Problem 1. Here, match some stuff.

Definitions

(a) decreases in the general price level
(b) decreases in the inflation rate
(c) increases in the general price level
(d) nominal interest rate minus expected inflation rate
(e) the interest rate charged on a loan

Terms

(i) inflation
(ii) real interest rate
(iii) deflation
(iv) ex-ante real interest rate
(v) disinflation
(vi) nominal interest rate
(vii) recession

Problem 2.   What is the relationship between the real interest rate, the nominal interest rate, and inflation?

Problem 3.   Consider the following statistics of an economy:

$$
\begin{aligned}
\text{nominal interest rate in 2017:} \quad & 6\% \\
\text{general price level in 2017:} \quad & 100 \\
\text{general price level expected in 2018:} \quad & 104 \\
\text{actual general price level in 2018:} \quad & 107
\end{aligned}
$$

Find the expected one-year rate of inflation in 2017.

Problem 4. Consider the following statistics of an economy:

$$
\begin{aligned}
\text{nominal interest rate in 2017:} &\quad 6\% \\
\text{general price level in 2017:} &\quad 100 \\
\text{general price level expected in 2018:} &\quad 104 \\
\text{actual general price level in 2018:} &\quad 107
\end{aligned}
$$

Find the ex-ante real interest rate in 2017.

Problem 5. Consider the following statistics of an economy:

$$
\begin{aligned}
\text{nominal interest rate in 2017:} &\quad 6\% \\
\text{general price level in 2017:} &\quad 100 \\
\text{general price level expected in 2018:} &\quad 104 \\
\text{actual general price level in 2018:} &\quad 107
\end{aligned}
$$

Find the ex-post real interest rate in 2017.

Problem 6. Leopnard and Brad both expect 4% inflation over the next year. Brad borrows some money from Leopnard at the interest rate of 7%. Next year, the inflation rate turns out to be only 2%. In this story

(a) Leopnard will be better off than expected

(b) Leopnard will be worse off than expected

(c) Brad will be better off than expected

(d) Both will be worse off than expected

(e) "Leopnard" is a funny name.

Problem 7. Schtolteheim Reinbach III inherits some cash from his aunt and deposits it in his checking account. He realized that inflation is going to erode the purchasing power of those deposits. His financial adviser tells him to buy gold coins and put them in a safe deposit box. The fee Schtolteheim pays the adviser, plus the cost of the safe deposit box, is

(a) menu costs

(b) shoe-leather costs

(c) hedging costs

(d) inflation costs

Problem 8. Apple Computers raises the pries of iPhones and iPads just to keep up with the general inflation. As a result, it has to modify its computer programs, issue new online catalogues, and inform the retail stores about the new prices. The costs of all these activities incurred by Apple are called

(a) menu costs

(b) shoe-leather costs

(c) inflation costs

(d) price-change costs

Problem 9.   Define the following terms:

(a) surplus spending units

(b) deficit spending units

(c) direct finance

(d) indirect finance

Problem 10.   Explain the following functions of a financial system:

(a) aggregation

(b) diversification

(c) provision of liquidity

(d) provision of information

(e) maturity transformation

Problem 11.   If lenders and borrowers expect the inflation rate to increase by 2%, the Fisher effect says the equilibrium nominal interest rate will increase by how much?

Maturity Transformation and Financial Crises

Suppose we all deposit our money into the bank as savings accounts. The bank takes 90% of this money and loans it as a 30-year mortgage. (They 10% they keep are called *reserves*.) They are hoping that, at no given time, people will want to withdraw more than 10% of that money. Because if that happens, the bank doesn't have the money and won't for a long time – they loaned it away for 30 years.

This is called a *bank run*: when large numbers of people all simultaneously want to withdraw their money from a bank, and the bank cannot give everyone back their money because they've loaned too much of it out. This causes financial crises and was seen, for example, right before the Great Depression.

To avoid the probability of a bank run, the U.S. government created the Federal Deposit Insurance Corporation (FDIC). Even if there is a bank run and your bank can't give you back your money, the FDIC will guarantee you'll get a maximum of $250,000 back.

There is a downside to the FDIC however. Since banks know the government is going to pay people back up to $250,000 no matter what, banks will feel comfortable taking on more risk. This is an example of **moral hazard**.

I give one narrative for each shift, but the opposite cases always have opposite shift.

Shifts in Supply of Bonds (Borrowers)

(a) Expected future economic conditions. If you feel bad about the future, you act cautiously and borrow less (shift left).

(b) Uncertainty about the level of future profits. If firms are uncertain about the future, they are hesitant to borrow (shift left).

(c) Inflation volatility. If inflation is volatile, then borrowers cannot form reliable beliefs about the future and hence will not want to borrow (shift left).

Shifts in the Demand for Loanable Funds (Lenders)

(a) Income and wealth. As the income and wealth of households decreases, they buy fewer bonds (shift left).

(b) Credit risk. If lending is riskier, then lenders don't lend out as much, i.e. lenders buy fewer bonds (shift left).

(c) Inflation volatility. If inflation is volatile, then lenders cannot form reliable beliefs about the future and hence will not want to lend (shift left).

Note that both curves shift left when inflation volatility increases. This implies lower quantity in equilibrium, but the effect on price depends on which curve shifts more.

Problem 12.   The bond market shown below is for (safe) Treasury bonds. Suppose the market for (risky) corporate bonds exhibits the same supply and demand structure, and that the risk premium is 2%. What is the quantity of corporate bonds in equilibrium? (Numbers will be "nice" even if the graph isn't: use the closest integer.)