Money Banking and Financial Markets 6th edition Cecchetti Solutions Manual

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Chapter 1
An Introduction to Money and the Financial System

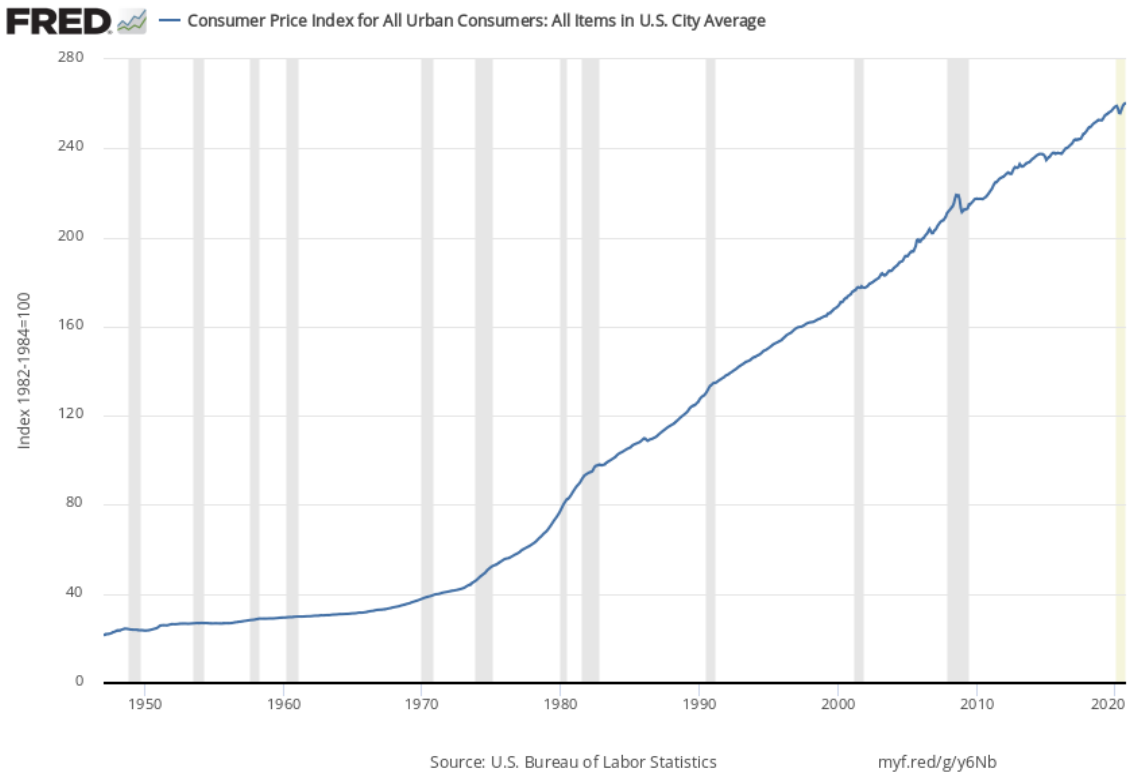
Data Exploration

1. Go to the FRED website (http://fred.stlouisfed.org). Register to set up your own account. Doing so will allow you to save and update graphs, alter them for submitting assignments and making presentations, and receive a notice whenever the data is updated.

   Answer: Sign up as indicated.

2. To begin using FRED, plot the consumer price index (FRED code: CPIAUCSL) and find the date and level of the latest monthly observation. Then plot the inflation rate as measured by the percent change from a year ago of this index.

   Answer: As of October 2020, the value of the index was 260.325; note that this value is subject to revision. The plot for the CPI (adjusting for any data revisions) is:



   The plot for the CPI inflation rate is:

