

Answer Outline

ECONOMICS 353

L. Tesfatsion/Fall 06

EXERCISE 6: Six Questions (8 Points Total) DUE: Tues, October 10, 2006, 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-Ex6** 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 is a Web Exercise that asks you to consider a controversy that has arisen regarding the mortgage refinance company Fannie Mae and an alleged price bubble in the U.S. housing market. Please put your **name and student ID number** at the top of your print-out sheet for Q6 along with **353-Ex6:Q6** and **separately** hand in your answer 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). If a 10-year \$5,000 coupon bond (i.e., a coupon bond with a \$5000 face value and a 10 year maturity) has a coupon rate of 10 percent and a purchase price of \$4,000, then the COUPON PAYMENT is

- A. \$600
- B B. \$500
- C. \$400
- D. \$300

Q2 (1 point). If a coupon bond with an \$8000 face value and a 7 year maturity has a \$400 coupon payment and a purchase price of \$10,000, then the CURRENT YIELD is

- A. 7 percent
- B. 6 percent
- C. 5 percent
- D D. 4 percent
- E. none of the above

Q3 (1 Point). Letting i denote the yield to maturity on coupon bonds, which of the following situations should a rational BORROWER prefer to be in if he is planning to raise funds through the issue of new coupon bonds?

- A. $i = 25$ percent and the expected inflation rate = 20 percent
- B. $i = 13$ percent and the expected inflation rate = 11 percent
- C. $i = 6$ percent and the expected inflation rate = 2 percent
- D. $i = 1$ percent and the expected inflation rate = -2 percent

Q4 (1 Point). As detailed in Mishkin (Chapter 4), the interest rate on Treasury Inflation Protected Securities (TIPS) is a direct measure of _____ because interest and principal payments on TIPS are _____.

- A. a nominal interest rate; denominated in current U.S. dollars.
- B. the inflation rate; adjusted for cost of living increases.
- C. a real interest rate; adjusted for changes in the price level.
- D. the return on gold collectibles; collateralized by gold.

Q5 (1 Point). Smart investors need to understand the distinction between the YIELD TO MATURITY on a financial asset and its RETURN RATE (equivalently, its rate of return) because

- A. the yield to maturity assumes a financial asset will be held to maturity, whereas the return rate can be calculated for any holding period.
- B. the yield to maturity ignores capital gain or loss that might accrue to an investor who sells a financial asset prior to its maturity.
- C. the yield to maturity ignores all payments received on a financial asset other than capital gain or loss whereas the return rate takes all payments into account.
- D. all of the above
- E. only A and B.

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

Q6: Web Exercise (3 Points Total): Fannie Mae and the U.S. Housing Bubble Controversy

Key On-Line References:

- [1] Dean Baker, “Is the Housing Bubble Collapsing? 10 Economic Indicators to Watch,” Center for Economic and Policy Research, *Issue Brief*, Washington, D.C., June 2006
http://www.cepr.net/publications/housing_indicators_2006_06.pdf
- [2] The Fannie Mae Home Page, <http://www.fanniemae.com/index.jhtml>
- [3] Office of Federal Housing Enterprise Oversight Home Page, <http://www.ofheo.gov/>

NOTE: Please prepare your answer to Q6 on a separate answer sheet with “Econ 353-Ex6:Q6” at the top of the sheet. Turn in your answer sheet for Q6 together with your bubble sheet answers for Q1 through Q5 – but please do not staple or otherwise attach the bubble sheet to your Q6 answer sheet.

Housing is a critical component of household wealth thought to have an important influence on household spending, and the residential construction industry is an important source of jobs (real estate agents, appraisers, lumber mills, specialty contractors, building material suppliers, credit and finance companies, and architects, to name a few.) Consequently, the price of housing is a closely watched economic indicator.

In recent years charges have been leveled at the mortgage refinance company Fannie Mae that it has contributed to the building up of a massive bubble in housing prices in the U.S. that is now in the process of collapsing. This question asks you to explore this issue.

PART A (1 Point): Dean Baker (ref.[2]) outlines several types of evidence that he claims support his contention the U.S. economy experienced an extended housing price bubble starting in 2001, and other types of evidence he claims support his contention that this bubble at the time of his article (June 2006) was in the process of collapsing. Define what is meant by a *price bubble*, and briefly describe *three* distinct types of evidence cited by Baker in support of his contention of a collapsing housing price bubble that you judge to be most convincing (or least unconvincing!).

Answer Outline for Q6-Part A:

A *price bubble* is said to exist on an asset if its current price departs persistently from its *fundamental value*, defined to be the present value of all expected future returns to a holder of the asset. (There is an issue here regarding what exact discount rate(s) should be used to calculate fundamental values – in practice, actual market interest rates are used.)

