

Planning for Retirement

UNIT 6-5



Retirement from Savings

Retirement is a specific point in a person's life when he or she **stops working**.

People can be partially retired, aka, **semi-retired**. This means they continue to work at a job either out of choice or financial necessity.

Many people start planning for their retirement **at a very early age**.



Retirement from Savings

Some retirement accounts are made with **pre-tax dollars**. A pre-tax investment is a deposit made to a retirement account that is taken out of your wages **before** taxes have been calculated and deducted.

Other types of accounts are made with **after-tax investments**. This is money that is deducted from your income after taxes have been deducted.

Retirement Plans



Some retirement plans are sponsored by employers and others are opened by individuals. Here are a few of the most common retirement savings plans.

- 401K: a retirement savings plan that is sponsored by **an employer** for **its employees**. There are strict rules as to when the money can be withdrawn without a penalty.
- Keogh Plan: a retirement savings plan for a **self-employed** professional or the **owner** of a small business.
- 403b: a tax-deferred savings program for employees of **educational** institutions and some **non-profit** organizations.

Retirement Plans



- IRA (individual retirement account): an account opened by **an individual**.
- Traditional IRA: a savings plan in which the income generated by the account is **tax-deferred** until it is withdrawn from that account
- Roth IRA: *All* deposits into this account are taxable, but when the money is withdrawn from the account after having been there for a least 5 years and the saver is at least 59½ years old, the money and the income earned is **tax-exempt**.

The formula shown below is used to determine the **future** value of an investment where deposits are made periodically.

$$B = \frac{P \left(\left(1 + \frac{r}{n} \right)^{nt} - 1 \right)}{\frac{r}{n}}$$

B = balance at end of investment period

P = periodic deposit amount

r = annual interest rate (as a decimal)

n = number of times interest is compounded annually

t = length of investment in years



Example 1:

Blythe is 40 years old. She is planning on retiring in 25 years. She has opened an IRA with an APR of 3.8% compounded monthly. If she makes monthly deposits of \$500 to the account, how much will she have in the account when she is ready to retire?

$$B = \frac{P \left(\left(1 + \frac{r}{n} \right)^{nt} - 1 \right)}{\frac{r}{n}}$$

$$B = \frac{500 \left(\left(1 + \frac{0.038}{12} \right)^{12(25)} - 1 \right)}{\frac{0.038}{12}}$$

$$B = ? \quad r = 3.8\% = 0.038$$

$$P = 500 \quad n = 12$$

$$t = 25$$

$$B = \$249,762.86$$

The formula shown below is used to determine the **present** value of an investment where deposits are made periodically.

$$P = \frac{B\left(\frac{r}{n}\right)}{\left(1 + \frac{r}{n}\right)^{nt} - 1}$$

B = balance at end of investment period

P = periodic deposit amount

r = annual interest rate (as a decimal)

n = number of times interest is compounded annually

t = length of investment in years



Example 2:

Chelsea is 45 years old. She plans to open a retirement account. She wants to have \$300,000 in the account when she retires at age 62. How much must she deposit each month into an account with an APR of 2.25% to reach her goal?

$$t = 62 - 45 = 17$$

$$P = \frac{B\left(\frac{r}{n}\right)}{\left(1 + \frac{r}{n}\right)^{nt} - 1}$$

$$P = \frac{30,000\left(\frac{0.0225}{12}\right)}{\left(1 + \frac{0.0225}{12}\right)^{12(17)} - 1}$$

$$P = ? \quad r = 2.25\% = 0.0225$$

$$B = 30,000 \quad n = 12$$

$$t = 17$$

$$P = \mathbf{\$1,208.59}$$

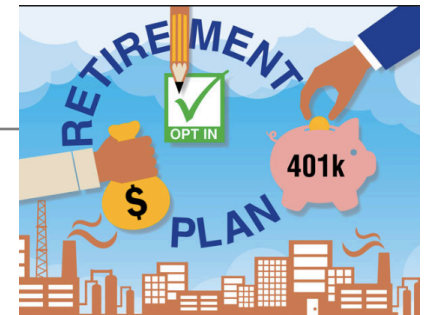
Employer Matching Plans

Some employers offer 401k retirement plans in which they **match** the employee's contribution up to a fixed amount of the salary made.

The money contributed by both the employer and the employee **earns interest** and is **tax-deferred**.

Most companies only allow employee contributions to the 401k plan up to a certain **percentage of the salary** earned, based on government rules.

There is also a **maximum allowable** contribution, which may change each year. The employer matching contribution is *not calculated* into the 401k yearly contribution limit.



Example 3:

Leo makes \$75,000 per year. The company allows employees to make contributions to the 401k to a maximum of 15% of their salary. The maximum allowable contribution to any 401k is \$16,500. Determine the maximum amount that Leo's employer will allow him to contribute this year to his 401k.

$$0.15 \times 75,000 = 11,250$$

Since \$11,250 is below the 401k limit of \$16,500, Leo can contribute that entire amount.