

Answers to Kennedy ch9-ch11

Chapter 9: The Monetarist Rule

- 1a. Fine-tuning is undertaking frequent discretionary policy actions to keep the economy operating at full employment.
- 1b. It is an argument for a policy rule, to prevent discretionary policy action from making inevitable errors.
- 3a. velocity
- 3b. To earn interest, people hold money balances in daily-interest savings accounts instead of checking accounts. But they can easily transfer these funds to their checking accounts when needed. This enables a smaller amount of M1 (average holdings in checking accounts) to handle an unchanged amount of spending: M1 velocity rises.
- 5a. A more restrictive policy is a lower rate of growth of the money supply.
- 5b. First blank: once the recovery ends. A higher rate of growth of the money supply is acceptable as the economy comes out of a recession because its growth rate during the recovery can be quite high relative to its growth in potential income once it has moved back to full employment.
- Second blank: election is over. The Fed may have been under some pressure not to adopt a restrictive monetary policy during the election.
- 7a. M2 velocity is the ratio of nominal GDP to M2.
- 7b. Nowadays it is easy to switch money balances from accounts paying interest to accounts on which checks can be written. Doing so changes M1 because checking accounts are in M1 but many interest-paying accounts are not. This makes M1 velocity unpredictable. M2, and thus M2 velocity, are unaffected because both these types of accounts are part of M2.
- 7c. The problem is the erratic relationship between spending and M1, or in other words, an unstable M1 velocity, which causes trouble for a policy of targeting on M1 growth. Because M2 velocity is more stable, targeting on M2 instead of M1 should solve this problem.
- 9a. Velocity shifts could be caused by financial innovations allowing people to conduct their financial transactions more efficiently.
- 9b. The target is the fixed rate of growth of the money supply specified by the policy rule being followed.
- 9c. Suppose velocity were increasing by 2% per year. Then if the economy's real growth rate were 3% per year, instead of increasing the money supply by 3% per year to create zero inflation, it should be increased by only 1% per year.
- 11a. By taking on more of the nation's debt the Fed must buy more bonds, increasing the money supply growth rate. A higher money growth rate causes higher inflation.
- 11b. The relationship between money growth rate and inflation is a long-run relationship. Inflation in the short run is affected by many factors.
- 13a. By international standards the Fed is quite independent.
- 13b. If the central bank felt that an expansionary policy was likely to create inflationary forces, it may restrict the growth of the money supply to offset that expansionary policy.
- 13c. Democratically-controlled banks would be more under the influence of politicians who would push for expansionary monetary policy prior to elections. Furthermore, politicians are less likely to be able to resist calls for abandonment of restrictive monetary policy because of the high unemployment it creates when fighting inflation.
15. This supports the argument for a policy rule as opposed to the use of discretionary policy.
- 17a. Discretionary
- 17b. raise; dampen; inflation
- 19a. printing money
- 19b. It would create inflation for which the Bank of Japan is responsible.
- 106 Macroeconomic Essentials
- 21a. Rising productivity would make it possible for firms to meet wage demands without needing to raise prices, alleviating inflationary pressures.
- 21b. excess demand

N1a. \$2 billion bond purchase increases money supply by $2 \times 3 = \$6$ billion. This increases income by $6 \times 4 = \$24$ billion.

N1b. Excepting real increases that occur for other reasons, such as increases in population and capital stock, in the long run none of this increase is real because we return to the natural rate of unemployment.

N3a. The monetary policy must offset an expansionary fiscal policy, so the money supply must be decreased. To do this the central bank must sell bonds.

N3b. The fiscal policy increases income by $12 \times 3 = \$36$ billion, so we want monetary policy to decrease income by \$36 billion. If it sells \$1 billion bonds the money supply decreases by $1 \times 6 = \$6$ billion and income decreases by $6 \times 4 = \$24$ billion. We want the decrease to be 1.5 times this, so it should sell \$1.5 billion bonds. Then the money supply decreases by $1.5 \times 6 = \$9$ billion and income decreases by $9 \times 4 = \$36$ billion.

N5a. Velocity = $600/200 = 3$.

N5b. Inflation = $10 - 2 = 8\%$.

N7. Without the financial innovations, inflation would be $8\% - 2 = 6\%$. But the financial innovations decrease the demand for money by 0.5% per year, implying that inflation must be 0.5% higher to increase demand to offset this. Answer therefore is 6.5%

N9. The fiscal policy increases income by $5 \times 4 = \$20$ billion. Since we want only \$8 billion income growth, monetary policy must decrease income by \$12 billion. Suppose \$1 billion bonds are sold. This decreases the money supply by $1 \times 3 = \$3$ billion which decreases income by $3 \times 2 = \$6$ billion. We want twice this decrease, so we must sell \$2 billion bonds.

