



Money

Coach Burnett
AP Macroeconomics

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Money Defined

- * Money is anything that can be used as:
 - A medium of exchange
 - A store of value
 - A unit of account / Standard of Value



- * Money works best when it meets these criteria:
 - Portable
 - Durable
 - Divisible
 - Acceptable
 - Stable



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Facts about Money

- * What backs the dollar and makes it valuable?
 - Gold? Silver? Other precious metals?
 - NO! The dollar is legal tender because the government says it's money and people willingly accept it. The Dollar is backed by FAITH.
 - Currency that cannot be quantified is known as an *inconvertible fiat standard*. In this case, you cannot measure how much ones faith is worth.

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The Money Supply

- * In the United States, the Federal Reserve System is the sole issuer of currency.
 - This means the Fed has monopoly control over the money supply and only they can create money.
- * There are two important measures of the Money Supply today. Okay really there are 6, but only two appear on the AP test for Macroeconomics because they are the most used.
 - M1
 - M2

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M1

* M1 serves primarily as a medium of exchange. It includes:

- Currency and Coin
- Demand Deposits

(Think checking account)



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M2

* M2 serves as a store of value. Think M1 plus:

- Time Deposits
- Money Market Mutual Funds
- Overnight Eurodollars
- Savings Accounts



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M1 & M2

* As we go from M1 to M2

- The measure becomes larger
- Money becomes less liquid

* As we go from M2 to M1

- The measure becomes smaller
- Money becomes more liquid

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TVM - "Time Value of Money"

* Is a dollar today worth more than a dollar tomorrow?

- YES

* Why?

- Opportunity cost & Inflation
- This is the reason people and banks charge and pay interest when money is borrowed.



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TVM - "Time Value of Money" (Cont.)

- Let v = future value of \$
 p = present value of \$
 r = real interest rate
 $(i\% - \pi\%)$ expressed as a decimal
 n = years
 k = number of times interest is credited per year
- The Simple Interest Formula

$$v = (1 + r)^n \times p$$
- The Compound Interest Formula

$$v = (1 + r/k)^{nk} \times p$$

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Simple Interest Formula Example 1

- Assume that inflation is expected to be 3% and that the nominal interest rate on simple interest savings is 1%. Calculate the future value of \$1 after 1 year.
- Step 1: Calculate the real interest rate

$$r\% = i\% - \pi\%$$

$$r\% = 1\% - 3\% = -2\% \text{ or } -.02$$
- Step 2: Use the simple interest formula to calculate the future value of \$1

$$v = (1 + r)^n \times p$$

$$v = (1 + (-.02))^1 \times \$1$$

$$v = (.98) \times \$1$$

$$v = \$0.98$$

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Simple Interest Formula Example 2

- Assume that inflation is still expected to be 3% but that the nominal interest rate on simple interest savings is 4%. Calculate the future value of \$1 after 1 year.
- Step 1: Calculate the real interest rate

$$r\% = i\% - \pi\%$$

$$r\% = 4\% - 3\% = 1\% \text{ or } .01$$
- Step 2: Use the simple interest formula to calculate the future value of \$1

$$v = (1 + r)^n \times p$$

$$v = (1 + .01)^1 \times \$1$$

$$v = \$1.01$$

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Compound Interest Formula Example

- Assume that annual inflation is expected to be 2.5% and that the annual nominal interest rate on a 10 year certificate of deposit is 5% compounded monthly. Calculate the future value of \$1,000 after 10 years.
- Step 1: Calculate the real interest rate

$$r\% = i\% - \pi\%$$

$$r\% = 5\% - 2.5\% = 2.5\% \text{ or } .025$$
- Step 2: Use the compound interest formula to calculate the future value of \$1,000

$$v = (1 + r/k)^{nk} \times p$$

$$v = (1 + .025/12)^{12 \times 10} \times \$1,000$$

$$v = (1 + 0.002083)^{120} \times \$1,000$$

$$v = \$1,283.69$$

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Money and GDP?

- * An Economist named Irving Fisher suggested the following idea:

Nominal GDP = The Money Supply * Money's Velocity

$$(GDP_N = MS \times MV)$$



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The Monetary Equation of Exchange

- * $MV = PQ$

Where:

M = money supply (M1 or M2)

V = money's velocity (M1 or M2)

P = price level (PL on the AS/AD diagram)

Q = real GDP (usually labeled Y on the AS/AD diagram)

P x Q or PQ = Nominal GDP

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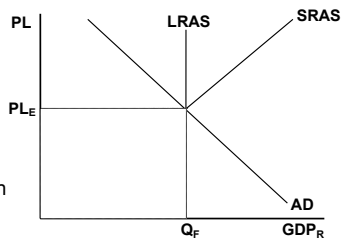
The Monetary Equation of Exchange

- * $MV = PQ$

- M1 = \$2 trillion

- V of M1 = 7

- PQ = \$14 trillion



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Summary

- * Money is classified into different categories based on the form it is being stored in.
- * Money loses value over time due to inflation and the fact every time we make a decision opportunity cost is incurred.
- * You may see Y_F labeled as Q_F , and if you do it is okay because the AP test is talking about the same thing.

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