -1 percent

**SEE THE FOLLOWING PAGE FOR
Q6: WEB EXERCISE**

Q6: Web Exercise (3 Points Total). Is the U.S. Subprime Mortgage Crisis Going Global?

This Q6 question asks you to consider the onset and potential global implications of the U.S. subprime mortgage crisis. Each part A-C below should be answered concisely but carefully, and is worth 1 point. Please provide these answers on an answer sheet that you can *separately* turn in along with your bubble sheet with answers to Q1-Q5 above. *Do not staple your Q6 answer sheet to your bubble sheet; no staples should be used on your bubble sheet!*

Basic Web References:Crisis Timeline

- 1 Elizabeth Weintraub, “Why Are Subprime Mortgage Lenders Crashing,” *About.com, Inc.* (a part of The New York Times Company), March 2007, 2pp.
<http://homebuying.about.com/od/findingalender/qt/0307subprime.htm>
- 2 “New Joint Economic Committee Report Reveals Serious Local Economic Impact of Subprime Mortgage Fallout Across Country,” U.S. Senate, April 11, 2007, 4pp.
<http://jec.senate.gov/Documents/Releases/subprimerelease04112007.pdf>
<http://www.jec.senate.gov/Documents/Reports/08.23.07%20Subprime%20Timeline.pdf>
- 3 “The Subprime Mortgage Crisis: Where Are We Headed?,” Deloitte & Touche Investment Advisors, August 17, 2007, 3pp.
http://www.deloitte.com/dtt/cda/doc/content/dtt_dr_emr2qse081707.pdf
- 4 Evan Davis, “What’s Behind the Market Turmoil,” *BBC News*, August 17, 2007, 4pp.
<http://news.bbc.co.uk/2/hi/business/6951321.stm>
- 5 “Northern Rock Shares Plunge 32%,” *BBC News*, September 14, 2007, 3pp.
<http://newsvote.bbc.co.uk/mpapps/pagetools/print/news.bbc.co.uk/2/hi/business/6994328.stm>

The basic web references cited above can be used to answer this Q6 question. Additional sources can be researched as well if you have the time and interest. However, please only use additional sources reasonably judged to be providers of reliable information (e.g. websites maintained by government, established financial institutions, or well-regarded news outlets) rather than unknown writers or sources).

Be sure to provide the URL address for whatever sources you use to obtain your answers to parts A-C below. If you use directly quoted materials, you should put this material in quotes and provide specific attribution to the quoted source.

Part A [1 Points]: Roughly defined (e.g., as in Ref.[1]), what is a *subprime mortgage*?

Answer Outline for Part A:] Roughly defined (see Ref.[1]), a *subprime mortgage* is a mortgage for which the borrower: (1) has a low FICO (i.e., a low credit score) indicating a high risk of default; and (2) has a high loan-to-value ratio, meaning the amount of funds the borrower is attempting to secure is high relative to the value of the property he is seeking to purchase with the funds.

Part B [1 Points]: As described in Refs.[2-3], both the *holders* of subprime mortgages and those who have *borrowed* by means of subprime mortgages are now in serious trouble in the U.S. Briefly explain the nature of these troubles for both holders and borrowers, and list some of the key reasons that have been offered as explanations for these troubles.

Answer Outline for Part B:] As discussed in Refs.[2,3]:

- Subprime mortgage *holders* are now in trouble in the U.S. because of a sharp rise in subprime mortgage payment delinquencies and defaults over the past year. (Note: These holders include banks, investment houses, hedge funds, and mutual funds.) This reduction in asset value has had an adverse effect on the balance sheets of these holders, and even caused a number of them to go bankrupt.
- Subprime mortgage *borrowers* are now in trouble in the U.S. because of a sharp rise in their mortgage payments. This sharp rise has led to a sharp rise in property foreclosures due to the inability of subprime mortgage borrowers to fulfill their increased mortgage payment obligations.
- Key reasons noted in Refs.[2,3] as explanations for these troubles include: (a) popularization and consequent widespread use in recent years of adjustable-rate mortgages (ARMs) that permit increases in borrowers' interest payments as market conditions change; (b) borrowers attracted to ARMs with initially low interest payments often do not understand the risks associated with ARMs; (c) recent steep rises in borrowers' ARM interest payments; and (d) recent sharp declines in housing prices (hence sharp increases in borrowers' loan-to-value ratios) due to the bursting of the housing market bubble, reducing incentives for borrowers to keep on paying their mortgages.

Part C [1 Point]: Briefly identify the types of evidence offered in Refs.[4-5] in support of the contention that the U.S. subprime mortgage crisis is now becoming a global financial crisis.

Answer Outline for Part C:] Ref.[4] argues that deep links between subprime lending and equities are leading to a decline in stock share prices worldwide. These identified links include declines in the share values of subprime mortgage holders (banks and hedge funds); crisis-induced declines in U.S. consumer spending on imports, which depresses the valuation of company stocks world wide; and a drying up of lending to corporate borrowers that would usually be undertaking highly-leveraged take-overs (thus providing support for the share prices of the companies targeted for take over).

Ref.[5] reports that the shares of Northern Rock, one of the largest mortgage lenders in the UK, have recently plunged in value by 32% after it was forced to ask the Bank of England for emergency "lender-of-last resort" funding due to a drying up of credit in the money markets as a result of the U.S. subprime mortgage crisis. This has led to an incipient "bank panic" (long lines of frightened and frustrated customers attempting to withdraw their savings from Northern Rock). Ref.[5] also reports stock share price declines for bank, house builders, and the FTSE 100 (London stockmarket benchmark index).