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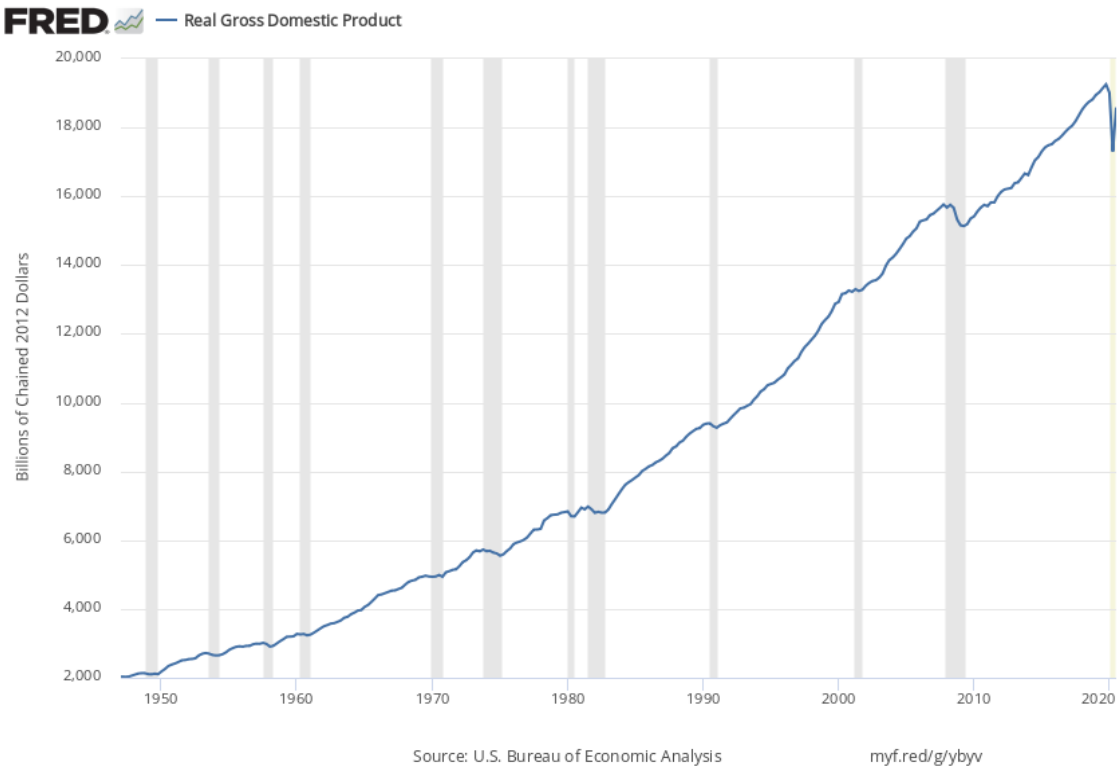
Recessions are depicted by vertical shaded bars. The recession bar in 2020 has a different shading since the ending date of the recession has yet to be determined.

3. Plot the level of real GDP (FRED code: GDPC1). Then plot the rate of economic growth as the percent change from a year ago of this index. Describe how real GDP behaves in recessions, which are denoted in the FRED graph by vertical shaded bars. If you registered on FRED (as in Data Exploration Problem 1), save the graph so that you can recall and update the graph easily when new observations become available.

   Answer: The graph for the level of real GDP is:

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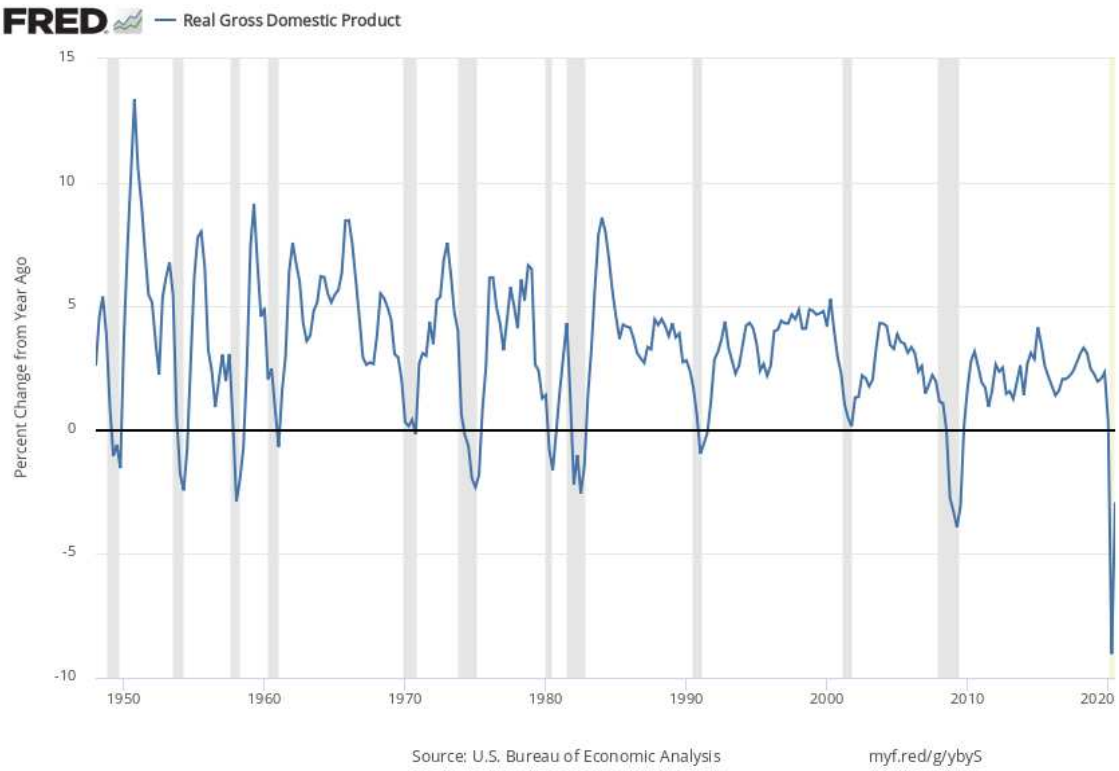
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The plot of the rate of economic growth, expressed as the percentage change from a year ago, is:

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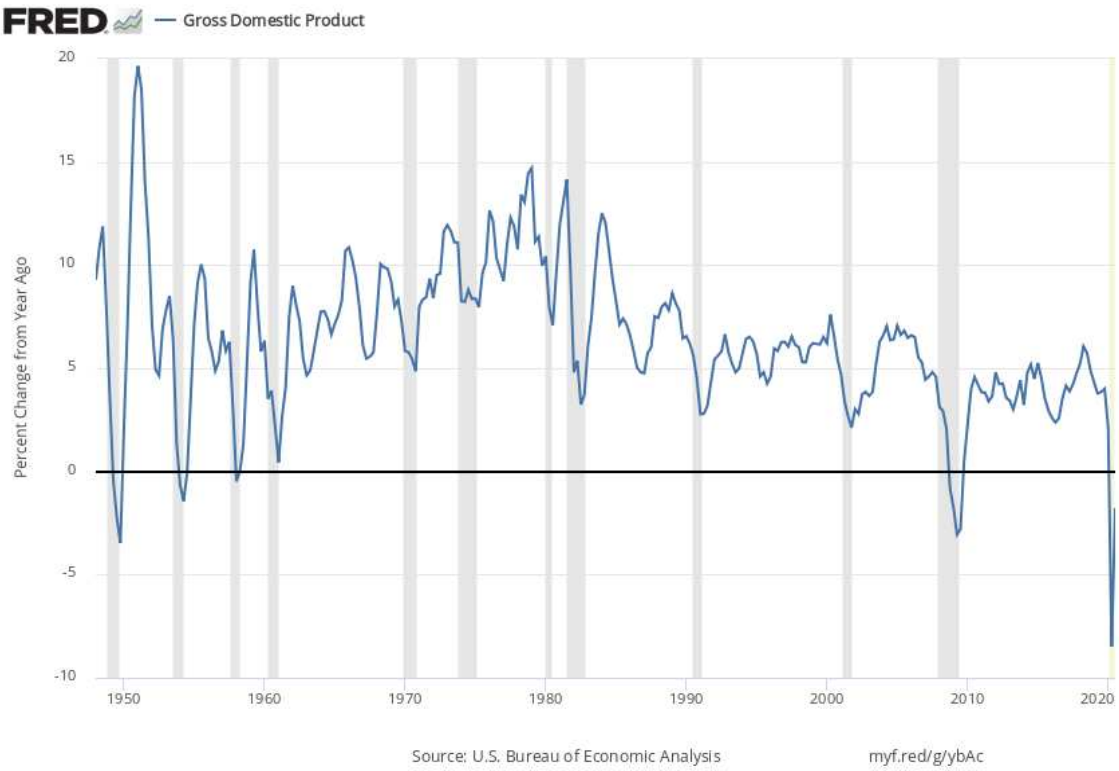
Real GDP usually declines in recessions and rebounds afterwards. In the 2007-2009 episode, the percentage decline of nominal was the largest since 1950 (as in the plot for problem 4 below) and for real GDP the largest since the Great Depression. The declines in the pandemic year of 2020 in both nominal and real GDP are even larger than during the 2007-2009 experience. However, the recession starting in February 2020 is an atypical recession in that it was the result of government lockdowns rather that the usual economic corrections.

4. Examine nominal GDP (FRED code: GDP) based on a figure showing percent change from a year ago. What was special about the behavior of nominal GDP during the financial crisis of 2007-2009 compared to previous decades?

   Answer: The plot appears below. Unlike other recessions prior to 1960, nominal GDP fell noticeably during both the 2007-2009 financial crisis and the pandemic year of 2020.

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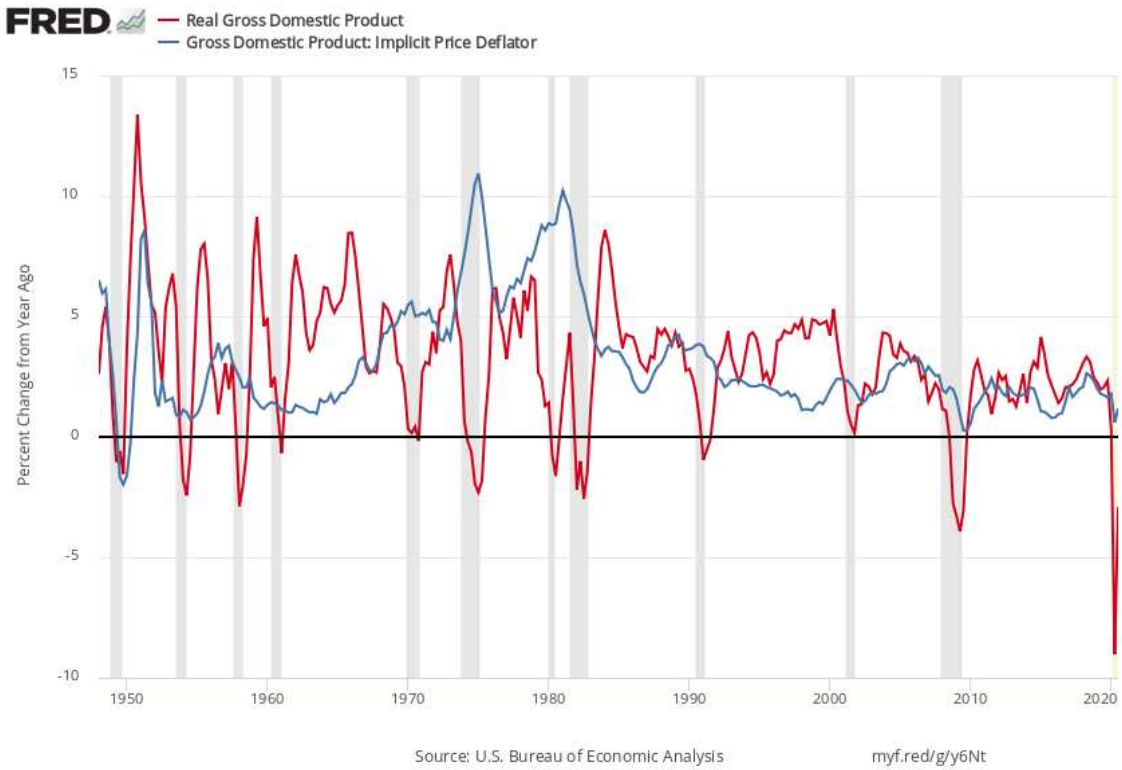


