Your Winning Retirement Plan

Henry K. Hebeler

Index

- Yoder
  - Overview
  - Conventions
  - Disclaimers

- Book Introduction

- Chapter 1: The Realities of Financial Planning
  - Chapter Summary
  - References and Resources
  - Terms and Concepts
  - Real-World Planning Problems
    - Mistake 1: Adding Apples and Oranges
    - Mistake 2: Assuming the Real World is Smooth
    - Mistake 3: Ignoring Investment Cost
    - Mistake 4: Not Defining Your Terms
    - Mistake 5: Using Calculations without Shock Absorption
    - Mistake 6: Ignoring the Effect of Reverse Dollar Cost Averaging
  - The Hazards of Postretiremnt Projections
    - Comparing Methods
  - The Hazards of Preretirement Planning
    - Open-Loop vs Quick & Dirty
    - Recalculation Methods
  - Chapter Closing Thoughts

- Chapter 2: Some Fundamental Planning Facts
  - Chapter Summary
  - References and Resources
  - Terms and Concepts
  - Spend Now and (Really) Pay Later
  - What If You Outlive Your Current Life Expectancy
  - Inflation Really Hurts
  - Defining Wages, Income, Savings and Expenses
  - Oh Shoot! I Forgot!
  - Uncle Same Will Share Retirement With You
  - Coping with Uncertainty
  - Chapter Closing Thoughts

- Chapter 3: Investments
  - Chapter Summary
  - References and Resources
  - Terms and Concepts
  - Owners and Lenders
  - Asset Allocation
  - Vehicles
  - Allocating within Vehicles
  - Making Smart Investments
  - Real Estate
  - But I Want to Relax!
  - Chapter Closing Thoughts

- Chapter 4: Return on Investments
  - Chapter Summary
  - References and Resources
  - Terms and Concepts
  - What Is Return on Investment?
  - Are Your Investments Good Choices or Dogs?
  - Using Real Returns in Your Retirement Planning
  - Reverse Dollar Cost Averaging
  - Be Wary of Compound Growth Projections!
  - Closing Thoughts

- Interlude: Index Fund Investments
  - Paul Merriman: Which is the Best 1, 2, 3, and 4 fund strategy?
  - Chris Pedersen: Simple & Effective Balanced Portfolios for Lifetime Investing Success

- Chapter 5: Preretirement Planning
  - Chapter Summary
  - References and Resources
  - Terms and Concepts
  - Gate 1: Quick and Dirty
  - Gate 2: Assess Your Future Needs
  - Gate 3: Estimating Your Social Security, Pension, and Annuity Income
  - Gate 4: Planning with the Retirement Autopilot
  - Gate 5: Just before Retirement

- Fine-Tuning your Retirement Date
- Are You Faced with an Early Retirement Decision?
- Chapter Closing Thoughts

- Chapter 6: Spending in Retirement
  - Chapter Summary
  - References and Resources
  - Terms and Concepts
  - Gate 1: Understanding the Fundamentals
  - Gate 2: Assess Your Future Needs
  - Gate 3: How Much Can You Afford to Spend?
  - Gate 4: The Retiree's Autopilot
  - Gate 5: Staying on Track
  - Gate 6: Always Look Ahead
  - IRA and 401(k) Withdrawal Rules
  - Estate Planning
  - That's It Folks!
  - Chapter Closing Thoughts

Your Winning Retirement Plan

Henry K. Hebeler

Overview

The purpose of this book is to introduce a technique developed by the author Henry Hebeler know as **Autopilot** use for developing and implementing both a saving plan before retirement, and a spend-down plan after retirement to ensure your retirement is fully funded for you life.

- **Chapter 1** Compares some of the more popular planning methods to the Autopilot method using real-world historic data.
- **Chapter 2** Identifies the factors that need to be taken into consideration when developing a plan including Savings, Life Expectancy, Inflation, Taxes and Uncertainty.
- **Chapter 3** Dives into investments covering Asset Allocation, Investment Vehicles and Real Estate.
- **Chapter 4** Is devoted to determining Return on Investment, reviewing factors that need to be considered, and instructions on how to determine what Return on Investment to expect for the asset allocation that represents your portfolio.
- **Chapter 5** Focuses on Preretirement planning, providing a step-by-step detailed instructions in building and implementing your plan.
- **Chapter6** Is dedicated to budgeting and planning after retirement to ensure you set expectations based on what assets you have accumulated, and details a process to re-assess and make appropriate adjustments to ensure a successful implementation of your retirement plan.

Conventions

Orange text in this document represents my thoughts, summary and conclusions. Purple text represents key/new terms. Hyperlinks follow regular conventions with blue underlined text.

Although the author passed away August 21, 2017, and the book is no longer in print, you can probably purchase a used book from Amazon for less than $10. In my opinion this is the best pre and post retirement planning book I have come across and if you are willing to put in the effort of reading and working through the various worksheets in this book you will not only have a realistic idea of what your retirement finances will look like, but you will have a plan on reaching your financial goals in retirement.

This document, recorded meetings/discussions along with spreadsheets I have developed corresponding to worksheets in the book can be downloaded on the Your Winning Retirement Plan webpage on my ArtCentrics.com website.

Disclaimers - Please read this!

- Most data presented here is dated. Tax laws, stock quotes and the general economy changes on a regular basis (yearly, weekly, and daily). Information provided here is just the starting point. It is up to you to ensure you have the latest information.
- Guidance and advice provided here is just my opinion. Guidance and information is just from what I have learned through the years. I have no degree associated with money, and have no certifications associated with finance. Take all information provided here with a grain of salt and verify with other resources before making a decision.
- Your situation is unique - Advice or recommendations provided here may NOT be appropriate for your situation. Financial decisions and investments that a person in their early 20's may be completely inappropriate for someone who is retired. Also investment considerations many times are dependent upon what your total financial resources are. Consider if the advice given is appropriate for your situation.

Your Winning Retirement Plan

Henry K. Hebeler

Book Introduction

If you are not yet retired, you will be armed with tools that will show you realistic annual savings to meet your goals for all your savings needs, not just retirement. If you are already retired, you will have a competent method that will show you how much you can budget so your investments will last until you reach your goal line. This book does not address detailed insurance and estate plans, which at some point, require attention, but if you take the planning actions in this book, you'll be the winner with a winning retirement plan.

References and Resources

- Financial Planning Association – locate a professional planner
- Analyzenow.com – Hebelers website
- ArtCentrics:
  - Money Matters webpage
  - Your Winning Retirement Plan webpage
  - Class Outline and meeting agenda (This document)

Your Winning Retirement Plan

Henry K. Hebeler

Chapter 1: The Realities of Financial Planning

Chapter Summary

This chapter points out the importance of having pre and post retirement plans on how to build and spend-down your nest egg. It identifies risk of out-living your savings and provides real-world scenarios on how some of the various approaches would have faired in different historic market conditions. Common mistakes and incorrect assumptions that many plans make are identified. A side-by-side comparison on how theses methods would have performed in comparison with the Autopilot method is provided.

References and Resources

- YouTube (Video 53min): Frontline: The Retirement Gamble
- PBS Planet Money(Audio – 22min): Episode 688 Brilliant Vs Boring
- Global Financial Data website.
- The Motley Fool: The Miracle of Compound Returns
- Analyze Now
    - 100 years of inflation history (excel spreadsheet)

Terms and Concepts

- Cost of Living Adjustments (**COLA**) – Adjustments made to a pension payout to counter rising cost of goods and services due to inflation.

- Dollar Cost Averaging – A phenomenon that benefits savers who make regular savings deposits. Deposits made when the market is low generate more growth than an equal number of deposits made when the market is high. The net result is a larger overall growth rate than would be predicted using steady market conditions.

- Feedback – The method of making periodic minor changes to a retirement plan based on current inflation rates and market performance.

- Postretirement Plan – Plan that tells how to control their financial matters so that their investments will support them until they die.

- Preretirement Plan – A road map that details how much to save, identifies the appropriate mixture of investments, and sets lifestyle expectations in retirement.

- Retirement Autopilot – The concept of applying airplane control technology to financial planning where compensating equations are applied to provide stability to your retirement to avoid large swings in savings requirements as market conditions fluctuate.

- Reverse Dollar Cost Averaging –The opposite of Dollar Cost Averaging, in Retirement when money taken out of an account on a regular basis receives a lower rate of return in a fluctuating market. Most retirement models to not take this into consideration.

- The Miracle of Compound Growth – The concept that even small amount of money can increase greatly over time when interest is applied to the funds.

Real-World Planning Problems

Mistake 1: Adding Apples and Oranges – Many plans assume pensions include Cost of Living Adjustments (COLA); Most do not. Even when plans do have COLA's they are generally capped at 2-3%. Although Social Security does include COLA adjustments these don't even keep up with inflation in the real world. The overall impact of this is that over time the purchasing power of money received from a pension plan and even Social Security is eroded.

Figure 1.1

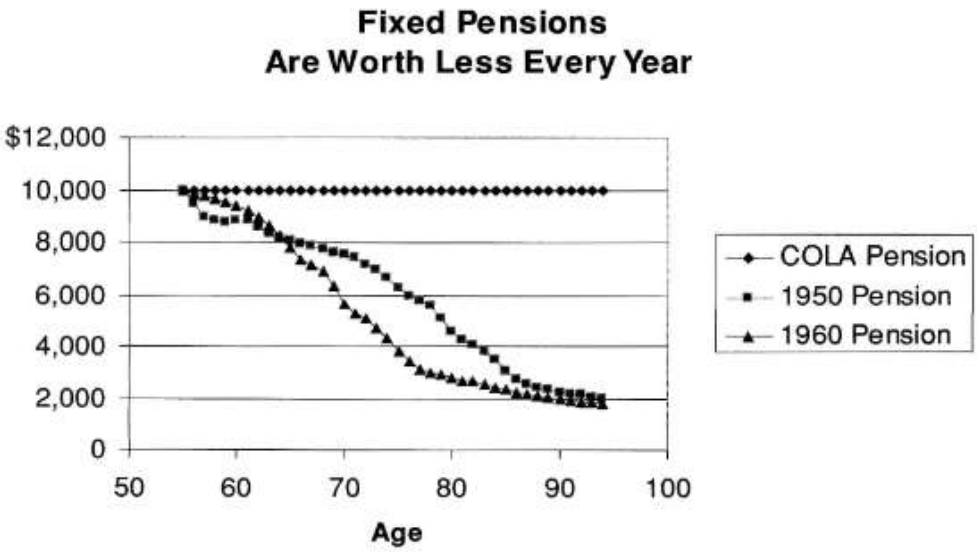


FIGURE 1.1 The actual value of a COLA pension compared to the real value of fixed pensions starting in two different years, after inflation has taken its toll.

Mistake 2: Assuming the Real World is Smooth – Many planning programs assume a theoretical constant inflation and return on investments. In practice, this will not provide a valid scenario when planning retirement. In the chart below a $1,000,000 retirement fund is spent at age 85 using historic values for market returns and inflation. Real world data from 1950 (good time to retire) shows the funds would run out at age 96. While Real world data from 1960 (bad time to retire) shows funds running out at about age 76.

Another issue identified by Hebeler is that many Funds and investment planners tend to give absolute rate of return values when trying to make a sales pitch. This can be very deceptive if inflation is not included. For instance a fund with 6% growth but with a 4% inflation for the year is actually only gaining 2% growth when it comes to spending power.

Figure 1.2

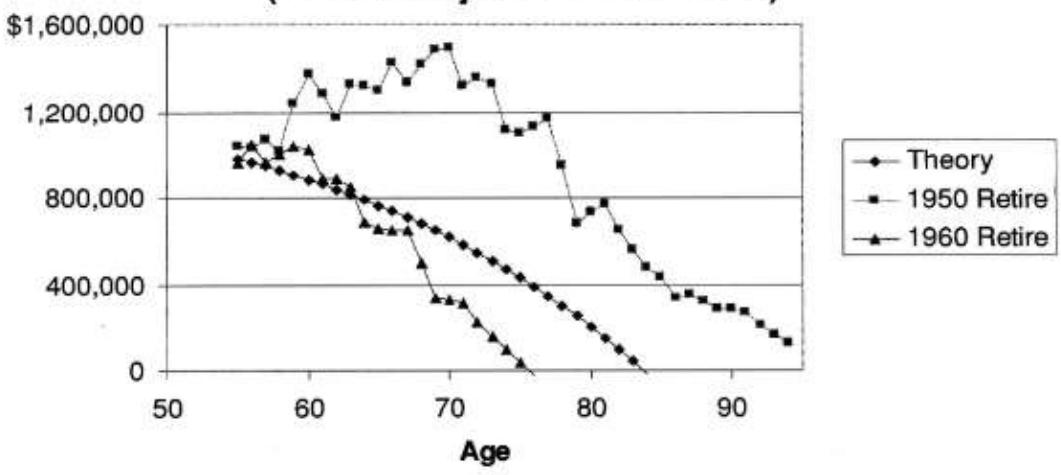


FIGURE 1.2 Inflation-adjusted investments are substantially different when comparing theory to real annual returns for retirement beginning in 1950 or 1960.

Mistake 3: Ignoring Investment Cost – Many paid planners and investment funds will not include their fees when providing projections of or histories of their plan/fund returns. Using the same historical data from Figure 1.2 in figure 1.3 but including a 1.5% fee, we can see that the age when funds run for the 1960 retirement scenario from 76 down to 73 (**3 years decrease**) while the 1950 retirement scenario has been decreased from 96 to 85 (**11 years decrease!**). You may think that a 1.5% charge is overstated in this scenario, but consider if you are paying a retirement planning company 1% fee (which is not uncommon) that does not include fees associated with funds that the retirement planner may be using. These combined fees may very well be in the 1.5% range. Another point of interest is how over time the fees really start to impact your return, where the difference in the 1950 vs the 1960 scenario shows a 12 year difference, but the impact of the fees goes from 3 years to 11 years (8 years difference!) over those 12 years.

Figure 1.3

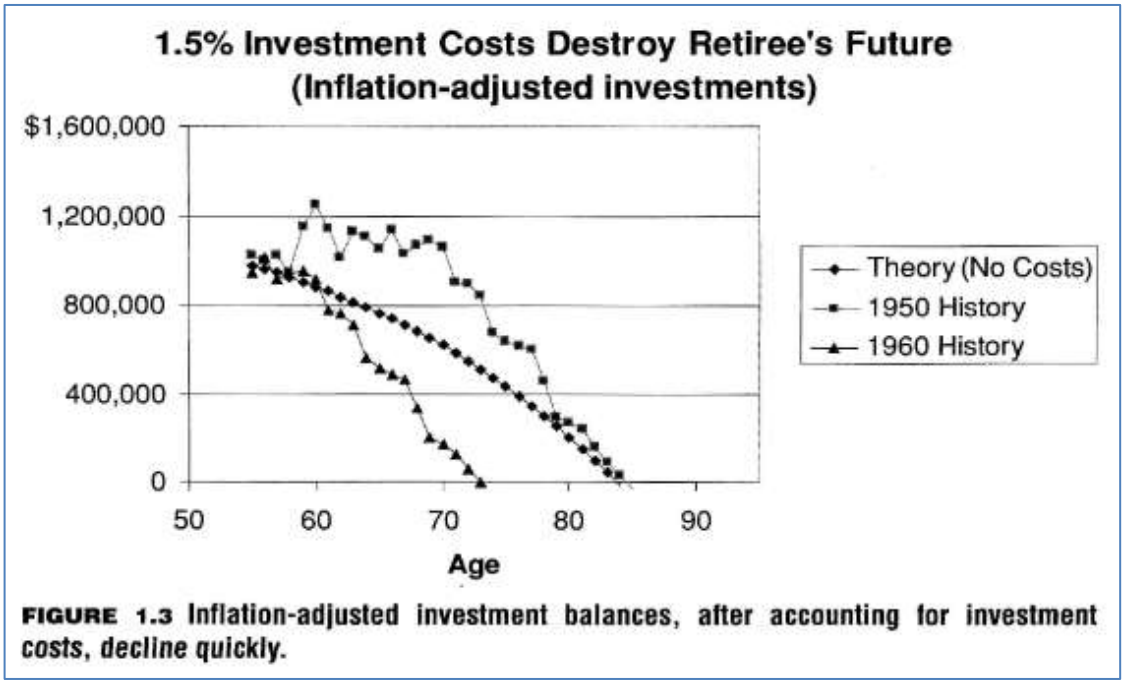


FIGURE 1.3 Inflation-adjusted investment balances, after accounting for investment costs, decline quickly.

Mistake 4: Not Defining Your Terms – It is important to take into account taxes when planning both for saving for retirement and in retirement. Remember while getting a tax break when contributing to a tax differed plan (ie 401k, IRA, etc.) the taxes will be due on these investments once you start to withdraw from these accounts. With Roth accounts the taxes are paid up front allowing growth and gains to go untaxed when withdrawn. After tax investments straddle these two where gains are taxed at different rates based on the time the investment was held.

Mistake 5: Using Calculations without Shock Absorption – Market fluctuations can make severe impacts to your retirement planning especially in immediate years just before and after retirement. For example lets say you are nearing retirement with $2,000,000 and the market takes a 30% dive for the year, as a result your $2,000,000 has now decreased to $1,700,000 (assuming you only had about $1,000,000 in the market) you have just seen a decrease of your retirement savings of 15%. This could severely impact your retirement plans! One of the primary focuses of this book is to provide a method to dampen these shocks to your retirement plans.

Mistake 6: Ignoring the Effect of Reverse Dollar Cost Averaging – Dollar cost averaging is the phenomenon when saving for retirement a person invest on a regular basis in a stock they will get better returns than the overall average over time since they purchase more shares when a stock drops. Reverse Dollar Cost Averaging is the exact opposite in retirement where a constant withdraw from an investment sees lower returns over time than the average since you are selling **more** shares when the price drops. This is exhibited in Figure 1.4 where it compare the ending balance after 10 years where a 23% loss occurs on the 2nd year followed by a 37% increase in year 3, still providing a 7% overall average return but as you can see with the funds depleted about 1 year earlier than if the returns were constant over this time period. Hebeler points out that retirees average about 0.5% less return than pre-retirement savers.

Figure 1.4

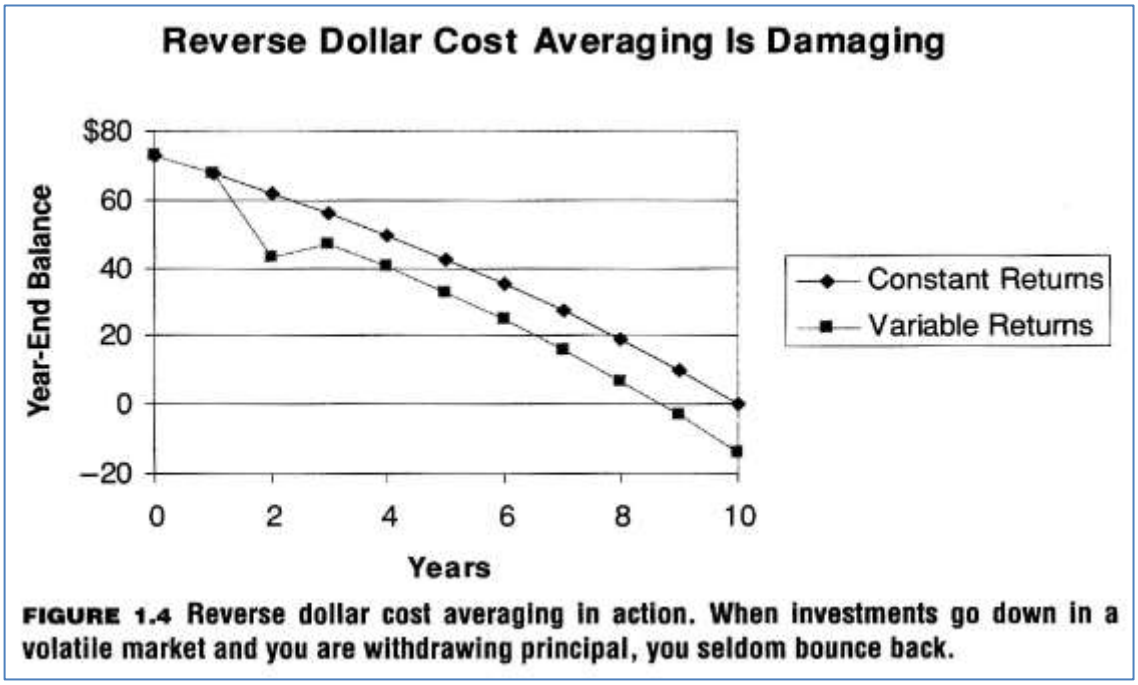


FIGURE 1.4 Reverse dollar cost averaging in action. When investments go down in a volatile market and you are withdrawing principal, you seldom bounce back.

The Hazards of Postretirement Projections

In order to do preretirement planning, one first must know how much money is needed in retirement. Provided below is a basic summary of the methods you can use for your postretirement projections from worst to best. The descriptions provided below are to summarize the plans, while some flaws for these approaches are pointed out; they are not an analysis/comparison of each; this will be done latter.

Spend-All This technique assumes you can live off of interest and dividends from your investments and not touch your principle. This requires you to have a huge pool of assets for investment, since just for a $60,000 budget, you would be required to have $2,000,000 assuming you have a 3% return on investment every year. This plan is also flawed in that years with higher inflation would require higher returns, something that may not be possible in practice; finally dividends change year to year for each investment, so this plan would be highly volatile.

Inflation-Adjusted Spending Many factors such as inflation, life expectancy, and the present value of your investments are utilized in this calculation. Recent versions of this have even taken into account large one-time expenditures (such as purchasing a house or car). In this method you get an inflation-adjusted increase amount each year to match inflation thus providing a constant standard of living. The flaws with this method is that it does assume constant rates of return/inflation, so funds likely run out before this method predicts due to Reverse Dollar Cost Averaging. Additionally this technique only works while there are funds, once the funds are depleted there will be no more assets to live off of.

Fixed-Percent Withdrawals Here a percentage (usually 3.5% to 8%) of the overall year-end investment balance is used for determining the amount allowed for expenses and taxes for the year. In this book Hebeler uses 6% as an example where an investment of 100,000 would imply $6,000 could be withdrawn.

Successive Annual Calculations An annual budget is established each year based on analysis of long term market returns, inflation and new life expectancy. This method is subject to overly optimistic assumptions and typically does not take into account management fees, mutual fund cost and other expenses associated with owning securities.

Retirement Autopilot Method The method utilized in this book, incorporates a technique to adjust to swings in market performance, and changes to inflation. Reverse Dollar Cost Averaging is also taken into account. This method also takes into account large purchases that may be made in retirement. Additionally, it utilizes historic data. Hebeler then describes how this method is similar to auto pilot in an airplane where minor adjustments are automatically made reduce the jolt that may be felt as aircraft encounters turbulence. One of the primary goals of this method is to provide a steady consistent plan, reducing whiplash that may be encountered based on market gyrations my making small adjustments to the overall plan on a regular basis (ie yearly). This process of making minor adjustments on a regular base due to changing inflation rates and market performance is known as feedback.

Comparing Methods A hypothetical example will be used to compare the different plans.
Assumptions:

- Retirement at age 60
- Expected date of death at age 85
- Numbers provided in the figures below are Inflation adjusted numbers.
- Starting balance of $1,000,000 in investments when retirement starts
    - 50% in S&P 500 index fund initially, decreased 1% each year.
    - 50% in long term corporate bonds, increasing 1% each year.
- Assumptions
    - Data utilized using two different periods
        - 1955 (Good times)
        - 1965 (Not so good times)
    - All funds are in deferred tax accounts (ie 401k, IRA, etc.)

Comparing Three plans
Figure 1.5 and Figure 1.6

FIGURE 1.5 Annual withdrawals (adjusted for inflation) for three different retirement methods starting in 1955.

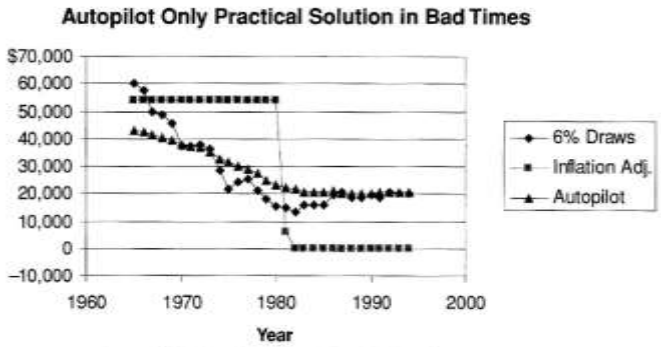


FIGURE 1.6 Annual withdrawals (adjusted for inflation) for three different retirement methods starting in 1965.

Method	1955 retirement (Good Times) Observations	1965 Retirement (Bad Times) Observations
Inflation Adjustment	• Initial withdraws at $**55,000** • No changes in standard of living until funds run out. • **$0** funds remaining at age **80** • 5 years before date of death. You are now on welfare	• Initial withdraws at $**55,000** • No changes in standard of living until funds run out. • **$0** funds remaining at age **75** • **10** years before date of death. You are now on welfare
6% Draws	• Initial withdraw mount at $**60,000** • Initial withdraw amounts higher than other plans, but rapidly decreases over time. • Final withdraws ending at about $**15,000**	• Initial withdraw mount at $**60,000** • Initial rapid decrease in withdraws reflecting poor market behavior over time that stabilizes as market rebounds. • Final withdraws ending at about $**20,000**
Autopilot	• Initial withdraw mount at $**42,000** • Gradual decrease in amounts over time. • Final withdraws ending at about $**25,000**	• Initial withdraw mount at $**42,000** • Gradual decrease in amounts over time. • Final withdraws ending at about $**20,000**

One of the lessons we can draw from these examples is that there is no perfect way to overcome really bad economic times. However the autopilot systems, provides the best results with the least amount of system shock over time.

The Hazards of Preretirement Planning

Some observations on saving for retirement:

- The further away from retirement you are the more risk you can take. Over a 20 year span a person more heavily weighted in stocks can realize a double in savings over a person heavily weighted in Bonds. Over a 30 year span this can be triple.
- The earlier you start savings the more benefits you will enjoy from the miracle of compound growth.
- Live below your means and save for retirement. Take full advantage of tax savings and use tricks like devoting raises to go to savings plans.
- As you near retirement estimates can whiplash based on market conditions, the autopilot method tries to dampen these gyrations.

Open-Loop Shortcut A one-time estimate and scheduled savings plan that does not adjust on a regular basis to compensate for accumulated savings value (based on current market valuations) or inflation variations. This method does not take into account investment cost and reverse dollar cost averaging. This method is dependent on the year the calculation is performed that may cause people to over-spend (if it is a good market year), dramatically decreasing the number of years funding may last. This method is also very dependent upon estimates of future market performance and inflation rates. These estimates tend to be overly optimistic (ie 5% before retirement, 4% after retirement of inflation adjusted returns).

Quick and Dirty This method estimates returns based on a classification of your investment allocations:

- Conservative – Mostly Bonds
- Moderate – 50% Bonds, 50% Stocks
- Aggressive – Mostly Stocks

Investment costs are assumed to be 1%. This method does not take into consideration one-time purchases.

Open-Loop vs Quick & Dirty
Figure 1.8 and Figure 1.9

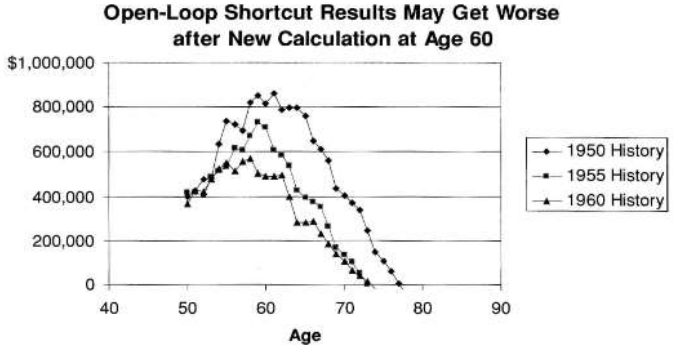


FIGURE 1.8 Making a new estimate with the open-loop shortcut just before retirement does not always improve results, as in the 1950 scenario.

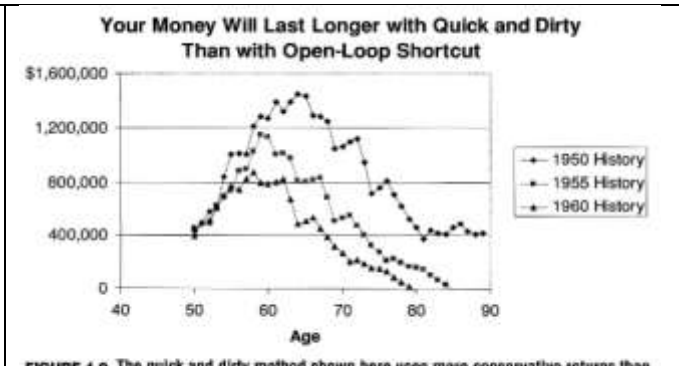


FIGURE 1.9 The quick and dirty method shown here uses more conservative returns than the open-loop shortcut in Figure 1.8 and so demands more saving before retirement and lower spending after retirement.

Recalculation Methods Reassessing your retirement plans on an annual basis allows you to make adjustments to your plans to ensure you stay on track and on time for your retirement. On downside to this process is that the closer you get to retirement, the more volatile these adjustments can become in reactions to current market fluctuations.

Figure 1.11

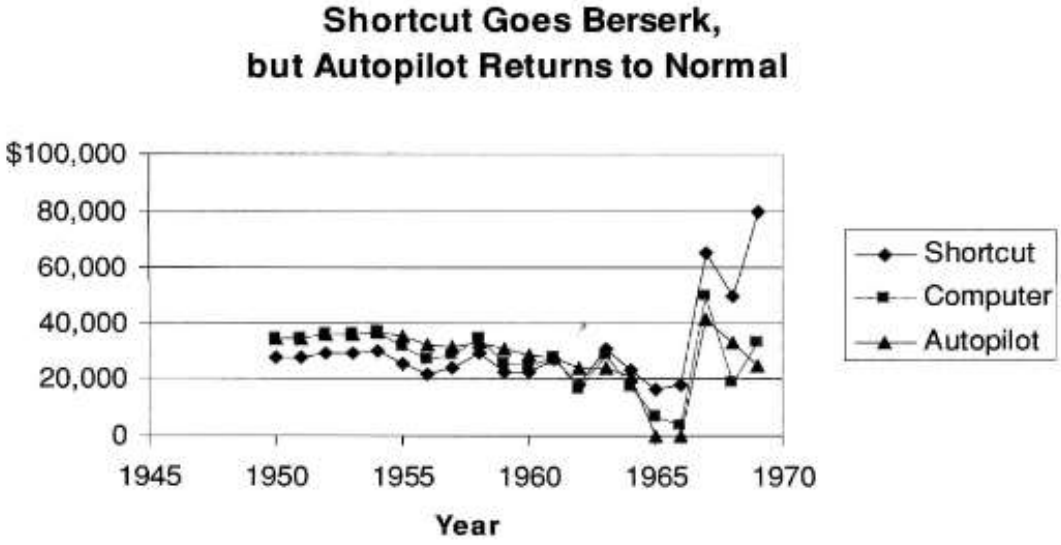


FIGURE 1.11 All of the planning methods try to cope with adverse market conditions near retirement. The shortcut calls for unreasonable savings in the last year.

My Observation Both the Computer and Autopilot methods drop savings to zero in the 1965 region. I think if you introduce a general rule of never cutting saving more than ½ of the previous year was introduced, it would have greatly stabilized the huge jumps in savings requirement years just previous to 1970. Better yet, if you never decrease savings for retirement, the savings increase for the autopilot method may have been eliminated. Worst case scenario following this approach would be that you exceeded your target savings.

It is vital that one avoids optimistic theoretical assumptions on future investment performance and use realistic data that represents what can realistically be expected from your investments based on what your **asset allocation** is (Bonds vs Stocks), **investments cost** and **inflation** expectations.

Chapter Closing Thoughts

The Autopilot method is a great planning tool in determining how much you need to save for a safe retirement. You may want to consider if you can live under your means and still have a modest and pleasing lifestyle. To that ends consider maxing out your 401k(or other retirement saving plan) and Roth contributions each year. There really is no downside to over-saving! The upside is that you are ensured extra cushion for unexpected turns of the market, or you may be able to retire earlier than initially projected. Certainly not everyone is able to do this, but you might find by cutting some expenses (ie The Cable TV, the unlimited data phone plan, eating out multiple times in a week, etc.) you can save more money than you thought. **Save as much as you can as soon as you can** so the miracle of compound growth can work its magic!

Chapter 2: Some Fundamental Planning Facts

Chapter Summary

Opportunity Cost associated with spending money on unnecessary items is conveyed. The concept of life expectancy and how these tables are used by the IRS is explained along with how the expected life expectancy in these tables change as you age is explained. The dynamically changes estimate of life expectancy is used to help insure you never outlive your retirement funds. The concept of compounding is introduced here and how this can work to your benefit when applied to investments but work against you when applied to inflation. The concept of Today's Dollars is introduced and explained why this is used with the Autopilot method. Basic financial terms are introduced. Recognizing that unplanned events and what some of these may be is discussed. It is pointed out that Taxes should play a role in financial decisions and retirement planning. Finally it is pointed out that there are many uncertain factors that may impact your retirement planning. It is also pointed out that Autopilot method introduces mechanisms for dealing with these uncertainties.

References and Resources

- ArtCentrics: Chapter 2 Spreadsheets
  - Figure 2.9 – Last Years Taxes
  - Figure 2.10 – Last Years Gross Income
  - Last Years Tax Rate

Terms and Concepts

- Affordable Expenses – The level of expenditures that will get you through retirement without depleting your savings before you die. These are expenses that are constrained to ensure you don't spend down your savings too quickly in retirement. This value is subject to change each year to reflect changing market, and inflation conditions.

- Expenses – This will also include both unusual and infrequent expenses as well as normal living cost that would be paid out in the course of one year.
  - Usual Expenses – Expenses that occur on a regular basis such as utility bills, insurance, entertainment etc. In preretirement they also include taxes and debt payments, in postretirement planning they do not.
  - Infrequent Expenses – Typically non-reoccurring expenses such as an expensive vacation, the purchase of a new car or house, a large one-time hobby expense (building of an observatory with equipment).

- Feedback – The process of making periodic corrections to a system to ensure it stays on target. In the context of this book the periodic corrections are performed on a yearly basis.

- Front loading your savings and back loading you're spending – This simply means to save as much as you can as early as possible, and delay spending as long as possible to maximize the amount of time your funds are allowed to grow through the magic of compounding.

- Gross Income – As used in this book is defined as the annual total of wags, alimony, Social Security, pension, and/or annuity payments, and all income from investments, including dividends, both taxable and tax-exempt interest, capital gains, income from businesses, both Roth and Regular IRA distributions, and before-tax cash flows from investment real estate.

- Income – This definition of this term is relative to the context, either as Preretirement or Postretirement planning:
  - Preretirement Income: The amount that you will need in retirement to pay your normal living expenses, related income taxes, and debt payments.
  - Postretirement Planning Income: Income as defined on a tax return including Social Security, pension payments, annuity payments, wages from part-time work, and returns from investments that you would enter on a tax return.

- Income Tax – the annual amount that you calculate on a tax return. It is not the tax that is deducted from Social Security or Medicare, nor any of the other taxes you may pay such as real estate, personal property or automobile.

- Inflation Adjusted Returns – The value of an investment over time where the growth is adjusted by subtracting the corresponding inflation during that time period.

- Life Expectancy – An average, a person is expected to live. This indicates 50% of the population will die at a younger age and that 50% will die at an older age.

- Limiting Equation – A mathematical factor included in Autopilot calculations to safeguard against major swings in year to year calculations.

- Long Term Investment – An investment that is held longer than one year before being sold and may have a lower tax rate applied to the profits that may have been realized.

- Maturity – The amount of time before you will automatically get back your principle from a purchased bond.

- Net Tax Rate – (State income tax + Federal income tax) / (Gross Income).

- Opportunity Cost – The concept that decisions on made on one item can limit options on others. In the investment and retirement context; Money spent on unnecessary items can end up costing a lot more than the actual purchase price of an item as time goes buy due to the miracle of compound Growth, thus limiting options that the funds would have provided if they had been saved and invested instead of spent.

- Present Value – A term used to describe the value of something in todays dollars. This term may be used when projecting future or past values/cost and indicates what the item would be in present day numbers.

