

Layman's Guide
to
Investing
in the
S&P 500



Magnus Erik Hvass Pedersen

Retirement Planning

By

Magnus Erik Hvass Pedersen

What is Retirement Planning?

- We want to know how much to save each year while working, so we have enough money for our retirement.
- This depends on how many years we are working, how many years we will live, what our annual expenses will be, the future inflation rate, tax rate, and the rate of return on our retirement savings.
- Most of these questions cannot be answered precisely, so you should simulate different scenarios in a spreadsheet:

www.hvass-labs.org/books/files/pedersen2015layman-sp500.xlsx

Example – Saving Phase

- Assume you are now 35 years old and want to retire at 65.
- If you have no savings now, then you have 30 years to save up.
- You save and invest \$100 per month so you save \$1,200 per year.
- You increase the amount to match the inflation of 3% per year, so you save \$1,236 in the second year and \$2,828 in the 30th year.
- After 30 years you have invested a total of \$57,090.
- If the savings are invested so they grow 9% per year then they would be worth \$216,808 after 30 years.

Example – Retirement Phase

- You want to retire at age 65 and expect to live for another 20 years.
- You currently spend \$10,000 per year and want the same lifestyle.
- Inflation is assumed to be 3% per year, so expenses of \$10,000 today corresponds to \$24,273 in 30 years, and \$25,001 in 31 years, etc.
- You invest in a tax-deferred account and have to pay 15% tax, so you withdraw \$28,556 to pay \$4,283 in tax and you get \$24,273.
- You invest more conservatively and only get a return of 7% per year.
- Then your savings will only last 9 years of your retirement.

Example – Revised Assumptions

There are 3 ways to extend your savings: (1) save more while working, (2) invest better to get a higher return on the savings, or (3) spend less during retirement. For example:

- If you invest \$3,000 per year instead of \$1,200 then your savings would last 32 years in retirement instead of only 9 years.
- If the return was only 8% per year while saving and 6% during retirement, then your savings would last 21 years in retirement.

You should experiment with different assumptions in the spreadsheet.

Conclusion

- Whether you are saving enough for your retirement depends on many unknown factors.
- You should experiment with the spreadsheet.
- It is much better to start saving early in life because even small monthly savings will compound into substantial amounts over time.
- Save more than you think you may need.

The book gives more details.

Layman's Guide to Investing in the S&P 500



Magnus Erik Hvass Pedersen