5. Plot on one figure the percent change from a year ago of both the GDP deflator (FRED code: GDPDEF) and real GDP (FRED code: GDPC1). How does the GDP deflator link nominal and real GDP? Since the mid-1980s, does it fluctuate more or less than real GDP?

   Answer: The data plots with real GDP and the GDP deflator is given below:

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Nominal GDP is the product of real GDP and the GDP deflator. Alternatively, real GDP is nominal GDP divided by the deflator. In simple terms, if Y is nominal GDP, P is the deflator, and Q is real GDP, then $Y = PQ$ or equivalently $Q = Y/P$. Compared with earlier periods, the GDP deflator appears to have become less variable since the mid-1980s. Furthermore, it appears less volatile than real GDP.

* indicates more difficult problems

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Chapter 2
Money and the Payments System

Conceptual and Analytical Problems

1. Describe four ways you could pay for your morning cup of coffee. What are the advantages and disadvantages of each? (*LO2*)

   Answer: You could use money, a check, or a debit card.

   Money: This is the most likely to be accepted, but it means you have to replenish your supply periodically.

   Check: The least likely to be accepted, and it means you have to walk around with your checkbook. But the funds remain in your bank account for the time it takes the check to make its way through the clearing system.

   Debit Card: This is very convenient, and likely to be accepted. But when the electronic signal arrives at your bank later in the day, the funds are withdrawn immediately from your account.

   Mobile Payment App: This is very convenient and fast, as you can complete payment with a simple tap of your mobile device. But you are vulnerable to hackers possibly accessing your information.

2. You are the owner of a small sandwich shop. A buyer may offer one of several payment methods: cash, a check drawn on a bank, a credit card, or a debit card. Which of these is the least costly for you? Explain why the others are more expensive. (*LO2*)

   Answer: Cash is the cheapest option for the merchant; no information is required about the buyer and no additional costs are imposed (though the merchant may need to guard against counterfeiting). Most merchants will ask for a government-issued photo ID in order to accept payment by check, requiring more time per transaction. Even with appropriate identification, the merchant does not know if funds are actually available in the check writer's account. If not, the merchant will likely undergo a costly process of contacting the buyer and trying to coax the funds from the individual. A payment by credit card provides the merchant with more protection than does a check because the payment is made by the financial institution issuing the card. However, the merchant pays the card issuer a fee (usually a percentage of the transaction value) for the certainty of the payment. Finally, while a debit card electronically transfers funds from the buyer's account to the merchant's, this transfer

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is not instantaneous, and the buyer is likely already gone when the merchant may discover that the buyer did not have the funds available.

3. Explain how money encourages specialization, and how specialization improves everyone's standard of living. (*LO1*)

   Answer: Without money, people have to barter to exchange goods and services. This requires a "double coincidence of wants," which makes it difficult to specialize. In the example in the text, a plumber is buying groceries; if the grocer doesn't need a plumbing repair, but does need the outside of his store painted, the plumber may decide to paint the store in order to pay for his groceries even though it is not what he does best. When money is used, people are free to specialize in areas in which they have a comparative advantage, increasing the production of society as a whole, and improving everyone's standard of living.

4. *Could the dollar still function as the unit of account in a totally cashless society? (*LO2*)

   Answer: Yes. Using dollars and cents to quote prices and record debts does not depend on cash being used as a means of payment. Dollars and cents may still serve as the standard measurement of value even if they are not themselves exchanged.

5. Give four examples of ACH transactions you might make. (*LO2*)

   Answer:
   a. You receive your paycheck as an electronic transfer from your employer's account into your account, which may be at a bank different from your employer's.
   b. You schedule your monthly electric bill payment to be made automatically.
   c. You make payments on your credit card to your bank by scheduling the payment each month for the outstanding balance.
   d. You make your monthly car payment by arranging for the amount to be deducted from your checking account on the fourth day of each month.