- Required Minimal Distribution (RMD) – The amount that must be distributed each year from a retirement tax differed account (i.e. IRA, SEP, 401k etc.) based on the age of the IRA owner. Currently RMDs start when the owner reaches 72 years of age, but this age may change in the near future. Failure to withdraw the appropriate amount each year can result in steep fines (50% or funds that should have been withdrawn). RMD's are based on the amount of funds available in the qualifying accounts and the age of the recipient. IRS website.

- Savings – The total of all of your mutual funds, stocks, bonds, CDs, money markets, real estate equity, or similar financial resources.
  - Annual Savings Input: An annual amount that you take from your wages and deposit in a bank or investment account.
  - Preretirement Savings: Would include employer annual contributions such as matching funds for a 401(k).
  - Postretirement Savings: Generally there will be no savings in retirement, but this may include new income you save from a part time job.

- Short Term Investment – An investment that is held less than one year before being sold and whose gains from the sale may be taxed at the tax payers ordinary income tax rate.

- Statistical Cancellation – The idea that have many in depended changing factors used in determining final output can dampen large variations in final output since some of the individual factors may cancel or compensate each other.

- Todays Dollars – A key concept in the Autopilot method where future cost and/or savings are presented to the reader in todays cost/value to make the presented numbers easier for the reader to relate to. For example, the cost of a loaf of bread in 30 years may be projected to be 3x of todays cost the 3x value is not used. Similarly, when discussing the value of a nest egg, while growth is expected over time, inflation reduces this growth, so the value presented to the reader and used in calculations is the Inflation Adjusted growth.

- Wages – The annual amounts that you receive from your employer. These are gross wages, that is wages before any tax or other deductions from your paycheck.

- Unplanned Expenses – The idea of including a funding in your yearly budget to accommodate unforeseen expenses in your retirement planning budget.

Spend Now and (Really) Pay Later

Here the author attempts to convey to the reader the importance of saving for retirement early and not spending money on unnecessary "Things". Two scenarios are provided that show how $1,000 spent 30 years prior to retirement could have grown anywhere from $17,400 to $210,000 in retirement funds depending on the situation.

The Preretirement Blowout – Many newly retired persons will spend money on select big-ticket items like a new car, or a big retirement or a vacation home. There can be large opportunity cost with this since these funds must last you the rest of your life. On the other hand, if you have determined you can afford these items without risking running out of funds before retirement, then I don't see why you would live like a monk!

What If You Outlive Your Current Life Expectancy?

Average live expectancy indicates that 50% of a population will die before the average life expectancy, while 50% of the population will live longer than the life expectancy.

Your Life Expectancy Depends on Your Age – As one age increases, the life expectancy of that person increases. This is an important concept since it can be used to insure you never run out of funds in retirement if you update your expected life expectancy every year and make appropriate changes to your budget based on your new life expectancy. This concept will be explored later in the book.

Working With Life Expectancy Data – First it should be noted the data in this table is not current (get the latest version of PUB 590, Part B from the IRS for the appropriate tables), so should not be used for actual tax calculations, but can be used as approximations for the examples in this book. This table can be utilized to approximate the expected life expectancy of you and your spouse. Calculations for the RMD for a given year is accomplished by combining the market value of all qualifying accounts on December 31st of the previous year combined, and dividing by the single life Expectancy column value in the row corresponding to your age.

Find Out How Long the IRS Thinks You Will Live

Age of Single or Older Person	Single Life Expectancy	JOINT LIFE AND LAST SURVIVOR LIFE EXPECTANCY (YEARS) Other Spouse Is Younger By										
		Equal Ages	1 Year	2 Years	3 Years	4 Years	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years
55	**28.6**	**34.4**	**34.9**	**35.4**	**35.9**	**36.5**	**37.1**	**37.7**	**38.4**	**39.0**	**39.7**	**40.4**
56	27.7	33.4	33.9	34.4	35.0	35.6	36.1	36.8	37.4	38.1	38.7	39.5
57	26.8	32.5	33.0	33.5	34.0	34.6	35.2	35.8	36.4	37.1	37.8	38.5
58	25.9	31.5	32.0	32.5	33.1	33.6	34.2	34.8	35.5	36.1	36.8	37.5
59	25.0	30.6	31.1	31.6	32.1	32.7	33.3	33.9	34.5	35.2	35.9	36.6
60	**24.2**	**29.7**	**30.1**	**30.6**	**31.2**	**31.7**	**32.3**	**32.9**	**33.6**	**34.2**	**34.9**	**35.6**
61	23.3	28.7	29.2	29.7	30.2	30.8	31.4	32.0	32.6	33.3	33.9	34.6
62	22.5	27.8	28.3	28.8	29.3	29.9	30.4	31.0	31.7	32.3	33.0	33.7
63	21.6	26.9	27.3	27.8	28.4	28.9	29.5	30.1	30.7	31.4	32.0	32.7
64	20.8	25.9	26.4	26.9	27.4	28.0	28.6	29.2	29.8	30.4	31.1	31.8
65	**20.0**	**25.0**	**25.5**	**26.0**	**26.5**	**27.1**	**27.6**	**28.2**	**28.9**	**29.5**	**30.2**	**30.9**
66	19.2	24.1	24.6	25.1	25.6	26.1	26.7	27.3	27.9	28.6	29.2	29.9
67	18.4	23.2	23.7	24.2	24.7	25.2	25.8	26.4	27.0	27.6	28.3	29.0
68	17.6	22.3	22.8	23.3	23.8	24.3	24.9	25.5	26.1	26.7	27.4	28.1
69	16.8	21.5	21.9	22.4	22.9	23.4	24.0	24.6	25.2	25.8	26.5	27.1
70	**16.0**	**20.6**	**21.1**	**21.5**	**22.0**	**22.5**	**23.1**	**23.7**	**24.3**	**24.9**	**25.6**	**26.2**
71	15.3	19.8	20.2	20.7	21.2	21.7	22.2	22.8	23.4	24.0	24.7	25.3
72	14.6	18.8	19.4	19.8	20.3	20.8	21.3	21.9	22.5	23.1	23.8	24.4
73	13.9	18.1	18.5	19.0	19.4	20.0	20.5	21.0	21.6	22.2	22.9	23.5
74	13.2	17.3	17.7	18.2	18.6	19.1	19.6	20.2	20.8	21.4	22.0	22.7
75	**12.5**	**16.5**	**16.9**	**17.3**	**17.8**	**18.3**	**18.8**	**19.3**	**19.9**	**20.5**	**21.1**	**21.8**
76	11.9	15.7	16.1	16.5	17.0	17.5	18.0	18.5	19.1	19.7	20.3	20.9
77	11.2	15.0	15.4	15.8	16.2	16.7	17.2	17.7	18.3	18.8	19.4	20.1
78	10.6	14.2	14.6	15.0	15.4	15.9	16.4	16.9	17.5	18.0	18.6	19.2
79	10.0	13.5	13.9	14.3	14.7	15.1	15.6	16.1	16.7	17.2	17.8	18.4
80	**9.5**	**12.8**	**13.2**	**13.5**	**14.0**	**14.4**	**14.9**	**15.4**	**15.9**	**16.4**	**17.0**	**17.6**
81	8.9	12.1	12.5	12.8	13.2	13.7	14.1	14.6	15.1	15.7	16.2	16.8
82	8.4	11.5	11.8	12.2	12.5	13.0	13.4	13.9	14.4	14.9	15.5	16.0
83	7.9	10.8	11.1	11.5	11.9	12.3	12.7	13.2	13.7	14.2	14.7	15.3
84	7.4	10.2	10.5	10.9	11.2	11.6	12.0	12.5	13.0	13.5	14.0	14.5
85	**6.9**	**9.6**	**9.9**	**10.2**	**10.6**	**11.0**	**11.4**	**11.8**	**12.3**	**12.8**	**13.3**	**13.8**
86	6.5	9.1	9.3	9.7	10.0	10.4	10.8	11.2	11.6	12.1	12.6	13.1
87	6.1	8.5	8.8	9.1	9.4	9.8	10.1	10.6	11.0	11.4	11.9	12.4
88	5.7	8.0	8.3	8.6	8.9	9.2	9.6	10.0	10.4	10.8	11.3	11.8
89	5.3	7.5	7.8	8.1	8.3	8.7	9.0	9.4	9.8	10.2	10.7	11.1
90	**5.0**	**7.1**	**7.3**	**7.6**	**7.9**	**8.2**	**8.5**	**8.8**	**9.2**	**9.6**	**10.1**	**10.5**
91	4.7	6.7	6.9	7.1	7.4	7.7	8.0	8.3	8.7	9.1	9.5	9.9
92	4.4	6.3	6.5	6.7	6.9	7.2	7.5	7.8	8.2	8.5	8.9	9.4
93	4.1	5.9	6.1	6.3	6.5	6.8	7.1	7.4	7.7	8.0	8.4	8.8
94	3.9	5.6	5.8	5.9	6.2	6.4	6.6	6.9	7.2	7.6	7.9	8.3
95	**3.7**		**5.4**	**5.6**	**5.8**	**6.0**	**6.3**	**6.5**	**6.8**	**7.1**	**7.5**	**7.8**
96	3.4			5.3	5.5	5.7	5.9	6.1	6.4	6.7	7.0	7.3
97	3.2				5.1	5.3	5.5	5.8	6.0	6.3	6.6	6.9
98	3.0					5.0	5.2	5.4	5.6	5.9	6.2	6.5
99	2.8						4.9	5.1	5.3	5.5	5.8	6.1
100	**2.7**							**4.8**	**5.0**	**5.2**	**5.4**	**5.7**

FIGURE 2.1 Life expectancies depend on your age. (Based on data from IRS Publication 590.)

Making Your Money Last a Lifetime – Figure 2.2 is introduced as a tool that can be used to determine how much retired people can afford to spend every year and still have enough to last for the rest of their lives. Two examples are provided to show how this works:

- Single person age 65 would have a life expectancy of 25 years
- Married couple of ages 65 and 55 would use the younger spouses age (55) to get a life expectancy of 34.4 years.

Re-calculating your sending budget every year based on this table will ensure you will never run out of fund, and that changes in your budget (be they increase or decrease) will be from year to year.

Autopilot Life Expectancies

Single or Younger Spouse Age	Life Expectancy	Single or Younger Spouse Age	Life Expectancy
55	**34.4**	75	16.5
56	33.4	76	15.7
57	32.5	**77**	**15.0**
58	31.5	78	14.2
59	30.6	79	13.5
60	**29.7**	80	12.8
61	28.7	81	12.1
62	27.8	**82**	**11.5**
63	26.9	83	10.8
64	25.9	84	10.2
65	**25.0**	85	9.6
66	24.1	86	9.1
67	23.2	**87**	**8.5**
68	22.3	88	8.0
69	21.5	89	7.5
70	**20.6**	90	7.1
71	19.8	91	6.7
72	18.8	**92**	**6.3**
73	18.1	93	5.9
74	17.3	94+	5.6

FIGURE 2.2 The autopilot method uses this life expectancy chart to calculate affordable expenses in retirement.

Inflation Really Hurts

Inflation compounds over time, and can severely decrease the purchasing power of your savings. At 4% inflation what cost $100 today will cost $219 in 20 years and $1,052 in 60 years. Consider how long you expect to be in retirement and remember the impact of inflation on your purchasing power. Inflation can destroy the value of fixed pension, investment returns and savings.

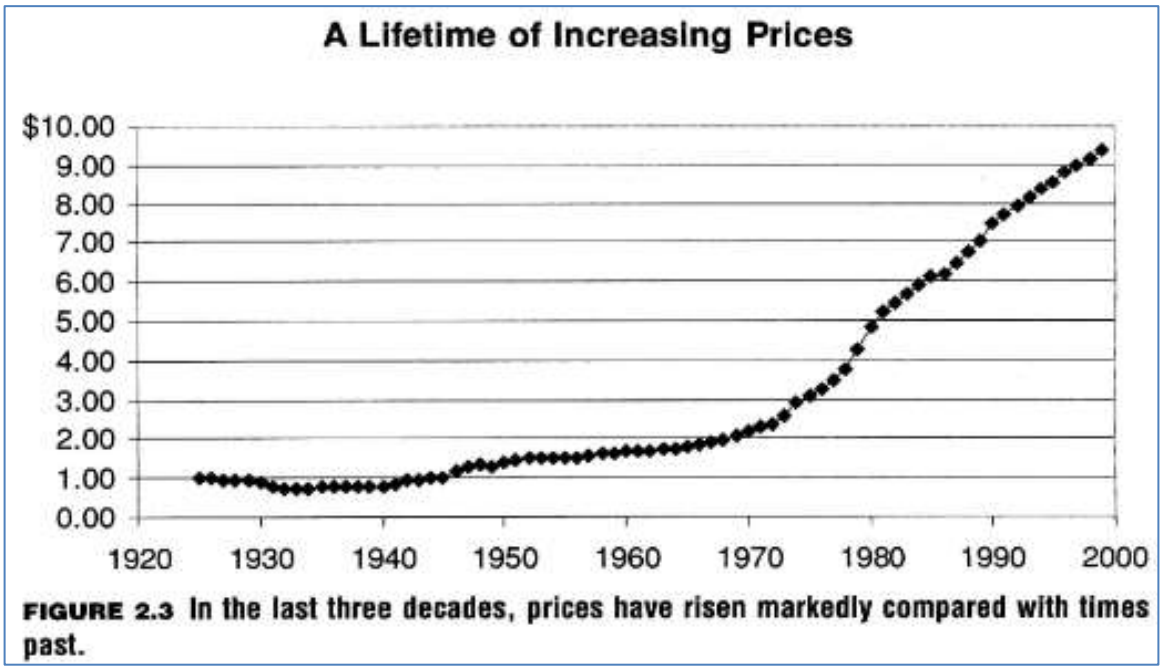


FIGURE 2.3 In the last three decades, prices have risen markedly compared with times past.

The Truth about Compounding – The miracle of compounding can turn into the terror of compounding when it is applied to inflation. Figure 2.4 demonstrates the purchasing power of a dollar from the 1920's to the 1990's.

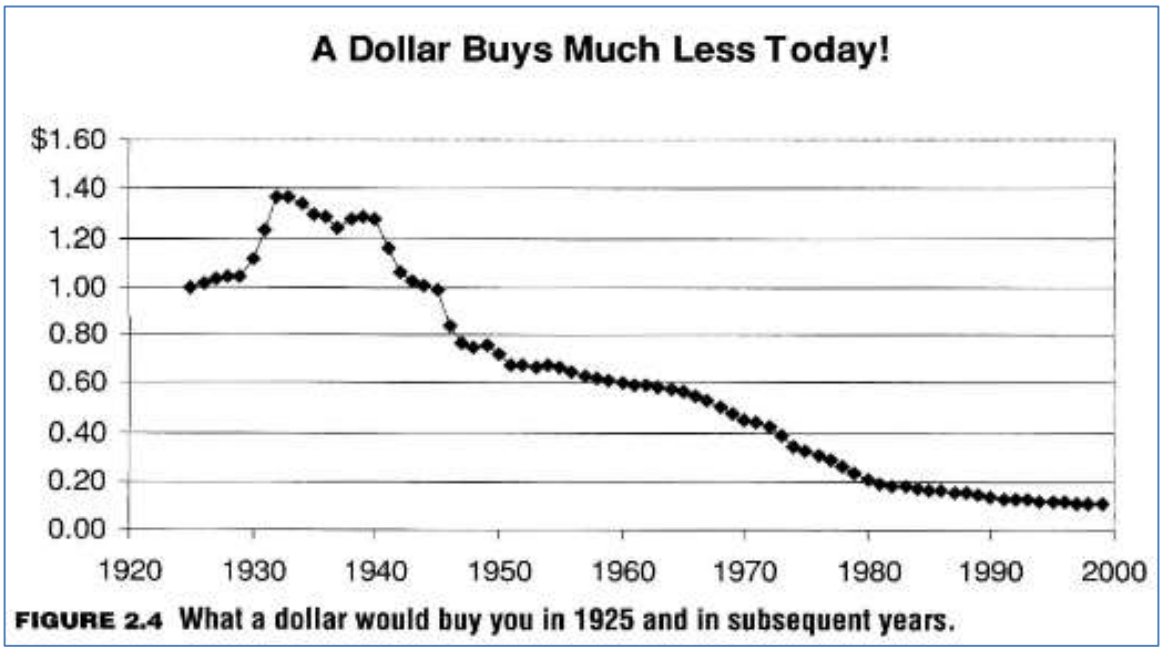


FIGURE 2.4 What a dollar would buy you in 1925 and in subsequent years.

Inflation in Retirement – Due to the higher rate of inflation for medical and services and since these tend to make up more of a retirements budget, it is generally understood that inflation rates for retirees is greater than the overall population. Although Social Security makes annual increases based on the inflation rate, it appears it doesn't keep up with the cost of living.

Calculating Your Personal Inflation Rate – Figures 2.5 and 2.6 are provided to help you assess the Future value of one dollar over time and how much the dollar is worth (purchasing power) in todays dollars.

Future Value of One Dollar

Year	With Inflation Of							
	2%	3%	4%	5%	6%	7%	8%	10%
1	1.02	1.03	1.04	1.05	1.06	1.07	1.08	1.10
2	1.04	1.06	1.08	1.10	1.12	1.14	1.17	1.21
3	1.06	1.09	1.12	1.16	1.19	1.23	1.26	1.33
4	1.08	1.13	1.17	1.22	1.26	1.31	1.36	1.46
5	1.10	1.16	1.22	1.28	1.34	1.40	1.47	1.61
6	1.13	1.19	1.27	1.34	1.42	1.50	1.59	1.77
7	1.15	1.23	1.32	1.41	1.50	1.61	1.71	1.95
8	1.17	1.27	1.37	1.48	1.59	1.72	1.85	2.14
9	1.20	1.30	1.42	1.55	1.69	1.84	2.00	2.36
10	1.22	1.34	1.48	1.63	1.79	1.97	2.16	2.59
11	1.24	1.38	1.54	1.71	1.90	2.10	2.33	2.85
12	1.27	1.43	1.60	1.80	2.01	2.25	2.52	3.14
13	1.29	1.47	1.67	1.89	2.13	2.41	2.72	3.45
14	1.32	1.51	1.73	1.98	2.26	2.58	2.94	3.80
15	1.35	1.56	1.80	2.08	2.40	2.76	3.17	4.18
16	1.37	1.60	1.87	2.18	2.54	2.95	3.43	4.59
17	1.40	1.65	1.95	2.29	2.69	3.16	3.70	5.05
18	1.43	1.70	2.03	2.41	2.85	3.38	4.00	5.56
19	1.46	1.75	2.11	2.53	3.03	3.62	4.32	6.12
20	1.49	1.81	2.19	2.65	3.21	3.87	4.66	6.73
21	1.52	1.86	2.28	2.79	3.40	4.14	5.03	7.40
22	1.55	1.92	2.37	2.93	3.60	4.43	5.44	8.14
23	1.58	1.97	2.46	3.07	3.82	4.74	5.87	8.95
24	1.61	2.03	2.56	3.23	4.05	5.07	6.34	9.85
25	1.64	2.09	2.67	3.39	4.29	5.43	6.85	10.83
26	1.67	2.16	2.77	3.56	4.55	5.81	7.40	11.92
27	1.71	2.22	2.88	3.73	4.82	6.21	7.99	13.11
28	1.74	2.29	3.00	3.92	5.11	6.65	8.63	14.42
29	1.78	2.36	3.12	4.12	5.42	7.11	9.32	15.86
30	1.81	2.43	3.24	4.32	5.74	7.61	10.06	17.45
31	1.85	2.50	3.37	4.54	6.09	8.15	10.87	19.19
32	1.88	2.58	3.51	4.76	6.45	8.72	11.74	21.11
33	1.92	2.65	3.65	5.00	6.84	9.33	12.68	23.23
34	1.96	2.73	3.79	5.25	7.25	9.98	13.69	25.55
35	2.00	2.81	3.95	5.52	7.69	10.68	14.79	28.10
36	2.04	2.90	4.10	5.79	8.15	11.42	15.97	30.91
37	2.08	2.99	4.27	6.08	8.64	12.22	17.25	34.00
38	2.12	3.07	4.44	6.39	9.15	13.08	18.63	37.40
39	2.16	3.17	4.62	6.70	9.70	13.99	20.12	41.14
40	2.21	3.26	4.80	7.04	10.29	14.97	21.72	45.26

FIGURE 2.5 Your future requires more money.

Future Dollars Are Not Worth As Much

Year	With Inflation Of							
	2%	3%	4%	5%	6%	7%	8%	10%
1	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.909
2	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.826
3	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.751
4	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.683
5	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.621
6	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.564
7	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.513
8	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.467
9	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.424
10	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.386
11	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.350
12	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.319
13	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.290
14	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.263
15	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.239
16	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.218
17	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.198
18	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.180
19	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.164
20	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.149
21	0.660	0.538	0.439	0.359	0.294	0.242	0.199	0.135
22	0.647	0.522	0.422	0.342	0.278	0.226	0.184	0.123
23	0.634	0.507	0.406	0.326	0.262	0.211	0.170	0.112
24	0.622	0.492	0.390	0.310	0.247	0.197	0.158	0.102
25	0.610	0.478	0.375	0.295	0.233	0.184	0.146	0.092
26	0.598	0.464	0.361	0.281	0.220	0.172	0.135	0.084
27	0.586	0.450	0.347	0.268	0.207	0.161	0.125	0.076
28	0.574	0.437	0.333	0.255	0.196	0.150	0.116	0.069
29	0.563	0.424	0.321	0.243	0.185	0.141	0.107	0.063
30	0.552	0.412	0.308	0.231	0.174	0.131	0.099	0.057
31	0.541	0.400	0.296	0.220	0.164	0.123	0.092	0.052
32	0.531	0.388	0.285	0.210	0.155	0.115	0.085	0.047
33	0.520	0.377	0.274	0.200	0.146	0.107	0.079	0.043
34	0.510	0.366	0.264	0.190	0.138	0.100	0.073	0.039
35	0.500	0.355	0.253	0.181	0.130	0.094	0.068	0.036
36	0.490	0.345	0.244	0.173	0.123	0.088	0.063	0.032
37	0.481	0.335	0.234	0.164	0.116	0.082	0.058	0.029
38	0.471	0.325	0.225	0.157	0.109	0.076	0.054	0.027
39	0.462	0.316	0.217	0.149	0.103	0.071	0.050	0.024
40	0.453	0.307	0.208	0.142	0.097	0.067	0.046	0.022

FIGURE 2.6 One dollar will buy less in the future.

The Rule of 72 – The Rule of 72 is a quick and easy way to determine the effects of inflation. The rule is applied by dividing 72 by the inflation rate you are checking. The resulting number indicates the number of years it would take for the item to double in price, or you can also think of it as the number of years it takes to cut by ½ the purchasing price of todays dollar. An example of 6% would be 72/6 = 12, so that 12 years from now at 6% inflation it will cost twice as much for something that it does today.

Today's Value and Future Value – In retirement autopilot method used in this book, they describe future values in todays values. Example of investment that had grown to an amount of $100,000 over 10 years, knowing that in 10 years the purchasing power of $100,000 will be much less due to inflation, the actual value shown in the autopilot method will be much lower. This technique makes it easier to understand values presented to you in calculations since they can be understood in todays dollars.

Defining Wages, Income, Savings, Expenses

Definitions and examples of terms critical to successfully understanding concepts and calculations in this book are introduced.

Wages – The annual amounts that you receive from your employer. These are gross wages; that is wages before any tax or other deductions from your paycheck.

Income – This definition of this term is relative to the context, either as Preretirement or Postretirement planning. In Preretirement planning this implies the equivalent postretirement wage you would need to cover retirement expenses, including debt payments, and any related income tax. In postretirement planning the word income is used the same as on a tax return including Social Security, pension payments, annuity payments, wages from part-time work, and returns from investments that you would enter on a tax return.

Savings – The total of all of your mutual funds, stocks, bonds, CDs, money markets, real estate equity, or similar financial resources. Annual Savings Input refers to what you take from your wages and deposit in a bank or investment account. Further distinction between Preretirement and Postretirement savings is provided. Preretirement Savings would include employer annual contributions such as matching funds for a 401(k). Generally, Postretirement Savings there will be no savings in retirement, but this may include new income you save from a part time job.

Expenses – This will also include both unusual and infrequent expenses as well as normal living cost that would be paid out in the course of one year. In preretirement planning expenses that would occur in retirement also include income tax and debt payments, in postretirement planning they do not. The Autopilot method distinguishes between these in its calculations. Usual Expenses are expenses that occur on a regular basis such as utility bills, insurance, entertainment etc. In preretirement they also include taxes and debt payments, in postretirement planning they do not. Infrequent Expenses are non-reoccurring expenses such as an expensive vacation, the purchase of a new car or house, a large one-time hobby expense (building of an observatory with equipment).

In the Autopilot method it is assumed both normal living expenses and unusual expenses will always grow with inflation and is incorporated in its calculations. These inflation adjusted numbers are always shown in today's dollars. This is a key concept in this book where future cost and/or savings are presented to the reader in today's value to make the presented numbers easier for the reader to relate to. For example, the cost of a loaf of bread in 30 years may be projected to be 3x of todays cost, the 3x value is not used. Similarly, when discussing the value of a nest egg, or the performance of an investment over time the Inflation Adjusted Returns is presented to the user; this is the growth after inflation is taken into account.

A key input that must be assumed throughout Autopilot calculations is the Inflation rate, so it is vital a realistic value be selected, the reader should error on the conservative side (higher inflation assumption) when determining this value. An example of the impact of selecting different inflation rates is provided in Figure 2.7. This also demonstrates why today's dollars are used since values rapidly start to become difficult to imagine.

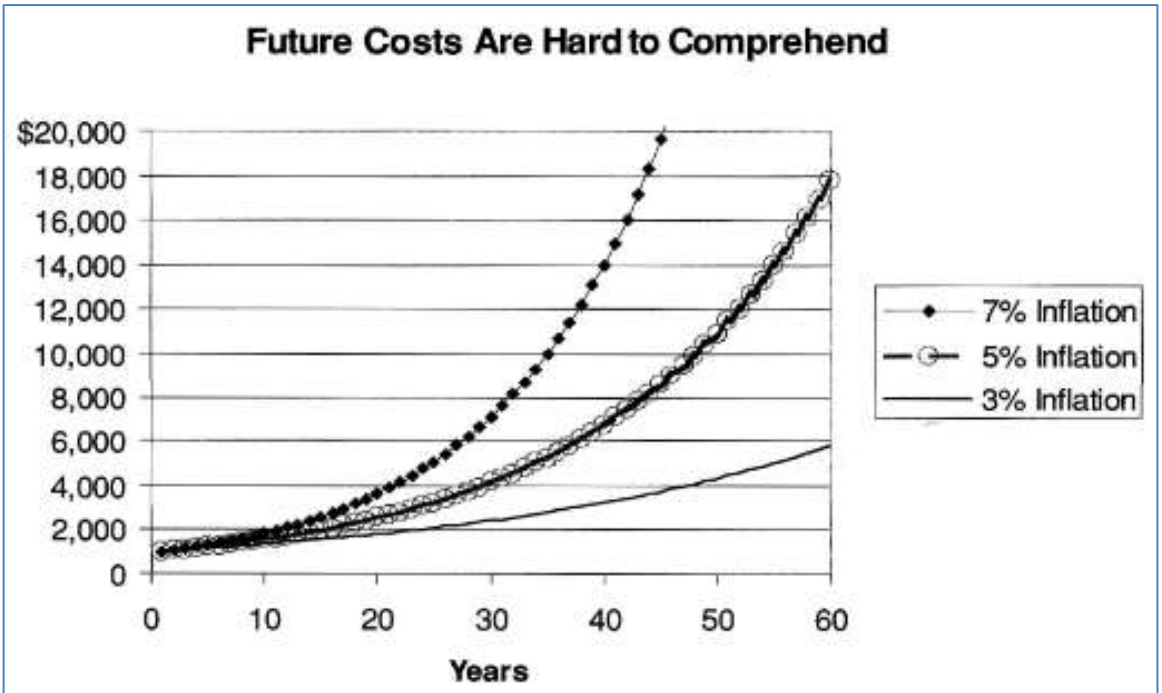


FIGURE 2.7 What a $1,000 item will cost you in the future at three different inflation rates.

Affordable Expenses –The level of expenditures that will get you through retirement without depleting your savings before you die. These are expenses that are constrained to ensure you don't down your savings too quickly in retirement. Affordable Expenses are calculated on a yearly base in retirement and are part of the yearly budget that is subject to change each year to reflect changing market, and inflation conditions. Figure 2.8 demonstrates how a yearly budget may change over time and shows how it is dynamically adjusting with small increments to ensure your retirement savings last and to litigate the risk of drastic changes from year to year. It also demonstrates why using Today's dollars is a good method of presenting data. Examining the future growth values may lead the reader to assume their budget will continue to increase allowing for more expenditures as time proceeds, but when the Today's values are reviewed, you can see the retiree's budget is actually decreasing over time in terms of purchasing power of that budget. Hebeler also points out that if the retiree wanted to ensure their budget does not decrease over time they may only need to make a slight (5% - 10%) decrease in their budget. Conversely, overrunning the budget during the early phase of retirement or on a regular basis can have disastrous outcomes.

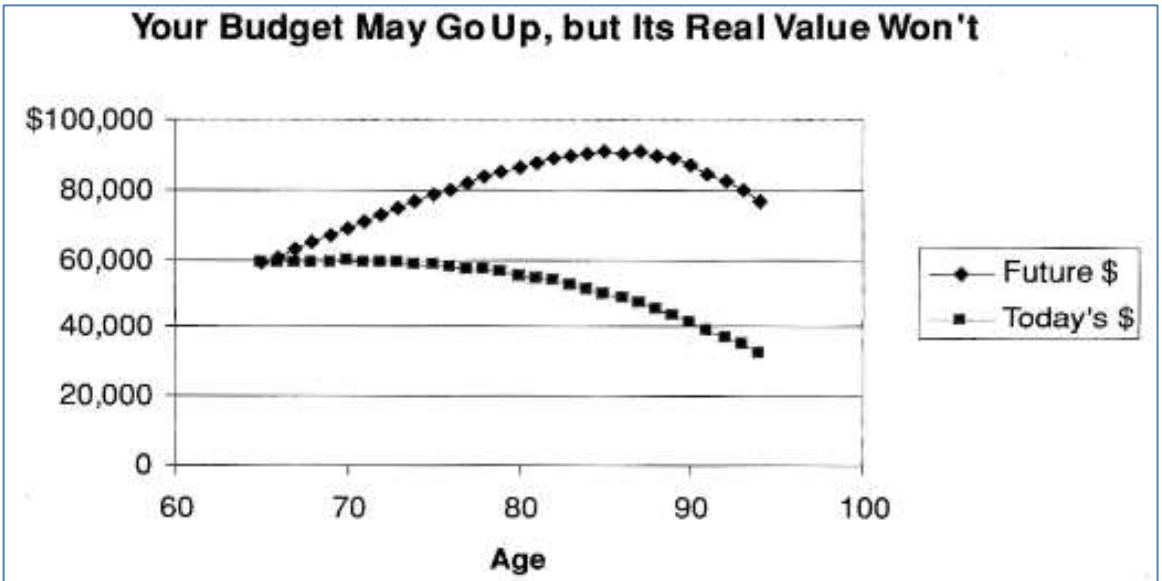


FIGURE 2.8 Idealized affordable expense history shown both in future dollars and today's dollars.

Oh Shoot! I Forgot!

This refers to the items that were unintentionally left out considerations for retirement and included in budget calculations. These include:

- **Healthcare** associated cost including Dental, Medical and Drug cost increases associated with age.
- **Household** cost including repair (i.e. roof, flood damage) and maintenance or remodeling, HOA or condo fee increases.
- **In periodic expenses** – Unexpected Repairs or replacement of large ticket items including Cars, Water heaters, Computers, dishwasher, drier, televisions, etc.
- **Sevier market drops**
- **Higher Inflation** – Short or long term higher inflation then predicted.
- **Social Security Lag** – The fact that increases in Social Security does not keep up with the increases of inflation for most retirees.
- **Family Cost** – A relative that needs financial assistance, unexpected travel expenses for a sick relative.
- **Assisted living Expenses** – For yourself or your spouse due to infirmity.

The impact of these items might be litigated by adding and additional line item in your future retirement plans (ie an extra $2,000-$10,00 per year) in your yearly budget that is not designated for any particular item, you might refer to this as **Unplanned Expenses** in the budget.

Uncle Sam Will Share Retirement with You

It is impossible to predict what future tax rates will be but historically the overall trend has been for them to increase. One factor pointed out is that Social Security and Medicare are large programs that will have great strains put on it as the demographics change. In 1900, 7.3% of the U.S. population was over 65. In 1995 it increased to 20.9% in 2020 it was 28% and by the year 2040 it will be almost 37%. Either benefits to these programs will need to be decreased or taxes will need to be raised. Both of these situations will impact your retirement plans.

Computing Your Net Tax Rate –The Net Tax Rate is defined in this book as

$$\frac{State\ income\ tax + Federal\ income\ tax}{Gross\ Income}$$

Income Tax is the annual amount that you calculate on a tax return. It is not the tax that is deducted from Social Security or Medicare, nor any of the other taxes you may pay such as real estate, personal property or automobile.

Gross Income As used in this book is defined as the annual total of wags, alimony, Social Security, pension, and/or annuity payments, and all income from investments, including dividends, both taxable and tax-exempt interest, capital gains, income from businesses, both Roth and Regular IRA distributions, and before-tax cash flows from investment real estate.

One way to predict your future tax rate is to calculate your current tax rate and adjust this up or down based on what your expectations are for your retirement. A conservative approach is recommended which means probably adjusting your expected tax rate up a few percent. Use caution when performing tax calculations since the results of these calculations will be used as part of your budget projections in retirement.

Chapter 2 Spreadsheets

- Figure 2.9 – Last Years Taxes
- Figure 2.10 – Last Years Gross Income
- Last Years Tax Rate

Figure 2.9

Last Year's Income Taxes (Figure 2.9)			
Line	**Source**	**Amount**	**Comments**
1	Federal Income Taxes		
2	Sate and Local Income Taxes		
3	**Total Income Taxes**	**$0**	Line 1 + Line 2

Figure 2.10

Last Year's Gross Income (Figure 2.10)			
Line	**Source**	**Amount**	**Comments**
1	Wages if working		
2	Pension and annuity payments if received		
3	Alimony if received		
4	Business before-tax net cash flow		
5	Real estate before-tax net cash flow		
6	Interest, dividends, & capital gains		
7	Nontaxable investment income		
8	Roth distributions if received		Typically Roth income is not included as taxable income.
9	IRA distributions if received		
10	Social Security if received		
11	Other Income		
12	**Total equal gross income**	**$0**	Sum Line 1 to Line 11

Last Year's Tax Rate			
Line	**Source**	**Amount**	**Comments**
1	Last year's Taxes		
2	Last year's Gross Income		
3	**Last Year's Tax Rate**		Line1 divided by Line 2

Other Stuff You Really Should Know about Taxes –Tax treatment of different types of money should be consider when selecting investments and planning retirement. For instance investing in a growth stock mutual fund in a ROTH get can help boost your retained gains from the fund, since these funds regularly buy and sell stocks, these event triggers taxes that must be paid on gains, but since this fund is in a Roth the taxes on these gains will never have to be paid. Conversely purchasing a safe low interest paying bond fund would be an inappropriate investment for a Roth since gains and corresponding taxes on this type of fund would be low.

For persons in very high tax brackets lower paying municipal bonds may be a more appropriate investment than higher paying corporate bonds since many municipal bonds are exempt from tax by the federal government and many times the state.

Tax considerations may even come into play when deciding how long to hold an investment in a taxable account since long term investments (investments held over one year) may be taxed at a much lower rate than short term investments (investments held less than one year) investments since short term investments are taxed at the same rate as your ordinary income tax rate.

Coping with Uncertainty

There are many things in the future that we cannot predict and we have no control over including:

- **Life Expectancy** How long you and your partner (if you have one) will live.
- **Inflation Rates** That will change year to year.
- **Return On Investments** That are determined by stock market swings and the class of investments you have in your portfolio and the performance of the individual investments.
- **Pension Risk** No one can predict if the organization providing you pension may go belly-up.
- **Tax Rate** Federal and State taxes are constantly in flux.
- **Medicare and Social Security** Both of these programs typically play a large role in a persons retirement plans and both of these programs face some significant head-winds in the near future.
- **Unexpected Expenses** Medical emergencies, Natural disasters, and other unplanned expenses.

