UNIT 14

Retirement Planning





While retirement may seem distant, the decisions you make today will shape the quality of your future. Let's dive into some key concepts of retirement planning to understand how to secure a comfortable retirement.

14.1 Saving Early and the Power of Compounding

We learned about the future value of investments earlier in the course. The scenarios we explored involved lump sum investments earning simple or compound interest over a specific period of time. Now, we will learn how to calculate the future value of an investment made through regular deposits within a specific period of time.

We will use the following future value formula when making regular deposits into savings:

$$FV = P \times (1 + r)^{nt} - 1$$

Where:

FV = future value of the savings

P = periodic deposit amount

r = interest rate per period expressed as a decimal

n = number of compounding periods per year

t = number of years

Please keep in mind that the formula assumes that the deposits are made at the end of each compounding period and that the interest is compounded on a regular basis.

Let's try a few questions.

1. If Jane starts saving $300 per month at an annual interest rate of 6%, compounded monthly, at age 30 and plans to retire at age 65, how much will she have accumulated by the time she retires?
2. What if Mathew starts saving $300 per month at an annual interest rate of 6%, compounded monthly, at the age of 50 and plans to retire at 65? What would the value of his savings be by the time he retires?
3. If Mahmoud starts saving 100 AED per month at the age of 18 until he retires at the age of 65, what would the value of his savings be by the time he retires if his investment earns an annual interest of 5%, compounded monthly?
4. If Shahida starts saving 100 AED per month at the age of 45 until she retires at the age of 65, what would the value of her savings be by the time she retires if her investment earns an annual interest of 5%, compounded monthly?

14.2 Estimate Retirement Needs - the "70 - 80% rule"

When estimating your expenses, including housing, healthcare, travel and leisure activities during retirement, a common rule of thumb is the "70 - 80% rule," where you aim to replace 70 - 80% of your pre-retirement income to maintain your standard of living.

Let's apply this rule to the following scenarios.

1. Assume your current annual income is $60,000 and you aim to replace 75% of it during retirement, how much should you plan for annually during retirement?
2. Maha's current annual income is GBP 80,000. According to the 70 -80% rule how much should she aim to have annually during retirement if she plans to replace 70% of her pre-retirement income?

3 Isabelle earns an annual income of 100,000 Euros. She plans to replace 76% of her pre-retirement income when she retires. How much should she plan to have annually during retirement?

4 Arjun earns 500,000 Rupees and wants to replace 80% of his pre-retirement income during retirement. How much should he plan to have annually during retirement?

14.3 Investment Strategy: Balancing Risk and Returns

Balancing risk and returns is a crucial consideration when planning for retirement. It involves making investment decisions that optimize the potential for higher returns while managing the associated risks. Let's explore this concept further:

- Risk Tolerance: As you approach retirement, your risk tolerance tends to decrease. This is because you have less time to recover from market downturns. While stocks historically offer higher returns, they are also more volatile. Bonds, on the other hand, are generally more stable but offer lower returns. Balancing your portfolio between these asset classes is essential.
- Diversification: Diversifying your investments across different asset classes (stocks, bonds, real estate, etc.) can help reduce risk. If one asset class underperforms, others may provide stability.
- Age and Time Horizon: Your age plays a significant role in determining your risk tolerance. Younger individuals have more time to recover from market fluctuations, allowing them to take on higher-risk investments. As you near retirement, consider shifting towards more conservative investments.

Let's consider two hypothetical portfolios for individuals with different risk appetites:

Aggressive Portfolio

- Allocation: 80% stocks, 20% bonds
- Expected Annual Returns: Stocks (10%), Bonds (4%)
- Expected Average Portfolio Return:
- (0.80×0.10)+(0.20×0.04) = 0.08 + 0.008 = 0.088 = 8.8%

Conservative Portfolio

- Allocation: 40% stocks, 60% bonds
- Expected Annual Returns: Stocks (7%), Bonds (3%)
- Expected Average Portfolio Return:
- (0.40 × 0.07) + (0.60 × 0.03) = 0.028 + 0.0.018 = 0.046 = 4.6%

In this example, the aggressive portfolio offers higher expected returns (8.8%) compared to the conservative portfolio (4.4%). However, the aggressive portfolio also comes with higher volatility, which could lead to more significant losses during market downturns.

Balancing risk and returns involves finding a mix that aligns with your risk tolerance and financial goals. A balanced approach helps you achieve growth while safeguarding your retirement nest egg from excessive volatility.