6. A subset of European Union countries have adopted the euro, while the remaining member countries have retained their own currencies. What are the advantages of a common currency for someone who is traveling through Europe? (*LO1*)

   Answer: Each country has the same unit of account, making it easier for a traveler to compare prices in different countries. The traveler also saves the costs of exchanging currencies.

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7. Why might each of the following commodities not serve well as money? (*LO2*)
   a. Tomatoes
   b. Bricks
   c. Cattle

   Answer:
   a. Tomatoes are perishable and thus would not serve as a store of value.

   b. Bricks are heavy and bulky and will break easily. In addition, even though bricks break easily, they are not easily divisible into usable units.

   c. Cattle are not standardized in terms of weight and other potentially important characteristics.

8. Despite the efforts of the United States Treasury and the Secret Service, someone discovers a cheap way to counterfeit $100 bills. What will be the impact of this discovery on the economy? (*LO3*)

   Answer: People will be unwilling to accept $100 bills as payment and will require payment via check, credit card, debit card, or electronic transfer instead, all of which are more costly. Theoretically, inflation could result if the supply of money was increased by a large enough amount.

9. What do you think accounts for the wide-spread adoption of mobile-based payment services in emerging economies? (*LO2*)

   Answer: In these countries, large segments of the population may have lacked access to more traditional bank-based payment mechanisms. Technological innovations enable mobile phone-based payment services to reach many people at a relatively low cost, especially those living in remote, rural areas.

10. Over a nine-year period in the 16th century, King Henry VIII reduced the silver content of the British pound to one-sixth its initial value. Why do you think he did so? What do you think happened to the use of pounds as a means of payment? If you held both the old and new pounds, which would you use first, and why? (*LO1*)

    Answer: King Henry needed to silver to pay for wars. The use of pounds as a means of payment declined because people could not be sure how much silver each coin contained. People spent the new coins first since the old coins had a higher intrinsic value.

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11. Under what circumstances might you expect barter to reemerge in an economy that has fiat money as a means of payment? (*LO2*)

Answer: You might expect an economy to revert to barter when the public loses confidence in the fiat money issued by the government, perhaps because of overuse of the printing presses. For example, this has happened during episodes of extremely high inflation, such as that experienced in Zimbabwe during much of the 2000's.

12. You visit a tropical island that has only four goods in its economy—oranges, pineapples, coconuts and bananas. There is no money in this economy. (*LO1*)
    a. Draw a grid showing all the prices for this economy. (You should check your answer using the $n(n-1)/2$ formula where n is the number of goods.)
    b. An islander suggests designating oranges as the means of payment and unit of account for the economy. How many prices would there be if her suggestion were followed?
    c. Do you think the change suggested in part *b* is worth implementing? Why or why not?

Answer:

a. There would be six prices in total.

	Oranges	*Pineapples*	*Coconuts*	*Bananas*
Oranges				
Pineapples	Pineapples/Oranges			
Coconuts	Coconuts/Oranges	Coconuts/Pineapples		
Bananas	Bananas/Oranges	Bananas/Pineapples	Bananas/Coconuts	

b. There would be three prices—pineapples/oranges, coconuts/oranges and banana/oranges.

c. In the case of this four-good economy, there is only a small gain by using oranges as a unit of account. The gains would be significantly bigger in an economy with more goods. If the islanders think the range of goods in their economy is likely to expand, then it is probably worth implementing the change. One of the drawbacks to consider would be the danger that more people would grow oranges, due to their special status, thus pushing up the prices of the other fruits in terms of oranges.

13. Consider a fruit-growing, tropical island economy without money. Under what circumstances would you recommend the issue of a paper currency by the government of the island? What advantages might this strategy have over the use of oranges as money? (*LO1*)

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Answer: The islanders must have enough confidence in their government to accept notes backed only by a government decree that have no intrinsic value themselves. The have to believe that these notes will be widely accepted by other islanders as final payment for goods and services and in settlement of debts. They must trust that the government will not print too much of the money and undermine its value.

Some advantages of the paper money over commodity money in the form of oranges include: being easier to carry, longer lasting and more divisible. Most importantly, it would be the government that would control the supply of money on the island as only the government could print new notes, while any of the islanders might decide to grow more oranges.

14. What factors should you take into account when considering using the following assets as stores of value? (LO1)
    a. Gold
    b. Real estate
    c. Stocks
    d. Government bonds
    e. Cryptocurrencies

Answer: When assessing an asset as a store of value, the primary things to consider are the risk and return of the asset and its liquidity.

a. In considering keeping gold as a store of value, one must consider the potential for the price of gold to rise, the ability to buy and sell gold easily, and the costs associated with the storage and security of gold.

b. In considering keeping real estate as a store of value, one must consider the rate at which real estate is appreciating and is likely to appreciate in the future, how easy or difficult selling is, and the housing services you could receive from holding the real estate

c. In considering keeping stocks as a store of value, one must consider the potential appreciation in the nominal value of the stock, the historical volatility of the stock's price, and the volume of the stock being traded on the secondary market (in order to gauge its liquidity).

d. In considering keeping government bonds as a store of value, one must consider the rate of return on the bonds, including interest payments and any potential capital gains, as well as the ease with which you can buy and sell the bonds.

e. In considering keeping cryptocurrencies as a store of value, one must consider their stability, including their ease of use as a means of payment and value

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15. *Under what circumstances might money in the form of currency be the best option as a store of value? (*LO1*)

Answer: If there were deflation in the economy, then paper currency would increase in value. When deflation occurs, overall prices in the economy are falling and so the currency you hold has more purchasing power. During periods of falling prices of goods and services, prices of assets often fall too and so currency might be an attractive option as a store of value.