Fortunately there are two mechanisms utilized in the Autopilot method to help compensate and minimize theses uncertainties:

- **Feedback** – Budget calculations should be done on a yearly bases to make periodic smaller corrections as opposed to major changes to your retirement plan (preretirement) or budget(postretirement).
- **Limiting Equation** – The Autopilot method introduces limits to the allowed extreme changes that may be indicated. For example a drop of 50% in the stock market could wreak havoc on retirement planning.
- **Statistical Cancellation** – With all of these uncertainties it is likely that some changes in one of the uncertainties may compensate of changes in the opposite direction of another uncertainty resulting in less extreme overall impact of these uncertainties in your retirement planning or retirement budget. This also applies to the time element in that year to year uncertainties may be more pronounced that over a multi-year period. A fact that the Limiting Equation benefits from.

Implementation of these controls in the Autopilot method help provide a stable retirement plan for your situation.

Chapter Closing Thoughts

A lot of material is covered in this chapter, it's purpose is to introduce us to new concepts and to makes sure we all have the same understanding of terms and concepts that will be used throughout this book. Some vital points that need to be understood because these are fundamental to the Autopilot method are:

- **Compounding** – It is hard to overstate the impact compounding can have on your retirement funds. It can work in your favor if you save as much as possible as early as possible before retirement. Conversely, compounding can have a devastating impact when it comes to inflation. Further, you can take advantage of the power of compounding by Front loading your savings and back loading you're spending – This simply means to save as much as you can as early as possible, and delay spending as long as possible to allow your savings to grow as much as possible through the magic of compounding.
- **Life Expectancy Tables** – Your life expectancy is adjusted upwards as you age. Applying this change in your budget calculations in retirement will ensure you will not outlive your assets. It also means that your budget will likely slowly decline over time.
- **Unexpected Expenses** – Will happen in retirement. I recommend budgeting a yearly amount to account for this. If you don't use the amount one year, roll it over into a pool and contribute the next year's unexpected expenses into the pool. Let this pool continue to grow so it can handle larger and larger unexpected events to help insure a reliable budget in your retirement.

Hebeler also makes the argument that you should eliminate unneeded expenses (ie that new phone, eating out every night, large vacations, etc) since over time (compounding) these can prove to be very costly. I agree with this in concept, but think there is a balance to be made here. If you discover you are very well funded in retirement, take that vacation, purchase that $10,000 telescope. There is no need to live like a monk just to discover on your last days that you have tens of millions of dollars that will go to family or the government. When planning to spend money consider :

- Will this purchase put my retirement finding at risk?
- The impact of this purchase over time to your savings?
- Will this purchase truly make you happier and how long will that happiness last?

Chapter 3: Investments

Chapter Summary

This chapter is used to introduce the reader to many basic investment and planning concepts. It identifies the various types of investments (ie stocks, bonds, etc) the various types of accounts (ie vehicles) created for holding these investments and finally introduces the concept of Asset Allocation, a process of distributing your investments across various risk level investments to minimalize risk and maximize gains. The importance of placing investments in the appropriate vehicles to minimize tax implications is also discussed. Finally some thoughts on the appropriate approach to creating a plan and implementing it based on the level of involvement you desire are discussed.

References and Resources

- ArtCentrics: Chapter 3 Spreadsheets
  - Investment Comparison
  - Figure 3.1 – Balance And Allocations
- Financial Planning Association: FPA PlannerSearch
- ArtCentrics: Review of Annuities
- ArtCentrics: Review of Vehicles for Retirement
- Investopedia: Roth IRA
- Schwab: Roth IRA Conversion Calculator

Chapter 3 Spreadsheets

- Figure 3.7 – Current Allocations
- Investment Comparison
- Figure 3.11 – Balance And Allocations

Terms and Concepts

Annuity – Contract offered by an insurance company in which you make a lump-sum payment or a series of payments and in return receive a regular disbursement immediately or at some point in the future.

Bonds – A bond is a fixed-income instrument that represents a loan made by an investor to a borrower (typically corporate or governmental).

Deferred Annuities – A contract that promises to make payments at a later date for money provided to the insurance company now.

Equities – Investments that represent ownership such as Stocks or having equity in your house.

Exchange Traded Funds (ETFs) – Similar to mutual funds but are associated with an index, and can be traded any time in the day where Mutual funds trade only after the market closes.

Immediate Annuity – The investor relinquish all control of a sum of money for fixed periodic payments for either a fixed period of time or for life.

Index Annuity – A deferred annuity where payout is linked to the performance of an Index during the accumulation phase (ie S&P 500, etc.). Generally there are low/no fees for these contracts. Usually a certain percentage on a yearly

basis can be withdrawn without penalties, and then at the end of the contract term the principle plus any earnings can be withdrawn by the investor. These investments may be the best of the various flavors of annuities available.

Index funds – A mutual fund that purchases stocks or bonds in the same proportion as a particular index (ie S&P 500 Wilshire 2000, etc) and tend to have much lower fees associated with them than standard mutual funds.

Investment Vehicles – Objects/accounts into which you put investments. One of the defining factors that distinguish different vehicles is the tax laws/treatments that the vehicles are subject to. IRAs, 401(k)s Taxable Accounts are all different investment vehicles capable of holding investments as determined by the investor.

Lenders – Individuals or organizations that loan money to organizations or individuals in exchange for interest payments and return of principle after a period of time.

Money Markets – Mutual funds that invest in very short term securities, often bonds with three-month maturities and as a result are very secure, yet pay considerably higher interest than most bank accounts.

Mutual Funds – An entity that owns stocks, bonds, real estate or other investments, and allows investors to purchase shares of the fund. Some mutual funds specialize in a specific group of securities.

Owners – Individuals or organizations that have ownership of a property, stock, or other tangible object.

Securities – Represents various investment vehicles including Stocks, bonds, CDs, Mortgages, annuities, mutual funds etc.

Stocks – A security that represents the ownership of a fraction of a corporation. This entitles the owner of the stock to a proportion of the corporation's assets and profits equal to how much stock they own. Units of stock are called "shares."

Systematic Risk – The risk everyone assumes when investing in a market, it is the overall aggregate risk that comes from things like natural disasters, wars, pandemics, and other events that cannot be planned for or avoided.

Tax-Exempt Security Trusts – A Groups municipal bonds that gradually mature. They pay out both principal and interest with each payment.

Unsystematic Risk – The risk that is unique to a specific company or industry. This risk can be litigated by appropriate diversification.

Variable Annuity – Essentially an investment vehicle that acts like a collection of mutual funds; These are not fixed income investments until annuitization. These vehicles are notorious for their high commissions and ongoing fees. You should probably avoid these at all cost.

Owners and Lenders

Roles can be assigned to a person based on how they decide to invest capital in a particular situation. Using a Rental property as an example; The person who purchases the property by getting a loan from a bank is an Owner, they have taken on a lot of risk in owning the property since there are many factors that determine if they get the rent for the month. The bank on the other hand is a Lender in that it has provided the capital to the rental owner to purchase the house and is only concerned with the owner making their monthly payment. If for some reason the owner is not able to make payments, the bank is has the recourse of repossessing the property, eventually getting the money back they loaned.

Owners generally take more risk than Lenders, and will generally have more opportunity for profits as a result. At this point a general rule is pointed out that the risker, more volatile an investment is, the greater potential for loss or gain for that investment. This is a key investment concept one must consider when deciding where to invest your funds.

Stocks and Bonds – Persons investing in Bonds, are Loaners while those investing in Stocks are Owners. Of course you will likely play both rolls; owning both Stocks and Bonds in your portfolio. A Stock represents a partial ownership of a company and carries corresponding risk associated with the performance of the company and market conditions. A Bond is a loan to an organization that will receive interest over the life of the loan and at the end of the loan period the principle will also have been returned to the lender.

It should be pointed out here that within both Stocks and Bonds there are varying degrees of risk available. For example you could purchase a super safe 1 year T-Bill from the US government and get a corresponding very low interest payment (ie less than 0.2% of interest as of 2021-11-29) or invest in a super risky corporate junk bond and get 20% interest with a very high probability that the corporation defaults on the loan and you loose part or all your investment.

With Stocks, the more volatile the stock price is over time is generally correlated with risk and associated potential gain or loss of your initial investment.

Fixed Income Investments – Bonds, Certificates of Deposits (CDs) and other investments that pay fixed interest rates.

Annuities – There are insurance products and there are many types and flavors of annuities. Some core elements they all have in common are they guarantee you will not loose our investment in exchange for turning over your money to the company for a period of time. Beyond that annuities can very greatly from product to product. A few types of annuities along with a very brief descript is:

- Immediate Annuity – The investor relinquish all control of a sum of money for fixed periodic payments for either a fixed period or for life. A fixed pension from an employer is essentially an Annuity.
- Deferred Annuities – A contract that promises to make payments at a later date for money provided to the insurance company now.
- Variable Annuity – Essentially an investment vehicle that acts like a collection of mutual funds, These are not fixed income investments until annuitization. These vehicles are notorious for their high commissions and ongoing fees. You should probably avoid these at all cost.
- Index Annuity – A deferred annuity where payout is linked to the performance of an Index during the accumulation phase (ie S&P 500, etc.). Generally there are low/no fees for these contracts. Usually a certain percentage on a yearly basis can be withdrawn without penalties, and then at the end of the contract term the principle plus any earnings can be withdrawn by the investor. These investments may be the best of the various flavors of annuities available.

More information on annuities can be found at the ArtCentrics website, look for the Annuities discussion 2021-04-25.

Equities – Investments that represent ownership such as Stocks or having equity in your house.

Securities – Represents various investment vehicles including Stocks, bonds, CDs, Mortgages, annuities, mutual funds etc.

Mutual Funds – An entity that owns stocks, bonds, real estate or other investments, and allows investors to purchase shares of the fund. Some mutual funds specialize in a specific group of securities. Index funds purchase stocks or bonds in the same proportion as a particular index (ie S&P 500 Wilshire 2000, etc) and tend to have much lower fees associated with them. It is noted that mutual funds held in non-tax differed accounts are not only subject to triggering a taxable event when the mutual fund is sold, actions taken ***within*** the mutual fund itself (ie selling stocks etc.) can trigger a taxable event for you.

Money Markets – Mutual funds that invest in very short term securities, often bonds with three-month maturities and as a result are very secure, yet pay considerably higher interest than most bank accounts, and as a result may be a better place to hold cash.

Investments That Are Like Mutual Funds – Tax-Exempt Security Trusts are groups of municipal bonds that gradually mature. They pay out both principal and interest with each payment. Exchange Traded Funds (ETFs) are very similar to mutual funds but are associated with an index and can be traded any time in the day where Mutual funds trade only after the market closes. ETFs have a tax advantage because, unlike mutual funds they generally have less taxable events since holdings within the fund only change when necessary to ensure the fund mirrors the index it is tracking.

Higher Growth Rates Mean Higher Risk – As stated earlier more potential for returns and losses are associated with the level of risk in an investment. One method of lowering risk without decreasing returns is through Diversification, a risk management strategy that mixes a wide variety of investments within a portfolio to contain a mix of distinct asset types and investment vehicles in an attempt at limiting exposure to any single asset. This is the idea of eliminating Unsystematic Risk from ones portfolio so that only Systematic Risk remains. The rationale behind this technique is that a portfolio constructed of different kinds of assets will, on average, yield higher long-term returns and lower the risk of any individual holding or security. Diversification can be applied across asset classes, or within a given asset class, for example owning an S&P Index fund removes the Unsystematic Risk of owning a single company stock.

Generally the ratio of high risk (Stocks) to low risk (Fixed Income) investments changes in relation to the age of the investor since a younger individual has a longer time horizon to recover from market drops. As one ages their overall portfolio should become more conservative, and correspondingly have lower, steadier returns.

Finally, when accessing risk one must perform a gut check to determine how much volatility they can handle. One must be able to sleep at night during turbulent times, and not be tempted to sell in a panic during market downturns.

Where Do I Start? – Many people are overwhelmed with the idea of managing their retirement plan on there own. There are many wealth management companies that are happy to help. Most charge a 1-2% annual fee. Remember over time these fees along with other hidden charges can severely damage your investment portfolio. If, after completing this book you still would like professional help, consider hiring a fee only Certified Financial Planner (CFP) that is a fiduciary (legally bound to work in your best interest). It is the goal of this book to provide you the knowledge you need to manage your own retirement. Betterment seems to have a good approach also.

Doing it Yourself – Below are some very high level key steps that need to be taken when doing this own your own:

- **Allocate Your Investments** – Determine what percentage of your portfolio to have in the various asset classes; Stocks, Bonds and other fixed income investments, real estate, and money markets
- **Investment Vehicles** – Determine the ratio of deferred tax investments, taxable investments and tax-exempt investments in your portfolio.
- **Particular Investments** – Determine the individual investments for your portfolio.

All of these steps will be covered in this book.

Betterment – Robo Adviser, an interesting option. fees range from 0.25% – 0.40% annual.

Asset Allocation

Asset allocation is one of the first decisions to make for your investment plan. The ratio of Equities (Stocks, etc) to Fixed Income (Bonds, etc) investments will be pivotal in the accumulation of wealth over time. In addition to showing how different portfolios with three different ratios (100% Equities, 50/50, 100% Bonds) perform in wealth accumulation in preretirement, an example of the same ratios is shown as funds are spent down in postretirement is provided.

Preretirement Scenario Conditions

- Begin Savings at age 30
- Saving $10,000/year, and increased each year to match inflation
- Cost: 1.5% for stocks and 1.0% for bonds
- All savings placed in a 401(k) so there is no taxes on earning (until they are withdrawn)
- Three separate Asset Allocation scenarios:
  - 100% Large company stocks
  - 100% Long term corporate bonds
  - 50% Stocks & 50% Bonds with rebalance every year to maintain 50/50 ratio

Figure 3.1 and Figure 3.2
Comparing Three Asset Allocations Performance In Preretirement

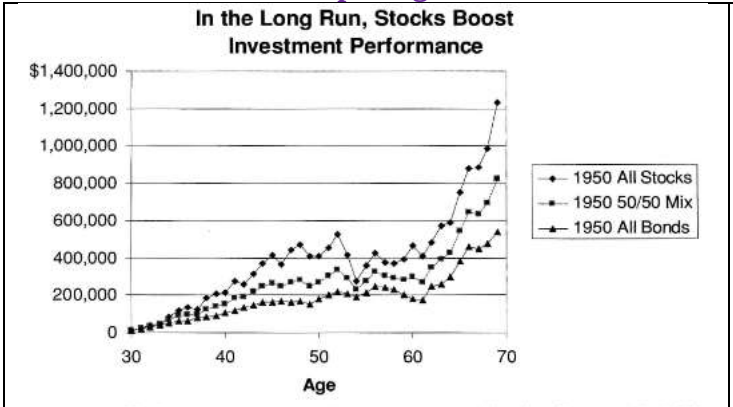


FIGURE 3.1 The investment balances of three different portfolios if saving started in 1950. Values have been adjusted for inflation.

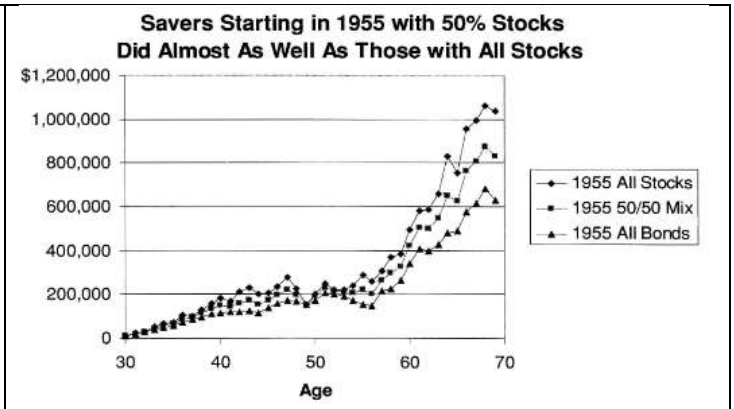


FIGURE 3.2 The investment balances of three different portfolios if saving started in 1955. Values have been adjusted for inflation.

Method	Starting in 1950 (Good Times) Observations after 40 years	Starting in 1960 (Bad Times) Observations
100% Stocks	• **$1,240,000** accumulated • $540,000 to $280,000 drop in value • 48% loss at age 52 - 55	• **$1,040,000** accumulated • $280,000 to $140,000 drop in value • 50% loss at age 52 – 55 • 20% difference in final value between two scenarios (good times vs bad times)
50/50	• **$830,000** accumulated • $332,000 to $272,000 drop in value • 18% loss at age 52 - 55	• **$840,000** accumulated • $220,000 to $140,000 drop in value • 36% loss at age 52 – 55 • 1% difference in final value between two scenarios (good times vs bad times)
100% Bonds	• **$540,000** accumulated • $220,000 to $190,000 • 14% loss at age 52 - 55	• **$620,000** accumulated • $190,000 to $180,000 • 5% loss at age 52 – 55 • 14% difference in final value between two scenarios (good times vs bad times)

Additional Observation: Both 100% stocks and 100% Bonds behave more variation in the final portfolio value than the 50/50% mixture. This is interesting in that one would assume that the 100% bond fund would be less volatile, but remember the bond yields and prices will fluctuate with inflation and market conditions. The 50/50 mix seems to stabilize results because as a general rule, the bond and stock markets tend to have inverse performance.

Postretirement Scenario Conditions

- IRA Account
- Retire at age 65
- $1,000,000 in savings
- Withdraw $35,000 + 15% taxes each year plus adjustments for inflation.
- Cost: 1.5% for stocks and 1.0% for bonds
- Three separate Asset Allocation scenarios:
  - 100% Large company stocks
  - 100% Long term corporate bonds
  - 50% Stocks & 50% Bonds with rebalance every year to maintain 50/50 ratio

Figure3.3 and Figure 3.4
Comparing Three Asset Allocations Performance In Postretirement

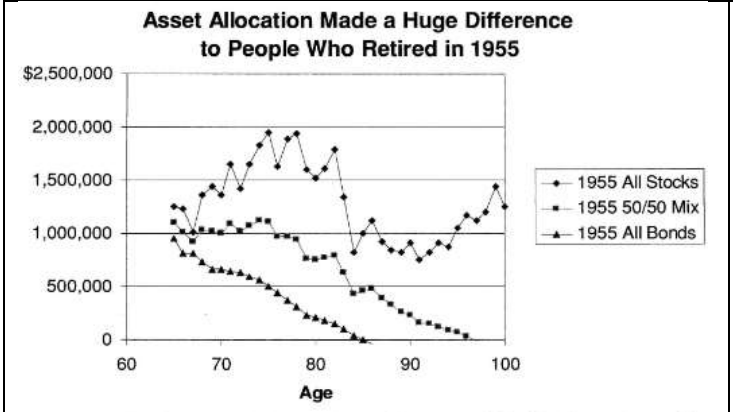


FIGURE 3.3 The investment balances of three different portfolios if retirement started in 1955. Values have been adjusted for inflation.

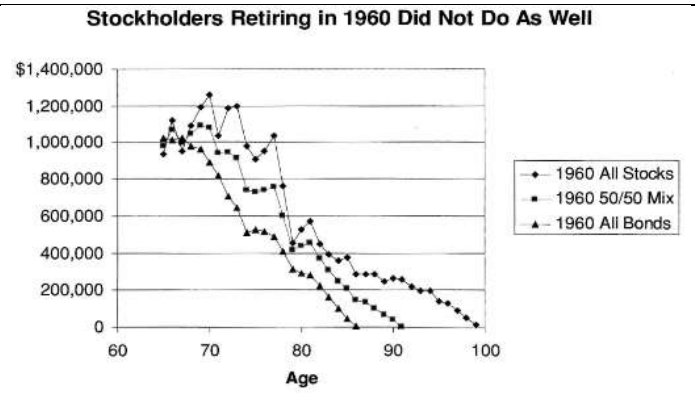


FIGURE 3.4 The investment balances of three different portfolios if retirement started in 1960. Values are adjusted for inflation.

Method	Starting in 1955 (Good Times) Observations	Starting in 1960 (Bad Times) Observations
100% Stocks	• Never runs out of money • More than ½ money loss at 83 years old	• Out of funds at 99 • 14+ year difference between two scenarios
50/50	• Out of funds at 97	• Out of funds at 91 • 6 year difference between two scenarios
100% Bonds	• Out of funds at 85 yrs	• Out of funds at 87 • 2 year difference between two scenarios

For the 100% stock mix, we see a 14 year difference between the Good Times and Bad Times scenarios. High volatility is probably the last thing you want in retirement. The 100% bond mixture behaves as expected and is consistent between the two scenarios with 2 years difference.

The 50/50 percent mix performance between the Good Times and Bad Times is, as expected, close to midway between the 100% Stocks and Bonds allotment. What we can take away from this is that there is a trade off between volatility and of performance and stability of investment, so the question you need to ask is what the appropriate allotment for you?

Hedging Your Bets – We can conclude that a combination between Stocks and Bonds can provide both a measure of stability and performance to a portfolio. The technique of decreasing the percentage of stock holdings by 1% and increasing bond holding by 1% a year can help optimize the trade off between volatility and performance with the additional benefit of providing quite consistent final results. This is one of the key features of the Autopilot method.

Figure 3.5 and Figure 3.6
Periodic Stock Allocation Adjustments Can Reduce Volatility and Stabilize Performance

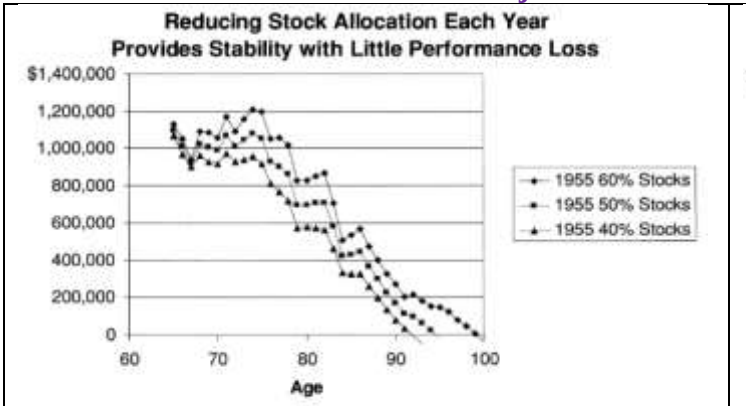


FIGURE 3.5 Inflation-adjusted balances show the effects of reducing the amount of stock in three different portfolios by 1% each year, beginning in 1955.

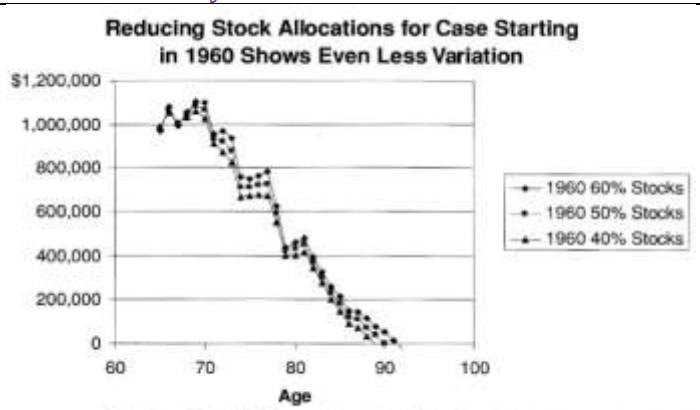


FIGURE 3.6 Inflation-adjusted balances show the effects of reducing the amount of stock in three different portfolios by 1% each year, beginning in 1960.

Some Practical Considerations in Investment Allocation – Before adjusting your asset allocation consider these things:

- Employer Dependence - Make sure you are not too dependent on your employers success. Owning company stock, Stock Options, Pension Plans, deferred compensation, etc. all depend on the viability of your company and as a result represent Unsystematic Risk consider minimizing this risk when possible.
- Debt Review – Reducing high-interest loans and credit card debt can me more important than a better allocation of your investments. Review and reevaluate your debt.
- Exact precision is not needed – Maintaining your allocation to within 5% of your targeted amount is sufficient. An annual review and update should be all you need to ensure you are on target.

Allocating Your Investments – Use the worksheet(Spreadsheet) below to calculate your current Asset Allocation. What is the appropriate Allocation for you? Hebeler recommends using the formula:

$$Percent\ Equities = 110 - Your\ Age$$

For couples, you may want to consider using the age of the younger person.

Figure 3.7

Your Current Investment Allocations (Figure 3.7)

Line	Item	Current Value	Totals	Comments
	Equities			
1				
2				
3				
4				
5				
6				
7				
8				
9	**Total Equities**	**$0**	**$0**	
	Cash			
10				
11				
12				
13	**Total Cash**	**$0**	**$0**	
	Fixed Income			
14				
15				
16				
17				
18				
19	**Total Fixed Income**	**$0**	**$0**	
20	**Total Investments**		**$0**	

Be Sensitive to Risk – When determining the exact allocation of assets that best works for you. You need to consider your tolerance for large market swings. Ask yourself how you can handle 10%, 20%, 30% or more drops in the market and make appropriate changes to you allocation accordingly.
Since 1926 large company stocks on average dropped:

- 1 in 5 years a 10% loss
- 1 in 10 years a 20% loss
- 1 in 20 years a 30% loss

Remember, the percentage of holdings NOT in equities should dampen the swings of the market, although it is not uncommon for other investments to dip when market conditions go south. So a portfolio with a 50/50 percent mix may only decrease in overall value by 20% if the market (equities) takes a 35% dive. Determine the value that works for you and adjust the 110 number up or down to accommodate your comfort level.

Need for Cash – Funds for large expenditures for items like a new car, house remodel, etc that may occur in the near future (ie 5 years or less) should reside in a cash equivalent location such as a money market fund. This will ensure you don't have to sell stock to raise capital when the market is in a slump.

What about the Equity in Your Home? – Generally you should not include the equity in your house in your asset allocation. Simply because you will always need a place to live. Exceptions to this rule may be if you plan on selling your house and renting (remember to increase your living expenses to include rent) or for a reverse mortgage where you typically may include about 40% of the value of your house. Downsizing is another possible exception, but downsizing may not provide as much funds as you may initially think, remember there are house selling fees, closing cost, purchasing, moving cost etc. So if you downsize only include the remaining equity after all of these expenses are subtracted.

Allocation Control – Keeping your asset allocation within 5% of your targeted value should be sufficient. Check your allocation once or twice a year, you will find that adjustments will probably only need to be performed once every year or two. When you first perform the analysis, there may be large adjustments required, you don't have to make all adjustments at the same time but can spread this out over a number of months. Also remember possible tax consequence of making adjustments. For Tax-deferred accounts such as IRAs, Roths, 401(k) there is not tax impact, so they should be adjusted first.

Subdividing Your Allocations – Equities, Fixed Income and Cash are Classes of Investments. These can be further divided in many different ways with varying granularity. The author recommends keeping this simple and supplies his subdivisions.

Class	Sub Divisions	Comments
Equities	• Large Company Stocks • Small company Stocks • Growth Company Stocks • Real Estate	
Fixed Income	• Intermediate-term municipal bonds • Money Markets & CDs • Bond Funds • Government Bonds	
Cash	• Checking and Savings	

Ideally we would like to identify an investment option to counter when stocks drop. This has proven elusive, in that usually when undergoes major corrections other investment classes tend to perform poorly also, although not as much.

Hedging against inflation is also difficult. Social Security, Pensions/annuities with Cost of Living Adjustment, real estate and even Real Estate Investment Trust (REITS) can help litigate the ravages of inflation to a limited extent. Other sectors that may stand up under inflation include Commodities and Energy. Finally Series I (inflation-adjusted U.S. savings bonds) are linked to inflation and are another option.

Modern Theories on Allocation – The author questions the benefit from a fine-grained approach for asset allocation.

Note For Highly Taxed People – Investments in tax differed accounts such as IRAs 401(k)s SEPs etc may not be worth as much as taxable accounts because withdraws from these accounts are taxed at your ordinary tax rate as opposed to the long-term capital gains tax rate for holdings in a taxable account. One way to increase the accuracy of your calculations is to decrease the value of the differed accounts by your tax rate (if you are highly taxed, this doesn't really do any good for folks who are not in a high tax bracket).

Summing Up Allocations – Here is a summary of steps to take for a good allocation:

- Take Assessment - Complete Figure 3.7 to determine your current assets and allocations.
- Tackle Debt – Identify any debt that needs to be paid off or refinanced and execute the plan.
- Settle on your Allocation Ratio – Determine the percent of Equities vs Fixed income that is appropriate for you.
- 5 year cash – Determine how much cash you will need for the next five years and ensure they are in highly liquid assets that you can easily access such as money market accounts, checking, savings, etc.
- Subdivide Equities – Determine the appropriate mix of stocks and real estate for your portfolio. Sub-divide stocks into what ever sub-division you are confortable with to ensure a diverse portfolio.
- Minimalize Unsystematic Risk – Try to ensure the success of your retirement plan is not too dependent upon any one company or industry.
- Identify Changes – Compare your current asset allocation with your target allocation. Determine what actions need to be taken to reach your target allocation.
- Select a Vehicle – Determine the appropriate vehicle to reach your target allocation. Details on vehicles is provided in the next section.
- Sanity Check – Review your goals and execution plan with a professional then execute it, this can take up to one year to complete.

Vehicles

Note: This group had an earlier meeting on Review of Vehicles for Retirement. The meeting minutes and recording can be downloaded from the ArtCentrics website here.

Investment Vehicles are objects/accounts into which you put investments. One of the defining factors that distinguish different vehicles is the tax laws/treatments that the vehicles are subject to. IRAs, 401(k)s Taxable Accounts are all different investment vehicles capable of holding investments as determined by the investor..

Vehicles with Tax Deductions – These vehicles include plans such as 401(k), IRA, 403(b), Keogh and other government approved plans. Generally contributions to these funds can be deducted from your income when made and growth in these funds are not taxed until you make a withdraw. When funds are withdrawn from these accounts, they increase your taxable ordinary income. These funds have other restrictions related to the account owners age including penalties for withdrawing money to early, or not withdrawing enough money each year (RMDs) after reaching a certain age.

Employer-Sponsored Tax-Deferred Vehicles – These are deferred compensation plans that are supplemental benefits for highly compensated employees.

Nondeductible IRA Vehicles – Generally same restrictions as and IRA, but contributions to these accounts are not tax deductible. When withdrawing from these accounts you pay taxes only on the growth you earned from them over the years. These are popular vehicles for a Backdoor Roth for higher income persons who may no longer qualify for Roth accounts. This technique may shortly come to an end.

Roth IRA Vehicles – Contributions to these accounts are not tax deductible, but all earnings and gains in these accounts grow tax free, so withdraws from these accounts have no impact on your taxable income. Used properly, these can be extremely powerful vehicles and play a key role in tax litigation in retirement. Online tools such as Schwab's Roth IRA Conversion Calculator can help you determine if a conversion makes financial sense.

Variable Annuities – These are insurance products that guarantee your principle and have various mutual fund investment options. Generally there are age restrictions associated with pulling money from these accounts. When the investor is ready to initiate withdraws from these they must convert the account to an annuity. These vehicles are notorious for high fees and commissions and are generally a very poor deal for the investor.

Index Annuities – Another insurance product that preserve the principal investment generally have a 7-10 year withdraw restriction in withdraws. Gain on these accounts are linked to an index (many indexes are available) and are generally capped at a certain percentage gain, or percentage participation to the linked index. More information on these and other annuities can be found here.

Charitable Vehicles – Charitable Trust allow you to donate either cash or appreciated securities, get a tax deduction, and subsequently direct the trust to invest the money in some of their funds. You no longer can use the money for your own income, but you can, at any time, direct the trust to mail checks to legitimate charities of your choice. Other similar vehicles include the Charitable Lead Trust (returns principle) and Charitable Remainder Trust (provide you income)

Your Own Accounts – Ordinary investment accounts are not linked to any particular special tax treatment. A sale of assets in these accounts will generally trigger a taxable event. Long Term Gains (assets held for more than one year) are taxed differently than Short Term Gains (assets held for less than one year). Almost any investment can be placed in these accounts... Stocks, Bonds, Mutual Funds, etc. provided the company hosting the account supports the investment.

Finding the Best Vehicles – Recommendations for those planning for retirement:

1. **Employer Match -** Savings Plans with employer matching at minimum put in as much as employer will match (typically 401k type plans).
2. **Roth IRA** – While you can't deduct the contributions to these funds from your taxable income the year you make them, these funds with any earnings and growth are untaxed when withdrawn provided you meet the requirements.
3. **Employers Savings Plans** – Plans such as 401(k)s even without matching funds allow you to deduct your contribution from your taxes and if you have a lower income you may qualify for an additional Savers Credit on your tax returns.

Beyond these three top items selection of best investment vehicles is more depended on each person's situation. If you own an IRA or have an old 401k you may want to consider converting part or all of them to a Roth IRA. You will need to pay taxes on the funds converted, but the tax savings benefit grow over time and provide retirees a number of advantages and options including the ability to adjust their taxable income, No required Minimum Distributions, and better inheritance benefits. Take note, laws related to Roth conversions are currently under review. Make sure to get the latest information before taking this action.

Measuring Your Vehicle's Value – What vehicle you choose for your investments makes a tremendous difference in the value of your investments when you start withdrawing from them. The higher your tax bracket in retirement the larger these differences become. We will tease out some of these differences for Stock related funds and Bond related funds in the next few sections.

Stock Funds – For Figure 3.8 the following assumptions are made:

- Initial investment: **$1.00**
- Calculated values are after a **20 year period**.
- **10% Return** with **2% dividend** distribution
- **3% Inflation**
- Low Tax rate = **15% tax bracket** with **10% capital gains**
- High Tax rate = **40% tax bracket** with **20% capital gains**

20-Year Ride for $1.00 in Stock Funds
(After 3% inflation)

	Low Tax	High Tax
Deferred Tax Vehicles		
401(k) with 100% matching	$6.33	$4.47
401(k) with 50% matching	$4.75	$3.35
401(k) or deductible IRA	$3.17	$2.23
Above with tax savings invested	$3.72	$3.72
Nondeductible IRA	$3.25	$2.46
Variable annuity with 1% costs	$2.64	$1.86
Variable annuity with 3% costs	$1.82	$1.29
Currently Taxable Vehicles		
No capital gain distributions	$3.32	$2.78
Turn over above fund every five years	$3.15	$2.51
Capital gains distributed every year	$3.05	$2.40
With all ordinary gains	$2.83	$1.78
Tax-Exempt Vehicles		
Roth IRA	$3.72	$3.72

FIGURE 3.8 Growth of $1.00 with stocks invested in various kinds of vehicles.

We can see in this chart confirms the conclusion earlier as to what vehicles are most efficient for retirement. Variable annuities are hands-down the worst option. Note there are other annuity products including index annuities that are not covered in this chart that may behave better over this time period. Don't come to the conclusion that All annuities are bad, (although probably most are). It is vital you understand what **type** of annuity is being discussed in conversation. Pay particular attention to the Roth IRA, this shows the power of tax free growth that becomes greater and greater over time. Another note here, I think the performance estimates of 10% may be a little on the high side and the high tax bracket may be a little excessive, but ultimately that would probably not impact the overall conclusions of this table. Another point of importance is that the Taxable vehicles have additional inheritance advantages. Any heirs that inherit investments residing in a taxable account use the date of your death as the basis of these investments. This effectively means they may pay no taxes on these investments if they sell them shortly after your passing (with the possible exception of inheritance taxes).

Bond Funds – For Figure 3.9 the following assumptions are made:

- Initial investment: **$1.00**
- Calculated values are after a **20 year period**.
- **6% Return** on taxable bonds
- **4.5% Return** on Municipal bonds.
- **3% Inflation**
- Low Tax rate = **15% tax bracket** with **10% capital gains**
- High Tax rate = **40% tax bracket** with **20% capital gains**

20-Year Ride for $1.00 in Bond Funds
(After 3% inflation)

	Low Tax	High Tax
Deferred Tax Vehicles		
401(k) with 100% matching	$3.02	$2.13
401(k) with 50% matching	$2.26	$1.60
401(k) or deductible IRA	$1.51	$1.07
Above with tax savings invested	$1.78	$1.78
Nondeductible IRA	$1.59	$1.29
Variable annuity with 1% costs	$1.25	$0.88
Variable annuity with 3% costs	$0.85	$0.60
Currently Taxable Vehicles		
6.0% bond	$1.50	$1.12
4.0% certificates of deposits	$1.08	$0.89
2.0% bank account	$0.78	$0.70
Tax-Exempt Vehicles		
Roth IRA	$1.78	$1.78
4.5% tax-exempt muni bonds	$1.34	$1.34

FIGURE 3.9 Growth of $1.00 with bonds invested in various kinds of vehicles.