N11a. Income increase is $2.5 \times 4 = \$10$ billion.

N11b. Income increase is $10 \times 6 = \$60$ billion.

N11c. Money supply increases by $12.5 \times 5 = \$62.5$ billion which increases income by $62.5 \times 4 = \$250$ billion.

N11d. Fiscal increases income by $3 \times 6 = \$18$ billion. Monetary increases income by $8 \times 4 = \$32$ billion. So total

income increase is \$50 billion.

N11e. Fiscal increases income by $15 \times 6 = \$90$ billion. Money supply decreases by $2 \times 5 = \$10$ billion which

decreases income by $10 \times 4 = \$40$ billion. So net income increase is \$50 billion.

N11f. Fiscal increases income by $5 \times 6 = \$30$ billion. Money supply increases by $1 \times 5 = \$5$ billion which increases

income by $5 \times 4 = \$20$ billion. So total income increase is \$50 billion.

N13. inflation = money growth rate - real growth rate + velocity growth so $4 = \text{money growth rate} - 3 + 1$ which implies money growth rate = 6%

Chapter 10: Monetary Policy and Interest Rates

1. Because of the inverse relationship between interest rates and the price of bonds, a fall in interest rates should increase the price of bonds, creating a rally in the bond market.

3. Unloading bills means selling them. To sell them their owners would have to cut their price. This fall in their price increases their yield.

5. The yield to maturity includes a capital loss as the price of the bond falls from \$1007.10 to its face value of \$1000. This makes the yield slightly lower than the coupon of \$102.50 expressed as a percentage of current price.

7. The central bank must be targeting on the interest rate, keeping it constant by matching money demand changes with money supply changes.

9. Bad news suggests that interest rates should fall (thus raising the price of bonds) for three reasons. (1) The fall in GDP should cause the demand for money to fall, decreasing the interest rate. (2) The bad news might prompt the central bank to fight the recession by lowering interest rates. (3) Prolonging the recession could reduce inflationary pressures, lowering expected inflation and nominal interest rates.

11. decrease interest rates.

13a. By buying bonds on the open market.

13b. Buying bonds would increase reserves in the banking system. Because of this banks would more easily be able to meet their legal reserve requirement and so would have less need to borrow reserves from other banks.

Since the demand for such borrowed reserves is lower, their price, the federal funds rate, should be lower.

15. Bad news on the job front leads people to expect the Fed to lower interest rates to stimulate the economy. This would cause an increase in bond prices. Good news on the job front leads people to expect the Fed to raise interest rates to dampen the economy. This would cause a fall in bond prices. In addition, this good news may raise inflation expectations which would increase interest rates causing bond prices to fall.

17a. Monetarists would advise adopting the monetarist rule: increase the money supply at a low steady rate equal approximately to the real rate of growth of the economy.

17b. It discriminates against those most affected by interest rate increases, such as the housing sector.

19. This bad news leads people to expect that the Fed will soon decrease interest rates, thereby raising bond prices. To benefit from this expected increase in bond prices people will buy bonds, bidding up their prices. It may also affect inflation expectations, causing a similar effect on interest rates and thus bond prices.

21. The bond returns for a year consist of the interest payment plus any capital gain or minus any capital loss because of a change in the price of the bond during the year. During 1995 interest rates must have fallen to cause substantial increases in the prices of bonds.

23. Raise to lower aggregate demand to prevent inflation from developing.

25a. A rise in interest rates would raise the return to buying bonds and so make stocks less attractive, offsetting any influence higher expected corporate earnings might have on stock prices.

25b. A rise in interest rates decreases bond prices.

27. Reversal of the monetary easing would cause interest rates to rise, lowering bond prices. People sold to avoid the anticipated capital loss.

29. Extending the duration means holding more long term bonds and fewer short term bonds. Since the price of long term bonds is more sensitive to interest rate changes, the portfolio will become more sensitive.

N1a. Yield = $500/9500 = 5.3\%$

N1b. Yield = $1000/9000 = 11.1\%$

N1c. Yes, lower bond price implies higher interest rate.

N3. Interest rate = $(\text{coupon} - \text{capital loss}) / \text{current price} = (85 - 25) / 1025 = 5.85\%$.