16. Suppose a significant fall the price of certain stocks caused the market makers in those stocks to experience difficulties with their funding liquidity. Under what circumstances might that development lead to liquidity problems in markets for other assets? (*LO3*)

Answer: Faced with difficulties in borrowing money, the market makers in the stocks may decide to hold more cash to ensure their ability to meet clients' demands. This, in turn, reduces loans available for other market participants, potentially causing them to alter their behavior; this could lead to funding liquidity problems throughout the financial system. Moreover, to fund itself, the market maker might try to sell other assets, depressing their prices and spreading the disruption.

17. *Consider an economy that only produces and consumes two goods—food and apparel. Suppose the inflation rate based on the consumer price index is higher during the year than that based on the GDP deflator. Assuming underlying tastes and preferences in the economy stay the same, what can you say about food and apparel price movements during the year? (*LO3*)

Answer: Since the two price indices yield different inflation rates with preferences remaining constant, the relative price of the two goods must have changed. In other words, the price of one of the goods must have gone up by a greater percentage than the other. For example, suppose the price of food went up by 10% while the price of apparel went up by 20%. This would induce consumers to substitute food for apparel. As a fixed weight index, the CPI would not take this substitution into account while the GDP deflator would, as it is calculated on the basis of what is actually purchased. Therefore, the CPI inflation rate would be higher than the rate calculated from the GDP deflator.

18. Assuming no interest is paid on checking accounts, what would you expect to see happen to the relative growth rates of M1 and M2 if interest rates rose significantly? (*LO3*)

Answer: When interest rates rise, you would expect that people would shift funds from checking accounts into savings accounts, as the opportunity cost of holding

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funds in a non-interest bearing account has risen. Checking accounts are a component of M1 while both checking and some savings accounts are included in M2. Therefore, any shift from checking to savings accounts would depress growth in M1 to a greater degree than growth in M2, leading to a relative increase in the M2 growth rate.

19. If money growth is related to inflation, what would you expect to happen to the inflation rates of countries that join a monetary union and adopt a common currency such as the euro? (*LO3*)

    Answer: Once countries join a monetary union, they effectively share a common money supply. Given the link between money growth and inflation, you would expect the inflation rates of these countries to converge.

20. Why might one doubt that current new forms of digital money, such as Bitcoin, will replace more traditional fiat currencies? (*LO2*)

    Answer: These private digital currencies currently do not fulfill the three key functions of money—means of payment, unit of account, and store of value.

21. Is the challenge of making "time consistent" policy unique to fiat-based paper money? (*LO2*)

    Answer: No. Even if the value of money is linked to a commodity such as gold, the government could abolish this current commitment at a point in the future such as in a time of crisis. For example, the United States exited the Gold Standard in 1933, allowing the price of gold to vary in dollar terms for the first time in a century.

22. What are some of the main obstacles to a faster, more efficient U.S. payments system and how might they be overcome? (LO2)

    Answer: Current institutional and legal structures support traditional forms of payments such as paper checks and investment in new payment infrastructures is risky, as success is dependent on the degree of adoption due to network externalities. Revoking some of the existing legal advantages of traditional, less efficient payment mechanisms, such as the cancelled paper checks serving as legal proof of payment and coordinating payment system innovation efforts to reduce risk are possible ways to overcome these barriers.

23. What are some of the advantages and disadvantages of a government continuing to issue paper currency in the face of widespread financial innovation?

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Answer: A major advantage is that paper currency facilitates anonymity in payments, thus protecting freedom and privacy. Moreover, issuing paper currency can generate significant revenue for governments in the form of seignorage. A disadvantage is that criminals are major beneficiaries of the anonymity of cash. This is particularly true in the case of large-denomination notes.

