Introduction to Macroeconomics
Tentative answers to the questions on goods and financial markets

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1. A goods market follows the functions:

$$C = 400 + 0.6(Y - T) \tag{1}$$
$$I = 100 - 1000i + 0.42Y \tag{2}$$
$$T = 0.2Y \tag{3}$$

   (a) Assuming $i = 0.1$ and $G = 500$ implies

   $$Z = C + I + G = 400 + 0.6 * 0.8Y + 100 - 100 + 0.42Y + 500 = 900 + 0.9Y,$$

   and the equilibrium condition $Y = Z$ then yields

   $$0.1Y = 900 \Rightarrow Y = 9000$$

   (b) One way to determine the fiscal multiplier is simply to state that it must be 10, as this is the value used in the decisive step for the calculation in (a). Alternatively, we may re-write the equation in (a) without substituting 500 for G:

   $$Y = 400 + 0.9Y + G \Rightarrow Y = 4000 + 10 * G,$$

   and hence it must be 10 anyway, as it is defined as the derivative of Y with respect to G. Note that the fiscal multiplier is model-dependent. It is affected by the assumption of endogenous taxes, for example.

   (c) If i increases to 0.2, the basic equation changes slightly

   $$Y = 400 + 0.6 * 0.8Y + 100 - 200 + 0.42Y + 500 = 800 + 0.9Y,$$

   hence $Y = 8000$. Y has fallen due to the reaction of investment demand: investment reacts negatively to the increased interest rate, as higher interest increases the cost of investment for the firms.

2. In order to reduce the market interest rate in an economy, a central bank wishes to create more money. Consider the following options:

   (a) The central bank buys bonds from private bondholders. This is classical monetary expansion via open-market operation. H increases, and thus also M;

   (b) The central bank reduces the prescribed reserve ratio. Here, H remains constant, as no fresh cash money is pumped into the economy. However, the money multiplier increases, and hence M will also increase. This policy facilitates the creation of demand deposit money in the banking sector;

   (c) If the cash coefficient falls, again the money multiplier rises. No new cash money is introduced to the economy, and none leaves the economy, hence H must remain constant. The money multiplier increases, thus M will increase. This sounds peculiar, but it simply means that the cash money is used differently. It is more often deposited in banks, and this again facilitates the creation of non-cash money.