

ANSWER OUTLINE

ECONOMICS 353

L. Tesfatsion/Fall 2010

EXERCISE 2: Six Questions (8 Pts Total)

DUE: Tues., September 14, 2:10pm

****IMPORTANT:**** Assignments are due at the beginning of class on the due date. Assignments will be considered late (and not accepted for formal grading) after discussion of the exercise answers has begun – 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 2** 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 an exercise that asks you to chart and analyze some mortgage data using an Excel spreadsheet. Please put your **name and student ID number** at the top of your answer sheet(s) for Q6 along with **353 Exercise 2** and **separately** hand in your Q6 answer sheet(s) in addition to your bubble sheet answers for questions Q1-Q5.
- (4) Each question Q1 through Q5 is worth 1 point, and Q6 is worth 3 points.

Case Study on Fannie Mae and Freddie Mac (Prepared by Professor L. Tesfatsion and T.A. Xiang Gao)

Exercise 2 is a case study focusing on key aspects of the *Federal National Mortgage Association (FNMA)*, commonly known as Fannie Mae, and the *Federal Home Loan Mortgage Corporation (FHLMC)* commonly known as Freddie Mac. Answering Q1-Q6 for Ex 2 might require some exploration of web resources in addition to a careful reading of the Case Background materials provided below. Caution: The current entries for these mortgage entities on Wikipedia are in dispute (see the Discussion for these entries at the Wikipedia site).

Case Background Information:

Fannie Mae and Freddie Mac are two specialized financial institutions created by the U.S. federal government in the 1930s. They are commonly known as Government Sponsored Enterprises, or GSEs, because they are essentially corporations that were chartered by the U.S. Congress. Their primary mission has been to create a liquid secondary market for home mortgages, to fulfill the social goal of increasing the rate of home ownership in the U.S.

Their basic operation has been to purchase mortgages from lending institutions such as banks, which enables these lending institutions to remove old loans off their balance sheets and to make more new mortgage loans. In order to fund these activities, Fannie Mae and Freddie Mac issue

their own debt in the capital markets, where their bonds are commonly called Agency Securities. Since the creation of asset-backed bonds in the 1980s, Fannie Mae and Freddie Mac have issued hundreds of billions of dollars in mortgage-backed securities on the open market.

Although Fannie Mae and Freddie Mac are not technically government agencies or part of the government, it is widely assumed that there is an implicit government guarantee for their bonds and their financial operations. Part of this guarantee is an explicit line of credit with the U.S. Treasury. Nonetheless, Fannie and Freddie operate as private corporations. They have private shareholders and their managers attempt to maximize the value of these corporations. Through the 1990s, Fannie and Freddie provided dependable and impressive returns for their shareholders while being widely regarded as safe and well run corporations.

Beginning in the late 1990s, however, many doubts about the safety of Fannie Mae and Freddie Mac began to arise. In particular, a series of questions about their risk-management practices now have many calling for increased regulation of these GSEs. Additional information can be found at the following site:

- 1 “Mom, Apple Pie and Mortgages,” by Robert J. Shiller, *New York Times*, March 6, 2010
www.econ.iastate.edu/classes/econ353/tesfatsion/FannieMaeShillerAssessment.Aug2010.pdf
- 2 “An Autopsy of Fannie Mae and Freddie Mac,” FHFA Conservators Report, August 2010
www.econ.iastate.edu/classes/econ353/tesfatsion/FHFAReportOnFannieMaeFreddieMac.2010.pdf

Q1 (1 Point). According to Shiller [1], the main reason for Fannie Mae’s creation in 1938 was

- A. to reduce unemployment through stimulation of housing construction.
- B. to reduce inflation through management of housing prices.
- C. to help recovery efforts by increasing the returns to investors.
- D. to enlarge the role of federal government in the economy.

Q2 (1 Point). In the case background material above, creation of a “liquid secondary market” for home mortgages refers to the creation of a market in which

- A. the interest rates charged for home mortgages are maintained at a stable level.
- B. anyone who wishes to can issue and sell new home mortgages.
- C. home mortgages are bought and sold via direct cash payments.
- D. shares in packages of previously issued home mortgages can be bought and sold by investors on an essentially continuous basis.

Q3 (1 point). Since the 1990s, the main activity of Fannie Mae and Freddie Mac has been

- A. lending to individual home buyers by provision of new mortgages.
- B B. mortgage securitization: Purchase of newly issued loans from banks and other lenders and resale of packages of these loans (“mortgage-backed securities”) to investors
- C. pooling of mortgage-backed securities into collateralized debt obligations.
- D. slicing and dicing of collateralized debt obligations into new securities called tranches that are then sold to banks.

Q4 (1 Point). According to [2], a major portion of the \$226 billion loss in capital value suffered by Fannie Mae and Freddie Mac between 2007 and 2010 was due to

- A. huge losses on traditional mortgages purchased in the 1990s due to “maturity gap” problems.
- B B. huge losses on non-traditional and higher-risk (e.g., subprime) mortgages purchased in 2006 and 2007.
- C. the increasing illiquidity of secondary mortgage markets from 2004-2007.
- D. severely depressed returns on their investment stock portfolios.
- E. increasing competition from private mortgage companies.