The assumption of 6% and 4.5% returns on bond funds is nowhere close to today's yields and currently (12/2021) inflation is in the 6% neighborhood. Still the data presented in the figure would just shift all values down, but the differences relative to each other will likely remain. This does however indicate that over time (provided conditions remain the same) that that 2.0% bank account is actually loosing money (purchasing power). The conclusions drawn from this figure are:

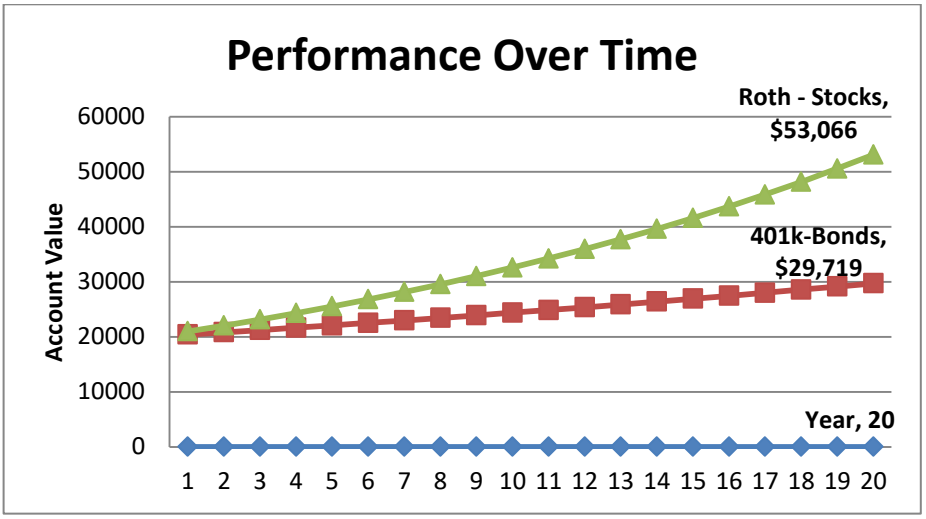
- Employer match still has the best performance.
- 401(k) with tax savings invested.
- Roth – Although the Roth is next in performance here it would NOT be recommended you place bond funds in a Roth, simply because in the overall big picture you will likely have other vehicles that are better suited or conservative investments. More on this will be covered shortly.
- CD's and Bank accounts actually loose value over time. Although you can do worse by putting your money in a mattress.
- Again, with their high fees, Variable Annuities are a very bad choice.

Allocating within Vehicles

Since each investment vehicles has its own unique characteristics when it comes to adding and removing funds from them, we need to identify what particular investments are appropriate for what vehicles.

It is important that to put investments in the appropriate vehicles. Consider if we had $20,000 to invest in conservative bonds and another $20,000 to invest in the general stock market, and assuming the bonds have a 2% average return after inflation while the stock market has a 5% average return after inflation over a 20 year period. Additionally assume you have a tax differed account such as a 401(k) and a Roth account to place these funds in, Ideally you would place the

Bond investment in the tax differed account and the Stock in the Roth account since over the long run the Stocks should greatly out perform the bonds, and as a result the final value of your Roth account (containing all stocks) will be much greater than the 401(k) containing all bonds.



After a 20 year period the Roth account has grown to $53,066 tax free dollars while the 401(k) has grown to $29,719 taxable dollars. By making the choice to place the stocks in the tax free account, we have additional $23,347 tax free dollars than if we had we placed the bonds in the Roth and the stocks in the 401(k)

.

Utilizing Figure 3.11(Spreadsheet) we can take assessment and determine what vehicles to place your investments into.

Figure 3.11

Current Balances and Allocations (Figure 3.11)

Line	Vehicles	Current Vehicle Balances	Allocation Classes				New Vehicle Balances
			Equities		Fixed Income	Cash	
			Real Estate	Stock			
1	Roth IRA						
2	401 (k)/Deductible IRA						
3	Nondeductible IRA						
4	Taxable or tax-exempt						
5	Variable Annuity						
6	Other						
7	**Total Allocation**						

Making Smart Investments

This section provides some pointers to assist in making investment decisions.

You'll Make Mistakes – Everyone makes mistakes on occasion while investing. Try to learn from your mistakes, and minimize them by following these pointers and learning from mistakes others have made.

Be Wary of the Media – Be skeptical advice from experts, many times they cherry pick their data or don't include important details as showing performance on an after-taxes basis.

Getting Started with Mutual Funds – If you are new to the investment game, no-load mutual funds from large investment funds (Vanguard) are a good start. Depending on your risk tolerance a mix such as 40% bonds to 60% stocks, or 60% bonds to 40% stocks is a good starting point. While Index funds (see below) may be a better selection for strictly stock selections as opposed to a mutual fund; generally a well managed Bond fund will perform better than bond index funds unless you purchase the bonds directly (complicated) and hold the bonds to maturity.

A Better Approach with Stock Mutual Funds – While mutual funds with a bond/stock mix provide a quick and easy way of investing, you will probably do better by creating your own bond/stock mix by investing in an index fund representing the stock market (such as the S&P 500, Wilshire 5000, Wilshire 2000, etc) for your stocks and a well managed bond index fund (ie PIMCO).

Fees, Loads, and Taxes Can Be Painful! – Brokers, Mutual funds and money managers all charge a fee and are inherently at a dis-advantage because of this. Many studies have shown you have a much better change of better performance by using index funds (for stocks) over actively managed mutual funds. Over a 15 year timeframe Index funds generally over perform about 90% of Actively managed Mutual funds. Perhaps one of the greatest mutual fund managers of al time and one of the riches persons in the world(3rd riches in 2016), Warren Buffett, bet three hedge fund managers $1million dollars that a simple index fund he selected would out perform any investments they picked over a 10 year period. Warren won the bet – This is an interesting listen if you have 20 minutes to spare. An additional barrier for mutual funds is that they tend to trade more than index funds, and this has tax consequences associated with purchasing and selling stocks.

Purchasing Individual Stocks – Purchasing individual stocks is not recommended for most investors. There are far too many factors, known and unknown to be able to make an informed decision. If you do want to dabble in purchasing stocks, only invest what you are confortable in losing. I must admit I purchase more individual stocks than I probably should, and historically my performance on these selections has not been great.

Exchange Traded Funds – Exchange Traded Funds (ETFs) are very similar to Index Funds where Index funds are generally very low cost mutual funds and trades are completed at the end of the day, ETFs behave more like stocks and can be traded within the same day and behave more similar to stocks. Honestly the distinction is so small I pretty much consider them the same. One point of warning, there are a ton of ETFs and Index funds that can be very specialized, these targeted/sector funds loose the advantage of being a broader market selection and are subject to a much higher risk. I would generally avoid targeted ETFs and Index funds.

Fixed Income Investments – If you have less than $100,000 for bond investments you will likely do best by selecting a well managed bond index fund (ie PIMCO) or a Unit Trust.

Purchasing Individual Bonds – If you have large sums of money and intend on holding bonds to maturity, you may want to work with a bond broker for your bond purchases. Be aware that many bond brokers charge excessive fees, so you must be careful in your selection of brokers. Maturity dates of purchased bonds should coincide with your need for cash and should be laddered so bonds mature in different years. The laddering technique helps reduce risk of inflation variation and provides better liquidity than purchasing bonds that mature at the same time. Make sure to minimalize risk of default by purchasing bonds from different sources (ie industries, or government bodies). Restrict your purchase to aa or better rated bonds. High risks bonds should only be purchased in an index or similar fund that will pull many high risk bonds together to spread the risk of default of any individual company. You can also purchase government bonds such as EE and I bonds directly from the government. I bonds are tied to the inflation rate and provide a good hedge against inflation. Current rate for I bonds is 7.12% for bonds issued from November 2021-April 2022. You must hold these for a minimal of 5 years to avoid any penalties for redeeming.

Municipal Bonds – Municipal Bonds (muni) are strictly for persons in high tax brackets. Munis have lower yields than other similar risk bonds, but the gains from their yields exempt from federal taxes and may be exempt from state taxes, so may perform better than other bonds for higher taxed individuals. Although, high muni bond interest can trigger alternative minimal taxes or taxes on Social Security benefits. Remember even Municipal bond funds can trigger capital gains.

For the Richer Set – If you have substantial taxable investments and you want to leave funds to your heirs you may want to have your stocks in a taxable account and your bonds in a tax deferred account. This is because basis of inherited stocks is valued at the price of the stock at the decedent's date of death if the stocks were held in a taxable account. Inheritance from a tax differed account (ie IRA, 401k, etc.) is taxed at ordinary rates and have a number of restrictions that may result in excessive taxes to the person receiving the inheritance.

Charitable minded individuals may want to consider a Charitable Gift Annuity, Charitable Remainder Trust (CTR) or Donor-Advised Funds to litigate taxes.

Real Estate

Various types of Real Estate investments are mentioned including:

- Real Estate Investment Trusts (REITS) – The easiest and least demanding way to invest in real estate, you can purchase a REIT Index or individual REITS for vary specific sectors (ie Storage unit REITS, Server Farm REITS, etc.).
- Rental Partnerships – Very illiquid with many tax, and management pitfalls.
- Rental – Hands on management, book keeping, extra taxes to manage, and maintenance required.
- Vacation Home – If rented for less than two weeks, no special tax reporting requirements if rented for more than two weeks out of the year, same issues as a standard rental.

You Home as an Investment – You should not count your house as an asset when determining funds for retirement because you will always need a place to live. Downsizing, Reverse Mortgages and selling so you can rent will generally provide much less money then you may expect. Renting a room from your house could be an option, but there are risk with this and you will need to file taxes accordingly.

Investing in a House: Some Economic Facts! – Purchasing a home generally is a better investment than renting over extended periods, especially in periods of high inflation. For vacation homes, they almost always bad investments, an idle house is worth less than money under your mattress. Purchasing a house that is much larger than your needs is a poor investment due to the extra taxes, utilities and maintenance.

But I Want To Relax!

Even if you enjoy managing your retirement plans and investments, there may become a time as you get older where you don't want to continue to due this. This section provides some information when looking for simple alternatives to managing your funds yourself.

Alternatives to Paying for Convenience – One of the easiest ways to manage your accounts is to get a good balanced fund, and have the dividends and capital gains go to a money market fund. Another slightly more complicated option is to by an Index fund representing the overall market for your stock allocation, and I bonds for your fixed income.

Turning your Portfolio Over to Someone to Manage – When looking for a financial advisor make sure to get other opinions from an accountant or certified financial manager.

Fixed-Term or Lifetime Annuities – Fixed annuities pay so little you will likely do better owning a balanced mutual fund.

Variable Annuities – Steer clear of variable annuities. Index annuities may be worth consideration.

Some Investments to Avoid – Partnerships, Oil drilling, precious metals and gems, collectibles, commodities (except in an index fund), any living creature, almost all forms of leverage, speculation or gambling, securities with tax complications, anything that cannot easily be sold.

The Ultimate Easiest Way – Engage with a fee only (charges by the hour) professional planner that you can visit annually and review investments and plans.

Chapter Closing Thoughts

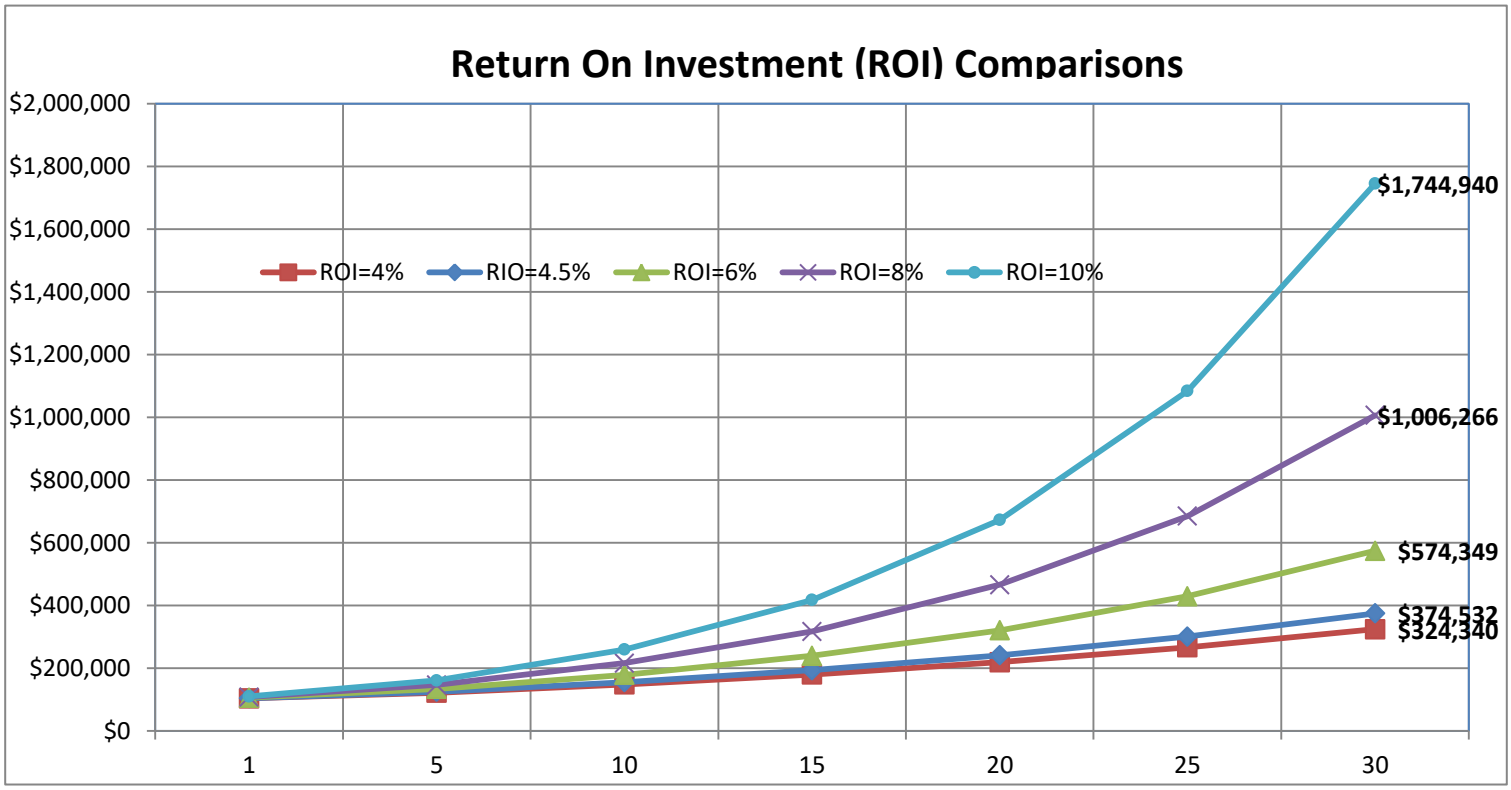
We have covered most, but certainly not all of the major types of investments one should consider in their retirement planning. The technique of applying Asset Allocation add stability to your portfolio and a degree of predictability to how long your funds will last in retirement, additionally it has been pointed out that it is very important to place the each investment in the appropriate investment vehicle to minimize taxes, provide more flexibility and maximize how long your funds will last in retirement. Each person will have a level of comfort for the volatility of their portfolio; This consideration should be key in helping you consider exactly what the correct ratio of equities/fixed income (ie stocks/bonds) is appropriate for you.

Chapter 4: Return on Investments

Return on investment (return) is probably the single most important input in calculating future value of your retirement savings and determining how long your assets will last. Small changes to this value can have a dis-proportional impact on calculations so it is vital that the value assigned to the return is accurate as possible.

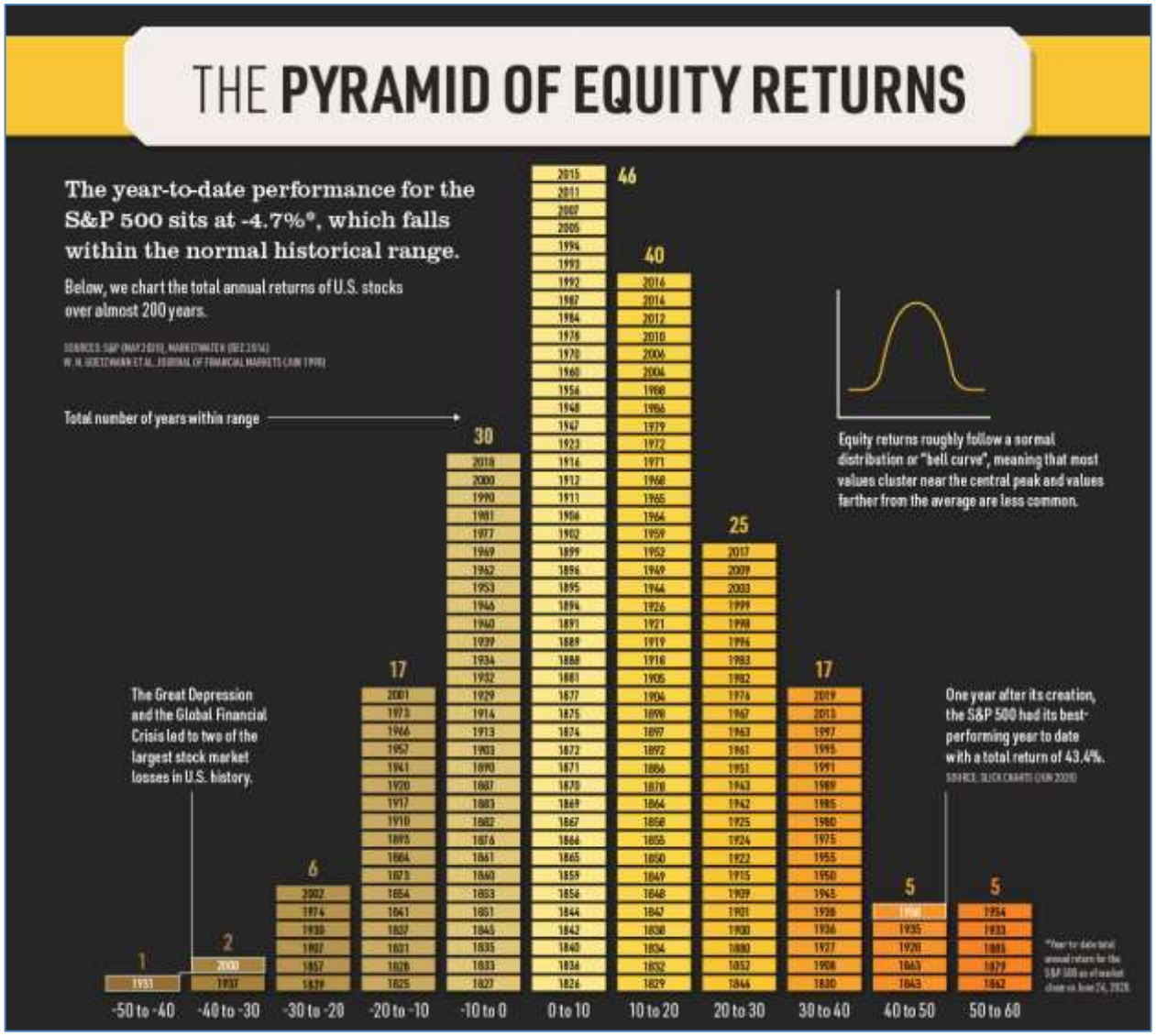
Return on Investment Comparisons

Line	Annualized ROI	Initial Value	ROI	Year						
				1	5	10	15	20	25	30
1	4% per year	$100,000	**4.0%**	$104,000	$121,665	$148,024	$180,094	$219,112	$266,584	**$324,340**
2	4.5% per year	$100,000	**4.5%**	$104,500	$124,618	$155,297	$193,528	$241,171	$300,543	**$374,532**
3	6% per year	$100,000	**6.0%**	$106,000	$133,823	$179,085	$239,656	$320,714	$429,187	**$574,349**
4	8% per year	$100,000	**8.0%**	$108,000	$146,933	$215,892	$317,217	$466,096	$684,848	**$1,006,266**
5	10% per year	$100,000	**10.0%**	$110,000	$161,051	$259,374	$417,725	$672,750	$1,083,471	**$1,744,940**



Chapter Summary

This chapter is focused on the concept of Return on Investment (ROI) aka Returns. This may be the single most important input in your retirement planning and execution, so it is vital you understand how it works and how important it is to try to get as accurate measure and estimate of this value to be used in your calculations. This chapter also covers how to measure performance of your investments to determine if a new strategy is in order.



References and Resources

- CalculatorSoup: Investment Calculator
  - Future Value Formula Derivation
- Calculator.net: Return on Investment (ROI) Calculator
- Macrotrends: Stock Indexes Charts and data
- Historic Stock Market Performance Chart - almost 200 years
- Investopedia: Bucket Strategy vs Systematic Withdrawals: Knowing the Difference

Terms and Concepts

- Dollar Cost Averaging – An investment strategy in which an investor purchases a fixed dollar amount of stock at set interval over a period of time. As the price of the stock may vary over time the number of shares that are purchased with the same dollar amount will vary. Ultimately this technique tends to provide the investor with slightly better returns than the overall average performance of the stock over the period of time.

- Inflation Adjusted Returns – Return on Investment that takes into account Inflation. Also known as Real Return.

- Real Return – Return on Investment that takes into account Inflation. Also known as Inflation Adjusted Returns.

- Return on Investment ROI – aka Return; The growth realized on an investment over a period of time.

- Reverse Dollar Cost Averaging – The process of liquidating a set dollar amount of shares at regular intervals over a period of time. This is typically performed in retirement for income. The problem with this technique is that as the price of shares varies, the number of shares required to obtain the same amount of funds from the sale will change. This has the exact opposite result of Dollar Cost Averaging, where this technique will lead to slightly lower performance of stock over time since more shares are sold when the price of the stock is at a lower price.

What is Return on Investment?

Return on Investment (return) is the same as the growth of an investment. Performance of funds and other financial instruments often quote the Return on Investment aka ROI over a given time period. It is important to remember the value supplied represents accumulated return over the time period as opposed to representing the actual variations year to year of that investment. Calculating the ROI for an investment is easily done using an online calculator where the initial amount, length of time and final value is input, the ROI is calculated.

Calculating a Return – Historic returns for a given year is performed in this book on a yearly basis:

$$(Return\ of\ Investment) = \frac{(Year\ end\ balance) - (Start\ of\ year\ balance)}{(Start\ of\ year\ balance)}$$

Return values provided in this book are calculated for each year using the above equation; this does not represent the compounded rate of returns over a time period of more than one year. Further adjustments to the returns are made to incorporate the inflation for the year in question. Furthermore, these calculations include all dividends and interest that may be realized over the year.

Are Your Investments Good Choices or Dogs?

Utilize the equation below to get a rough estimate of your Return on Investment for a given year. This equation takes into account deposits and withdraws.

$$(Actual\ Return\ of\ Investment) = \frac{(Year\ end\ balance) - (Start\ of\ year\ balance) - Deposits + Withdraws}{(Start\ of\ year\ balance) + (0.5 * Deposits) - (0.5 * Withdrawals)}$$

Use the spreadsheet for this chapter for your own calculations. Note that using this equation does not include external cost, for example you may be paying an investment manager a 1% fee from your wages, in such a case you would need to take the calculated return and subtract the fee for the actual performance.

Figure 4.2

Calculate Your Own Return (Figure 4.2)

Line	Item	Value	Comments
1	Year-end balance		
2	Starting balance		
3	Ending balance divided by starting balance		Line 1 divided by Line 2
4	Deposits		
5	Withdrawals		
6	Net Deposits		Line 4 minus Line 5
7	Net deposits divided by starting balance		Line 6 divided by Line 2
8	**Calculated Return**		Ref Figure 4.3 using Line 3 and Line 7

Figure 4.3

Are Your Returns As High As They Should Be?

Row 3 from Figure 4.2	Net Deposits Divided by Initial Balance (Row 7 from Figure 4.2)															
	-0.10	-0.08	-0.06	-0.04	-0.02	0.00	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18	0.20
0.70	-19%	-21%	-23%	-25%	-28%	-30%	-32%	-35%	-37%	-40%	-42%	-45%	-47%	-50%	-53%	-56%
0.73	-16%	-18%	-20%	-22%	-24%	-27%	-29%	-31%	-34%	-36%	-39%	-41%	-44%	-46%	-49%	-52%
0.77	-13%	-15%	-17%	-19%	-21%	-23%	-26%	-28%	-30%	-33%	-35%	-38%	-40%	-43%	-45%	-48%
0.80	-10%	-12%	-14%	-16%	-18%	-20%	-22%	-24%	-27%	-29%	-32%	-34%	-37%	-39%	-42%	-44%
0.83	-6%	-8%	-10%	-12%	-15%	-17%	-19%	-21%	-23%	-26%	-28%	-30%	-33%	-36%	-38%	-41%
0.87	-3%	-5%	-7%	-9%	-11%	-13%	-15%	-18%	-20%	-22%	-25%	-27%	-29%	-32%	-34%	-37%
0.90	0%	-2%	-4%	-6%	-8%	-10%	-12%	-14%	-16%	-19%	-21%	-23%	-26%	-28%	-31%	-33%
0.93	3%	1%	-1%	-3%	-5%	-7%	-9%	-11%	-13%	-15%	-18%	-20%	-22%	-25%	-27%	-30%
0.97	6%	4%	3%	1%	-1%	-3%	-5%	-7%	-10%	-12%	-14%	-16%	-19%	-21%	-23%	-26%
1.00	10%	8%	6%	4%	2%	0%	-2%	-4%	-6%	-8%	-11%	-13%	-15%	-17%	-20%	-22%
1.03	13%	11%	9%	7%	5%	3%	1%	-1%	-3%	-5%	-7%	-9%	-11%	-14%	-16%	-19%
1.07	16%	14%	12%	10%	9%	7%	5%	3%	1%	-1%	-4%	-6%	-8%	-10%	-12%	-15%
1.10	19%	17%	16%	14%	12%	10%	8%	6%	4%	2%	0%	-2%	-4%	-7%	-9%	-11%
1.13	22%	21%	19%	17%	15%	13%	11%	10%	8%	6%	4%	1%	-1%	-3%	-5%	-7%
1.17	25%	24%	22%	20%	18%	17%	15%	13%	11%	9%	7%	5%	3%	1%	-1%	-4%
1.20	29%	27%	25%	24%	22%	20%	18%	16%	14%	13%	11%	9%	6%	4%	2%	0%
1.23	32%	30%	28%	27%	25%	23%	22%	20%	18%	16%	14%	12%	10%	8%	6%	4%
1.27	35%	33%	32%	30%	28%	27%	25%	23%	21%	19%	18%	16%	14%	12%	10%	7%
1.30	38%	37%	35%	33%	32%	30%	28%	27%	25%	23%	21%	19%	17%	15%	13%	11%
1.33	41%	40%	38%	37%	35%	33%	32%	30%	28%	26%	25%	23%	21%	19%	17%	15%
1.37	44%	43%	41%	40%	38%	37%	35%	33%	32%	30%	28%	26%	24%	22%	21%	19%
1.40	48%	46%	45%	43%	42%	40%	38%	37%	35%	33%	32%	30%	28%	26%	24%	22%

FIGURE 4.3 Find your return for the year.

Using Returns to Give Your Investments a Tune-Up – You should divide up your investments into fixed income and equities. You should then determine your return on both for last year. Compare your results with what the market performed for both categories. If your results differ significantly lower than the market you should consider changes that may be needed to rectify this problem.

Accounting for Inflation: Real Returns – Discussion on how to calculate the Real Return over a period of time. This can be easily done by using the spreadsheet for this chapter in the Figure 4.1 tab.

Figure 4.1

Calculate Real Return Over time
(Figure 4.1)

Line	Item	Value	Comments
1	Starting balance		
2	Number of Years		
3	Yearly Growth		
4	Yearly Inflation Rate		
5	**Real Return** (Inflation Adjusted Returns)		

Using Real Returns in Your Retirement Planning

As mentioned earlier getting the estimate your returns as accurate as possible is vital to a successful retirement plan. One should generally expect returns on investments to be higher before retirement and lower after retirement due to reverse dollar cost and the disproportional influence inflation has on items and serves required in retirement.

Preretirement Returns – Download chapter 4 excel spreadsheet, and utilize the 4.4 tab to calculate your real returns. The following columns need to be filled in:

- Security – You can add additional columns for fine tuning of the types of securities listed.
- Investment Value – Current market value for the identified security.
- Representative Real Returns – Estimated historical values have been provided for some of these columns. Feel free to update for your particular situation, if unique. Historic return
  - Stocks – S&P 500 index historical data used.
  - Bonds – Long term corporate bond rates used.
  - Growth Stocks – Small Stock index used.
  - Money Markets.... – Treasury indexes used.

Figure 4.4

Calculate the Real Return for Your Plan (Figure 4.4)

Line	Security	Investment Value	% of your Investments	Representative Real Returns	Real Return	Comments
1	Stocks			6.7%		
2	Growth Stocks			9.0%		
3	Other Equities					
4	Bonds			2.4%		
5	Other Fixed Income Investments					
6	Money Markets, T-Bills, Short Term CDs, etc.			0.8%		
7	Net deposits divided by starting balance					
8	**Totals**					
9	Estimated Cost (For Funds, brokers, etc.)					
10	Net Real Return					

Theory versus Reality in Preretirement Planning – Figure 4.6 compares the performance of a 5.7% constant rate of return compared to real world performance starting at 1939 and 1949. This demonstrates how in the real world variations in the stock market can throw off your retirement projections. We see the importance of re-evaluating every year and making adjustments accordingly, it also points out the fact that you can always delay your retirement if needed.

Figure 4.6

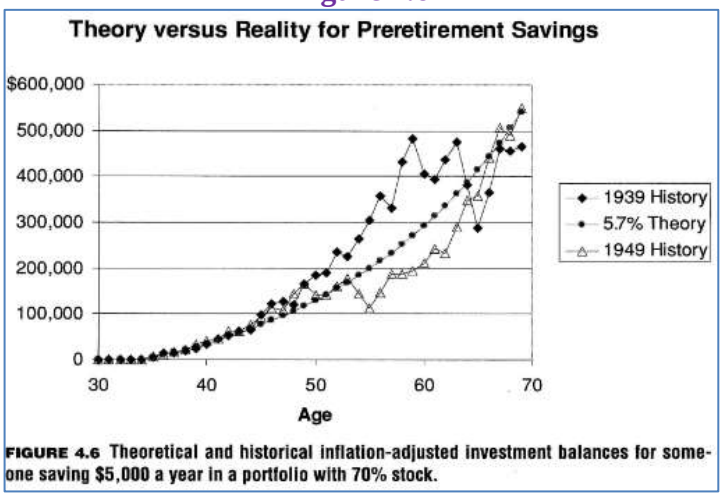


FIGURE 4.6 Theoretical and historical inflation-adjusted investment balances for someone saving $5,000 a year in a portfolio with 70% stock.

Figure 4.5

Amount of Stock Largely Determines Real Returns

Stock as % of Investments	Portfolio Description				Long-Term Real Return Excluding Costs
	Large Co. Stock	Growth Co. Stock	Long-Term Corp. Bonds	Treasury Bills	
90%	50%	40%	0.0%	10%	**7.0%**
80%	50%	30%	10.0%	10%	**6.4%**
70%	50%	20%	20.0%	10%	**5.7%**
60%	50%	10%	30.0%	10%	**5.1%**
50%	50%	0%	40.0%	10%	**4.4%**
40%	40%		50.0%	10%	**4.0%**
30%	30%		60.0%	10%	**3.5%**
20%	20%		70.0%	10%	**3.1%**
10%	10%		80.0%	10%	**2.7%**
0%	0%		90.0%	10%	**2.3%**

FIGURE 4.5 By calculating the percentage of stock in your portfolio, you may find a representative real return listed that you can use for retirement planning. Remember to subtract investment costs before using the real return in your plan.

Remember, this represents percentage of stock representing the overall stock market. If I were to own 90% of a single or basket of individual stocks in my portfolio (systematic risk) my performance could be totally different from what is indicated in this table (ie 100 % of the stock was Enron, I would be bankrupt now, 100% TESLA, I would be a multi millionaire).

Theory versus Reality in Postretirement Planning – In the figures below we begin have the following initial conditions:

- One million dollars in assets.
- Funds should last until the retiree is 85 years old.
- Allocation of investments is s is 50% stocks, 40% bonds, 10% T bills

For Figure 4.7 we assume a 4.4% Return and observe:

- The retiree is told they can withdraw $59,400/year for funds to last until they are 85 years old.
- There is a 50% chance of the retiree running out of funds before reaching the age of 85.
- In the 1963 retirement scenario we see the funds run out at age 73, 12 years earlier than the desired age of 85.

For Figure 4.8 we assume a 2.2% Return and observe:

- The retiree is told they can withdraw $45,400/year for funds to last until they are 85 years old.
- There is still a 20% chance of running out of fund before retirement.
- In the 1963 retirement scenario we see the funds run out at age at about 80 years old.
- In the 1953 retirement scenario the retiree never runs out of funds.

Figure 4.7 and Figure 4.8

Impact of Return Estimates on How Long Assets Last

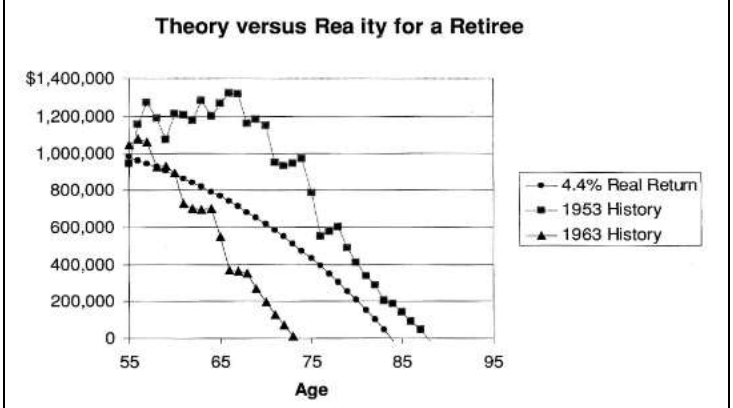


FIGURE 4.7 Theoretical and historical inflation-adjusted investment balances for a retiree withdrawing $59,400 a year.

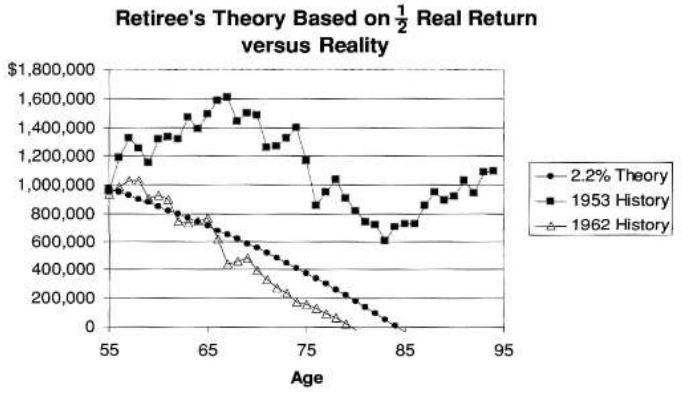


FIGURE 4.8 Inflation-adjusted investment balances for a retiree withdrawing $45,400 each year. The theory here uses one-half the real return of Figure 4.7.

A few observations to take away from this information:

- Assuming overly optimistic expectations for returns can have disastrous impacts in your retirement.
- Variations in stock market performance or Inflation can also cause devastation.
- An additional mechanism is needed to help the retiree to make adjustments in retirement to help compensate for these risks. This is where life expectancy factor in, this will be handled later in the book.

