

Econ 100B: Economic Analysis – Macroeconomics
Problem Set #8
Due Date: November 6, 2020

General Instructions:

- Please upload a PDF of your problem set to Gradescope by 11:00 pm.
 - **Late homework will not be accepted.**
 - Please put your name and student ID at the upper right corner of the front page.
1. Based on your reading of [India's cenbank surprises with reverse repo rate cut in bid to spur bank lending](#), briefly explain why the Reserve Bank of India cut the rate and discuss how the monetary-policy challenge faced by the Reserve Bank of India is similar to that faced by the Federal Reserve.
 2. Using the Quantity Theory of Money, derive an expression for the rate of inflation for the case when the velocity of money is *not* a constant and use it to explain the pre-1990 and post-1990 curves on slide 32 of lecture 14.
 3. The accounting identity that relates the level of assets A , liabilities L , and equity E in a bank¹ is $A - L = E$. When $A < L$ a bank would be insolvent and subject to closure by banking regulators. Consider the 2006 balance sheet of Barclays PLC shown on slide 19 of lecture 15. What is the maximum drop in the level of their assets that Barclays could experience and not be closed by banking regulators if the level of their total liabilities did not change?
 4. Briefly describe how quantitative easing works.
 5. On October 30, 2019 [Bloomberg](#) reported that one Euro (EUR) cost 1.1647 United States dollars (USD) and that one USD cost 104.66 Japanese yen (JPY). Use these quotes to calculate the cost of one EUR in JPY at that time.
 6. If the spot price of the U.S. Dollar (USD) is 0.92 Swiss Francs (CHF) and the risk-free rate on 1-year government bonds is 0.127%/year in the US and -0.81% in Switzerland (yes, that is a negative *nominal* rate), what is the one-year-forward price of the CHF in USD?
 7. In class we discussed the Economist's Big Mac Index which is based on a representative basket of agricultural commodities. Let's consider a basket of high-tech commodities and call it the *MacBook Air Index*.
 - (a) The GBP-USD exchange rate (source: [Bloomberg](#)) when this question was written was 1.2947. What are the two currencies in this currency pair? What does this exchange rate mean?

¹This is true for any entity with a balance sheet.

- (b) What is the price of the least expensive, not educationally discounted, 13-inch MacBook Air in [the U.S.](#) and in [the U.K.](#)? You need to subtract the value-added tax shown below the U.K. price to get the pre-tax price for comparison.
- (c) How does the price of the MacBook Air in the U.K. compare with the price implied by the price in the U.S. and the current exchange rate?
- (d) What nominal exchange rate is implied by the price of the MacBook Air in the U.S. and in the U.K.?
- (e) Does Purchasing Power Parity (PPP) hold? Why?