Q5 (1 Point). An *Adjustable-Rate Mortgage (ARM)* is a kind of mortgage repaid by borrowers at a rate of interest that lenders can increase or decrease over the the life of the mortgage based on market conditions. Which of the following statements about ARMs are FALSE:

- A A. ARM adjustable rates transfer risk from borrowers to lenders.
- B. The use of ARMs tends to rise during times when interest rates are more volatile and uncertain.
- C. The borrower under an ARM benefits if the interest rate falls and loses if the interest rate increases.
- D. All of the above statements are false.

See Next Page for Q6

Q6: DATA ANALYSIS EXERCISE

Q6: Data Analysis (3 Points Total).

Parts A and B for Q6 make use of the Treasury-indexed 1-Year *Adjustable Rate Mortgage (ARM)* rate data provided in the following Excel data file:

<http://www.econ.iastate.edu/classes/econ353/tesfatsion/Ex2ARMADData.xls>

Separately turn in your answer sheet(s) for Q6 and your bubble sheet answers for Q1-Q5 (do not staple or otherwise attach the two answer sheets). For your protection, be sure that your Q6 answer sheet and your bubble sheet answers each include your name, your student ID number, and “353 Exercise 2”.

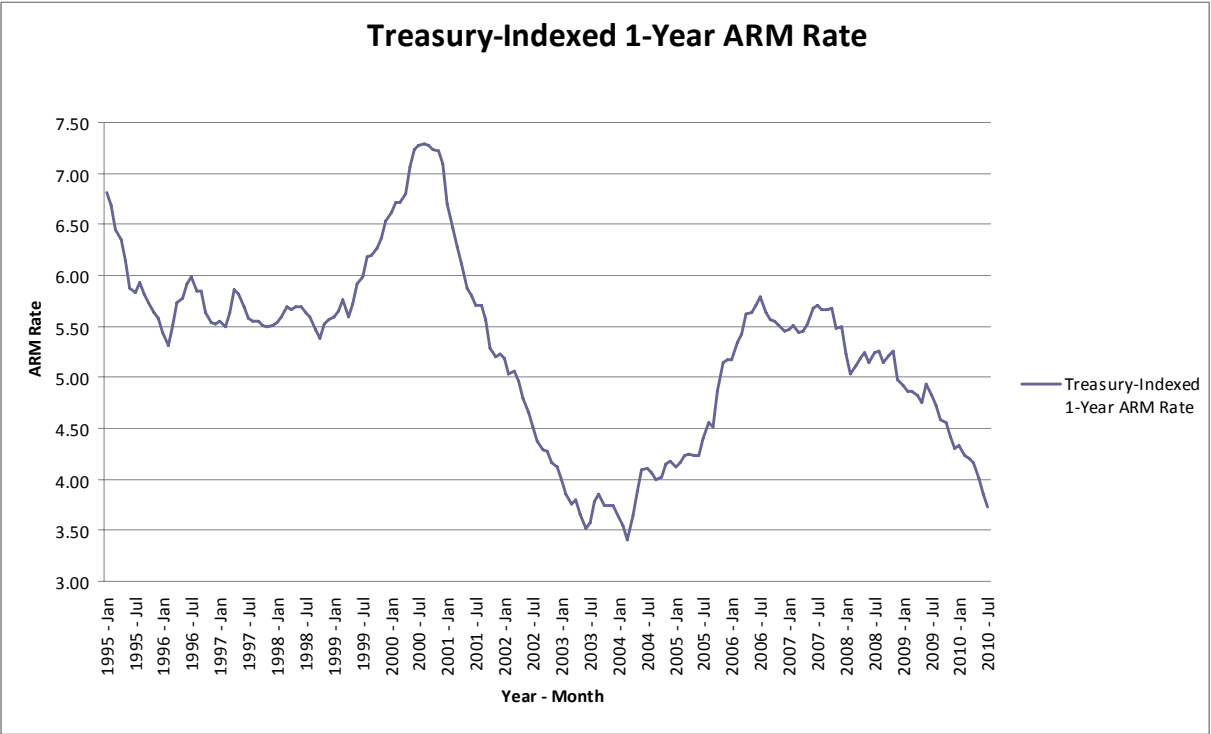
Q6:Part A [1 Point]

- Using the data provided in the above Excel data file, create an Excel line diagram that plots the monthly ARM rate against its corresponding month for each successive month from January 1995 through July 2010.
- Print out this chart. On this print-out, describe the behavior of the plotted monthly ARM rates and provide a brief possible explanation for this behavior.

Q6:Part B [2 Points]

- Using the data provided in the above Excel data file *only for monthly ARM rate data from January 1995 through December 2009 (i.e., omitting the incomplete 2010 data)*, calculate the average ARM rate for each of the 12 months January through December by using the “sumif” function in Excel.
- Use Excel draw capabilities to draw a bar-chart that permits you to compare the average ARM rates across different months.
- Print out this bar-chart. Do the monthly ARM rates for the first seven months of 2010 display any distinct differences from the average monthly ARM rates for January through July displayed in this bar-chart? Explain.

Treasury-Indexed 1-Year ARM Rate



Average ARM Rates For Each Month