Using the Web or a Commercial Computer Program? Be Careful! – Most programs are overly optimistic on expected returns, under estimate inflation for retirees, investment fees, forget to account for taxes and don't take into account reverse dollar cost averaging. Finally, the estimates they provide you are based on a based on a 50% probability that you won't run out of funds which means there is a 50% probability that you will run out of funds. Figure 4.9 is an example of a typical program with the typical assumptions:

- Tax deferred accounts.
- $200,000 starting balance at age 45.
- $10,000 contribution each year (Inflation Adjusted).
- A conservative portfolio of 50% Large Caps with 1.5% cost, 40% Long term bonds with 1% cost, 10% Money Markets with 0.3% cost.
- Federal and State taxes of 16%
- 7% Return
- 3% Inflation

Figure 4.9

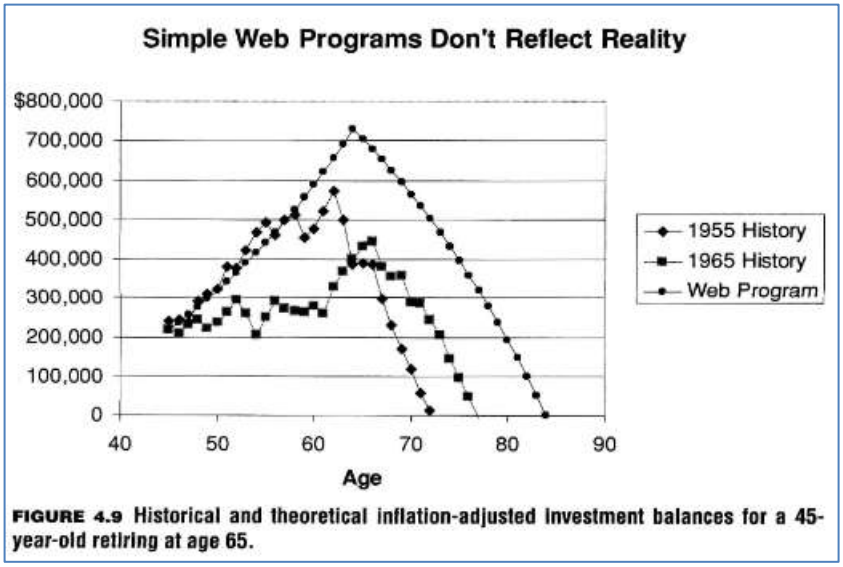


FIGURE 4.9 Historical and theoretical inflation-adjusted investment balances for a 45-year-old retiring at age 65.

We can see in the program funds reaching $700,000 at retirement of age 65 and dropping to zero at age 85 in a smooth curb. When historic values from 1955 and 1965 are calculated we can see the real world results are much worst.

This is why it is important to use conservative values when providing inputs into these types of programs.

Reverse Dollar Cost Averaging

Dollar averaging is when equities are purchased or sold at regular intervals. The amount of money involved in the transaction is to remain constant over each cycle, but the amount of stocks purchased or sold will vary due to the fluctuations of the price of the stock. When purchasing shares the net result is better performance then the average return over the period. When selling stocks the opposite is the case, and performance will be lower than the average since you will have to sell more shares when stock prices drop to obtain the same amount of money.

Note that in this example when purchasing shares results in a real world return of 9% compared to the 7% average. When selling shares the real world performance is 4.8% return compared to the 7% average.

Figure 4.12 and Figure 4.13
Dollar Cost Averaging Helps Savers and Hurts Retirees

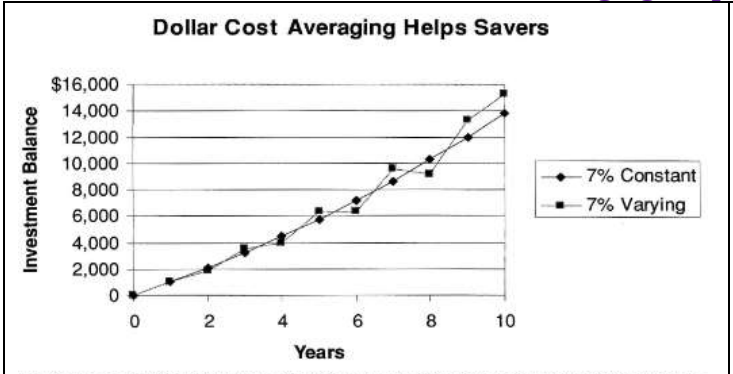


FIGURE 4.12 Varying returns usually help savers achieve larger investment balances over time.

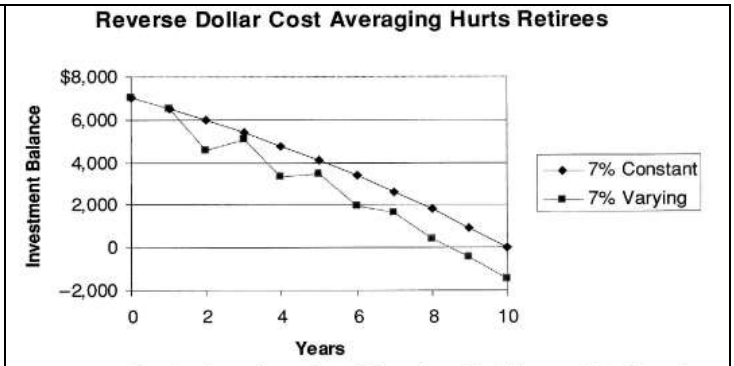


FIGURE 4.13 People who make regular withdrawals get hurt in a market with varying prices.

Using the Bucket approach, one may help extend ones savings by minimalizing liquidation of stocks in down years. Something not really covered too much in this book, that may be worth working into your retirement plans.

Be Wary of Compound Growth Projections!

Hebeler points out that most sales pitches are dishonest in that the growth projections the often provide are often over estimated and their projections leave out critical elements that would lower their projections including inflation, Fees, and actual performance due to compounding. He walks through a typical sales pitch where $1,000 grows to $100,000 in forty years. Hebeler then points out the impact if these other factors would be considered, and the actual return to expect in that forty year period would probably be more in the range of $3,400.

Finally the example of a roman depositing a penny with a 3% growth would be worth $470 x$10^{21}$ in 2,000 years, but with 3% inflation, that penny would be worth a penny today. Pointing out the importance of taking into account these other factors.

Chapter Closing Thoughts

In addition to pointing out the importance of taking as many factors as possible in determining ROI, the concept of Dollar Cost Averaging, and how it can benefit the investor is introduced. It is also pointed out that Reverse Dollar Cost Averaging has an equally detrimental impact on the real returns a retiree may experience when tapping into their retirement portfolio.

Interlude – Index Fund Investments

At this point in the book you should be convinced that index funds should play a major part in your investment strategy. The book has mentioned investing in various index/ETF funds associated with the broad market, and we have mentioned how Asset Allocation (the way you divide your money among major investment categories like stocks, bonds, cash and other types of investments) and Diversification (spreading your money between different types of investments within each asset class) should play a key role in your retirement plans. The book helps you determine the appropriate Asset Allocation for your particular situation, but doesn't really give detailed information when it comes to how to diversify within these allocations. Just as a reminder, when we discuss Diversification we are talking about what equity sectors to invest in such as Large cap, Small cap, World Market, Real Estate, etc. We can slice and dice up markets in a multitude of ways (ie Large cap Value vs Large cap Momentum, Large cap Emerging, Large Cap International,....and so forth). Why are these various classifications identified? One big reason is that these sectors tend to have performance that run in cycles and many times these cycles between various sectors don't coincide. By adding diversification, we hope to add stability to our portfolio so that our portfolio performance will not be wholly dependent upon one sector alone and subject to the extreme gyrations of that sector.

Although there are a multitude of ways to divide equities, having too many sectors makes balancing and juggling our investments overly complicated with diminishing impact as the number of index funds in your portfolio grow. The American Association of Individual Investors (AAii) has researched this dilemma, and has a couple of presentations they have given on this topic:

- 2020-09-23 Paul Merriman: **Which Is the Best 1-, 2-, 3- and 4-Fund Strategy?**
  - Recording (MP4)
  - Supporting Document (PDF)
- 2020-10-22 Chris Pedersen: **Simple and Effective Balanced Portfolios for Lifetime Investing Success**
  - Recording (MP4)
  - Supporting Document (PDF)
- Asset Allocation models to Maximize Your Returns

These presentations are very informative in that they identify various approaches, and identify individual funds you can use to build your portfolio. I highly recommend you watch both of these presentations. The next few sections I summarize some of the key points and observations from these presentations.

Some Common Index Funds for various sectors:

- **Large-cap stocks**: Vanguard 500 Index Admiral Shares (**VOO**)
- **Mid-cap stocks**: Vanguard Admiral Mid-Cap Index ETF (**VO**)
- **Small-cap stocks**: Vanguard Small Cap Index ETF (**VB**)
- **International stocks**: Vanguard Developed Markets Index ETF (**VEA**)
- **Emerging market stocks**: Vanguard Emerging Markets Stock ETF (**VWO**)
- **Intermediate-term bonds**: Vanguard Intermediate-Term Treasury ETF (**VGIT**)
- **Short-term bonds**: Vanguard Short-Term Treasury ETF (**VGSH**)

Paul Merriman: Which Is the Best 1-, 2-, 3- and 4-Fund Strategy?

This presentation compares eleven investment strategies and shows how they would have performed over a ninety year period. It champions the 4 fund strategy and sets expectations for this approach. One of the biggest takeaways from this is that performance has a lot to do with pure luck over the short to mid-term (up to 20 years); this is in conflict with Hebeler's recommendation when reviewing the performance of your portfolio compared to the S&P 500. You need to decide if you will be content with following the S&P 500 index for your investment, or mix it up providing opportunity to (over the long hall) out perform the S&P 500 index with less volatility.

What Keeps Investors From Earning Best Return?	
	• Not enough time • Not enough patience • Not enough good luck • Not enough sense of history

How to Prepare for Difficult Periods	
	• Start with believing upside potential • Prepare for most obvious hurdle: losing periods • Prepare for annual tracking error with benchmark • Prepare for decades long tracking error

Figure 1 - Annualized Asset Class Nominal Returns by Decade: 1930-2019

NOTE: Returns EXCLUDE the effect of Expense Ratios.

	1930 -1939	1940 -1949	1950 -1959	1960 -1969	1970 -1979	1980 -1989	1990 -1999	2000 -2009	2010 -2019	1930 - 2019
Best	Long Term Gov't Bond 4.9%	US Small Cap Value 19.9%	US Small Cap Value 19.6%	US Small Cap Value 14.3%	US Small Cap Value 14.2%	US Large Cap Value 20.6%	S&P 500 18.2%	US Small Cap Value 12.5%	S&P 500 13.6%	US Small Cap Value 13.7%
	US Small Cap Blend 2.3%	US Small Cap Blend 14.9%	4-Fund Combo 19.4%	US Small Cap Blend 13.0%	US Large Cap Value 12.1%	US Small Cap Value 20.2%	4-Fund Combo 17.0%	US Small Cap Blend 7.9%	4-Fund Combo 12.2%	US Small Cap Blend 12.2%
	1-month Treasury Bill 0.6%	4-Fund Combo 14.3%	S&P 500 19.4%	4-Fund Combo 11.3%	4-Fund Combo 10.6%	4-Fund Combo 19.0%	US Large Cap Value 16.9%	Long Term Gov't Bond 7.7%	US Large Cap Value 12.0%	4-Fund Combo 11.9%
	S&P 500 -0.1%	US Large Cap Value 12.7%	US Large Cap Value 19.2%	US Large Cap Value 9.5%	US Small Cap Blend 9.2%	S&P 500 17.5%	US Small Cap Value 16.5%	4-Fund Combo 6.0%	US Small Cap Blend 12.0%	US Large Cap Value 11.1%
	4-Fund Combo -0.8%	S&P 500 9.2%	US Small Cap Blend 19.2%	S&P 500 7.8%	1-month Treasury Bill 6.3%	US Small Cap Blend 16.9%	US Small Cap Blend 15.8%	US Large Cap Value 4.1%	US Small Cap Value 11.0%	S&P 500 9.8%
	US Small Cap Value -3.0%	Long Term Gov't Bond 3.2%	1-month Treasury Bill 1.9%	1-month Treasury Bill 3.9%	S&P 500 5.9%	Long Term Gov't Bond 12.6%	Long Term Gov't Bond 8.8%	1-month Treasury Bill 2.8%	Long Term Gov't Bond 7.6%	Long Term Gov't Bond 5.7%
Worst	US Large Cap Value -4.8%	1-month Treasury Bill 0.4%	Long Term Gov't Bond -0.1%	Long Term Gov't Bond 1.4%	Long Term Gov't Bond 5.5%	1-month Treasury Bill 8.9%	1-month Treasury Bill 4.9%	S&P 500 -0.9%	1-month Treasury Bill 0.5%	1-month Treasury Bill 3.3%

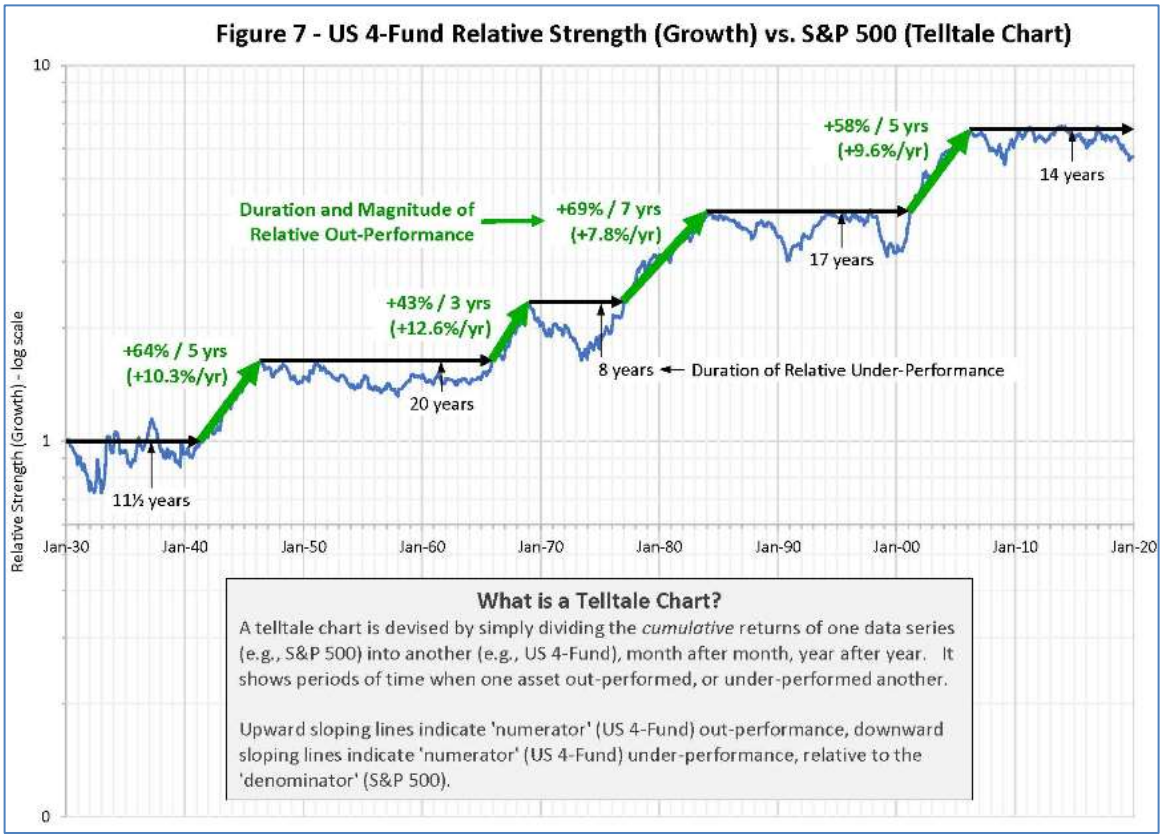


Figure 7 - US 4-Fund Relative Strength (Growth) vs. S&P 500 (Telltale Chart)
Relative Strength (Growth) - log scale
10
1
0
Jan-30
Jan-40
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Jan-00
Jan-10
Jan-20
+64% / 5 yrs
(+10.3%/yr)
11½ years
+43% / 3 yrs
(+12.6%/yr)
20 years
Duration and Magnitude of
Relative Out-Performance
+69% / 7 yrs
(+7.8%/yr)
8 years ← Duration of Relative Under-Performance
17 years
+58% / 5 yrs
(+9.6%/yr)
14 years
What is a Telltale Chart?
A telltale chart is devised by simply dividing the cumulative returns of one data series (e.g., S&P 500) into another (e.g., US 4-Fund), month after month, year after year. It shows periods of time when one asset out-performed, or under-performed another.
Upward sloping lines indicate 'numerator' (US 4-Fund) out-performance, downward sloping lines indicate 'numerator' (US 4-Fund) under-performance, relative to the 'denominator' (S&P 500).

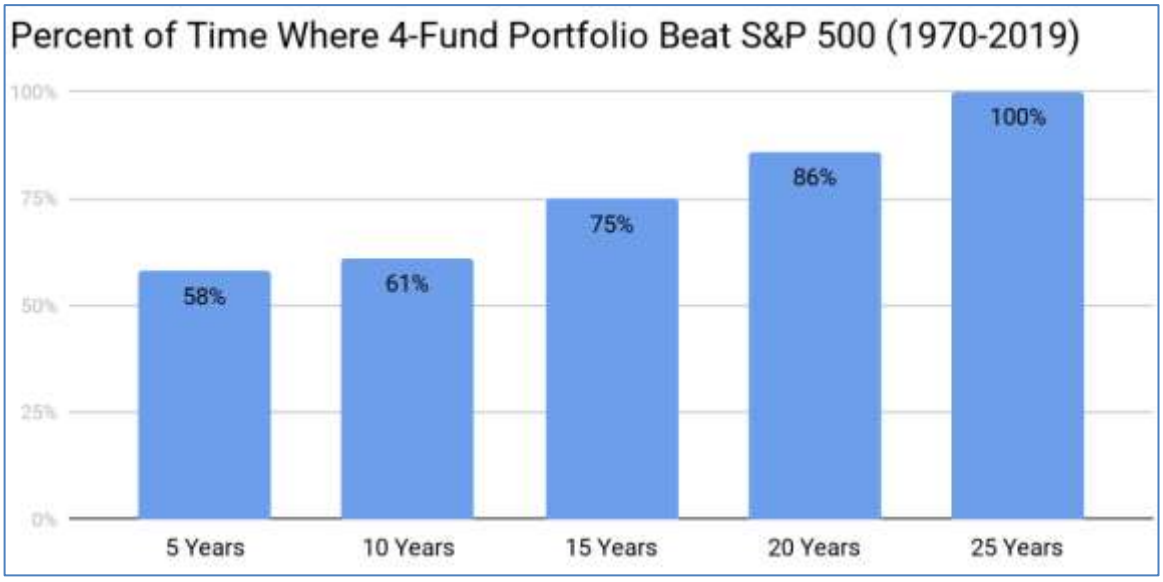

Percent of Time Where 4-Fund Portfolio Beat S&P 500 (1970-2019)
100%
75%
50%
25%
0%
58%
61%
75%
86%
100%
5 Years
10 Years
15 Years
20 Years
25 Years

Table 1 - No-Nonsense Portfolios for Sound Investing: Equity Asset Allocation

		1-Fund Portfolios			2-Fund Portfolios			
	Dimensional Returns 2.0 Data Base Source	S&P 500 (Buffett)	Total US Market (JL Collins)	Total World Market	3-Fund' - Equity only - (Bogleheads)	Total US + 30% US SCV (Fama/French)	Total World + 30% US SCV (Fama/French)	All Value US Only (Merriman)
US	Dimensional US Market Index		100%		70%	70%		
US	S&P 500 Index (*US Large Cap Blend*)	100%						
US	Dimensional US Large Cap Value Index							50%
US	Dimensional US Small Cap Index							
US	Dimensional US Small Cap Value Index					30%	30%	50%
US	Dow Jones US Select REIT Index							
Int'l / Global	Dimensional International Market Index				30%			
Int'l / Global	Dimensional International Large Index							
Int'l / Global	Dimensional International Large Value Index							
Int'l / Global	Dimensional International Small Cap Index							
Int'l / Global	Dimensional International Small Cap Value Index							
Int'l / Global	Dimensional Global Market Index			100%			70%	

Note: All portfolios rebalanced annually.

		3-Fund	4-Fund Portfolios			
	Dimensional Returns 2.0 Data Base Source	Core 4 - Equity only - (Ferri)	US Only 4-Fund (Merriman)	World 4-Fund (Trevit)	All Value World (Merriman)	Representative Expense Ratio applied to index
US	Dimensional US Market Index	60%				0.03%
US	S&P 500 Index (*US Large Cap Blend*)		25%	25%		0.03%
US	Dimensional US Large Cap Value Index		25%		25%	0.35%
US	Dimensional US Small Cap Index		25%			0.07%
US	Dimensional US Small Cap Value Index		25%	25%	25%	0.25%
US	Dow Jones US Select REIT Index	10%				0.12%
Int'l / Global	Dimensional International Market Index	30%				0.11%
Int'l / Global	Dimensional International Large Index					0.03%
Int'l / Global	Dimensional International Large Value Index			25%	25%	0.39%
Int'l / Global	Dimensional International Small Cap Index			25%		0.39%
Int'l / Global	Dimensional International Small Cap Value Index				25%	0.58%
Int'l / Global	Dimensional Global Market Index					0.10%

Table 2a - No-Nonsense Portfolios for Sound Investing: Comparison Data

1-Fund Portfolios (1990-2019)	S&P 500 (Buffett)	Total US Market (Collins)	Total World Market
30 yr Growth of $10K	$172,616	$185,357	$83,605
CAGR (90-19)	10.0%	10.2%	7.3%
(90-99)	18.2%	17.9%	11.0%
(00-09)	-0.9%	0.0%	1.1%
(10-19)	13.6%	13.5%	10.2%
Number of Up Yrs	24	24	21
Average Up Yr Gain	18.0%	18.3%	18.7%
Sum of Up Yr Gains	431.0%	440.3%	392.5%
Best Year	37.6% (1995)	36.9% (1995)	36.4% (2003)
Number of Down Yrs	6	6	9
Average Down Yr Loss	-14.6%	-14.7%	-13.8%
Sum of Down Yr Losses	-87.6%	-88.1%	-124.4%
Worst Year	-37.0% (2008)	-36.6% (2008)	-40.2% (2008)
Std Dev (90-19)	17.2%	17.4%	17.5%
(90-99)	17.2%	13.8%	13.3%
(00-09)	20.0%	20.5%	23.3%
(10-19)	11.8%	12.4%	12.9%

2-Fund Portfolios (1990-2019)	'3-Fund' - Equity only - (Bogleheads)	Total US + 30% US SCV (Fama/French)	Total World + 30% US SCV (Fama/French)	All Value US Only (Merriman)
30 yr Growth of $10K	$125,747	$258,039	$150,410	$325,286
CAGR (90-19)	8.8%	11.4%	9.5%	12.3%
(90-99)	14.7%	17.8%	13.0%	16.7%
(00-09)	0.8%	4.0%	4.8%	8.4%
(10-19)	11.4%	13.0%	10.7%	11.9%
Number of Up Yrs	22	24	22	23
Average Up Yr Gain	18.8%	19.4%	19.5%	23.3%
Sum of Up Yr Gains	413.3%	465.7%	428.1%	534.9%
Best Year	34.8% (2003)	41.8% (2003)	45.3% (2003)	51.8% (2003)
Number of Down Yrs	8	6	8	7
Average Down Yr Loss	-13.0%	-12.7%	-12.2%	-14.8%
Sum of Down Yr Losses	-103.9%	-75.9%	-97.2%	-103.9%
Worst Year	-38.5% (2008)	-36.6% (2008)	-39.2% (2008)	-39.8% (2008)
Std Dev (90-19)	17.1%	17.8%	17.6%	20.6%
(90-99)	12.5%	14.6%	13.2%	18.5%
(00-09)	22.1%	21.9%	23.5%	24.9%
(10-19)	12.6%	13.4%	13.6%	16.8%

Note: All index return data has had a representative expense ratio subtracted. See Data Disclosure for details.

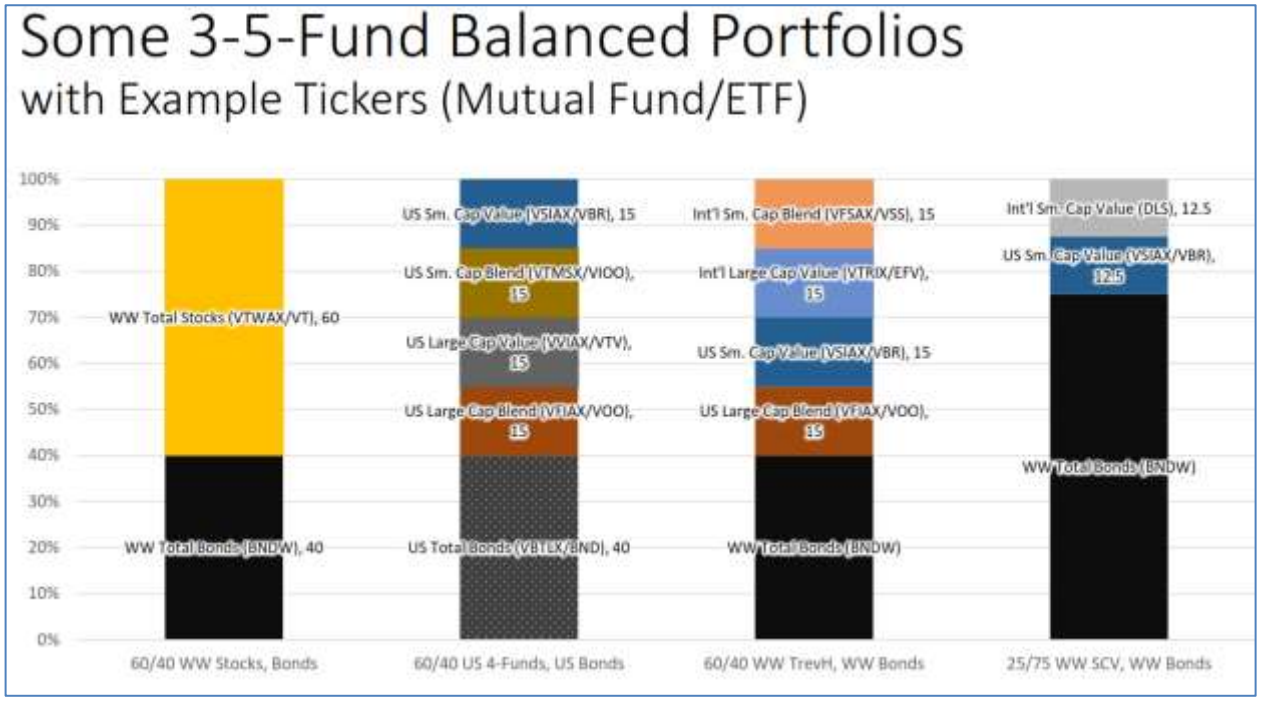
Table 3b - No-Nonsense Portfolios for Sound Investing: Annual Returns

	1-Fund Portfolios			2-Fund Portfolios				3-Fund	4-Fund Portfolios		
Year	S&P 500 (Buffett)	Total US Market (Collins)	Total World Market	"3-Fund" - Equity only - (Bogleheads)	Total US + 30% US SCV (Fama/French)	Total World + 30% US SCV (Fama/French)	All Value US Only (Merriman)	Core 4 - Equity only - (Ferri)	US Only 4-Fund (Merriman)	World 4-Fund (Trevit)	All Value World (Merriman)
1990	-3.1%	-5.8%	-18.0%	-11.2%	-11.2%	-19.8%	-19.7%	-13.0%	-15.7%	-16.9%	-19.9%
1991	30.5%	34.5%	18.8%	27.2%	38.2%	27.2%	39.5%	26.1%	39.0%	22.9%	29.9%
1992	7.6%	9.7%	-5.2%	2.3%	17.2%	6.7%	25.9%	2.8%	20.8%	3.4%	13.9%
1993	10.1%	10.8%	20.7%	16.3%	15.3%	22.3%	23.9%	16.8%	19.6%	26.7%	28.6%
1994	1.3%	0.1%	5.5%	3.0%	0.9%	4.7%	2.6%	3.2%	1.5%	7.9%	6.6%
1995	37.6%	36.9%	19.8%	28.5%	35.2%	23.2%	36.0%	26.1%	35.2%	20.5%	27.0%
1996	23.0%	21.8%	12.8%	17.0%	23.0%	16.7%	26.4%	18.5%	24.5%	16.1%	20.7%
1997	33.4%	31.7%	15.4%	22.3%	33.0%	22.5%	38.6%	21.1%	34.9%	16.3%	26.1%
1998	28.6%	25.0%	20.9%	22.7%	15.9%	13.1%	1.6%	18.5%	7.3%	12.9%	4.6%
1999	21.0%	23.1%	27.8%	26.1%	18.6%	21.9%	8.3%	23.6%	15.1%	19.6%	12.5%
2000	-9.1%	-8.4%	-12.0%	-10.2%	0.3%	-2.3%	16.6%	-6.2%	7.3%	2.5%	12.6%
2001	-11.9%	-10.8%	-15.7%	-14.0%	0.9%	-2.5%	15.5%	-11.7%	8.4%	-2.2%	8.5%
2002	-22.1%	-21.5%	-18.0%	-18.9%	-17.1%	-14.7%	-9.7%	-16.4%	-13.7%	-10.4%	-7.8%
2003	28.7%	31.3%	36.4%	34.8%	41.8%	45.3%	51.8%	35.2%	46.9%	52.7%	54.8%
2004	10.9%	11.9%	16.8%	15.0%	15.5%	18.9%	21.6%	17.2%	19.0%	23.7%	24.8%
2005	4.9%	6.1%	11.3%	9.4%	6.5%	10.2%	8.6%	10.2%	7.3%	13.6%	12.5%
2006	15.8%	15.4%	20.0%	18.3%	17.3%	20.5%	21.9%	20.4%	19.8%	23.2%	24.2%
2007	5.5%	5.9%	9.1%	7.7%	0.7%	2.9%	-10.0%	5.4%	-4.7%	1.4%	-5.6%
2008	-37.0%	-38.8%	-40.2%	-38.5%	-36.6%	-39.2%	-39.8%	-38.8%	-38.2%	-41.9%	-41.8%
2009	26.5%	28.8%	32.0%	30.6%	35.2%	37.4%	39.4%	30.5%	36.0%	42.7%	42.8%
2010	15.1%	17.3%	14.3%	15.5%	21.4%	19.3%	25.7%	16.5%	24.0%	20.2%	22.9%
2011	2.1%	0.8%	-5.8%	-3.1%	-1.3%	-5.9%	-4.5%	-2.2%	-2.8%	-8.5%	-8.3%
2012	16.0%	16.2%	16.6%	16.4%	16.4%	16.6%	18.4%	16.5%	17.8%	17.8%	19.0%
2013	32.4%	35.1%	29.2%	31.2%	37.4%	33.2%	40.9%	27.8%	39.7%	31.5%	36.6%
2014	13.7%	11.8%	4.8%	7.1%	9.4%	4.4%	6.0%	9.1%	7.5%	1.3%	2.2%
2015	1.4%	0.3%	-0.4%	0.2%	2.2%	2.7%	-6.5%	0.2%	4.2%	1.6%	5.2%
2016	12.0%	12.9%	8.8%	10.0%	20.2%	17.3%	30.7%	9.4%	24.9%	16.8%	25.0%
2017	21.8%	22.2%	23.6%	23.4%	17.7%	18.6%	11.5%	21.6%	14.6%	21.8%	16.4%
2018	-4.4%	-5.1%	-9.0%	-7.9%	-7.5%	-10.3%	-13.6%	-7.8%	-11.1%	-13.4%	-15.0%
2019	31.5%	30.7%	27.8%	28.4%	27.0%	25.0%	23.2%	27.7%	25.3%	22.7%	22.1%
CAGR 90-19	10.0%	10.2%	7.3%	8.8%	11.4%	9.5%	12.3%	8.9%	11.8%	9.7%	11.1%
CAGR 90-99	18.2%	17.9%	11.0%	14.7%	17.8%	13.0%	16.7%	13.7%	17.1%	12.2%	14.0%
CAGR 00-09	-0.9%	0.0%	1.1%	0.8%	4.0%	4.8%	8.4%	2.1%	6.1%	7.2%	7.8%
CAGR 10-19	13.6%	13.5%	10.2%	11.4%	13.0%	10.7%	11.9%	11.3%	12.5%	9.9%	8.1%

Note: All index return data has had a representative expense ratio subtracted. See Data Disclosure for details.

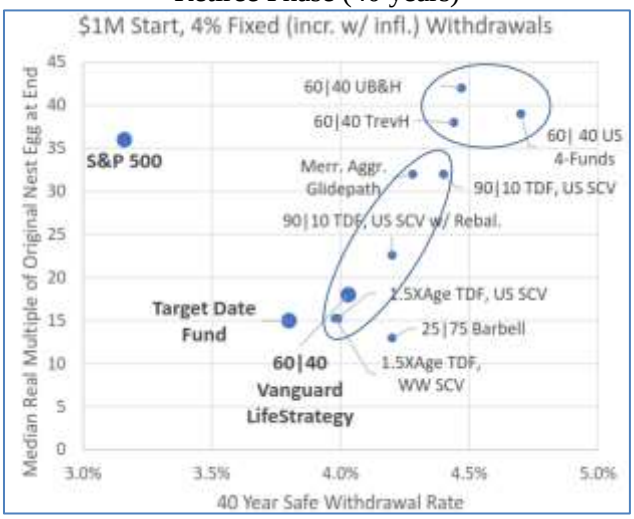
Chris Pedersen: Simple & Effective Balanced Portfolios for Lifetime Investing Success

This presentation analyzes the risk/return of portfolios similar to the ones presented in Merrimans demonstration over a 40 year period. The goal is to maximize gain and minimize risk. Note, this presentation provides a number of great index funds that represent the various sectors (see image below)



Accumulation Phase (40 years)

Retiree Phase (40 years)



Conclusion: These presentations provide a broad overview of a few different approaches to take to create a simplified portfolio that may perform better with less risk over long time periods than a simple S&P 500 index, but the investor who decides to follow this approach must accept that their portfolio may not perform well for extended periods of time! Ultimately, the portfolio you select will not impact the mechanics of the application of your successful retirement plan presented in this book.

Chapter 5: Preretirement Planning

At this point we have reviewed the first three elements of a retirement plan:

1. Allocation – You have chosen the appropriate allocation of securities that fit your needs, risk tolerance and cash requirements.
2. Vehicles – You have selected the appropriate vehicles for your tax requirements.
3. Place Investments – You have identified individual investments and placed them in the appropriate investment Vehicle.

This chapter will now help you assess when you can afford to retire, how much you will need to save each year to meet your retirement goals. A planning system will be introduced to show a path to reaching your retirement goals and adjust the plan as market conditions change. This is accomplished through a Gate system as summarized below:

- Gate 1: Quick and Dirty – Provide a rough idea of your future retirement income by considering both your current retirement investments and the amount you are saving annually.
- Gate 2: Assess Your Future Needs – Determine how much you need on an annual basis in retirement as well as a rough estimate of infrequent expenses such as a new car.
- Gate 3: Estimating Fixed Income Streams – Identify resources that do not come from savings such as Social Security, Pensions, and Annuities.
- Gate 4: Retirement Autopilot – A detailed analysis using the retirement autopilot to calculate how much you should save on an annual basis.
- Gate 5: Just before Retirement – Nailing down your future retirement date.

Chapter Summary

This chapter is where the rubber hits the road. We are introduced to a number of worksheets used to determine your current retirement situation, how to determine your future needs, and finally how to determine the type of lifestyle to expect in retirement. We also discuss how to evaluate an early retirement offer if your company offers you one. Finally, this chapter discusses options on what you might consider to meet the lifestyle you want in retirement if your current situation doesn't appear to support the lifestyle in retirement you would like.

References and Resources

- Social Security Administration Website
  - Retirement Benefits Estimator
- ArtCentrics
  - Chapter 5 Spreadsheets
    - Figure 5.1 Quick and Dirty
    - Figure 5.11 Top-Down
    - Figure 5.12 Bottom-Up
  - What you should know about Social Security

Gate 1: Quick and Dirty

To perform this analysis you will need the following information:

- Total of your retirement investments
- Yearly Savings
- Social Security statement

This worksheet can be used to approximate your before-taxes income in retirement.

