Elements of Macroeconomics

March 2023

9 Saving, Investment and Capital Markets (II)

9.1 Simple Interest vs Compounding

When working with growth rates, we need to multiply growth rates due to **compounding**! We receive interest from interest. In finance, we do not care that much about it. Why? Because adding growth rates is a good *approximation* **IF GROWTH RATES ARE SMALL AND THE TIME HORIZON SHORT**!

To see this take a \$100 bond with a 2% yield. If we want to know what we get after 5 years, we could either do it correctly with compounding or adding them up

$$\$100 * (1.02)^5 = 110.41 \tag{1}$$
$$\$100 * (1 + 0.02 * 5) = 110.00 \qquad \rightarrow \text{error is } 0.4\% \tag{2}$$

But, if interest rates or timer horizon increase, the approximation gets much worse!

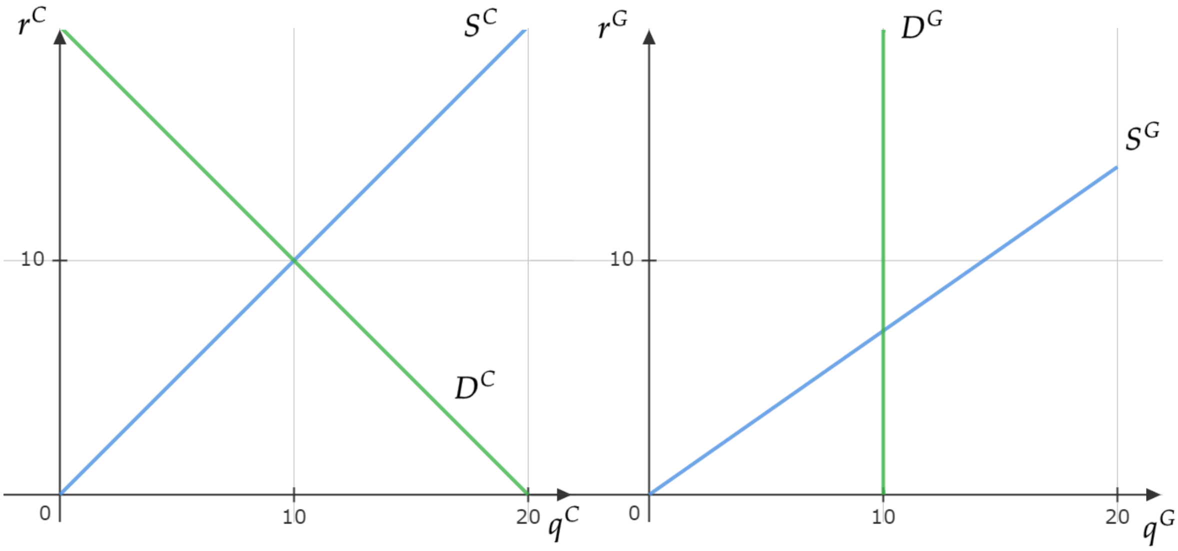
$$\$100 * (1.02)^{50} = 269.16 \tag{3}$$
$$\$100 * (1 + 0.02 * 50) = 200.00 \qquad \rightarrow \text{error is } 34.6\% \tag{4}$$

$$\$100 * (1.20)^5 = 248.83 \tag{5}$$
$$\$100 * (1 + 0.2 * 50) = 200.00 \qquad \rightarrow \text{error is } 24.4\% \tag{6}$$

9.2 The loanable funds model (Examples)

Three important notes:

1. Who are the agents?
   - The corporations or government **demand** loans
   - Investors/Households **supply loans**
2. Money is money: Markets are **substitutes**
3. Always write down what you are doing!



Examples

1. Savers become more risk averse
   - Corporate bonds become less attractive, because they are riskier than gov't bonds $\rightarrow$ S^C shifts left/up
   - Government bonds become more attractive $\rightarrow$ S^G shifts right/down
2. Increased MPS (marginal propensity to save)
   - Corporate bonds become more attractive $\rightarrow$ S^C shifts right/down
   - Government bond becomes more attractive $\rightarrow$ S^G shifts right/down
3. Economic crisis/recession
   - Corporate bonds become less attractive $\rightarrow$ S^C shifts left/up
   - Government bonds become more attractive $\rightarrow$ S^G shifts right/down
4. Corporate expectation get worse
   - Corporate demand gets reduced $\rightarrow$ D^C shifts left
   - Less funds are supplied in corporate market which increases supply in the government market $\rightarrow$ S^G shifts right/down
5. Decreased profitability of investment projects
   - Corporate demand gets reduced $\rightarrow$ D^C shifts left
   - Less funds are supplied in corporate market which increases supply in the government market $\rightarrow$ S^G shifts right/down
6. Expanded budget deficit (war, increased social security spending/pensions, etc.)
   - Government demand increases $\rightarrow$ D^G shifts right
   - More funds are supplied in government market which decreases supply in the government market $\rightarrow$ S^C shifts left