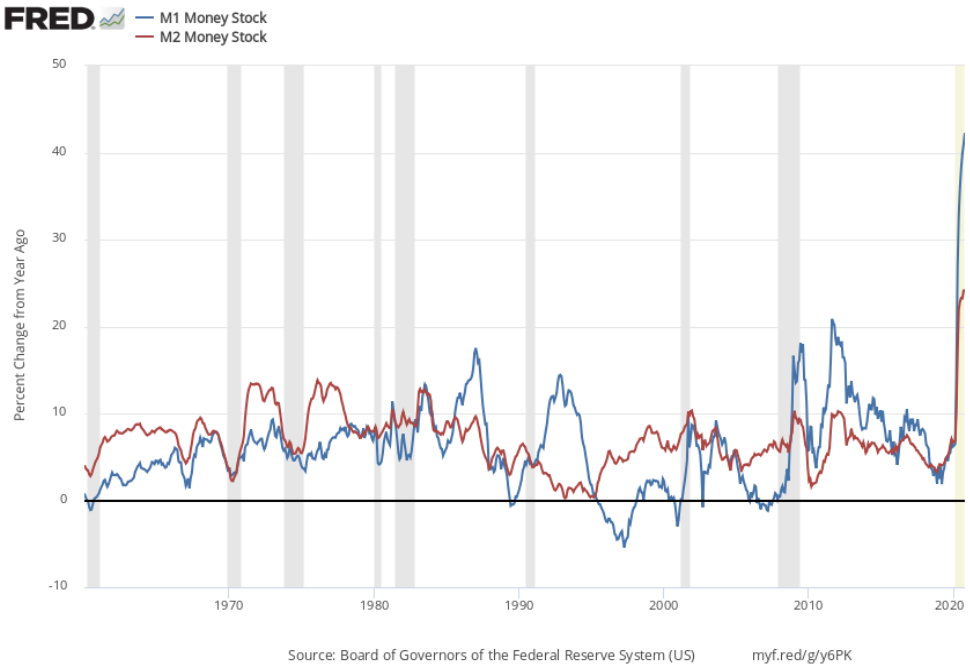
Data Exploration

1. Find the most recent level of M2 (FRED code: M2SL) and of the U.S. population (FRED code: POP). Compute the quantity of money divided by the population. (Note that M2 is measured in billions of dollars and population is in thousands of individuals.) Do you think your answer is large? Why? *(LO1)*

   Answer: In October 2020, the value of M2 was $18,812 billion. The total population was 330.61 million, resulting in M2 per capita of $56,899. This seems like a lot, but M2 includes money market mutual fund shares, money market deposit accounts, small-denomination time deposits, checking accounts, and traveler's checks in addition to currency in the hands of the public. It also includes holdings by businesses, in addition to households.

2. Reproduce Figure 2.3 from 1960 to the present, showing the percent change from a year ago of M1 (FRED code: M1SL) and M2 (FRED code: M2SL). Comment on the pattern over the last five years. Would it matter which of the two monetary aggregates you looked at? *(LO3)*

   Answer: The data plot of Figure 2.3 is:



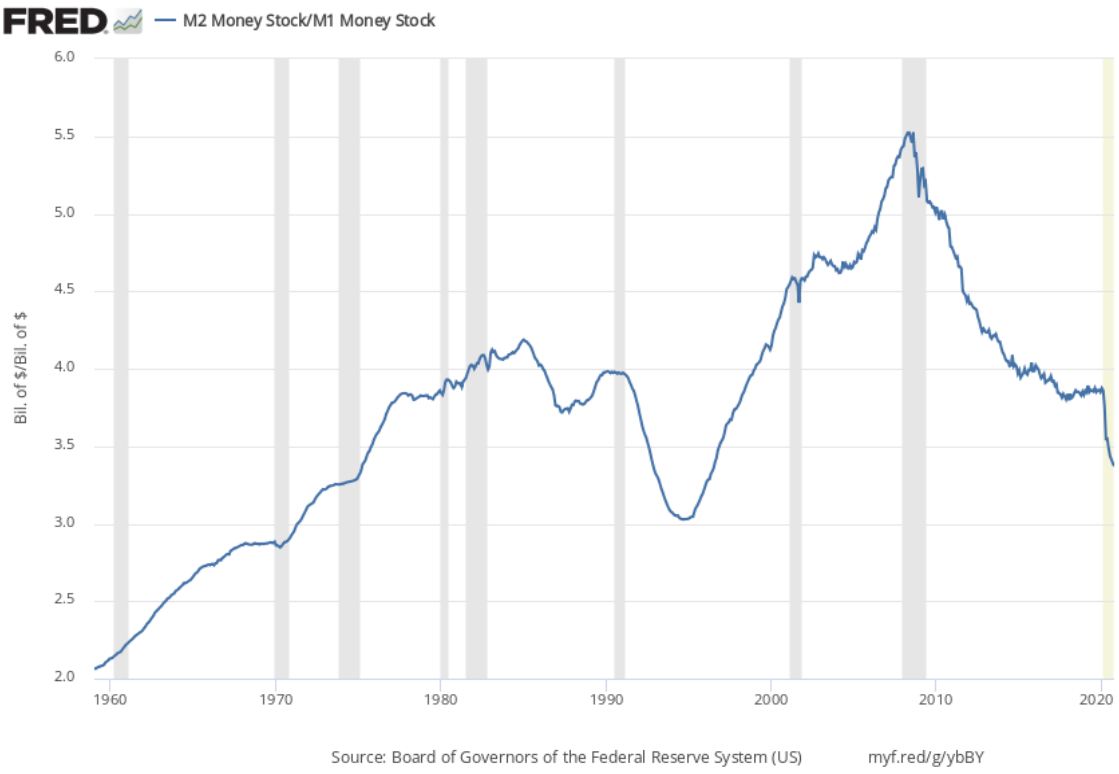
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M1 is relatively volatile so it may be less reliable for indicating important underlying trends.