Note that one can have positive price bubbles (price rising above fundamental value) as well as negative price bubbles (price sinking below fundamental value), and that bubbles can occur on ANY asset. The essential idea is that the current price of an asset should “rationally”

reflect the value of its corresponding stream of returns (payments, dividends, rents, and so forth) to its potential holders. Any persistent departure from this “true” value means that speculators are entering the market to try to exploit period-by-period price changes, e.g. by running up the price through speculative demand and then selling off the asset at this high price prior to a subsequent price “crash.”

Dean reports THREE distinct types of evidence (sharp rise in the Housing Price Index, in new housing starts, and in employment in housing-related industries) in support of his contention that the U.S. experienced a housing price bubble starting in 2001. He notes two other kinds of evidence (residential construction and residential investment) that provide “little new information.” And he points to FIVE distinct types of evidence in support of his contention that the U.S. housing price bubble was in the process of collapsing at the time of his article. Any three of the latter five types of evidence could be used for this answer. These five types of evidence are as follows:

1. **Sales of new single-family homes** have exhibited a weakening (less positive) trend line since January 2006 (Figure 1, p. 2);
2. **Sales of existing single-family homes** have exhibited a substantial weakening (less positive) trend line since January 2006 (Figure 2, p. 3);
3. The **new mortgage index** published by the Mortgage Bankers Association (MBA) that reflects mortgage applications for both home purchases and refinancing is down sharply from its peak in 2005 (p. 5).
4. **The vacancy rate in homes offered for sale (i.e. the ownership vacancy rate)** has substantially risen (p. 7). **NOTE:** Figure 5 (p. 7) does not appear to indicate a “substantial” rise in this ownership rate, and the rental vacancy rate is actually depicted as falling since 2004.
5. **CPI indices measuring rental rates for apartments and houses** have been falling in real terms for the last two years (p. 7).

PART B (1 Point): Give a brief but careful description of the mortgage refinance company “Fannie Mae,” including its date of establishment, the extent to which it is a public or private company, and what specific type of business it engages in (i.e. what does a “mortgage refinance company” actually do?)

Answer Outline for Q6-Part B:

- Fannie Mae, a short-hand name for the Federal National Mortgage Association (FNMA), was chartered by the U.S. government in 1938 as part of Franklin Delano Roosevelt’s New Deal following the collapse of the U.S. housing market during the Great Depression. **Extra Note:** In 1968 the original FNMA (Fannie Mae) was partitioned into two separate entities, a wholly-government-owned entity known as the Government National Mortgage Association (Ginnie Mae) and a privatized entity that retained the name FNMA (Fannie Mae).

- Since 1970, Fannie Mae has been a fully private stockholder-owned publicly-traded corporation. However, it also has the special status of a *government-sponsored enterprise*, meaning that it receives special government benefits such as exemption from certain taxes and oversight regulations and implied government financial backing. (Although the government is not legally obliged to back the securities issued by Fannie Mae, most investors seem to believe this backing would be forthcoming if any emergency arose.)
- Regarding its type of business, Fannie Mae is a *mortgage refinance company*. Briefly, this means that Fannie Mae purchases mortgages on the secondary market, pools them together, and then creates securities backed by these mortgages which it sells on various organized securities markets. (In effect, Fannie Mae “securitizes” mortgages into more homogeneous and hence more liquid financial assets.)

PART C (1 Point): Some commentators have blamed Fannie Mae for contributing to the run-up of housing prices, and many of these same commentators are now expressing concerns that Fannie Mae could suffer huge losses in the event of a collapse in housing prices. Briefly but carefully explain the nature of these concerns.

Answer Outline for Q6-Part C: In late 2004 Fannie Mae was put under investigation following the earlier disclosure in 2003 by the Justice Department and SEC of poor accounting practices at Fannie Mae’s sister company Freddie Mac (formed in 1970 to provide some competition to Fannie Mae in the mortgage refinance business). In May 2006 the Office of Federal Housing Enterprise Oversight released a report alleging widespread accounting errors and other problems at Fannie Mae from 1998 through 2004 requiring at least an \$11 billion reduction of previously reported net income (one of the largest restatements in American corporate history).

Fannie Mae has been accused by commentators (e.g. Business Week, www.marketwatch.com) of encouraging housing sales (hence a rise in housing prices) through overly optimistic housing market assessments and through an increased willingness to securitize subprime mortgage loans. *Subprime loans* are loans sold to home buyers who fail to meet the strictest lending standards (i.e. they have higher default risk); such loans typically carry higher interest rates to offset the higher default risk.

Marketwatch.com in particular has expressed worries (9/18/06 news release) that Fannie Mae in recent years has been increasing its issuance of securities backed by subprime mortgages in an attempt to buttress its reported profits to shareholders in the wake of its accounting scandal with accompanying fines and penalties. Marketwatch.com goes on to say that this is the area of the mortgage market that can be expected to be hit very hard by any downturn in the housing market.