N5. Interest rate over half-year is 3%, so $.03 = (1000 - \text{bond price}) / \text{bond price}$. Solving for bond price gives \$970.87. The original price or interest rate is irrelevant. N7. Since buying \$4 billion bonds lowers the interest rate by one percentage point, to lower the interest rate by one-half a percentage point the central bank needs to buy \$2 billion bonds. This increases the money supply by $2 * 5 = \$10$ billion which increases income by $10 * 4 = \$40$ billion.

N9. These bonds were all originally issued at different times when interest rates were very different, and so have very different coupons. If the coupons were all the same, their prices would be the same.

N11. If held to maturity the capital loss is $1079.85 - 1000 = \$79.85$ which is $79.85 / 5 = \$15.97$ per year, so total dollar return per year is $100 - 15.97 = \$84.03$. This is $84.03 / 1079.85 = 7.8$ percent.

Chapter 11: Real versus Nominal Interest Rates

1. Because the money supply decrease was smaller than expected, inflation expectations are now higher. This increases the nominal interest rate, lowering bond prices.

3a. A cut in the discount rate would indicate that the Fed believes interest rates should be lower. Lower interest rates push up bond prices, so this would be positive for bonds.

3b. Rising money supply growth would raise inflation which would raise inflation expectations and push interest rates up.

5a. If inflation increases, the nominal interest rate will increase to an even higher level.

- 5b. Interest rate increases will lower the prices of long-term bonds much more than short-term bonds.
- 7a. If expected inflation is rising, as the clip suggests, then the real interest rate is falling, prompting borrowers to increase demand for loans.
- 7b. Cut back on money growth to fight inflation and accept the high interest rates this will produce before inflation expectations fall and lower the interest rate.
9. The modest rise in prices can serve to lower expectations of inflation, permitting the interest rate to fall. The Fed can lower interest rates because the nominal interest rate should fall in any event (because of lower inflation expectations), and because a fall in the real interest rate should not create inflationary increases in aggregate demand (because of the economic weakness).
11. These higher interest rates may be higher nominal interest rates because of high inflation. They probably correspond to a lower real interest rate, which is what is inducing people to borrow.
- 13a. Lowering inflation causes expected inflation to fall which decreases nominal interest rates.
- 13b. Despite falls in inflation, people do not believe this monetary policy will be maintained and so have not reduced expected inflation.
15. The recession lowers interest rates because a) it reduces the demand for money which lowers the price of money, the interest rate, and b) a recession may prompt the Fed to lower the interest rate to stimulate the economy. The high rate of inflation creates high inflation expectations which raise the nominal interest rate.
17. inflation will rise and so the premium for expected inflation built into nominal interest rates increases, increasing the nominal interest rate.
19. An increase in the rate of growth of the money supply should initially lower interest rates, but once people realize what is happening inflation expectations rise and the nominal interest rate increases.
- 21a. By lowering the rate of growth of the money supply.
- 21b. Eventually this should lower inflation, decrease inflation expectations and thereby lower the nominal interest rate.
- 21c. It takes time for people to lower inflation expectations because they may not believe that the central bank will stick with this policy.
23. This news has decreased inflation expectations, lowering nominal interest rates. This in turn increases bond prices.
- 25a. Prices of short-term bonds cannot be much different from their face values because soon they will pay off at that face value.
- 25b. People are not convinced that in the longer run inflation will stay down. Because of this the inflation premium in long-run nominal interest rates is still high.
- 27a. Yes. Inflation expectations are falling causing the nominal yield to fall.
- 27b. This week's price should have risen to reflect the lower yield, so last week's price should have been
 $103.28 - 19/32 = \$102.69$.
- 29a. inflation, or a rise in inflation.
- 29b. By raising short-term interest rates the bank makes it clear it will fight any rise in inflation. This causes inflation expectations to be lower, lowering long-run interest rates.
31. expected inflation.
- 33a. Raise interest rates
- 33b. Bond prices are falling
- N1a. Current interest rate is $70/930 = 7.5\%$. The two percentage point jump in money supply growth should raise inflation expectations by two percentage points and thus increase the interest rate to 9.5% .
- N1b. Since i rate = (face value - bond price)/bond price, we have $.095 = (1000 - \text{price})/\text{price}$ which when solved gives bond price = $\$913.24$.
- N3. Inflation should be $7\% - 2\% = 5\%$, so the nominal interest rate should be $3 + 5 = 8\%$.
- N5. Inflation should be $9\% - 1\% = 8\%$, so the nominal interest rate should be $3 + 8 = 11\%$.