3. Which usually grows faster: M1 or M2? Produce a graph showing M2 (FRED code: M2SL) divided by M1 (FRED code: M1SL). When this ratio rises, M2 outpaces M1, and vice versa. What is the long-run pattern? Is the pattern stable? *(LO3)*

   Answer: The plot of the ratio M2/M1 appears below. Over the long run, M2 has usually grown faster than M1, but this pattern is not stable. In particular, M2 growth fell relative to M1 growth after the recession of the early 1990s and after the financial crisis of 2007-09. Later in the book, we will see that both periods were characterized by heightened caution on the part of banks. More recently, the ratio fell during the pandemic of 2020 though given the atypical nature of this recession it remains to be seen whether this decline reverses quickly.

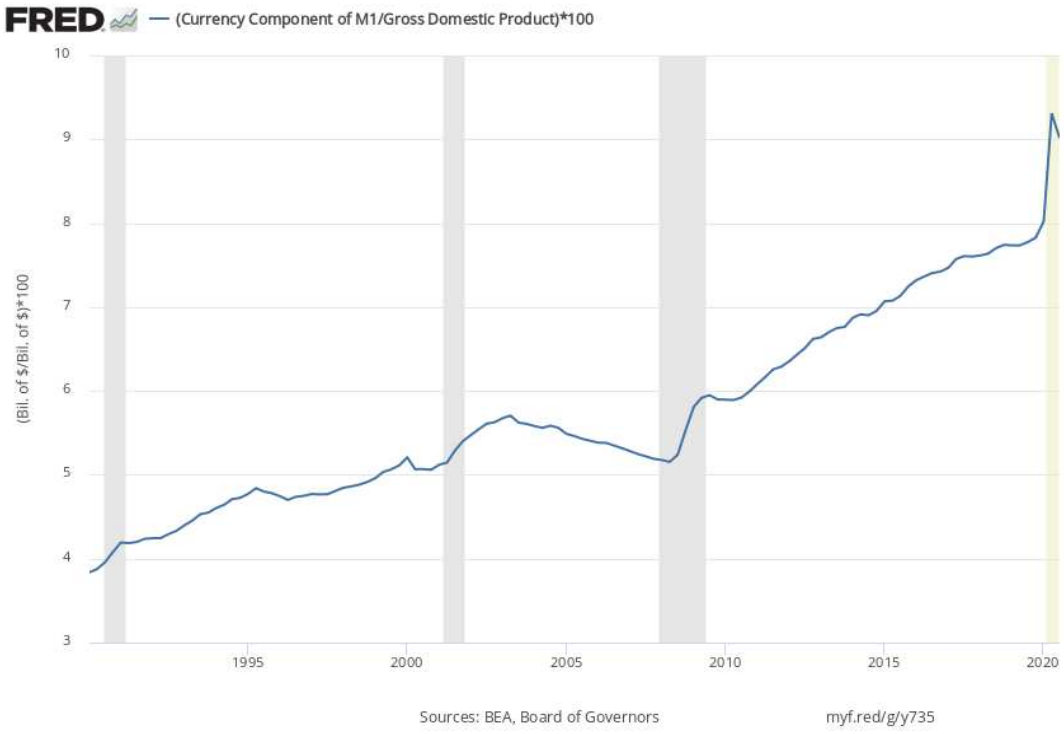


4. To complete payments, do you think people need more or less currency per dollar of transactions than they did 30 years ago? After stating your hypothesis, plot currency in circulation as a percent of GDP from 1990 (FRED codes: CURRENCY and GDP). Was your intuition consistent with the data? What might account for the trend you observe? *(LO1)*

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Answer: With increasing use of credit and debit cards even for small purchases, it is easy to speculate that currency per dollar of transactions is falling. As the data plotted below shows, that guess is incorrect. Currency per dollar of GDP has risen over the past three decades. The increase in currency as a percentage of GDP is due to several factors. First, rising GDP both in the United States and around the world increases the demand for currency. Second, increases in risk associated with the financial crisis of 2007-2009 may have increased the demand for safe assets, including currency. Similarly, during the pandemic in 2020, a rise in perceived risk associated with widespread layoffs and business disruptions may have also increased the attractiveness of safe assets like currency. Third, falling interest rates lower the opportunity cost of holding currency. Finally, a substantial amount of currency outstanding is held overseas, and agents in other countries, like those in the U.S., may have found holding U.S. dollars – which serves as the major international currency – increasingly attractive as well.



5. Plot the annual inflation rate based on the percent change from a year ago of the consumer price index (FRED code: CPIAUCSL). Comment on the average and variability of inflation in the 1960s, the 1970s, and the most recent decade. *(LO3)*

   Answer: The indicated data plot is:

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The variability of inflation in the 1960s was reasonably low in the first part of the decade, then rising with the trend of inflation toward the end. In the 1970s, inflation was highly variable and averaged well above the 1960s norm. Over the past twenty years, inflation was variable mostly during the financial crisis of 2007-2009. In general, periods with low average inflation—such as the first half of the 1960s, the long interval from the mid-1980s to the financial crisis, and the past decade—also were periods of relatively low inflation variability.

* indicates more difficult problems

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