Savings, Investment and the Financial System

January 11, 2005

Reading: Chapter 13 of Mankiw et. al. (2002). [Chapter 8 of **brief** edition.]

1 Introduction

Financial system - the group of institutions in the economy that help to match one person's savings with another person's investment.

⇒ some people want to save some of income for future.

⇒ some people want to borrow in order to finance investments in new and growing businesses.

What brings two together?

What ensures that supply of funds (savings) equals demand for funds for investment.

2 Financial markets

- financial institutions through which savers can directly provide funds to borrowers.

Types of financial markets:

1. The Bond Market

   firms/government can borrow money by selling bonds.

   bond - a certificate of indebtedness.

   date of maturity - time at which loan will be repaid.

   bonds generally pay interest annually until loan matures.

   Characteristics of bonds:

(a) term - length of time until bond matures

a **perpetuity** is a bond that never matures, pays interest forever.

(b) credit risk - probability borrower will fail to pay some of interest or principal.

→ borrowers need higher interest rate to buy risky bonds.

Bonds can be sold if holder requires principal before maturity, but may involve a discounted price.

2. The Stock Market - firms sell stock in company.

stock - a claim to partial ownership in the firm.

shareholders have claim to share of firm's profits if any

⇒ if firm fails, has financial difficulties, bondholders are paid what they are due before stockholders receive anything.

Debt finance - money raised through sale of bonds.

Equity finance - money raised through sale of stocks.

stock prices depend in part on people's expectations about a company's future.

3 Financial Intermediaries

-financial institutions through which savers can directly provide funds to borrowers.

Types of financial institutions:

1. Banks - bank takes in deposit of those who wish to save and uses deposits to make loans to those who wish to borrow.

   higher interest charged to borrower than is paid to saver - difference is used to cover operating costs, pay out profits to owners of bank.

2. Mutual Funds - an institution that sells shares to public and uses the proceeds to buy a portfolio of stocks and bonds.

   ⇒ allows people with small amounts of money to diversify.

4 Savings and Investment in the National Accounts

Recall:

$$Y = C + I + G + NX \tag{1}$$

This equation is an identity - always holds because of the way the variables are defined.

For now we will consider a closed economy - an economy that does not interact with other economies.

In a closed economy, $NX = 0$ (i.e. no net exports). Hence

$$Y = C + I + G \tag{2}$$

Every unit of output sold in a closed economy is either consumed, invested or brought by gov't.

Can rewrite as

$$Y - C - G = I \tag{3}$$

Left-hand side $(Y - C - G)$ is called national saving, or saving, and is denoted as S.

Hence

$$S = I \tag{4}$$

National Saving (S) - total income in economy that remains after paying for consumption and gov't purchases. Saving can be divided into two parts. Adding and subtracting T (taxes) to the right hand side of (3) yields

$$S = (Y - C - T) + (T - G) \tag{5}$$

The first term $(Y - C - T)$ is called *private saving* and the second term $(T - G)$is called *public saving.*

private saving - income that households have left after paying for taxes and consumption.

public saving - tax revenues that gov't has left after paying for goods and services.

- If $T = G$, gov't runs balanced budget.
- If $T < G$, gov't runs budget deficit.
- If $T > G$, gov't runs budget surplus.

4.1 The Meaning of Saving and Investment

In economics, setting aside unused income for future use (and interest income) is saving.

e.g. buying a stock in Ford is saving, not investment

In economics, investment refers to purchase of new capital.

e.g. when Ford using proceeds of new stock issues to purchase new factory, this is investment.

5 The Market for Loanable Funds

How do financial markets coordinate saving and investment?

market for loanable funds - markets in which those who want to save supply funds and those who wish to borrow to invest demand funds

Supply

- households that want to save.
- quantity supplied increases with the interest rate.

Demand

- firms and households that wish to borrow to make investment.
- cost of borrowing rises with interest rate, so quantity demanded decreases with interest rate.

[Insert figure here.]

Market equilibrium occurs at the point where the supply and demand curves cross.

At interest rate r^*, the quantity of loanable funds supplied equals the demand.

If $r > r^*$, then the quantity supplied exceeds the quantity demanded. Lenders compete for borrowers, which drives interest rate down.

If $r < r^*$, then the quantity demanded exceeds the quantity supplied. Borrowers compete for lenders, which drives interest rate up.

Note: Inflation erodes the value of money over time.

The cost of borrowing and the return to saving is more accurately captured by real interest rate.

real interest rate - interest rate corrected for inflation.

When we use the term "interest rate" in course, we are referring to the **real** interest rate.

5.1 Policy: Taxes and Savings

⇒ tax on interest income reduces return to saving; reduces incentives to save.

e.g. saving \$1000 by buying a 30-year bond that pays 9% interest

⇒ no taxes - individual's wealth grows to \$13 268 at maturity of bond.

⇒ suppose income taxed at 33% - reduces effective return to 6% (after tax) - at maturity, bond grows to only $5743.

Can tax consumption rather than interest income ⇒ GST

Tax credits associated with RRSP (Registered Retirement Saving Plan)

tax changes alter incentive to save at all interest rates.

⇒ shifts supply of loanable funds.

[insert diagram.]

Policy that increases savings results in lower interest rates and greater investment.

5.2 Taxes and Investment

Investment tax credit - firm receives reduction in taxes when building new factory, etc.

⇒ policy alters firm's incentives to borrow to invest at a given interest rate.

Introducing an investment tax credit increases quantity of loanable funds demanded at any interest rate ⇒ demand shifts right.

[Insert diagram here.]

Introducing a tax credit increasing the demand for loanable funds, resulting in a higher interest rate and greater investment.

5.3 Government Budget Deficits and Surpluses

Recall: National saving includes public saving $(T - G)$

Increasing the deficit decreases national saving and thus the available supply of loanable funds.

e.g. Gov't increases G without increasing T $(T - G) \downarrow$

⇒ national saving falls, shifting supply for loanable funds left.

Demand depends on plans of households/firms to invest and does not depend directly on supply of funds.

[Insert diagram here.]

Increasing gov't deficit reduces supply of loanable funds. In new equilibrium, interest rates are higher and investment is lower.

When gov't borrows to finance budget deficit, it reduces supply of loanable funds available to households/firms.

The decrease in investment resulting from gov't borrowing is called *crowding out.*

6 More On Government Deficits

Gov't deficits reduce investment, which reduces long-term economic growth.

vicious circle - crowding out leads to slower economic growth, which leads to lower tax revenue and greater spending on income-support programs, which results in higher deficits.

In contrast, budget surpluses lead to higher supply of loanable funds

$\Rightarrow$ supply shifts right, interest rate falls, and investment increases.

virtuous circle - surpluses lead to faster economic growth, which increases tax revenue and lowers spending on income support programs, and results in even higher budget surpluses.

Should current surpluses be maintained or used to either make tax cuts or increase gov't spending, G?

Arguments for each:

1. maintain surplus - will keep saving at high level and lead to virtuous circle.
2. increased spending- some gov't spending may be thought of as an investment (e.g. building roads, education)

   $\Rightarrow$ this kind of investment may yield higher return (make greater contribution to overall growth) than some forms of private investment.
3. tax cuts - taxes distort decision making, resulting in inefficient allocation of resources

   Also, gov't may spend surplus on projects of dubious value.