University of Wuerzburg
Faculty of Business Management and Economics
Chair of Monetary Economics and International Financial Markets
Prof. Dr. M. Wolters

Mock Exam: Monetary Policy

Last Name: _____

**First Name:** _____

Student ID: _____

- Fill in your name and matriculation number into the form at the top of each page.

- You have 60 minutes to finish the exam. This exam consists of 4 questions with a total of 60 points. You have to answer all questions.

- Please keep your answers **short** but informative and in **readable** handwriting.

- If not defined otherwise, variables have the same meaning as in class. Please make sure that your answers are clearly legible and without any ambiguity. Your answers have to be tractable. If you use diagrams, make sure to label them and **explain** them sufficiently.

Question:	1	2	3	4	Total
Points:	12	19	19	10	60
Score:					

Basic Macroeconomic Concepts

1. The following set of questions refers to basic macroeconomic concepts.

    a) Consider the following graph showing nominal and real U.S. GDP. Which curve represents nominal and which real GDP? Explain your answer. Under which circumstance would it be exactly the other way around? Why do the two lines intersect in 2013? [6 points]
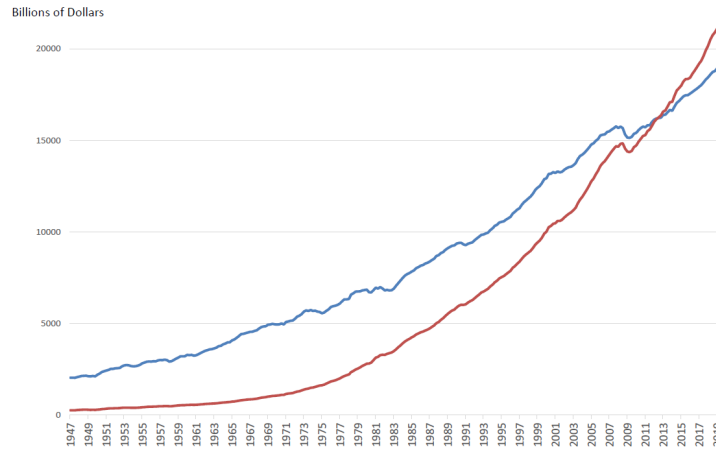
b) Policy makers worry that GDP growth has permanently decreased (secular stagnation hypothesis) and discuss policy options to reverse these developments. Discuss whether monetary policy is suited for increasing GDP growth permanently? Refer to the Solow growth model and the main drivers of growth in this model and explain what role monetary policy plays for long-term growth.   [6 points]

Conventional Monetary Policy

2. Suppose the New Keynesian model consisting of a Phillips curve and an IS-MP curve of the following form.

$$\pi_t = \pi_t^e + \gamma(y_t - y_t^*) + \epsilon_t^\pi$$
$$y_t = y_t^* - \alpha(\beta_\pi - 1)(\pi_t - \pi^*) + \epsilon_t^y$$

a) Solve the IS-MP-PC model for **inflation** based on the equations provided above. To simplify notation, you may want to introduce the parameter θ as: [10 points]

$$\theta = \frac{1}{1 + \alpha\gamma(\beta_\pi - 1)}$$

b) Describe what happens after an exogenous increase in inflation expectations. Discuss the case when the Taylor principle is fulfilled implying $0 < \theta < 1$ and the case when the Taylor principle is not fulfilled ($1 < \theta < \infty$). How does inflation react directly to the exogenous change in inflation expectations and how do you think this should affect future inflation expectations and in turn future inflation rates?   [5 points]

c) What is meant by *Divine Coincidence*? Provide an intuition.   [4 points]

Unconventional Monetary Policy

3. Suppose a negative demand shock in the IS-MP-PC model. Also suppose that the shock is large enough to decrease inflation to a level where the Zero Lower Bound becomes binding.

   a) Graphically analyze the effects of the shock in the IS-MP-PC model and explain the main mechanisms at work. Please fill-in the remaining graphs and label all of the graphs. Discuss briefly how output and the nominal interest rate change. Focus on the short-run effects, i.e. assume that inflation expectations remain fixed. [6 points]
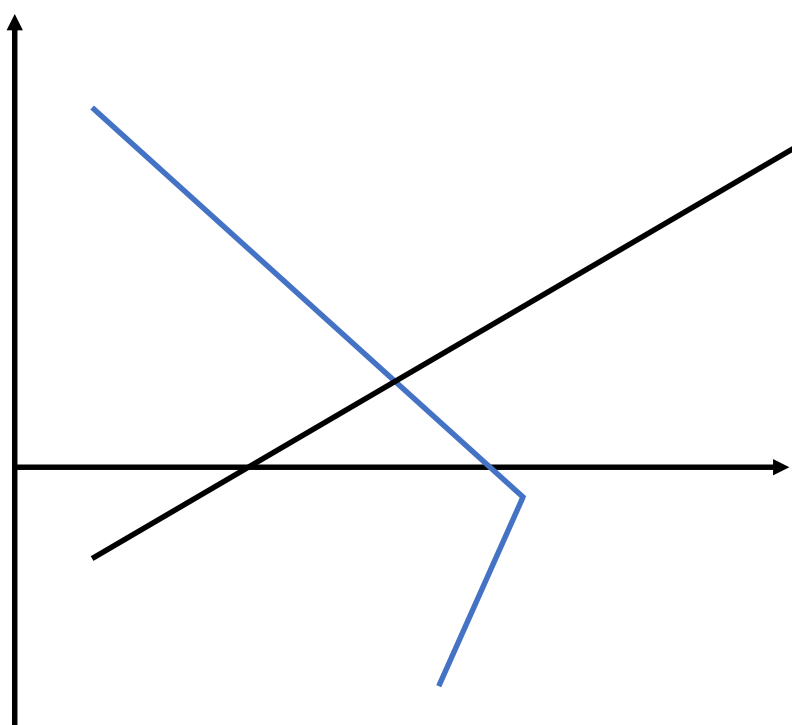
b) Building on the results in 4a), how would this affect inflation in turn and would the inflation effects have further implications for inflation expectations? Discuss in this context shortly why central bankers are so concerned about a binding zero lower bound on nominal interest rates. [7 points]

c) Explain how forward guidance affects longer term interest rates. Explain how the expectation component and the term premium are affected. [6 points]

Monetary and Fiscal Interactions

4. Consider the consolidated budget constraint given by:

$$P_t g_t + B_{t-1} = T_t + P_t^b B_t + M_t - M_{t-1}$$

a) Provide economic intuition for the consolidated budget constraint and explain the fundamental link between monetary and fiscal policy. [3 points]

b) What is meant by *seignorage* and why does it typically exhibit a Laffer Curve? Explain the underlying trade-off. [4 points]

c) Assuming that monetary policy follows a Taylor rule, explain how the effectiveness of a fiscal stimulus depends on the slope of the PC curve. [3 points]