Ref: Chapter 5 Spreadsheets: 5.1 Quick and Dirty tab

Figure 5.1

Use Quick and Dirty to Estimate Your Retirement Income (Figure 5.1)

Line	Item	Value	Comments
1	Retirement Investments		
2	Current annual wages		
3	Investments divided by wages		Line 1 divided by Line 2
4	Annual savings		Do not include returns from investments
5	Annual savings as % of annual wages		100 times Line 4 divided by Line 2
6	Years until retire		
7	Aggressive, Moderate or Conservative Investor		
8	Investment Factor		Example: Figure 5.4 for 9 years, Moderate provides 0.52 value
9	Annual Investment Income		Line 2 times Line 8
10	Annual Social Security & COLA pension		
11	Annual fixed pension times current age as %		Example: $10,000 x 56% = $5,600
12	**Estimated retirement income**		Line 9 plus Line 10 plus Line 11

- Line 01: Retirement Investments - Enter the current balance of any investments you expect to use for retirement.
- Line 02: Current annual wages - Enter yearly gross (before taxes) income from your work paycheck. Also include other sources of income including Alimony, Child Support, Government support, Annuity/pension payments. Do Not include interest, dividends or rent in this calculation.
- Line 03: Investments divided by wages – Calculation; Divide Retirement Investments (Line 1) by Current annual wages (Line 2).
- Line 04: Annual savings – Your annual additions to investments includes only savings that come from wages and employer matching funds. Do not include any savings that you might be making from interest, dividends or rent payments.
- Line 05: Annual savings as % of annual wages – Calculation; Annual savings (Line 4) divided by Current annual wages (Line 2) times 100.
- Line 06: Years until retire – This value restricted to the following values 3,6,9,12,15,20,25,30 due to lookup table limitations. If your estimated year is not in this set, Review the lookup values for tables before and after your target years, and make an approximation of what value to use.
- Line 07: Investor Classification – Classify what type of investor you are using the following guidelines:

  - Aggressive – 75% Stocks before retirement, 60% Stocks during retirement
  - Moderate – 50% Stocks before retirement, 40% Stocks during retirement
  - Conservative – 25% Stocks before retirement, 20% Stocks during retirement
- Line 08: Investment Factor – Utilizing Annual savings as % of annual wages (Line 05), Years until retire (Line 06) and your Investor Classification (Line 07) to locate the appropriate lookup table in figures 5.2 – 5.9 to obtain the Investment Factor to enter in this line.
- Line 09: Annual Investment Income – Calculation; This represents the annual before tax retirement income from investments and is calculated by multiplying Current annual wages (Line 02) by the Investment Factor (Line 08).
- Line 10: Annual Social Security & Cola Pension – You can obtain your estimated Social Security Income from the Social Security Administration website. Also include any Annuities/Pensions that include Cost of Living (COLA) Adjustments. Do NOT include Pensions/annuities that do NOT include COLA adjustments.
- Line 11: Annual fixed pension times current age as % - This is where you would include pension/annuities that do not have COLA associated with them. Multiple this value by your age as a percentage.
- Line 12: Estimated Retirement Income: Calculation; The sum of all retirement income includes Annual Investment Income (Line 09), Annual Social Security & COLA pension income (Line 10) and Annual fixed pension times current age as % income (Line 11). This is your before taxes estimated annual retirement income and represents a 80% chance of your funds lasting 25 years in retirement of all possible scenarios from 1926 to 2000.

After completing this worksheet if you discover the amount of income is less than what you think you need for retirement you have three options:

- Retire at an older age or take a part time job in retirement
- Try to save more money each year
- Consider how you might make adjustments to your retirement lifestyle to decrease income needed in retirement.

Figure 5.2 – 5.9

3 Years Until Retirement
Investment Factors

AGGRESSIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
1	0.06	0.07	0.07	0.08	0.08	0.09	0.09	0.10
2	0.12	0.13	0.13	0.14	0.14	0.15	0.15	0.16
4	0.24	0.25	0.25	0.26	0.26	0.27	0.27	0.28
6	0.36	0.37	0.37	0.38	0.38	0.38	0.39	0.39
8	0.48	0.48	0.49	0.49	0.50	0.50	0.51	0.51
10	0.60	0.60	0.61	0.61	0.62	0.62	0.63	0.63
12	0.72	0.72	0.73	0.73	0.74	0.74	0.75	0.75
16	0.95	0.96	0.96	0.97	0.97	0.98	0.98	0.99
20	1.19	1.20	1.20	1.21	1.21	1.21	1.22	1.22

MODERATE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
1	0.06	0.06	0.07	0.07	0.08	0.08	0.08	0.09
2	0.11	0.12	0.12	0.12	0.13	0.13	0.14	0.14
4	0.22	0.22	0.23	0.23	0.24	0.24	0.24	0.25
6	0.32	0.33	0.33	0.34	0.34	0.35	0.35	0.36
8	0.43	0.44	0.44	0.44	0.45	0.45	0.46	0.46
10	0.54	0.54	0.55	0.55	0.56	0.56	0.57	0.57
12	0.64	0.65	0.65	0.66	0.66	0.67	0.67	0.68
16	0.86	0.86	0.87	0.87	0.88	0.88	0.89	0.89
20	1.07	1.08	1.08	1.09	1.09	1.09	1.10	1.10

CONSERVATIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
1	0.05	0.06	0.06	0.07	0.07	0.07	0.08	0.08
2	0.10	0.11	0.11	0.11	0.12	0.12	0.13	0.13
4	0.20	0.20	0.21	0.21	0.21	0.22	0.22	0.23
6	0.29	0.30	0.30	0.31	0.31	0.32	0.32	0.32
8	0.39	0.40	0.40	0.40	0.41	0.41	0.42	0.42
10	0.49	0.49	0.50	0.50	0.51	0.51	0.51	0.52
12	0.59	0.59	0.59	0.60	0.60	0.61	0.61	0.62
16	0.78	0.78	0.79	0.79	0.80	0.80	0.80	0.81
20	0.97	0.98	0.98	0.99	0.99	0.99	1.00	1.00

FIGURE 5.2 Find your investment factor if you are 3 years from retirement.

6 Years Until Retirement
Investment Factors

AGGRESSIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
1	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15
2	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22
4	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36
6	0.42	0.43	0.44	0.45	0.46	0.47	0.49	0.50
7	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56
8	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63
10	0.70	0.71	0.72	0.73	0.74	0.75	0.76	0.77
12	0.83	0.84	0.86	0.87	0.88	0.89	0.90	0.91
14	0.97	0.98	0.99	1.00	1.01	1.02	1.03	1.04

MODERATE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
1	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.13
2	0.13	0.14	0.15	0.16	0.17	0.17	0.18	0.19
4	0.25	0.25	0.26	0.27	0.28	0.29	0.30	0.31
6	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43
8	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55
10	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67
12	0.72	0.73	0.74	0.75	0.76	0.76	0.77	0.78
15	0.89	0.90	0.91	0.92	0.93	0.94	0.95	0.96
18	1.07	1.08	1.09	1.10	1.11	1.12	1.13	1.14

CONSERVATIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
1	0.06	0.07	0.08	0.09	0.09	0.10	0.11	0.12
2	0.11	0.12	0.13	0.14	0.15	0.16	0.16	0.17
4	0.22	0.22	0.23	0.24	0.25	0.26	0.27	0.28
6	0.32	0.33	0.34	0.34	0.35	0.36	0.37	0.38
8	0.42	0.43	0.44	0.45	0.46	0.47	0.47	0.48
10	0.53	0.53	0.54	0.55	0.56	0.57	0.58	0.59
12	0.63	0.64	0.65	0.66	0.66	0.67	0.68	0.69
16	0.84	0.85	0.85	0.86	0.87	0.88	0.89	0.90
20	1.04	1.05	1.06	1.07	1.08	1.09	1.10	1.10

FIGURE 5.3 Find your investment factor if you are 6 years from retirement.

9 Years Until Retirement
Investment Factors

(Line 3)

AGGRESSIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
1	0.10	0.11	0.13	0.15	0.16	0.18	0.20	0.22
2	0.18	0.19	0.21	0.23	0.24	0.26	0.28	0.29
3	0.26	0.27	0.29	0.31	0.32	0.34	0.36	0.37
4	0.33	0.35	0.37	0.39	0.40	0.42	0.44	0.45
5	0.41	0.43	0.45	0.47	0.48	0.50	0.52	0.53
6	0.49	0.51	0.53	0.54	0.56	0.58	0.60	0.61
8	0.65	0.67	0.69	0.70	0.72	0.74	0.75	0.77
10	0.81	0.83	0.85	0.86	0.88	0.90	0.91	0.93
12	0.97	0.99	1.00	1.02	1.04	1.06	1.07	1.09

MODERATE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
1	0.08	0.10	0.11	0.13	0.14	0.15	0.17	0.18
2	0.15	0.16	0.18	0.19	0.21	0.22	0.24	0.25
3	0.21	0.23	0.24	0.26	0.27	0.29	0.30	0.32
5	0.34	0.36	0.37	0.39	0.40	0.42	0.43	0.45
7	0.47	0.49	0.50	0.52	0.53	0.55	0.56	0.58
9	0.60	0.62	0.63	0.65	0.66	0.68	0.69	0.71
11	0.73	0.75	0.76	0.78	0.79	0.81	0.82	0.84
13	0.86	0.88	0.89	0.91	0.92	0.94	0.95	0.97
15	0.99	1.01	1.02	1.04	1.05	1.07	1.08	1.10

CONSERVATIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
1	0.07	0.08	0.10	0.11	0.12	0.14	0.15	0.16
3	0.18	0.19	0.21	0.22	0.23	0.25	0.26	0.27
5	0.29	0.30	0.32	0.33	0.34	0.36	0.37	0.38
7	0.40	0.41	0.43	0.44	0.45	0.47	0.48	0.49
9	0.51	0.52	0.54	0.55	0.56	0.58	0.59	0.60
11	0.62	0.63	0.65	0.66	0.67	0.69	0.70	0.71
13	0.73	0.74	0.76	0.77	0.78	0.80	0.81	0.83
15	0.84	0.86	0.87	0.88	0.90	0.91	0.92	0.94
17	0.95	0.97	0.98	0.99	1.01	1.02	1.03	1.05

FIGURE 5.4 Find your investment factor if you are 9 years from retirement.

12 Years Until Retirement
Investment Factors

(Line 5)

AGGRESSIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
0	0.02	0.05	0.07	0.10	0.12	0.15	0.17	0.20
1	0.12	0.14	0.17	0.19	0.21	0.24	0.26	0.29
2	0.21	0.23	0.26	0.28	0.31	0.33	0.36	0.38
3	0.30	0.32	0.35	0.37	0.40	0.42	0.45	0.47
4	0.39	0.42	0.44	0.47	0.49	0.51	0.54	0.56
5	0.48	0.51	0.53	0.56	0.58	0.61	0.63	0.66
7	0.67	0.69	0.72	0.74	0.77	0.79	0.82	0.84
8	0.76	0.78	0.81	0.83	0.86	0.88	0.91	0.93
9	0.85	0.88	0.90	0.93	0.95	0.97	1.00	1.02

MODERATE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
0	0.02	0.04	0.06	0.08	0.11	0.13	0.15	0.17
1	0.09	0.11	0.14	0.16	0.18	0.20	0.22	0.24
2	0.17	0.19	0.21	0.23	0.25	0.27	0.29	0.31
4	0.31	0.33	0.35	0.37	0.39	0.41	0.44	0.46
6	0.45	0.47	0.50	0.52	0.54	0.56	0.58	0.60
8	0.60	0.62	0.64	0.66	0.68	0.70	0.72	0.74
10	0.74	0.76	0.78	0.80	0.83	0.85	0.87	0.89
12	0.89	0.91	0.93	0.95	0.97	0.99	1.01	1.03
15	1.10	1.12	1.14	1.17	1.19	1.21	1.23	1.25

CONSERVATIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
0	0.02	0.04	0.06	0.07	0.09	0.11	0.13	0.15
1	0.08	0.10	0.11	0.13	0.15	0.17	0.19	0.21
2	0.14	0.15	0.17	0.19	0.21	0.23	0.25	0.27
4	0.25	0.27	0.29	0.31	0.33	0.35	0.37	0.38
6	0.37	0.39	0.41	0.43	0.45	0.46	0.48	0.50
8	0.49	0.51	0.53	0.55	0.56	0.58	0.60	0.62
12	0.73	0.74	0.76	0.78	0.80	0.82	0.84	0.86
16	0.96	0.98	1.00	1.02	1.04	1.05	1.07	1.09
20	1.20	1.22	1.23	1.25	1.27	1.29	1.31	1.33

FIGURE 5.5 Find your investment factor if you are 12 years from retirement.

15 Years Until Retirement Investment Factors

AGGRESSIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
0	0.03	0.07	0.10	0.13	0.17	0.20	0.23	0.27
1	0.14	0.17	0.21	0.24	0.27	0.31	0.34	0.37
2	0.25	0.28	0.31	0.35	0.38	0.41	0.45	0.48
3	0.35	0.39	0.42	0.45	0.49	0.52	0.55	0.58
4	0.46	0.49	0.53	0.56	0.59	0.62	0.66	0.69
5	0.57	0.60	0.63	0.67	0.70	0.73	0.76	0.80
6	0.67	0.71	0.74	0.77	0.80	0.84	0.87	0.90
7	0.78	0.81	0.84	0.88	0.91	0.94	0.98	1.01
8	0.89	0.92	0.95	0.98	1.02	1.05	1.08	1.12

MODERATE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
0	0.03	0.06	0.08	0.11	0.14	0.17	0.19	0.22
1	0.11	0.14	0.16	0.19	0.22	0.25	0.27	0.30
2	0.19	0.21	0.24	0.27	0.30	0.33	0.35	0.38
3	0.27	0.29	0.32	0.35	0.38	0.41	0.43	0.46
5	0.43	0.45	0.48	0.51	0.54	0.56	0.59	0.62
7	0.59	0.61	0.64	0.67	0.70	0.72	0.75	0.78
9	0.74	0.77	0.80	0.83	0.86	0.88	0.91	0.94
11	0.90	0.93	0.96	0.99	1.02	1.04	1.07	1.10
13	1.06	1.09	1.12	1.15	1.17	1.20	1.23	1.26

CONSERVATIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
0	0.02	0.05	0.07	0.10	0.12	0.14	0.17	0.19
1	0.09	0.11	0.13	0.16	0.18	0.21	0.23	0.25
2	0.15	0.17	0.20	0.22	0.25	0.27	0.29	0.32
4	0.28	0.30	0.32	0.35	0.37	0.40	0.42	0.44
6	0.40	0.43	0.45	0.47	0.50	0.52	0.54	0.57
9	0.59	0.61	0.64	0.66	0.69	0.71	0.73	0.76
12	0.78	0.80	0.83	0.85	0.87	0.90	0.92	0.95
15	0.97	0.99	1.02	1.04	1.06	1.09	1.11	1.14
18	1.16	1.18	1.20	1.23	1.25	1.28	1.30	1.32

FIGURE 5.6 Find your investment factor if you are 15 years from retirement.

20 Years Until Retirement Investment Factors

AGGRESSIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
0	0.05	0.10	0.15	0.20	0.25	0.30	0.36	0.41
0.5	0.12	0.17	0.22	0.27	0.32	0.37	0.42	0.47
1	0.19	0.24	0.29	0.34	0.39	0.44	0.49	0.54
1.5	0.25	0.31	0.36	0.41	0.46	0.51	0.56	0.61
2	0.32	0.37	0.42	0.48	0.53	0.58	0.63	0.68
3	0.46	0.51	0.56	0.61	0.66	0.71	0.76	0.81
4	0.59	0.65	0.70	0.75	0.80	0.85	0.90	0.95
5	0.73	0.78	0.83	0.88	0.93	0.98	1.04	1.09
6	0.87	0.92	0.97	1.02	1.07	1.12	1.17	1.22

MODERATE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
0	0.04	0.08	0.12	0.16	0.20	0.24	0.28	0.32
1	0.13	0.18	0.22	0.26	0.30	0.34	0.38	0.42
2	0.23	0.27	0.31	0.35	0.39	0.43	0.47	0.51
3	0.32	0.36	0.40	0.44	0.49	0.53	0.57	0.61
4	0.42	0.46	0.50	0.54	0.58	0.62	0.66	0.70
5	0.51	0.55	0.59	0.63	0.67	0.71	0.75	0.80
6	0.61	0.65	0.69	0.73	0.77	0.81	0.85	0.89
8	0.79	0.83	0.88	0.92	0.96	1.00	1.04	1.08
10	0.98	1.02	1.06	1.10	1.14	1.19	1.23	1.27

CONSERVATIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
0	0.03	0.07	0.10	0.14	0.17	0.20	0.24	0.27
1	0.10	0.14	0.17	0.21	0.24	0.27	0.31	0.34
2	0.17	0.21	0.24	0.28	0.31	0.34	0.38	0.41
3	0.24	0.28	0.31	0.35	0.38	0.41	0.45	0.48
5	0.38	0.42	0.45	0.49	0.52	0.55	0.59	0.62
7	0.52	0.56	0.59	0.63	0.66	0.69	0.73	0.76
9	0.67	0.70	0.73	0.77	0.80	0.83	0.87	0.90
12	0.88	0.91	0.94	0.98	1.01	1.04	1.08	1.11
16	1.16	1.19	1.22	1.26	1.29	1.33	1.36	1.39

FIGURE 5.7 Find your investment factor if you are 20 years from retirement.

25 Years Until Retirement Investment Factors

AGGRESSIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
0	0.07	0.15	0.22	0.29	0.37	0.44	0.51	0.59
0.5	0.16	0.23	0.31	0.38	0.45	0.53	0.60	0.67
1	0.25	0.32	0.39	0.47	0.54	0.61	0.69	0.76
1.5	0.33	0.41	0.48	0.55	0.63	0.70	0.77	0.85
2	0.42	0.49	0.57	0.64	0.71	0.79	0.86	0.93
2.5	0.51	0.58	0.65	0.73	0.80	0.87	0.95	1.02
3	0.59	0.67	0.74	0.81	0.89	0.96	1.03	1.11
3.5	0.68	0.75	0.83	0.90	0.97	1.05	1.12	1.19
4	0.77	0.84	0.91	0.99	1.06	1.13	1.21	1.28

MODERATE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
0	0.06	0.11	0.17	0.22	0.28	0.33	0.39	0.45
1	0.17	0.22	0.28	0.33	0.39	0.45	0.50	0.56
2	0.28	0.33	0.39	0.45	0.50	0.56	0.61	0.67
3	0.39	0.45	0.50	0.56	0.61	0.67	0.72	0.78
4	0.50	0.56	0.61	0.67	0.72	0.78	0.83	0.89
5	0.61	0.67	0.72	0.78	0.83	0.89	0.95	1.00
6	0.72	0.78	0.83	0.89	0.95	1.00	1.06	1.11
8	0.95	1.00	1.06	1.11	1.17	1.22	1.28	1.34
10	1.17	1.22	1.28	1.34	1.39	1.45	1.50	1.56

CONSERVATIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
0	0.04	0.09	0.13	0.18	0.22	0.27	0.31	0.36
1	0.12	0.17	0.21	0.26	0.30	0.35	0.39	0.44
2	0.20	0.25	0.29	0.34	0.38	0.43	0.47	0.51
3	0.28	0.32	0.37	0.41	0.46	0.50	0.55	0.59
4	0.36	0.40	0.45	0.49	0.54	0.58	0.63	0.67
6	0.51	0.56	0.60	0.65	0.69	0.74	0.78	0.83
9	0.75	0.79	0.84	0.88	0.93	0.97	1.02	1.06
12	0.98	1.03	1.07	1.12	1.16	1.21	1.25	1.30
15	1.22	1.26	1.31	1.35	1.40	1.44	1.49	1.53

FIGURE 5.8 Find your investment factor if you are 25 years from retirement.

30 Years Until Retirement Investment Factors

AGGRESSIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
1	0.32	0.43	0.53	0.63	0.73	0.83	0.94	1.04
2	0.54	0.65	0.75	0.85	0.95	1.06	1.16	1.26
3	0.77	0.87	0.97	1.07	1.17	1.28	1.38	1.48
6	1.43	1.53	1.63	1.74	1.84	1.94	2.04	2.14
9	2.09	2.20	2.30	2.40	2.50	2.60	2.71	2.81
12	2.76	2.86	2.96	3.06	3.17	3.27	3.37	3.47
15	3.42	3.52	3.63	3.73	3.83	3.93	4.04	4.14
16	3.64	3.75	3.85	3.95	4.05	4.15	4.26	4.36
3	0.77	0.87	0.97	1.07	1.17	1.28	1.38	1.48

MODERATE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
0	0.07	0.15	0.22	0.29	0.37	0.44	0.51	0.59
1	0.21	0.28	0.35	0.43	0.50	0.57	0.65	0.72
2	0.34	0.41	0.48	0.56	0.63	0.70	0.78	0.85
3	0.47	0.54	0.62	0.69	0.76	0.84	0.91	0.98
4	0.60	0.67	0.75	0.82	0.89	0.97	1.04	1.11
5	0.73	0.81	0.88	0.95	1.03	1.10	1.17	1.25
6	0.86	0.94	1.01	1.08	1.16	1.23	1.30	1.38
7	0.99	1.07	1.14	1.22	1.29	1.36	1.44	1.51
8	1.13	1.20	1.27	1.35	1.42	1.49	1.57	1.64

CONSERVATIVE

Investments Divided by Wages	Annual Savings as % of Wages							
	3%	6%	9%	12%	15%	18%	21%	24%
0	0.06	0.11	0.17	0.23	0.29	0.34	0.40	0.46
1	0.14	0.20	0.26	0.32	0.37	0.43	0.49	0.54
2	0.23	0.29	0.35	0.40	0.46	0.52	0.57	0.63
3	0.32	0.38	0.43	0.49	0.55	0.60	0.66	0.72
4	0.41	0.46	0.52	0.58	0.63	0.69	0.75	0.81
6	0.58	0.64	0.69	0.75	0.81	0.87	0.92	0.98
9	0.84	0.90	0.96	1.01	1.07	1.13	1.18	1.24
12	1.10	1.16	1.22	1.27	1.33	1.39	1.45	1.50
15	1.37	1.42	1.48	1.54	1.59	1.65	1.71	1.76

FIGURE 5.9 Find your investment factor if you are 30 years from retirement.

Gate 2: Assess Your Future Needs

This section is devoted to determining how much you will need to save for retirement. Your retirement needs are broken down into two categories:

- Reoccurring Annual Expenses – Regular expenses that you anticipate reoccur on a regular basis (i.e. Insurance, electricity bills, Gym membership, prescriptions, etc.).
- Infrequent Expenses – Non reoccurring expenses such as purchasing a new house or car, roof repair, big vacation etc.

Once these expenses have been identified you are ready to proceed with determining your savings requirements. There are four methods provided in this section ranging from easiest (and least accurate) to most complex (and accurate).

The 70% Approximation Many programs and guides suggest that you will need approximately 70% of your income in retirement. This is based on the studies that show that retired persons live on that approximate percent in retirement on average. This is a dangerous assumption since it does not indicate the persons in retirement are living a lifestyle that they desire. It also assumes you will be paying a lower tax rate in retirement. The 70% approximation is a poor tool to use in estimating needs in retirement and should not be used. It is mentioned in this text to warn you not to utilize it.

The 100% Alternative While there are a number of expenses that may be eliminated in retirement, other expenses may increase in retirement including higher health care cost, more vacations, etc. Indeed, many retirees find expenses during the initial years after retirement can higher due to a more active lifestyle and other expenses such as moving to a new home. This is the method to use if you are not interested in doing a detailed analysis, or far from retirement (10+ years?).

The Top-Down Analysis In this method the budget is tailored to your real situation. The closer you are to retirement, the more accurate this analysis can be since unplanned expenses are less likely to occur as retirement approaches. This approach is probably best utilized when retirement is 3 to 10 years away. You will need last years tax returns to complete this worksheet.

Ref: Chapter 5 Spreadsheets: 5.11 Top-Down tab

Figure 5.11

A Top-Down Analysis Is a Better Way to Estimate Retirement Needs (Figure 5.11)

Line	Item	Value	Comments
1	Annual take-home pay		Gross wages less all deductions
2	Non Employer Related Savings		Amount from take-home pay that is used for annual savings not in employer's plan
3	Current Annual Expenses		if unknown, Line 01 minus Line 02
4	Temporary Children Expenses		Expenses peculiar to children that won't be needed in retirement
5	Other Temporary Expenses		Other things not needed in retirement
6	Total Temporary Expenses		Line 04 plus Line 05
7	Basic Retirement Expenses		Line 03 minus Line 06
8	Other Retirement Expenses		Other expenses desired during retirement
9	Total Retirement expenses		Step 07 Plus Step 08
10	Last Years Taxes		Last years federal and state income tax from tax return
11	Last Years Taxable Income		Last years taxable income from tax return
12	Estimated Tax Rate		Step 10 divided by Step 11 or your own estimate of tax rate in retirement
13	Retained Funds Factor		1.00 minus Step 12
14	Required Retirement Income		Approximate gross income needed to support retirement expenses Line 9 divided by Line 13

- Line 01: Take Home Pay – Amount of money after all taxes, Social Security, Medicare, Employee sponsored savings plan etc. is subtracted from your pay.
- Line 02: None Employer Related Savings – Money you save for retirement outside of any plans offered by your employer.
- Line 03: Current Annual Expenses – Your annual budget for expenses other than income tax or savings. If you don't have such a budget you can subtract Non Employer Related Savings (Line 02) from Annual Take-Home Pay (Line 01) for an approximation.
- Line 04: Temporary Children Expenses - This would include items such as school related expenses, clothing a fraction of your food bill, etc.
- Line 05: Other Temporary Expenses – Expenses that you expect will be eliminated or reduced once in retirement. This may include savings in gas used to drive to work, work clothing, etc.

- Line 06: Total Temporary Expenses – Temporary Children Expenses (Line 04) + Temporary Other Expenses (Line 05).
- Line 07: Basic Retirement Expenses – Calculation; Current Annual Expenses (Line 03) minus Total Temporary Expenses (Line 06).
- Line 08: Other Retirement Expenses – Additional reoccurring expenses you might incur in retirement such as extra hobby expenses, Memberships, etc.
- Line 09: Total Retirement Expenses – Basic Retirement Expenses (Line 07) plus other Retirement Expenses (Line 08).
- Line 10: Last Years Taxes – Total of amount of State and Federal taxes paid last year.
- Line 11: Last Years Taxable Income – Taxable income as stated in your federal taxes
- Line 12: Estimated Tax Rate – Calculation; Last years tax rate is calculated by dividing Last Years Taxes (Line 10) by Last Years Taxable Income (Line 11).
- Line 13: Retained Funds Factor – Calculation; Factor used in calculating the amount of money available after taxes are paid based on last years taxes, or can be estimated. Using last years taxes you would subtract the Estimated Tax Rate (Line 12) from the number1.00.
- Line 14: Required Retirement Income – Calculation; The approximate amount you will need in retirement. Calculated by dividing Total Retirement Expenses (Line 09) by Retained Funds Factor (Line 13).

The Bottom-Up Analysis This method can be the most accurate of the methods presented. When we perform this analysis, we are trying to capture the annual budget we anticipate for the first 10 years of retirement. It is vital that all expenses are identified and accurate values are provided. This is the method to use when you are close to retirement ie four to one years before retirement. The first year you utilize this method, you should also perform the Top-Down analysis, and compare the two to make sure they are in the same ball-park, If they don't agree, reexamine both and determine the cause of the discrepancy and make appropriate adjustments. I have added an extra line item, Padding (Line 13), to the figure provided in the book as a catch all for additional minor, unaccounted expenses throughout the year, or this line can be used to provide additional padding for unexpected expenses. I would recommend a value in the range of $2,000 - $10,000 or something in the range of 5% – 10% percent of your planned annual budget.

Ref: Chapter 5 Spreadsheets: 5.2 Bottom-Up tab

Figure 5.12

Bottom-Up Analysis of retirement Needs (Figure 5.12)

Line	Item	Current Expenses	Retirement Expenses	Comments
1	Rent and Dept Payments			
2	Utilities & Maintenance			
3	Total Auto Expenses			
4	Food			
5	Uninsured Medical			
6	Insurance			
7	Real Estate Taxes			
8	Entertainment			
9	Vacation			
10	Gifts & Charities			
11	Clothing			
12	Other			
13	Padding			Extra funds for forgotten regular expenses. (5%-10% of budget recomended)
14	Total Annual Expenses			Sum of expenses above
15	Estimated Tax Rate			Estimated tax rate in retirement or last years income taxes divided by taxable income
16	Retained Funds Factor			1.00 minus Line 15
17	**Estimated Required Gross Income**			Line 14 divided by Line 16

Infrequent Expenses One-time expenses that are funded by regular payments or by a loan should be included in the methods listed above. It should be noted the methods provided so far do not take into account one-time expenses that will be funded by your retirement funds. These expenses will be addressed in the planned methods that follow.

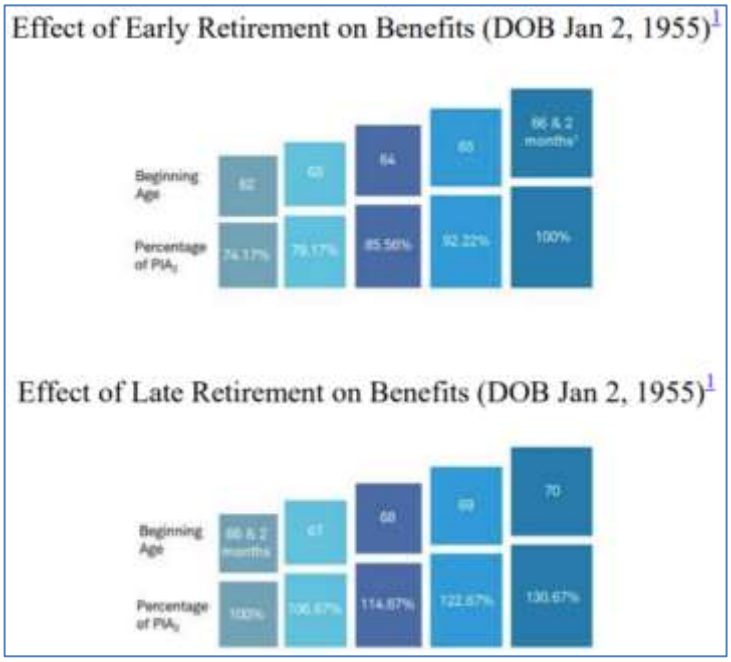
Gate 3: Estimating Your Social Security, Pension, and Annuity Income

When and how you choose to take your Social Security or pension may have a big impact on how much you receive in retirement. This section reviews some of the factors to consider in this decision. For a more in depth review and conversation on Social Security you may want to check out the Meeting What you should know about Social Security on the ArtCentrics website.

The Benefits of Social Security Some of the benefits of Social Security include:

- Cost of Living Adjustments (COLA) - Payments are increased to try to match inflation (it should be noted that these increases probably don't quite keep up with inflation in real-world situations).
- Tax Advantages – Between 0 to 85% of benefits is taxed based on your income.
- Employer Matching – Unless you are self employed, your employer matches your contributions to Social Security.
- Spousal Benefits – Non working spouses are entitled to collect benefits.
- Survivor Benefits - If both spouses contributed to Social Security when one spouse dies the surviving spouse is entitled to receive the greater of the two benefits.
- Independent of Market Conditions – Social Security is not tied to stock market performance.

Estimating Social Security Payments Estimates on how much Social Security you will receive are dependent on your age when you claim it. For most people Full Retirement Age (FRA) is when they are 67 and when you will receive the full retirement benefits. You can begin claiming benefits as early as 62 and as late as 70 years old. Claiming early will decrease your benefits by as much as 25% for the rest of your life; while claiming later will increase your benefits by as much as 31% for life. You can obtain an estimate of your benefits on the Social Security website here. At what age should you claim benefits? That's a complicated question one factor to consider is the break-even age analysis an analysis of what your age will be to have accumulated the same benefits between starting benefits earlier or later than full retirement age. This topic is of central focus in the previously mentioned What you should know about Social Security. The accompanying document can be downloaded here. If you are thinking about claiming Social Security early because you feel you will need the funds, you should consider delaying retirement instead.



Social Security Spousal Benefits If your spouse qualifies for Social Security on their own, you should add your spouse's estimated payments to your own when you are doing your analysis. Even if your spouse doesn't qualify for SSA on their own, they probably will qualify for spousal a benefit which is 50% of your Full Retirement Age benefits if they claim at full retirement age. If the spouse qualifies for Social Security on their own merit, but their benefits would be less then the 50% spousal benefit, they will be paid whichever benefit is greater. Spousal benefits can be claimed earlier, but will be reduced. Again, consult the Social Security website for an exact estimate for whatever scenario you are considering.

Early Social Security Payments For A Non Working Spouse Really Hurt! For the non-working spouse, claiming Social Security can reduce benefits to only 37.5% of the spouses full retirement age benefit.

If Both Spouses Take Early Social Security Payments Benefits to both will be reduced for life. If Social Security is going to be your primary source of income, you probably should not use this tactic.

Late Social Security Payments Of course both will have increased benefits for life. Remember, the percentage of Social Security that is taxable is tied to your income, If one spouse claims early while the other is working, much of the benefit of claiming early may be loss since this may be taxed.

Look Ahead Before Making a Social Security Commitment If you are still far from retirement you probably should assume you will claim at Full Retirement Age (67). If you are closer to retirement you would benefit from calculating different scenarios to understand the impact of when you decide to start benefits. Many people only consider the Break-Even age in determining when to start benefits, this can be a fatal mistake, you are betting on death at a certain age, and if you are wrong this can have serious impact in your later years in life. Break-Even considerations are probably most appropriate for those who have enough funds in their retirement plan that Social Security does not play a vital role.

Doubts About Social Security Viability? Many are concerned that Social Security benefits may be reduced or even eliminated in the future. The probability that it will be eliminate is very low, but a reduction is possible if you would like to take this into consideration when using the auto pilot method by reducing the expected benefit input, or splitting the benefit between the Social Security benefit and a fixed pension benefit.

Social Security Thoughts – I highly recommend viewing the video and associated material on the ArtCentrics website What you should know about Social Security. My recommendation is that if Social Security benefits look like they may be responsible for the lions share of your funding in retirement (ie you don't have many other sources to pull from if there are issues with Social Security) that you should consider delaying claiming benefits to maximize these benefits. Also, if you have a spouse, you may consider having the person that will have less benefits claim early and the person with the most benefits delay claiming until they are 70 years old. This will hedge your bests and ensure the surviving spouse will be able to get the greatest benefits from Social Security.

Pensions Most employers no longer provide pensions. If will have a pension in your retirement plans, remember the relative value of the pension will decline with time due to inflation if your pension doesn't have Cost of Living Adjustments (COLA) include in it; this detail is considered in the Autopilot method calculations.

Cost-Of-Living-Adjustment (COA) Pensions If you have a pension plan with a Cost Of Living Adjustment (COLA) you don't need to worry about making any inflation adjustments, the autopilot method will do this. If you are already getting a COLA pension, then use this year's annual amount as a COLA pension entry in the planning analysis. If you expect to get a COLA pension in the future when you retire, enter your employer's estimate in the planning analysis.

Fixed Pensions in Our Projections Fixed pensions are pensions where the amount you receive each year after retirement is fixed and does not have a COLA. It can be difficult to predict the actual future value of your pension when you retire, to do this we will need the estimated value at the date of retirement from your employer and utilize figure 2.6 to convert this to today's dollars.

Pension Values Depend on Length of Service Most pension plans factor length of service, employee pay in determining your benefits. If possible you should obtain this value directly from your employer for your targeted retirement date. If an estimated value is not available from your employer you can use this equation as a first approximation.

$$Estimated\ Benefits = (Employer\ Quoted\ Benefits) * \frac{(Your\ Assumed\ Years\ of\ Service)}{(Employer's assumed\ years\ of\ service)}$$

If You Are Already Getting Fixed Payments Before you Retire If you are already receiving a pension you will still need to calculate what the value of that pension in todays dollars will be when you retire. This can be done using figure 2.6.

Discounting Your Future Pension If you think there is a possibility that the source of your pension could get into serious financial trouble, then you should reduce its value in the analysis. If this is only a small probability, it is worth discounting your pension by some small amount, perhaps 1% above the inflation rate, to allow for it. You should make your estimates of your future pension based on the circumstances between now and your eventual retirement.

Annuities An annuity is a contract between you and a financial institution. Your employer may offer you a choice of a lump sum on retirement or an annuity. Often the returns on an annuity so low that you would be better off to take the lump sum, but the lifetime payments may have other attractive features in your particular case. If the annuity option is considered severance pay, you will have Social Security and Medicare deductions taken out until you die, so you should also consider this negative feature. If you are a number of years away from retirement, the best thing to do is to assume you will get the lump sum and include it with your investments in your preretirement planning analysis.

Which Survivor Options Should I Use for Planning? Many pension plans offer continued spousal benefits after you die at varying levels, typically 100%, 75% and 50% each of these options will reduces your benefit.

Gate 4: Planning with the Retirement Autopilot

This section is where we determine how much you need to save to meet your retirement goals. These goals should cover both the annual expenses in retirement, and any major purchases after you retire.

Using the Preretirement Worksheet Complete Figure 5.15 to determine the status of your retirement plans and to see if you are on track or need to make adjustments to your savings. This process should be reviewed and completed each year.

