QUESTIONS - CHAPTER 19 MONEY MARKETS

Question 19.1

19.1A In the fifteenth and sixteenth century, Spanish galleons brought large quantities of gold and silver from the Americas. This had a profound monetary impact in Europe. Use the quantity theory of money to describe the impact of this gold inflow, given that the velocity of money is constant.

19.1B Suppose now that we turn to the nineteenth century and the industrial revolution in the United States. Assume that the velocity of money and money stock are constant and that output increases quickly due to productivity increases. Use the quantity theory of money to describe the monetary impact of this productivity increase.

19.1C It is the end of the twentieth century and developments in information technology promise great productivity increases. The central bank, which directly controls the money stock, wishes to maintain price stability. Which variables does it take into account when determining the optimal money stock according to the quantity theory of money?

19.1D It is shown in the text that the velocity of money is not constant. Can you explain why this may be the case? What gives rise to increases or decreases of the velocity of money?

Question 19.2

19.2A Section 19.3 describes various monetary aggregates and section 19.6 describes the money supply process. Which aggregate is directly determined by the central bank? Which aggregates are indirectly determined by the central bank?

19.2B Draw a basic central bank balance sheet which consists of the following six balance sheet components: foreign reserves, currency in circulation, lending to commercial banks, deposits of commercial banks, domestic government bonds, and central bank capital.

19.2C The People’s Bank of China (PBOC), maintains a fixed exchange rate between the yuan (the Chinese national currency) and the US dollar. In order to do so, it buys or sells US dollars to clear the money market at the desired exchange rate. Indicate what happens on the central bank balance sheet if the PBOC buys dollars in exchange for yuan.

19.2D According to the quantity theory of money, with money velocity and output constant, what happens to the price level after the intervention? What can the PBOC do to prevent its
interventions from influencing the price level? Indicate the effect of this operation on your central bank balance sheet.

19.2E Suppose that the Chinese government runs a huge budget deficit. It no longer wishes to finance this by borrowing from commercial banks. It decides to lend directly from the central bank. Show the effect of this operation on your central bank balance sheet. What is the likely effect on the price level of this operation?

Question 19.3

19.3A Changes in the monetary base induce changes in the broader monetary aggregates. Suppose that the money multiplier is 2. What will happen to the money stock if the Japanese central bank allows a 1 million yen increase of base money? What policy instruments do central banks use to induce changes in the money supply?

19.3B The money multiplier is not fixed in practice, but fluctuates according to economic conditions. Can you think of a variable that directly impacts the money multiplier (think about the incentives of commercial banks)?

19.3C Show the effect of the monetary loosening by the Japanese central bank on the monetary equilibrium in a graph.

19.3D Suppose that income increases. How does this impact the monetary equilibrium? The central bank of Japan has the objective of price stability. Unfortunately, prices have been falling in Japan for much of the 1990s. In response, the central bank has increased the monetary base. Yet, prices have continued to fall. Changes in the monetary base fail to fully translate into broader monetary aggregates. Can you explain how this is possible?

Question 19.4

19.4A What are the primary functions of money?

19.4B Can you give some examples of assets that to some extent perform each of these functions?

19.4C The attractiveness of ‘money’ depends on the extent to which it is successfully able to perform the three primary functions. This also holds in an international context. Can you explain the popularity of the US dollar for international transactions by looking at the primary functions of money?
19.4D In times of great economic uncertainty the demand for gold tends to increase. Which aspect of gold (in terms of primary functions of money) makes it especially attractive at periods of great uncertainty?

Question 19.5

19.5A What are the three motives for holding money according to Keynes’ theory of liquidity preference? Give a real-life example of each of the motives.

19.5B What is the opportunity cost of holding money?

19.5C In most theoretic models, money demand depends positively on income and negatively on the interest rate. See for example equation (19.2): \( \frac{M^d}{P} = M^d(i, Y) \). Can you explain the economic intuition behind this relationship?

19.5D Milton Friedman emphasizes the role of different components of wealth. How will the introduction of these components change the money demand function 19.2? What is the economic rationale behind this change?

Question 19.6

19.6A Go to the website of the Federal Reserve board (http://www.federalreserve.gov). Retrieve the monthly historical time series on monetary aggregates M1, M2, M3 and the monetary base. Draw a graph of the outstanding volume and money multipliers of the aggregates. Which monetary aggregate expanded most in volume terms? What can you conclude about the money multiplier for the various aggregates?

19.6B If the Federal Reserve would target some monetary aggregate, how would the historical development of the money multiplier impact on its monetary operations?

19.6C Check whether money growth leads to price inflation in the United States. What do you conclude? What can you conclude about the velocity of money?

Question 19.7

The Excel file for question 19.7 contains data on money growth and inflation for 17 OECD countries in the period 1960-2010.

19.7A Make a scatter plot with on the axes the cumulative growth of money (create an index) and the cumulative growth of consumer prices for all countries in the sample. (NB for
countries with missing information for one of the two variables, use the longest consistent period of complete information; use logarithmic scales in your graph).

19.7B What is the correlation between money growth and consumer price inflation over this period? What do you conclude about the quantity theory of money? What does this tell us about the causality between money growth and prices?

Question 19.8
The Excel file for question 19.8 contains a basic simulation of the money market. The implicit money demand function \( M^d / P = M^d (i, Y) \) and the implicit money supply function \( M^s / P = M^s (i, i_{res}, Y) \) of chapter 19 have been modeled explicitly. These are (in logarithmic form) \( m^d = \alpha Y - \beta i \) for real money demand and \( m^s = \gamma i - \eta_{res} + \eta Y \) for real money supply.

19.8A Suppose that the economy is expanding at ten per cent annually. What happens to the money demand and money supply curves?

19.8B How does this affect the interest rate in the simulation? And how does this affect the money stock? Why is this so?

19.8C The central bank believes that the economic expansion is too rapid and that the money stock has increased too much. What policy instrument will it use and how does this affect the monetary equilibrium?