

9.2 Investment Alternatives

A Saving Accounts

Example 1. If you deposit \$4000 into an saving account paying 1.5% annual interest compounded quarterly, how much money will be in the account after 5 years?

$$P = PV = \$4,000$$

$$r = 1.5\%$$

Quarterly

$$t = 5 \text{ years}$$

$$A = FV = ?$$

∴ After 5 years there will be \$4,310.93 into this saving account.

B GIC

A GIC (Guaranteed Investment Certificate) is a safe and secure investment with very little risk. You don't have to worry about losing your money because it is guaranteed.

Example 2. If you have \$10,000 to invest into a GIC account paying 1.8% annual interest compounded monthly, how much money will be in the account after 18 months?

$$P = PV = \$10,000$$

$$r = 1.8\%$$

monthly

$$t = 18 \text{ months}$$

$$FV = A = ?$$

∴ The future value of this GIC is \$10,273.47

$$\begin{aligned} I &= FV - PV = \$10,273.47 - \$10,000 \\ &= \$273.47 \end{aligned}$$

The interest earned is \$273.47

C RESP

A Registered Education Savings Plan (RESP) is a special savings account for parents who want to save for their child's education after high school.

Example 3. At her birth, Jane's parents decided to open a RESP paying 2% compounded weekly. In order to cover her tuition of \$50,000 when Jane will be 18 years old, how much money Jane's parents should invest now?

$FV = \$50,000$ $PV = ?$
 $r = 2\%$
 $t = 18 \text{ years}$
weekly
Jane's parents should invest now
 $\$34,886.23$ in order to have \$50,000
when Jane will be 18 years old.

D Mutual Fund

A mutual fund is a type of financial vehicle made up of a pool of money collected from many investors to invest in securities like stocks, bonds, money market instruments, and other assets. It comes with a risk and a management fee.

Example 4. A mutual fund offers 8% maximum and 6% minimum interest per year for an investment of \$10,000 over 10 years. The interest is compounded annually, and the management expense interest rate is 2% per year. Find the maximum and the minimum of the future value of this investment.

$PV = \$10,000$
 $t = 10 \text{ years}$
annually

(MER)
← minimum
 6%
 $- 2\%$
 $= 4\%$

→ maximum
 8%
 $- 2\%$
 $= 6\%$

$FV_{\text{min}} =$
 $\$14,802.44$

$FV_{\text{max}} =$
 $\$17,908.48$