CH13

Let’s see how adding a government affects the loanable funds market

$Y = C + I + G$

$Y – C – G = I$

National savings = I

$S = I$

$=> S = Y – C – G$

Adding and subtracting taxes

$S = Y – C – G + T – T = (Y – C – T) + (T – G)$ = private saving + public saving

If Public saving $(T – G) > 0$, we have an excess of tax revenue over government spending = budget surplus.

If Public saving $(T – G) < 0$, we have a shortfall of tax revenue over government spending = budget deficit.

*See graph on effect of budget deficit on loanable funds market (in closed economy!).

Read the history of government debt on pg. 274

See posted note on determinants of desired national saving/investment.

CH14 – The basic tools of finance

If you borrow the amount P (the principle), which must be repaid after a time T along with a simple interest rate r per time T, then the amount to be repaid at time T is:

P + rP = P(1+r)

If time T = 1 year the amount which must be repaid after:

Amount which must be repaid	T =
P(1+r)	1 year
P(1+r)(1+r)	2 years
P(1+r)(1+r)(1+r)	3 years
…	…
$P(1+r)^N$	N years

In the same manner we can figure out the present value of a future value:

See pg. 284

$P/(1+r)^N$

How long does it take to double your money? Assume r = 1% = .01

$(1+r)^n = 2 =$

n ln(1+r) = ln (2) =

n = ln(2)/(ln(1+r)) = .7/(.00995) = 70.35 years = 70 years, 4 months, and 1 week

Consider the following game of chance –

1. You pay a fixed fee to enter where a fair coin is tossed repeatedly until a tail appears, ending the game.
2. The pot starts at $1 and is doubled every time a head appears.
3. You win whatever is in the pot after the game ends.

a. How much would you be willing to pay to enter the game? (3 volunteers)

b. What is the fair price of entering the game? The expected value of the game is:

E(X) = .5(1) + .5(.5)(2) + .5(.5)(.5)(4) + (.5) (.5) (.5) (.5)(8) + …=

= (.5) + .25(2) + (.125)(4) + (.0625)(8) + … =

= (.5) + (.5) + (.5) + (.5) + … =

= $\sum_{k=1}^{\infty} \frac{1}{2} = \infty$, where k = # of coin tosses until the first tail appears

This is called the St. Petersburg Paradox and leads to the idea of risk aversion.

Risk aversion - the reluctance of a person to accept a bargain with an uncertain payoff rather than another bargain with a more certain, but possibly lower, expected payoff.

*Show graphs of 3 types of risk aversion.

Rank 3 volunteers risk aversion levels.