Figure 5.15

Preretirement Worksheet (Figure 5.15)

- All entries should be before-tax values
- All entries should be in todays dollar values

Line	Item	Value	Comments
1	Annual Social Security and COLA pensions		Include values for you and your spouse
2	Fixed Pensions and Annuities		Annual fixed pensions in todays dollars
3	Age you will retire		The age of the younger spouse when you retire
4	Fixed Pension Factor		Factor from Figure 5.16 using Line 03 and your chosen inflation estimate.
5	Estimated Pension Value		Estimated pension value in todays dollars - Line 02 times Line 04
6	Real Estate Cash Flow		Current annual before-tax cash flow from investment real estate
7	Estimated Annual Retirement Expenses		Entry in todays dollars, Include income tax & debt payments
8	Annual Total Income		Income from sources in todays dollars. Line 01 Plus Line 05 Plus Line 06
9	Annual Shortfall		Line 07 minus Line 08
10	Preretirement Return		Real return before retirement. See Figure 4.4 or Figure 4.5
11	Postretirement Return		1/2 x real return after retire. See Figure 4.5
12	Postretirement Savings Factor		Factor from Fig 5.17 using values closest to Line 03 & Line 11
13	Accumulated Shortfall		Expected compounded value of savings.
14	Major Purchases		Major purchases during retirement, e.g. condo, etc.
15	Total Retirement Deficit		Line 13 plus Line 14
16	Current Assets		Current balance of all investment less equity used to produce cash flow in Line 06
17	Large Preretirement Expenses		e.g. kid's college, expenses, etc.

18			Line 16 minus Line 17
19	Number of Years Until You Retire		
20	Preretirement Savings Factor		Factor from Figure 5.18 for values closest to Line 10 and Line 19
21	Excess Growth		Line 18 times Line 20
22	**Savings shortfall**		Line 15 - Line 21
23	Preretirement Savings Factor		Factor from Figure 5.19 using values closest to Line 10 and Line 19
24	Increase Yearly Savings		Line 22 divided by Line 23 (Enter 0 if negative)
25	Real Estate Reinvestment		Amount of Line 06 that you are investing
26	**Required Savings Increase**		Line 24 minus Line 25
27	Current gross annual wages		Excluding employer matching contributions to savings
28	**Percent Savings Increase**		100 times (Line 26 divided by Line 27)

- Line 01: Annual Social Security and COLA pensions – Combined values for Social Security of you and your spouse. Also include any other COLA pensions. You can obtain an estimate of your benefits on the Social Security website here. If you plan on retiring before 62 reduce the estimated benefit of 62 by 3.6% for each year to ensure calculations work out correctly in this worksheet.
- Line 02: Fixed Pensions Annuities – Your employer's estimate of your future annual pension if (1) you can start fixed pension payments in the year you retire (2) if your employer did not assume any wage increases when calculating the expected value of your pension. If either of these things is not true, or you are uncertain, the simplest thing to do is to multiply your employer's estimate times a factor from Figure 2.6 using the 3% column and the number of years until you will collect the payments.
- Line 03: Age you will Retire – If you are single enter the age you will be when you retire. If you are married enter the age of whichever spouse is younger in the year you want to retire.
- Line 04: Fixed Pension Factor – Lookup; Using Figure 15.16 select a column corresponding to an inflation rate you think will apply to your retirement years. It is better to select a conservative (higher) inflation rate than a lower one.
- Line 05: Estimated Pension Value – Calculation; The estimated value in todays dollars for your pension plan(s) identified in line 02. Calculated by Multiplying Fixed Pensions Annuities (Line 02) times Fixed Pension Factor (Line 04).
- Line 06: Real Estate Cash Flow – Current annual before-tax cash flow from investment real estate. Only make an entry here (before-tax annual rent minus cost, interest, and property taxes, not depreciation) if you expect to own this investment through most of your retirement. If you make an entry here, don't include your equity in the real estate in Line 16.
- Line 07: Estimated Annual Retirement Expenses – Previous Work; This is an estimate of your expense in retirement in todays dollars. You should have this from earlier work in this chapter (ie Figure 5.12, or Figure 5.11). If you have not calculated these values you can use the 100% of your current income as a proxy. Expenses include normal annual retirement living expenses, income tax, and annual debt payments including home mortgage that you will be making for at least five years of retirement
- Line 08: Annual Total Income – Calculation; The sum of Annual Social Security and COLA pensions (Line 01) plus Estimated Pension Value (Line 05) plus Real Estate Cash Flow (Line 06).
- Line 09: Annual Shortfall - Calculation; This is the extra yearly amount of money you will need in retirement to be able to meet your estimated annual expenses in retirement. Estimated Annual retirement Expenses (Line07) minus Annual Total Income (Line 08).
- Line 10: Preretirement Return – Previous Work; An estimate of the Real Return (approximately the actual return minus inflation) for your investments before you retire. If you completed the worksheet in Figure 4.4 use this result otherwise use the appropriate value from Figure 4.5.

- Line 11: Postretirement Return – A conservative estimate of the Real Return for post retirement. You are instructed to use ½ of the calculated real return from Figure 4.5 with your estimated retirement allocation to account for reverse dollar cost averaging.
- Line 12: Postretirement Savings Factor – Lookup; Referencing Figure 5.17 use Postretirement Return (Line 11) and Age you will retire (Line 03) to obtain this value.
- Line 13: Accumulated Shortfall – Calculation; Estimated amount of accumulated shortfall in retirement until you expire with compound growth in todays dollars. Annual Shortfall (Line 09) times Postretirement Savings Factor (Line 12).
- Line 14: Major Purchase – Estimate of retirement expenses that are not included in the Estimated Annual Retirement Expenses (Line 07). Include large purchases like autos, or a vacation home in today's values. Then divide by (1.00 minus your income tax rate expressed as a decimal).
- Line 15: Total Retirement Deficit – Calculation; This is the sum total of all the accumulated shortfall over your retirement. Add Accumulated Shortfall (Line 13) and Major Purchases (Line 14).
- Line 16: Current Assets – Previous Work; Sum total of all investments including employer savings plans, stocks, CDs, Mutual Funds, Bank Accounts etc. Include any investment real estate equity (market price minus debt) that was not used as a source for cash in Real Estate Cash Floe (Line 06). It is better not to include your home equity for preretirement plans. This work was performed in Figure 3.11.
- Line 17: Large Preretirement Expenses – Large expenses that will come before retirement and that will be paid from your existing investments and NOT paid from your wages. You must make an adjustment of income tax using the same technique as used in calculating Major Purchase (Line 14). Take the estimated value then divide by (1.00 minus your income tax rate expressed as a decimal).
- Line 18: Preretirement Excess – Calculation; This shows any funds you will have remaining for funding your retirement after making large purchases with your current assets. A negative value indicates a shortfall. This is calculated by subtracting Large Preretirement Expenses (Line 17) from Current Assets (Line 16).
- Line 19: Number of Years Until You Retire – The number of years from today until you retire.
- Line 20: Preretirement Savings Factor – Lookup; Utilizing Figure 5.18 and Preretirement Return (Line 10) and Number of Years Until You Retire (Line19) to locate this value.
- Line 21: Excess Growth – Projected growth of Preretirement Excess (Line18) from current day until your retirement. Multiply Preretirement Excess (Line 18) by Preretirement Savings Factor (Line 20).
- Line 22: Savings Shortfall – This represents the amount of money that you have to make up to fund your retirement. Hopefully this is a negative number if so, it shows you are on track! Don't forget to re-evaluate every year since marks do change and can impact the outcome of this exercise.
- Line 23: Preretirement Savings Factor – Lookup; This factor is used to scale the savings shortfall to an annual amount. Use Figure 5.19 and Preretirement Return (Line 10) and Number of Years Until You Retire (Line 19) to obtain this value.
- Line 24: Increase Yearly Savings – This indicated the increase in your yearly savings you will need to make to fund your retirement.
- Line 25: Real Estate Reinvestment – This is the amount of money from Real Estate Cash Flow (Line 06) that you plan on investing.
- Line 26: Required Savings Increase – Calculation; This represents how much you will need to increase your savings this year to fund your retirement. Subtract Increase yearly Savings (Line 24) from Real Estate Reinvestment (Line 25)
- Line 27: Current Gross Annual Wages – Enter your gross annual wages excluding any employer matching funds. Gross wages are wages before any deductions for taxes, savings plans and the like.
- Line 28: Percent Savings Increase – Calculation; This is the percent of your gross wages you will need to increase to savings for retirement to meet your retirement goals.

Lookup Tables: Figures 5.16 – 5.19

Fixed Pension Factors

Age of Younger Spouse	Life Expectancy Years	Fixed Pension Factors for Different Inflation Rates		
		3%	5%	7%
55	34.4	0.63	0.48	0.37
56	33.4	0.63	0.48	0.38
57	32.5	0.64	0.49	0.39
58	31.5	0.65	0.50	0.39
59	30.6	0.66	0.51	0.40
60	29.7	0.66	0.52	0.41
61	28.7	0.67	0.53	0.42
62	27.8	0.68	0.54	0.43
63	26.9	0.69	0.55	0.44
64	25.9	0.69	0.56	0.45
65	25.0	0.70	0.57	0.46
66	24.1	0.71	0.58	0.47
67	23.2	0.72	0.59	0.48
68	22.3	0.73	0.60	0.50
69	21.5	0.73	0.61	0.51
70	20.6	0.74	0.62	0.52
71	19.8	0.75	0.63	0.53
72	18.8	0.76	0.64	0.54
73	18.1	0.77	0.65	0.55
74	17.3	0.77	0.66	0.57
75	16.5	0.78	0.67	0.58
76	15.7	0.79	0.68	0.59
77	15.0	0.80	0.69	0.61
78	14.2	0.81	0.70	0.62
79	13.5	0.81	0.72	0.63

FIGURE 5.16 Select a future inflation value. Then find the fixed pension factor in the row corresponding to your retirement age (if single) or the age of the younger spouse (if married).

Postretirement Savings Factors

Age of Younger Spouse	Savings Factors for Various Real Returns								
	4.0%	3.0%	2.5%	2.0%	1.5%	1.0%	0.5%	0.0%	-1.0%
55	18.9	21.6	23.2	24.9	26.9	29.1	31.6	34.4	41.1
56	18.6	21.2	22.7	24.4	26.3	28.4	30.8	33.4	39.7
57	18.4	20.9	22.3	24.0	25.8	27.8	30.0	32.5	38.4
58	18.1	20.5	21.9	23.4	25.1	27.0	29.2	31.5	37.1
59	17.8	20.1	21.5	22.9	24.6	26.4	28.4	30.6	35.8
60	17.5	19.8	21.0	22.5	24.0	25.7	27.6	29.7	34.6
61	17.2	19.3	20.6	21.9	23.4	25.0	26.7	28.7	33.3
62	16.9	19.0	20.1	21.4	22.8	24.3	26.0	27.8	32.1
63	16.6	18.6	19.7	20.9	22.2	23.6	25.2	26.9	30.9
64	16.3	18.1	19.1	20.3	21.5	22.8	24.3	25.9	29.6
65	15.9	17.7	18.7	19.7	20.9	22.1	23.5	25.0	28.4
66	15.6	17.2	18.2	19.2	20.3	21.4	22.7	24.1	27.3
67	15.2	16.8	17.7	18.6	19.6	20.7	21.9	23.2	26.1
68	14.9	16.3	17.1	18.0	19.0	20.0	21.1	22.3	25.0
69	14.5	15.9	16.7	17.5	18.4	19.4	20.4	21.5	24.0
70	14.1	15.4	16.1	16.9	17.7	18.6	19.6	20.6	22.9
71	13.8	15.0	15.7	16.4	17.1	18.0	18.9	19.8	21.9
72	13.3	14.4	15.0	15.7	16.4	17.1	17.9	18.8	20.7
73	13.0	14.0	14.6	15.2	15.9	16.6	17.3	18.1	19.9
74	12.6	13.5	14.1	14.6	15.3	15.9	16.6	17.3	18.9
75	12.1	13.1	13.6	14.1	14.6	15.2	15.8	16.5	17.9
76	11.7	12.6	13.0	13.5	14.0	14.5	15.1	15.7	17.0
77	11.3	12.1	12.5	13.0	13.4	13.9	14.5	15.0	16.2
78	10.9	11.6	12.0	12.4	12.8	13.2	13.7	14.2	15.3
79	10.5	11.1	11.5	11.8	12.2	12.6	13.1	13.5	14.5

FIGURE 5.17 Select a real return for postretirement investments. Then find the savings factor in the row corresponding to your retirement age (if single) or the age of the younger spouse (if married).

Preretirement Current Savings Factors

Years till Retire	Savings Factors for Various Real Returns								
	8.0%	7.0%	6.0%	5.0%	4.0%	3.0%	2.0%	1.0%	0.0%
0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2	1.17	1.14	1.12	1.10	1.08	1.06	1.04	1.02	1.00
4	1.36	1.31	1.26	1.22	1.17	1.13	1.08	1.04	1.00
6	1.59	1.50	1.42	1.34	1.27	1.19	1.13	1.06	1.00
8	1.85	1.72	1.59	1.48	1.37	1.27	1.17	1.08	1.00
10	2.16	1.97	1.79	1.63	1.48	1.34	1.22	1.10	1.00
12	2.52	2.25	2.01	1.80	1.60	1.43	1.27	1.13	1.00
14	2.94	2.58	2.26	1.98	1.73	1.51	1.32	1.15	1.00
16	3.43	2.95	2.54	2.18	1.87	1.60	1.37	1.17	1.00
18	4.00	3.38	2.85	2.41	2.03	1.70	1.43	1.20	1.00
20	4.66	3.87	3.21	2.65	2.19	1.81	1.49	1.22	1.00
22	5.44	4.43	3.60	2.93	2.37	1.92	1.55	1.24	1.00
24	6.34	5.07	4.05	3.23	2.56	2.03	1.61	1.27	1.00
26	7.40	5.81	4.55	3.56	2.77	2.16	1.67	1.30	1.00
28	8.63	6.65	5.11	3.92	3.00	2.29	1.74	1.32	1.00
30	10.1	7.61	5.74	4.32	3.24	2.43	1.81	1.35	1.00
32	11.7	8.72	6.45	4.76	3.51	2.58	1.88	1.37	1.00
34	13.7	9.98	7.25	5.25	3.79	2.73	1.96	1.40	1.00
36	16.0	11.4	8.15	5.79	4.10	2.90	2.04	1.43	1.00
38	18.6	13.1	9.15	6.39	4.44	3.07	2.12	1.46	1.00
40	21.7	15.0	10.3	7.04	4.80	3.26	2.21	1.49	1.00
42	25.3	17.1	11.6	7.76	5.19	3.46	2.30	1.52	1.00
44	29.6	19.6	13.0	8.56	5.62	3.67	2.39	1.55	1.00
46	34.5	22.5	14.6	9.43	6.07	3.90	2.49	1.58	1.00
48	40.2	25.7	16.4	10.4	6.57	4.13	2.59	1.61	1.00
50	46.9	29.5	18.4	11.5	7.11	4.38	2.69	1.64	1.00

FIGURE 5.18 Select a real return for preretirement investments. Then find the investment savings factor for the number of years until you retire.

Preretirement Annual Savings Factors

Years till Retire	Savings Factors for Various Real Returns								
	8.0%	7.0%	6.0%	5.0%	4.0%	3.0%	2.0%	1.0%	0.0%
1	1.04	1.04	1.03	1.03	1.02	1.02	1.01	1.01	1.00
2	2.16	2.14	2.12	2.10	2.08	2.06	2.04	2.02	2.00
4	4.69	4.60	4.51	4.42	4.33	4.25	4.16	4.08	4.00
6	7.63	7.40	7.18	6.97	6.77	6.57	6.37	6.18	6.00
8	11.1	10.6	10.2	9.79	9.40	9.03	8.67	8.33	8.00
10	15.1	14.3	13.6	12.9	12.2	11.6	11.1	10.5	10.0
12	19.7	18.5	17.4	16.3	15.3	14.4	13.5	12.7	12.0
14	25.2	23.3	21.6	20.1	18.7	17.3	16.1	15.0	14.0
16	31.5	28.9	26.4	24.2	22.3	20.5	18.8	17.3	16.0
18	38.9	35.2	31.8	28.8	26.2	23.8	21.6	19.7	18.0
20	47.6	42.4	37.9	33.9	30.4	27.3	24.5	22.1	20.0
22	57.7	50.7	44.7	39.5	34.9	31.0	27.6	24.6	22.0
24	69.4	60.2	52.3	45.6	39.9	34.9	30.7	27.1	24.0
26	83.2	71.1	60.9	52.4	45.2	39.1	34.0	29.7	26.0
28	99.2	83.5	70.6	59.9	51.0	43.6	37.4	32.3	28.0
30	118	97.8	81.4	68.1	57.2	48.3	41.0	35.0	30.0
32	140	114	93.6	77.2	64.0	53.3	44.7	37.7	32.0
34	165	133	107	87.2	71.3	58.6	48.5	40.5	34.0
36	195	154	123	98.2	79.2	64.2	52.5	43.3	36.0
38	229	179	140	110	87.7	70.2	56.7	46.2	38.0
40	269	207	159	124	96.9	76.5	61.0	49.1	40.0
42	316	239	181	139	107	83.3	65.5	52.1	42.0
44	371	275	206	155	118	90.4	70.2	55.2	44.0
46	435	317	233	173	129	97.9	75.1	58.3	46.0
48	510	366	264	193	142	106	80.1	61.5	48.0
50	597	421	299	215	156	114	85.4	64.8	50.0

FIGURE 5.19 Select a real return for preretirement investments. Then find the annual savings factor for the number of years until you retire.

Engaging the Autopilot After the first year, you need to review complete figure 5.20 every year.

Figure 5.20

Autopilot Adjustments (Figure 5.20)

- All entries should be before-tax values
- All entries should be in todays dollar values

Line	Item	Value	Comments
29	This Years Percent Increase	12.8%	Results from 28 of this Years Analysis
30	Last Years Percent Increase	16.8%	Results from Step 28 of Last Years Analysis
31	Last Years Damper	12.6%	If Step 29 is less than Step 30, Enter 75% of Step 30; Otherwise Enter 0
32	This Years Damper	3.2%	If Step 29 is less than Step 30, Enter 25% of Step 29; Otherwise Enter 0
33	Average Damper	15.8%	Add Step 32 to Step 31
34	**This Years Change in Savings**	**15.8%**	If Step 29 is Less Than Step 30, Enter Step 33 here; Otherwise Enter Step 29

- Line 29: This Years Percent Increase – Figure 5.15 Percent Savings Increase (Line 28) for this years calculation.

- Line 30: Last Years Percent Increase – Figure 5.15 Percent Savings Increase (Line 28) from last years calculation.
- Line 31: Last Years Damper – Calculation; If This Years Percent Increase (Line 29) is less than Last Years Percent Increase (Line 30), Enter 75% of Last Years Percent Increase (Line 30); otherwise enter 0.
- Line 32: This Years Damper – Calculation; If This Years Percent Increase (Line 29) is less than Last Years Percent Increase (Line 30), Enter 25% of This Years Percent Increase (Line 29); otherwise enter 0.
- Line 33: Average Damper – Calculation; Add Last Years Damper (Line 31) to This Years Damper (Line 32).
- Line 34: This Years Change in Savings – Calculation; If This years Percent Increase (Line 29) is less than Last Years Percent Increase (Line 30) enter Average Damper (Line 33); Otherwise enter This Years Percent Increase (Line 29). Remember this is the sum of the percentage that your employer contributes to your savings plan plus your own contributions.

There may be some times you might not want to utilize Figure 5.20 in determining how much to save but use Figure 5.15 instead. Examples of when this may be the case is you had made large changes in items other than investment balances.

If you find if you discover the Percent Savings Increase (Line 28) or This Years Change in Savings (Line 34) is beyond your capability, you may want to consider changing your retirement date, or seeing what expenses in retirement you might be able to eliminate.

The Preretirement Autopilot Benefits Figure 5.20 is where the autopilot is executed the various calculations involved are used to take feedback from last year and use it in coordination with this years results to provide a smother glide path to meeting your retirement goals.

Gate 5: Just before Retirement

When you are three to five years from retirement, the best thing you can do is to complete chapter 6 to determine your budget in retirement and see if you can live within this budget. While you may not have all of the same expenses that you have while working, in retirement you will likely have new expenses (such as travel and medical) that will offset these.

How Can I Improve My retirement Benefits? There are three ways to improve your retirement benefits:

- Work Longer – This will increase your Social Security benefits, savings, pension (if you have one) and decrease the number of years you will need to fund your retirement.
- Save more each year – If you can afford to this option, it may be the most attractive since you may still be able to retire at the age you had hoped.
- Invest more aggressively and wisely – This is the least desirable option since the more aggressive your investments, the more at-risk they will be, and a sudden downturn of the market can actually exasperate the situation, this is why wisely is a key term here and also why this approach is best to be considered if you are ten to fifteen years away from retirement.

Example scenarios of these approaches with the following details:
50 year old couple with $100,000 in investments, saving $10,000/year (adjusted for inflation) who want to take out $20,000/year (adjusted for inflation) in retirement starting at age 65. We also assume they are in a 20% tax bracket, pay 1% fee for stocks, 0.5% for bonds, and 0.3% for money markets.

The following scenarios had they made these changes 15 years prior to retirement (note, your mileage may vary):

- Figure 5.22: Saving more money – Adding an extra $5,000/year prior to retirement allowed there retirement funds to last an extra 8 years.
- Figure 5.23: Investing more aggressively – It is important to remember in this scenario, the results are quite dependent on how the market behaves, in this example retirement funs lasted an extra 5 years for a Moderate investment approach, and an extra 10 years for an aggressive approach.
- Figure 5.24: Retiring Later – Here we see the impact of delaying retirement and extra 3 years funds last an extra 5 years, and working an extra 6 years the funs last an extra 10 years.
- Figure 5.25: Combination of all three – By combining all three funds can last much longer.

Figures 5.22 – 5.25

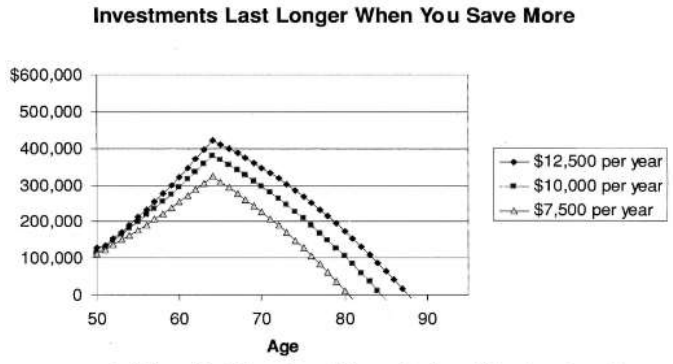


FIGURE 5.22 Inflation-adjusted investment balances for three different savings rates.

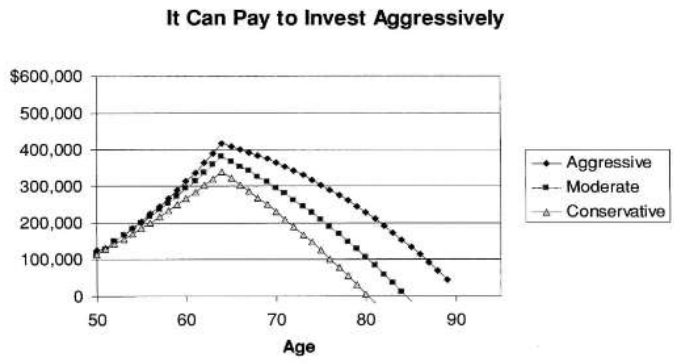


FIGURE 5.23 Inflation-adjusted investment balances for different investment portfolios.

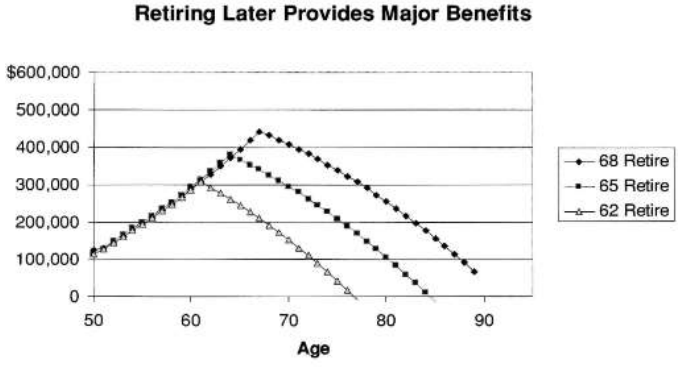


FIGURE 5.24 Inflation-adjusted investment balances for retirement at different ages.

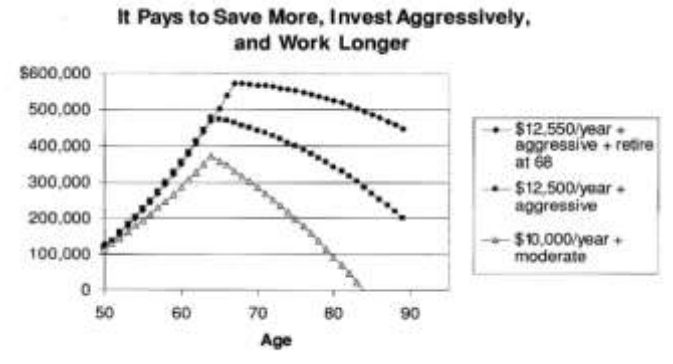


FIGURE 5.25 Investments last much longer by combining extra savings, being more aggressive, and retiring later.

Other adjustments that should be considered include:

- Avoid High Fees – Try to stay away from high cost investments and minimalize management fees.
- Allocation – Make sure you have the proper investments in the proper vehicles.
- Roth IRA – Hebeler suggest these for younger people, but the benefits of a Roth account increase the longer the account is un-tapped, so if you don't plan on accessing funds from a Roth for at least ten years these may be a great option to consider. Additionally, Roth accounts have much less restrictions than other vehicles, and can play a key role in litigating taxes in retirement.

- High Tax Brackets – If you expect you may be in a high tax bracket when you retire, consider converting some of your retirement accounts to a Roth and placing investments with significant long-term gain potential in accounts outside of deferred tax accounts.

Fine-Tuning your Retirement Date

Use Figure 2.26 to calculate scenarios for retiring at different ages. The final value from these calculations Total Retirement Income (Line 20) represents pre-tax amount of your annual retirement budge.

Figure 5.26

Retirement Income If Retire at Different Ages (Figure 5.26)

Line	Item	Age	Age	Age	Comments
1	**Retirement Age**				
2	Years Until You Retire				
3	Social Security* and COLA Pension				
4	Spouse Social Security* and COLA Pension				
5	Fixed Pensions				See Line 5 instructions
6	Fixed Pension Factor				Use Figure 5.16 step 1
7	Adjusted Pension				Line 5 times Line 6
8	**Preretirement Stock Percent**				% stock in investments before retirement
8a	Preretirement Stock Return				Expected real return (Fig 4.5 less 1%)
9	Preretirement Savings Factor				Factor from Figure 5.18 using values closest to Step 2 and real return in Step 8a
10	Projected Investment Value				Current retirement investment balance times Step 9
11	Preretirement Savings Factor				Factor from Figure 5.19 using values closest to Steps 2 and 8
12	**Annual New Savings From Wages**				
13	Additional Accumulated Savings				Step 11 times Step 12
14	Retirement Beginning Balance				Step 10 Plus Step 13
15	Retirement Major Expenses				See instructions for tax adjustment
16	Remaining Retirement Balance				Step 14 minus Step 15
17	Postretirement Stock Percentage				Percent stock in investments after retirement and 1/2 real return. 0.5*(Figure 4.5 less 1%)
17a	Postretirement Stock Return				Factor from Figure 4.5
18	Postretirement Savings Factor				Factor from Figure 5.17 using values closest to Step 1 and Real Return in Step 17a
19	Retirement Income from Investments				Step 16 divided by Step 18
20	**Total Retirement Income**				Sum of Steps 3,4,7 and 19 (Results are in todays dollars)

- Line 01: Retirement Age – Age you will retire.
- Line 02: Years Until You Retire – Number of years between now and when you will retire.
- Line 03: Social Security* and COLA Pension – If retiring before 62, reduce age 62 Social Security by 3.6% for each year retirement will be under 62.
- Line 04: Spouse Social Security* and COLA Pension – If retiring before 62, reduce age 62 Social Security by 3.6% for each year retirement will be under 62.
- Line 05: Fixed Pension – It is best to get an estimate from your employer for these values, but if you are unable to get that you can use this formula as an estimate:

$$Pension = \frac{(Annual\ pension\ at\ X\ years\ of\ service) * (Y\ years\ of\ service)}{(X\ years\ of\ Service)}$$

  Remember to include the difference in pension offers for early retirement between the alternatives in the Fixed Pension (Line 05).
- Line 06: Fixed Pension Factor – Check if (1) you can start fixed pension payments in the year you retire (2) if your employer did not assume any wage increases when calculating the expected value of your pension. If either of these things is not true, or you are uncertain, the simplest thing to do is to multiply your employer's estimate times a factor from Figure 2.6 using the 3% column and the number of years until you will collect the payments.
- Line 07: Adjusted Pension – Calculation; Line 5 times Line 6.
- Line 08: Preretirement Stock Percent – Percentage of your preretirement portfolio in Stocks or stock like investments.
- Line 08a: Preretirement Stock Return – Using Preretirement Stock Percent (Line 08), obtain an estimate of real return on your pre-retirement investments based on allocation of stocks in your portfolio using Figure 4.5 and subtracting one from it(for fees).
- Line 09: Preretirement Savings Factor – Lookup; Utilize Figure 5.18 with values closet to Years Until You Retire (Line 02) and Preretirement Stock Return (Line 08a) to obtain this value.
- Line 10: Projected Investment Value – The current value of your investments for retirement multiplied by the Preretirement Savings Factor (Line 09). This is the amount of money targeted for retirement funds, so if you plan on spending some of this for a large preretirement expenses you should not include that in the estimate. *Remember to include any Lump Sum early retirement offers on this line.*
- Line 11: Preretirement Savings Factor – Lookup; Use Figure 5.19 and values closest to Years Until You Retire (Line 02) and Preretirement Stock Return (Line 08a) to obtain this value.
- Line 12: Annual New Savings From Wages – Any additional savings from your wages you would like to increase to fund retirement.
- Line 13: Additional Accumulated Savings – Calculation; Preretirement Savings Factor (Line 11) times Annual New Savings From Wages (Line 12).
- Line 14: Retirement Beginning Balance – Calculation; Projected Investment Value (Line 10) plus Additional Accumulated Savings (Line 13).
- Line 15: Retirement Major Expenses – Retirement expenses that are not included in your normal annual expenses such as a vacation home, cars, etc. in todays value. Total the estimated value at todays prices, then divide by (1.00 minus your income tax rate expressed as a decimal).

$$(Retirement\ Major\ Expenses) = \frac{(Sum\ of\ all\ Major\ Expenses)}{(1.00 - (TaxRate\ as\ Decimal))}$$

- Line 16: Remaining Retirement Balance – Calculation; Retirement Beginning Balance (Line 14) minus Retirement Major Expenses (Line 15).
- Line 17: Postretirement Stock Percentage – The amount of your portfolio that will be in Stocks in your retirement.
- Line 17a: Postretirement Stock Return – Lookup; – Using Postretirement Stock Percent (Line 17), obtain an estimate of real return on your pre-retirement investments based on allocation of stocks in your portfolio using Figure 4.5 and subtracting one from it(for fees) then multiply by 0.5.

- Line 18: Postretirement Savings Factor - Lookup; Utilize Figure 5.17 with values closet to Retirement Age (Line 01) and Postretirement Stock Return (Line 17a) to obtain this value.
- Line 19: Retirement Income from Investments – Calculation; Remaining Retirement Balance (Line 16) divided by Postretirement Savings Factor (Line 18).
- Line 20: Total Retirement Income – Calculation; Estimated annual retirement income. Social Security and COLA Pension (Line 03) plus Spouse Social Security and COLA Pension (Line 04) plus Adjusted Pension (Line 07) plus Retirement income from Investments (Line 19).

Are You Faced with an Early Retirement Decision?

Periodically companies may offer early retirement packages if they are trying to downsize. Besides the financial aspect that we will be calculating here, there are many other factors to consider in making this decision. Some of which include:

- If you don't take the offer might the company end up laying you off anyway?
- If you get a job at another company, the benefits may not be as good as the pay and benefits where you are currently employed.
- Once you start getting Social Security additional work may reduce the Social Security benefit or even wiped out entirely until you stop working.
- If you decide to retire, do you have hobbies or other things lined up to occupy your time?

The process and instructions of completing Figure 5.27 is the almost identical with Figure 5.26 with the two exceptions; First you must reflect the difference in the pension offers between the three alternatives in Line 05. Second if a Lump Sum is offered, that will be identified in Line 10.

Figure 5.27

Evaluating an Early Retirement Offer (Figure 5.27)

Line	Item	Cases			Comments
		Accept & Retire	**Reject & Stay**	**Accept & New Job**	
1	**Retirement Age**	58	62	62	
2	Years Until You Retire	0	4	4	
3	Social Security* and COLA Pension	$9,300	$11,000	$11,000	
4	Spouse Social Security* and COLA Pension	$3,500	$4,100	$4,100	
5	***Fixed Pensions**	$14,000	$16,000	$14,000	See Line 5 instructions to adjust for Offer
6	Fixed Pension Factor	0.50	0.54	0.54	Use Figure 5.16 step 1
7	Adjusted Pension	$7,000	$8,640	$7,560	Line 5 times Line 6
8	**Preretirement Stock Percent**	50%	50%	50.0%	% stock in investments before retirement
8a	Preretirement Stock Return	3.4%	3.4%	3.4%	Expected real return (Fig 4.5 less 1%)
9	Preretirement Savings Factor	1.00	1.13	1.13	Factor from Figure 5.18 using values closest to Step 2 and real return in Step 8a
10	***Projected Investment Value**	$230,000	$226,000	$259,900	Current retirement investment balance times Step 9. Include Lump Sum Offer
11	Preretirement Savings Factor	1.00	4.25	4.25	Factor from Figure 5.19 using values closest to Steps 2 and 8
12	**Annual New Savings From Wages**	$0	$7,500	$0	
13	Additional Accumulated Savings	$0	$31,875	$0	Step 11 times Step 12
14	Retirement Beginning Balance	$230,000	$257,875	$259,900	Step 10 Plus Step 13
15	Retirement Major Expenses	$40,000	$40,000	$40,000	See instructions for tax adjustment
16	Remaining Retirement Balance	$190,000	$217,875	$219,900	Step 14 minus Step 15
17	Postretirement Stock Percentage	50%	50%	50.0%	Percent stock in investments after retirement and 1/2 real return. 0.5*(Figure 4.5 less 1%)
17a	Postretirement Stock Return	1.70%	1.70%	1.70%	Factor from Figure 4.5
18	Postretirement Savings Factor	25.10	22.80	22.80	Factor from Figure 5.17 using values closest to Step 1 and Real Return in Step 17a
19	Retirement Income from Investments	$7,570	$9,556	$9,645	Step 16 divided by Step 18

20	**Total Retirement Income**	**$27,370**	**$33,296**	**$32,305**	Sum of Steps 3,4,7 and 19 (Results are in todays dollars)

- Line 01: Retirement Age – Age you will retire.
- Line 02: Years Until You Retire – Number of years between now and when you will retire.
- Line 03: Social Security* and COLA Pension – If retiring before 62, reduce age 62 Social Security by 3.6% for each year retirement will be under 62.
- Line 04: Spouse Social Security* and COLA Pension – If retiring before 62, reduce age 62 Social Security by 3.6% for each year retirement will be under 62.
- Line 05: Fixed Pension – It is best to get an estimate from your employer for these values, but if you are unable to get that you can use this formula as an estimate:

$$Pension = \frac{(Annual\ pension\ at\ X\ years\ of\ service) * (Y\ years\ of\ service)}{(X\ years\ of\ Service)}$$

  Line 06: Fixed Pension Factor – Check if (1) you can start fixed pension payments in the year you retire (2) if your employer did not assume any wage increases when calculating the expected value of your pension. If either of these things is not true, or you are uncertain, the simplest thing to do is to multiply your employer's estimate times a factor from Figure 2.6 using the 3% column and the number of years until you will collect the payments.
- Line 07: Adjusted Pension – Calculation; Line 5 times Line 6.
- Line 08: Preretirement Stock Percent – Percentage of your preretirement portfolio in Stocks or stock like investments.
- Line 08a: Preretirement Stock Return – Using Preretirement Stock Percent (Line 08), obtain an estimate of real return on your pre-retirement investments based on allocation of stocks in your portfolio using Figure 4.5 and subtracting one from it(for fees).
- Line 09: Preretirement Savings Factor – Lookup; Utilize Figure 5.18 with values closet to Years Until You Retire (Line 02) and Preretirement Stock Return (Line 08a) to obtain this value.
- Line 10: Projected Investment Value – The current value of your investments for retirement multiplied by the Preretirement Savings Factor (Line 09). This is the amount of money targeted for retirement funds, so if you plan on spending some of this for a large preretirement expenses you should not include that in the estimate.
- Line 11: Preretirement Savings Factor – Lookup; Use Figure 5.19 and values closest to Years Until You Retire (Line 02) and Preretirement Stock Return (Line 08a) to obtain this value.
- Line 12: Annual New Savings From Wages – Any additional savings from your wages you would like to increase to fund retirement.
- Line 13: Additional Accumulated Savings – Calculation; Preretirement Savings Factor (Line 11) times Annual New Savings From Wages (Line 12).
- Line 14: Retirement Beginning Balance – Calculation; Projected Investment Value (Line 10) plus Additional Accumulated Savings (Line 13).
- Line 15: Retirement Major Expenses – Retirement expenses that are not included in your normal annual expenses such as a vacation home, cars, etc. in todays value. Total the estimated value at todays prices, then divide by (1.00 minus your income tax rate expressed as a decimal).

$$(Retirement\ Major\ Expenses) = \frac{(Sum\ of\ all\ Major\ Expenses)}{(1.00 - (TaxRate\ as\ Decimal))}$$

- Line 16: Remaining Retirement Balance – Calculation; Retirement Beginning Balance (Line 14) minus Retirement Major Expenses (Line 15).
- Line 17: Postretirement Stock Percentage – The amount of your portfolio that will be in Stocks in your retirement.
- Line 17a: Postretirement Stock Return – Lookup; – Using Postretirement Stock Percent (Line 17), obtain an estimate of real return on your pre-retirement investments based on allocation of stocks in your portfolio using Figure 4.5 and subtracting one from it(for fees) then multiply by 0.5.

- Line 18: Postretirement Savings Factor - Lookup; Utilize Figure 5.17 with values closet to Retirement Age (Line 01) and Postretirement Stock Return (Line 17a) to obtain this value.
- Line 19: Retirement Income from Investments – Calculation; Remaining Retirement Balance (Line 16) divided by Postretirement Savings Factor (Line 18).
- Line 20: Total Retirement Income – Calculation; Estimated annual retirement income. Social Security and COLA Pension (Line 03) plus Spouse Social Security and COLA Pension (Line 04) plus Adjusted Pension (Line 07) plus Retirement income from Investments (Line 19).

Mum's the Word! Don't be too hasty about telling people (including your employer) that you are considering retiring soon. You should go over your plan with an accountant or professional planner to get another view. Also give serious consideration to nonfinancial matters such as the use of your time in retirement.

Chapter Closing Thoughts

If you are yet to retire and you have completed the appropriate worksheets in this chapter you should have a real good idea of what kind of lifestyle you can expect in retirement. Remember as you get closer to retirement required savings may fluxgate to reflect market conditions, this is why it is critical to update these every year. Luckily the Autopilot method helps damper the magnitude of these swings in required savings as you approach retirement.

Chapter 6: Spending in Retirement

This chapter is focused on managing your retirement funds in retirement and estate planning. Gates are re-introduced, many of which were identified before, but now will be looked at through the lens of retirement.

- Gate 1: Understanding the Fundamentals – Forecasting your future needs.
- Gate 2: Organizing Your Inputs to the Plan – Integrate one time expenses in your plan.
- Gate 3: How Much Can You Afford to Spend? – Determine how much you can spend each year for normal living expenses.
- Gate 4: The Retiree's Autopilot? – Review of autopilot parameters that can be adjusted to smooth out market gyrations.
- Gate 5: Staying on Track – Steps to ensure you keep to your plan in previous gates.
- Gate 6: Always Look Ahead – Live events to keep in mind including critical dates, estate planning etc.

Chapter Summary

This chapter details the process of planning, executing and maintaining a budget in retirement. It shows how using the Autopilot method can be used to ensure you have adequate funds to keep the same lifestyle that you have projected in your pre-retirement planning. It also helps identify the order you should tap accounts in the spend-down phase of your retirement.

References and Resources

- U.S. News: How to Withdraw Retirement Funds Before Age 59
- Medicare
  - Medicare.GOV
  - AARP: Is there a penalty if I'm late signing up for Medicare?
  - Medicare.gov: How Does Medicare Determine Your Income?
  - Investopedia:
    - Medicare Mistakes to Avoid
    - Avoid the Part D Premium Penalty
- IRS Website
  - 401(k) Resource Guide – Plan Participants – General Distribution Rules
  - Required Minimum Distributions
  - Publication 590-B. Distributions from Individual Retirement Arrangements (IRAs) (PDF)
  - When Must You Withdraw Assets? (Required Minimum Distributions)
  - Figuring the Owner's Required Minimum Distribution
  - Frequently Asked Questions on Gift Taxes
  - Estate Tax
- Investopedia:
  - Inherited Stock
  - The Rules on RMDs for Inherited IRA Beneficiaries
  - Gift Tax
  - Donor-Advised Fund
  - Charitable Lead Trust
  - Charitable Remainder Annuity Trust
  - What is a 529 Plan?

Terms and Concepts

- Affordable Expenses – Normal living expenses that are adjusted year-to-year to nearly offset inflation.
- Reserves – The amount of your investments that you set aside for emergencies, rainy day expenses, or preplanned high value items.
- Good Investment Real Estate – Real estate that is appreciating and has positive before-tax cash flow.
- Poor Investment Real Estate – Real estate that has a negative before-tax cash flow.

Gate 1: Understanding the Fundamentals

Here we focus on developing an understanding of how the planning process works by looking at the fundamentals.

Retirement Resources You have the following resources in retirement:

- Social Security, Pensions, and Annuities.
- Investments, Savings from part-time work in retirement and Reverse Mortgages

Retirement Budgets After organizing retirement resources we gradually use them up in a controlled manner so they will last over your lifetime. These controls in in the forms of four budgets:

- Income Tax
- Debt Payments
- Emergency and Large Expenses
- Normal Living Expenses

In the Autopilot method your Normal Living Expenses will be adjusted year-to-year to offset inflation, so that your standard of living should roughly remain the same. We call the Normal Living Expenses that have been adjusted Affordable Expenses. Income Tax, Debt and Reserves are taken into account in determining the Affordable Expenses.

As an example we can take a retiree couple at age 65 that has accumulated $1,000,000 with 50% in a taxable account and 50% in a tax deferred account (ie IRA). A planned purchase of a Recreational Vehicle costing $100,000 in todays dollars was planned age 69. Notice in Figure 6.1 of the affordable expense budget for a person who started at age 65. We can observe the budget in today and future dollars. Notice how the budget roughly remains the same year to year until after reaching 80 years old when inflation begins to overtake the budget. Take particular note that at age 69 the purchase of the RV has no impact on the affordable expenses for that year since this was taken into account in the Autopilot method. Figure 6.2 demonstrates how funds from the various accounts. Note the dip at Age 69 representing the RV purchase.

Figures 6.1

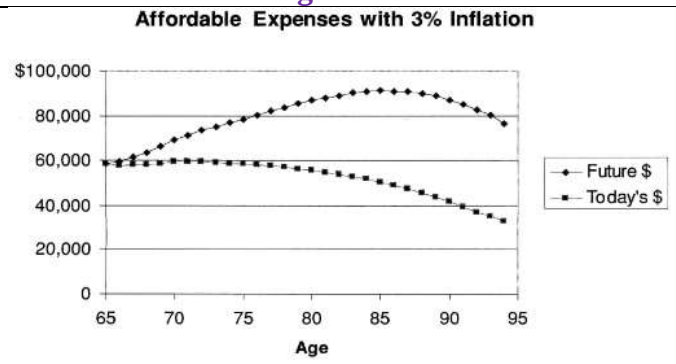


FIGURE 6.1 This affordable expense budget shows how future dollars and today's dollar values diverge.

Figure 6.2

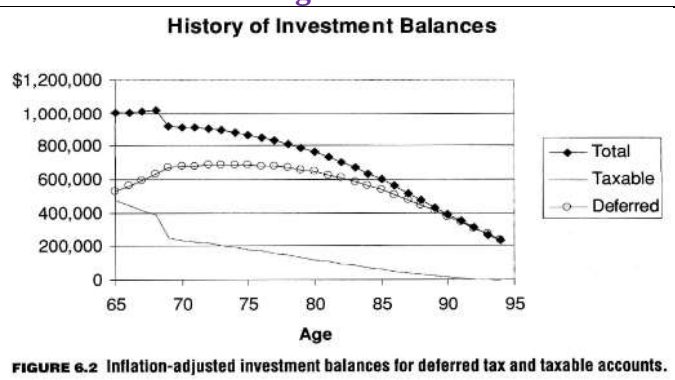


FIGURE 6.2 Inflation-adjusted investment balances for deferred tax and taxable accounts.

The Proof Is in the Pudding Continuing our retiring couple example from above we add the couple is making Mortgage payments of $10,000/year for the first three years in retirement. Figure 6.3 provides a detailed view of their expenses and what resources will be utilized to pay for those expenses. Note that the deferred account is not tapped into until the couple reaches age 70 as Required Minimum Distributions (RMDs) – *Note due to the SECURE Act in 2019 this number was raised to age 72*. Funds withdrawn from the deferred account not spent in the budget for the year were re-invested in the taxable account. These calculations are based on a constant inflation, return and mortgage rates. In real life these values can change over time. Feedback is utilized to compensate for these variations that will be demonstrated later.

Figure 6.3

Retirement Resources and Annual Budgets

	Def'd Tax Account*		Taxable Account*		Other Resources		Other Budgeted Items			Affordable Expense	
Age of Younger Spouse	Year-End Balance 500,000	Required Draw	Year-End Balance 500,000	This Year Draw	Social Security **	Fixed Pension	Income Taxes ***	Major Purchase	Mortgage Payment ****	Future Dollars	Today's Dollars **
65	530,000		473,793	54,570	12,000	10,000	7,800		10,000	58,770	58,770
66	561,800		445,791	54,786	12,360	10,000	7,618		10,000	59,528	57,794
67	595,508		414,665	56,188	12,731	10,000	7,422		10,000	61,497	57,966
68	631,238		390,468	47,648	13,113	10,000	7,199			63,562	58,168
69	669,113		246,823	162,207	13,506	10,000	7,040	112,551		66,122	58,749
70	675,804	32,481	237,306	56,099	13,911	10,000	10,680			69,330	59,805
71	681,197	34,132	227,301	57,669	14,329	10,000	10,905			71,093	59,539
72	684,748	36,234	216,705	59,762	14,758	10,000	11,195			73,326	59,621
73	686,866	37,831	205,735	61,106	15,201	10,000	11,405			74,902	59,128
74	687,184	39,703	194,356	62,735	15 ,657	10,000	11,656			76,737	58,812
75	685,518	41,648	182,605	64,378	16,127	10,000	11,915			78,590	58,478
76	681,676	43,664	170,524	66,030	16,611	10,000	12,185			80,456	58,123
77	675,768	45,445	158,238	67,306	17,109	10,000	12,418			81,997	57,511
78	667,297	47,589	145,725	68,956	17,622	10,000	12,706			83,873	57,113

* 6% actual returns in both accounts ** 3% inflation *** 15% net tax rate **** 8% mortgage

FIGURE 6.3 **Results from annual analysis using affordable expense calculations each year.**

Gate 2: Organizing Your Inputs to the Plan

In this section we will assemble your information that will be used as inputs in your retirement plan. It is usually easiest to perform this tasks right after completing your income taxes since most of the information is readily available and current.

Organizing Resources with Lifetime Payments We begin by completing Figure 6.4 with Social Security, pension and lifetime annuity payments. You may note that two items are not included:

- Part-time employment in retirement
- Annuities with payments for fixed periods that would pay out before death.

This is because neither of these items are income sources for life. These items will be addressed later in Figure 6.6 when we get to that point.

Figure 6.4

Adjustment to Annual Income from Social Security, Pensions, and Lifetime Annuities (Figure 6.4)

Step	Source	You	Spouse	Comments
1	Social Security			
2	Social Security Age Factor			Figure 6.5 factor from Soc. Sec. column
3a	Adjusted Social Security			Step 1 times Step 2
3b	Combined Social Security			Total for both spouses from Step 3a
4	SS Estimated % of real COLA			
5	Escalating Social Security			Step 3b times Step 4
6	Fixed part of Social Security			Step 3b minus Step 5
7	Annual Pension or Annuity Payments			
8	Pension Age Factor			1.0 or Figure 6.5 factor if delay till 62
9	Adjusted Pension			Step 7 times Step 8
10	Pension Estimated % of Real COLA			
11a	COLA Part of Pension			Step 9 times Step 10
11b	Combined Pension			Total for both spouses from Step 11a
12a	Pension Fixed Part			Step 9 minus Step 11a
12b	Combined Pension			Total for both spouses from Step 12a
13	**Total COLA Income**			Step 5 plus Step 11b
14	**Total Fixed Income**			Step 6 plus Step 12b

- Line 01: Social Security – Current annual values of Social Security if you are receiving payments. If you are under 62, use the estimate you get from the Social Security Administration for age 62, multiplied by 12 even if you would plan to delay taking payments to an older age. If you are over 62 but are still not drawing SS, use the annual value you would have received if you were taking SS now. Apply the same rules to your spouse even if they will be taking nonworking spouse's benefits based on your credits.
- Line 02: SS Age Factor – Lookup: Using Figure 6.5 factor from Social Security Column.

Figure 6.5

Age Factors
(For payments delayed until age 62)

Age	Social Security & COLA Pensions	Fixed Pensions & Annuities
55	0.75	0.54
56	0.79	0.59
57	0.82	0.64
58	0.85	0.69
59	0.89	0.75
60	0.92	0.81
61	0.96	0.88
62 & Over	1.00	1.00

FIGURE 6.5 Factors to account for retiring before Social Security and pensions can begin.

- Line 03a: Social Security* and COLA Pension – Calculation: Social Security (Step 1) times Social Security Age Factor (Step 2).
- Line 03b: Combined Social Security: Calculation; Adjusted Social Security(Step 3a) for you and your spouse added together.
- Line 04: SS Estimated % of Real COLA – This is the estimate of how much the COLA will keep up with inflation. Studies show that COLA for Social Security does not quite keep up with inflation for seniors. A value 0f 67% would indicate SS covers 67% of the rise in inflation and is commonly used for conservative estimates.
- Line 05: Escalating Social Security – Calculation; Represents the part of Social Security that will keep up with inflation and is calculated as Combined Social Security (Step 3b) times SS Estimated % of real COLA (Step 4).
- Line 06: Fixed part of Social Security – Calculation; Represents the part of Social Security that does NOT keep up with inflation and is calculated as Combined Social Security (Step 3b) minus Escalating Social Security (Step 05).
- Line 07: Annual Pension or Annuity Payments – Represents lifetime pensions or annuities. Fixed length annuities should NOT be included in this line but will be addressed later (Step 16).
- Line 08: Pension Age Factor - Lookup; If you are already receiving pension payments enter a value of 1.00. Utilize Figure 6.5 to determine the Age Factor if you are delaying your pension.
- Line 09: Adjusted Pension – Calculation; Annual Pension or Annuity Payments (Step 07) times Pension Age Factor (Step 08).
- Line 10: Pension Estimated % of Real COLA – Most Pensions and Annuities do NOT have COLA, in that case you will enter a value of "0". If your Pension/Annuity does have a COLA enter a percentage representing how much the COLA is expected to keep up with inflation. For pensions with a percentage cap you may have to estimate this value.
- Line 11a: COLA Part of Pension – Calculation; Adjusted Pension (Step 09) time Pension Estimated % of Real COLA (Step 10).
- Line 11b: Combined Pension – Calculation; Sum of COLA Part of Pension (Step 11a) for both spouses.
- Line 12a: Pension Fixed Part – Calculation; Adjusted Pension (Step 09) minus COLA Part of Pension (Step 11a).
- Line 12b: Combined Pension – Total of Pension Fixed Part (Step 12b) for both spouses.
- Line 13: COLA Total Income – Calculation; Escalating Social Security Income (Step 5) plus Combined Pension (Step 11b).
- Line 14: Total Fixed Income – Calculation; Fixed Part of Social Security (Step 06) plus Combined Pension (Step 12b).

Organizing Your Investments After Social Security, Pensions and Annuities, we need to determine what investments remain for your retirement. Utilize Figure 6.6 to Identify the remaining investments.

Figure 6.6

Organize Your Investments (Figure 6.6)			
Step	**Description**	**Current Balance**	**Comments**
15	Investments		
15 a	Stocks and Stock Mutual Funds		
15b	Good Investment Real Estate		Good Investment Real Estate Less Related Debt
15c	Poor Investment Real Estate		Poor Investment Real Estate Less Related Debt
15d	Fixed Income Investments		Exclude Money Markets
15e	Money Markets		
16	Other Sources for Retirement Funds		
16a	Remaining Credit		From a Reverse Mortgage, Insurance Cash Value, etc.
16b	Equivalent Investments		Such as future wages earned in retirement or from annuity or contract with payments for period shorter than life
17	**Total Investments and Other Sources**		Step 15 items plus Step 16 items
18	**Good Investment Real Estate Ratio**		Stock, stock funds, and equity in good investment real estate as % of Step 17

- Step 15: Investments – Include the following items:
  - Stocks and Stock Mutual Funds - Include all investments such as Company savings plans, IRAs, Roths, variable annuities, deferred compensation, market value of stock options as if exercised now, stocks, bonds, mutual funds, CDs, savings accounts, etc.
  - Investment Real Estate - Also included is Investment real estate equity, that is, the current market value of your real estate less the debt. Figure 3.7 can be used to control your allocations to get the data for step 15. Do not include your primary residence unless you plan on selling it and renting or downsizing, in that case include the net profit from the sale of the house after all expenses (i.e. purchasing and moving into a new house) are subtracted.
    - Good Investment Real Estate is Real estate that is appreciating and has positive before-tax cash flow.
    - Poor Investment Real Estate is Real estate does not meet the criteria of Good Investment Real Estate.
- Step 16: Other Sources for Retirement Funds – Identify items sometimes forgotten. Do not include automobiles, furniture or personal effects.
  - Remaining Credit – For a Reverse Mortgage, if you have not included home equity Investments (Step 15), you can put a fraction such as 40% of the equity in your home as an investment add another 1.5% for each year you are over 65 as a rough guide. If you all ready receiving payments for your property, the payments

should have been included in Figure 6.4 under the Annual Pension or Annuity Payments (Step 07) . If you are currently receiving a pension, or annuity payment.
    - Equivalent Investments – Would include items where you can convert annual payments for a fixed period of time into an Equivalent Investments. For part-time work, you have to calculate an adjusted annual wage.
- Step 17: Total Investments and Other Sources – Calculation; Investments (Step 15) plus Other Sources for Retirement Funds (Step 16).
- Step 18: Good Investment Real Estate – Calculation; Stocks and Stock Mutual Funds plus Good Investment Real Estate divided by Total Investments and Other Sources (Step 17).

Organizing Your Debts In Figure 6.7 we are going to identify debts and adjusts them to take into account that high-interest debts are much more punitive than low-interest debts. The results of this exercise will be used to determine a budget for debt payments separate from your other normal living expenses. Include your home mortgage, and personal loans. Rental property that receives enough income to pay mortgage payments would not be included. For property that does not have an income associated with it would be included here. Reverse Mortgage debt would not be included unless you intend to pay this debt in your lifetime. Any remaining balance on a credit line from a reverse mortgage should be entered in Other Sources for Retirement Funds (Step 16) on Figure 6.6. If any of your debts have interest rates higher than 10% multiply the remaining debt times the factor from Figure 6.8 to be used as the loan amount.

Figure 6.7

Remaining Balance of Mortgages and Debts

Step	Description	Current Balance	Comments
	Home Mortgage		
	Home Equity Loan		
	Other loans		
	Cred Card Loans		
	Total Debt		

Figure 6.8

Factor for High Interest Rate Debts

Years Left	Loan Interest Rate								
	10%	11%	12%	13%	14%	15%	16%	17%	18%
1	1.03	1.04	1.05	1.06	1.07	1.07	1.08	1.09	1.1
2	1.04	1.06	1.07	1.08	1.1	1.11	1.13	1.14	1.15
3	1.06	1.07	1.09	1.11	1.13	1.15	1.17	1.19	1.21
4	1.07	1.09	1.12	1.14	1.16	1.19	1.21	1.23	1.26
5	1.08	1.11	1.14	1.17	1.19	1.22	1.25	1.28	1.31
6	1.09	1.13	1.16	1.19	1.23	1.26	1.29	1.33	1.36
7	1.11	1.14	1.18	1.22	1.26	1.3	1.33	1.37	1.41
8	1.12	1.16	1.2	1.24	1.29	1.33	1.37	1.42	1.46
9	1.13	1.18	1.22	1.27	1.32	1.37	1.41	1.46	1.51
10	1.14	1.19	1.24	1.29	1.35	1.4	1.45	1.51	1.56
11	1.15	1.21	1.26	1.32	1.38	1.43	1.49	1.55	1.61
12	1.17	1.22	1.28	1.34	1.4	1.47	1.53	1.59	1.66
13	1.18	1.24	1.3	1.37	1.43	1.5	1.56	1.63	1.7
14	1.19	1.25	1.32	1.39	1.46	1.53	1.6	1.67	1.75
15	1.2	1.27	1.34	1.41	1.48	1.56	1.63	1.71	1.79
16	1.21	1.28	1.35	1.43	1.51	1.59	1.67	1.75	1.83
17	1.22	1.29	1.37	1.45	1.53	1.61	1.7	1.78	1.87
18	1.23	1.31	1.39	1.47	1.56	1.64	1.73	1.82	1.91
19	1.24	1.32	1.4	1.49	1.58	1.67	1.76	1.85	1.94
20	1.24	1.33	1.42	1.51	1.6	1.69	1.79	1.88	1.98

FIGURE 6.8 Adjustment factor for high interest rate debts.

Organizing Reserves for Large Future Purchase Enter the total amount of money set aside for emergencies, rainy day expenses, or preplanned high-value items. This amount will not be used for your normal affordable expenses in retirement, so in we will eventually subtract this value from your current investments. This means you will be able to spend these expenses in retirement whenever you want and it will not impact your regular budget.

Figure 6.9

Reserves for Future Large Purchase (Figure 6.9)

Line Ref	Reserve Items	Cost in Today's Dollars	Comments
1	Home appliance replacement , major home repairs or remodeling		
2	Future autos, RVs, trailers		
3	Emergency uninsured major medical, dental, and drug cost		
4	Exceptional vacations, tours, trips		
5	Assisted care costs above normal living cost		
6	Additional financial help for children or parents		
7	Gifts or part of estate for heirs or charity		
8	Down payments on vacation home, condo, time-share		
9	Provisions for other contingencies		
10	New House		Beyond reserves already saved
11	Roth Conversions		
12	**Total Reserves**		

Gate 3: How Much Can You Afford to Spend?

The old model of living off dividends doesn't work so well anymore for most people since dividends are much lower then they use to be. Using the IRS morbidity tables is another tactic, that will ensure you don't outlive your money, but is subject to wild gyrations based on stock market performance. Most planning method forecasts tend to be too optimistic for more than 50% of retirees due to the following factors:

- Fees and Expenses - Return on investments calculations may not include Fees and Expenses causing inflated return estimates.
- Average Returns – Long term real returns correspond to a middle estimate of returns. This means that 50% of the time real returns over the lifetime of a retiree will be lower than the middle.
- Reverse Dollar Cost Averaging – As discussed earlier, returns for retirees are less than persons saving for retirement.

Finally, one way to ensure funds last a lifetime is to underspend in retirement. The downside to this is that you will have excess funds on your death that you would not have been able to enjoy. The retirement autopilot plan tries to avoid these issues.

The Retirement Autopilot Provides a Better Plan These points are critical in retirement planning:

- Real Inflation Adjustment - Use ½ of the real inflation adjusted return for you investments to counter the effects of reverse dollar cost averaging.
- Feedback – Use autopilot feedback to modify your budget figures and damper budget swings.
- One Time Purchases – Set aside extra reserves for large one time purchases in years following high stock market performance, scale them back in years when the stock market performs poorly.

Reserves Vs Padding: Reserves in this book is the term used for one-time expenses while Padding introduced by me is for unplanned expenses (ie illnesses, emergencies, unplanned property repairs). Padding is not addressed in the Affordable Expense Budget (Figure 6.10).

Figure 6.10

Affordable Expense Budget in Retirement
Figure 6.10

Step	Age and Income Tax Information		Comments
1	Current age of younger spouse if married or your age if single		
2	Last Years Taxes paid		
3	Last Years Gross Income		
4	Last Years Tax Rate		
5	Estimated Tax Rate		
6	1.00 minus Step 5		
	Social Security Pensions, and Annuities		
7	Total COLA Income		
8	Total Fixed Income		
9	Fixed Pension Factor		
10	Fixed Income Adjustment		
	Investments, Debts, and Reserves		
11	Total Investments and Other Sources		
12	Total Debt		
13	Adjusted Reserves		
14	Required Funds		
15	Investments for Income		
16	Calculated Real Return		
17	Expected Real Return		
18	Real Return Investment Factor		
19	Affordable Investment Income		
	Affordable After-Tax Expenses		
20	Affordable Before Tax Income		
21	Affordable Tax Adjustment		
22	Affordable Expenses Budget		

- Step 01: Age Your age if you are single, the younger spouse age if you are married.
- Step 02: Last Years Taxes – Local, State and Federal taxes paid last year. Do NOT include other taxes such as property taxes.
- Step 03: Last Years Gross Income –Gross income is your Adjusted Gross Income (AGI) from last years tax return plus any tax-exempt income, plus the untaxed part of Social Security, and any allowable depreciation on investment real estate reported on your income tax.
- Line 04: Last Years Tax Rate – Calculation; Last Years Taxes (Step 02) divided by Last Years Gross Income (Step 03).
- Line 05: Estimated Tax Rate – This is your estimated future tax rate expressed as a decimal. You can use Last Years Tax Rate (Line 04) as an estimate. Adjust this value based on what you expect your income to be in retirement. Remember this rate establishes your budget for income taxes.
- Line 06: Tax Factor – Calculation; 1.00 minus Estimated Tax Rate (Step 05).
- Line 07: Total COLA Income – Lookup; Total COLA Income (Step 13) from Figure 6.4.
- Line 08: Total Fixed Income – Lookup; Total Fixed Income (Step 14) From Figure 6.4.
- Line 09: Fixed Pension Factor – Lookup; This factor incorporates inflation during retirement. Select the column in Figure 6.11 that is nearest your inflation assumption then proceed to the row that corresponds to your age if you are single, or the younger spouse if you are married.
- Line 10: Fixed Income Adjustment – Calculation; Total Fixed Income (Step 08) times Fixe Pension Factor (Step 09). This represents the before-taxes part of your pension you can use as income for this years expenses. The remaining part of your pension (after paying taxes) will be used for re-investment to counter inflation in future years.
- Line 11: Total Investments and Other Sources – Lookup; Total Investments and Other Sources (Step17) from Figure 6.6.
- Line 12: Total Debt – Lookup; Total Debt (Step 05) From Figure 6.7.
- Line 13: Adjusted Reserves – Lookup, Calculation; Total Reserves from Figure 6.9 divided by Tax Factor (Step 06).
- Line 14: Required Funds – Calculation; Total Debt (Step 12) plus Adjusted Reserves (Step 13).
- Line 15: Investments for Income – Calculation; Total Investments and Other Sources (Step 11) minus Required Funds (Step 14). This is the residual amount of funds available for generating income after subtracting debts from investments.
- Line 16: Calculated Real Return – Lookup; Net Real Return (Line 10) from Figure 4.4. You can also use Figure 6.13 along with Good Investment Real Estate (Step 18) from Figure 6.6 for this value, don't forget to subtract fees and cost.
- Line 17: Expected Real Return – Calculation; Calculated Real Return (Step 16) divided by two. This adjust your Calculated Real Return to take into account Reverse Dollar Cost Averaging, and ensure a 80% probability chance of success in retirement.
- Line 18: Real Return Investment Factor – Lookup; Using Figure 6.12 find the column that is closest to the Expected Real Return (Step 17), then go down until you find the factor in the row corresponding to the Age (Step 01).
- Line 19: Affordable Investment Income – Calculation; Investments for Income (Step 15) times Real Return Investment Factor (Step 18).
- Line 20: Affordable Before Tax Income – Calculation; Total COLA Income (Step 07) plus Fixed Income Adjustment (Step 10) plus Affordable Investment Income (Step 19). This is the sum of your affordable expenses and taxes related to affordable expenses.
- Line 21: Affordable Tax Adjustment: Calculation; Estimated Tax Rate (Step 05) times Affordable Investment Income.
- Line 22: Affordable Expenses Budget – Calculation; Affordable Before Tax Income (Step 20) minus Affordable Tax Adjustment (Step 21).

Line 22 represents the Affordable Expense Budget for the year. Next year this will be calculated utilizing the autopilot method. Don't forget that you have separately budgeted for income tax, any purchases listed in reserves, and debt payments, so the Affordable Expense Budget excludes those items.

Calculation of This Years Cash Requirements is performed in Figure 6.14 and completed by referencing work completed in previous worksheets. The one item that you may have to make a guess on is the Income Taxes. You can either use last years Taxes (Step 04) of Figure 6.10 or an appropriate value based on your best judgment.

Figure 6.14

This Year's Cash Requirements
Figure 6.14

Budget Category	Source	Amount	Comments
Affordable Expenses Budget	Step 22 of Figure 6.10 or Step 8 in Figure 6.15		
Total Reserves	Any, part, or all of items listed in Figure 6.9		Camping Trailer Figure 6.9 line 6
Total Debts	For any items listed in Figure 6.7		Ref Any Debt payments due
Income taxes	For all items listed in Figures 6.4 and 6.6		Estimate - You might use last years taxes (Figure 6.10 Step 2)
Total	Sum of items above		

Figure 6.11 & Figure 6.12

Fixed Pension Factors

Age of Younger Spouse	Life Expec-tancy	Fixed Pension Factor for Various Inflation Rates		
		3%	5%	7%
55	**34.4**	**0.627**	**0.475**	**0.370**
56	33.4	0.634	0.484	0.378
57	32.5	0.641	0.492	0.386
58	31.5	0.648	0.501	0.395
59	30.6	0.655	0.509	0.403
60	**29.7**	**0.662**	**0.517**	**0.412**
61	28.7	0.670	0.527	0.422
62	27.8	0.678	0.536	0.431
63	26.9	0.685	0.545	0.441
64	25.9	0.694	0.556	0.452
65	**25.0**	**0.702**	**0.565**	**0.462**
66	24.1	0.710	0.575	0.473
67	23.2	0.718	0.586	0.484
68	22.3	0.726	0.596	0.496
69	21.5	0.733	0.606	0.506
70	**20.6**	**0.742**	**0.617**	**0.518**
71	19.8	0.750	0.627	0.530
72	18.8	0.759	0.640	0.544
73	18.1	0.766	0.649	0.555
74	17.3	0.774	0.660	0.567
75	**16.5**	**0.783**	**0.671**	**0.580**
76	15.7	0.791	0.683	0.593
77	15.0	0.798	0.693	0.605
78	14.2	0.807	0.705	0.619
79	13.5	0.815	0.715	0.632
80	**12.8**	**0.822**	**0.726**	**0.645**
81	12.1	0.830	0.738	0.658
82	11.5	0.837	0.747	0.670
83	10.8	0.845	0.759	0.684
84	10.2	0.852	0.769	0.697
85	**9.6**	**0.859**	**0.780**	**0.710**
86	9.1	0.865	0.788	0.721
87	8.5	0.872	0.799	0.734
88	8.0	0.878	0.808	0.745
89	7.5	0.885	0.818	0.757
90	**7.1**	**0.890**	**0.825**	**0.767**
91	6.7	0.895	0.833	0.776
92	6.3	0.900	0.840	0.786
93+	5.9	0.905	0.848	0.796

FIGURE 6.11 Find your fixed pension factor in the row for your age and the column for your inflation rate selection.

Investment Factors

Age of Younger Spouse	Investment Factors for Various Real Returns								
	-1%	0%	1%	2%	3%	4%	5%	6%	7%
55	**0.024**	**0.029**	**0.034**	**0.040**	**0.046**	**0.053**	**0.060**	**0.067**	**0.075**
56	0.025	0.030	0.035	0.041	0.047	0.054	0.061	0.068	0.076
57	0.026	0.031	0.036	0.042	0.048	0.054	0.061	0.069	0.076
58	0.027	0.032	0.037	0.043	0.049	0.055	0.062	0.069	0.077
59	0.028	0.033	0.038	0.044	0.050	0.056	0.063	0.070	0.077
60	**0.029**	**0.034**	**0.039**	**0.045**	**0.051**	**0.057**	**0.064**	**0.071**	**0.078**
61	0.030	0.035	0.040	0.046	0.052	0.058	0.065	0.072	0.079
62	0.031	0.036	0.041	0.047	0.053	0.059	0.066	0.073	0.080
63	0.032	0.037	0.042	0.048	0.054	0.060	0.067	0.074	0.081
64	0.034	0.039	0.044	0.049	0.055	0.062	0.068	0.075	0.082
65	**0.035**	**0.040**	**0.045**	**0.051**	**0.057**	**0.063**	**0.069**	**0.076**	**0.083**
66	0.037	0.041	0.047	0.052	0.058	0.064	0.071	0.077	0.084
67	0.038	0.043	0.048	0.054	0.060	0.066	0.072	0.079	0.086
68	0.040	0.045	0.050	0.055	0.061	0.067	0.074	0.080	0.087
69	0.042	0.047	0.052	0.057	0.063	0.069	0.075	0.082	0.088
70	**0.044**	**0.049**	**0.054**	**0.059**	**0.065**	**0.071**	**0.077**	**0.083**	**0.090**
71	0.046	0.051	0.056	0.061	0.067	0.073	0.079	0.085	0.092
72	0.048	0.053	0.058	0.064	0.069	0.075	0.081	0.088	0.094
73	0.050	0.055	0.060	0.066	0.071	0.077	0.083	0.089	0.096
74	0.053	0.058	0.063	0.068	0.074	0.080	0.086	0.092	0.098
75	**0.056**	**0.061**	**0.066**	**0.071**	**0.077**	**0.082**	**0.088**	**0.094**	**0.101**
76	0.059	0.064	0.069	0.074	0.080	0.085	0.091	0.097	0.103
77	0.062	0.067	0.072	0.077	0.083	0.088	0.094	0.100	0.106
78	0.066	0.070	0.076	0.081	0.086	0.092	0.098	0.104	0.110
79	0.069	0.074	0.079	0.084	0.090	0.095	0.101	0.107	0.113
80	**0.073**	**0.078**	**0.083**	**0.088**	**0.094**	**0.099**	**0.105**	**0.111**	**0.117**
81	0.078	0.083	0.088	0.093	0.098	0.104	0.109	0.115	0.121
82	0.082	0.087	0.092	0.097	0.103	0.108	0.114	0.119	0.125
83	0.088	0.093	0.098	0.103	0.108	0.114	0.119	0.125	0.131
84	0.093	0.098	0.103	0.108	0.114	0.119	0.124	0.130	0.136
85	**0.099**	**0.104**	**0.109**	**0.114**	**0.120**	**0.125**	**0.131**	**0.136**	**0.142**
86	0.105	0.110	0.115	0.120	0.125	0.131	0.136	0.142	0.147
87	0.113	0.118	0.123	0.128	0.133	0.138	0.144	0.149	0.155
88	0.120	0.125	0.130	0.135	0.140	0.146	0.151	0.156	0.162
89	0.128	0.133	0.138	0.143	0.149	0.154	0.159	0.165	0.170
90	**0.136**	**0.141**	**0.146**	**0.151**	**0.156**	**0.161**	**0.167**	**0.172**	**0.178**
91	0.144	0.149	0.154	0.159	0.165	0.170	0.175	0.180	0.186
92	0.154	0.159	0.164	0.169	0.174	0.179	0.184	0.190	0.195
93+	0.165	0.169	0.175	0.180	0.185	0.190	0.195	0.200	0.206

FIGURE 6.12 Find your investment factor in the row for your age and the column closest to a conservative value of the real return from your investments.

Figure 6.13

Amount of Stock Largely Determines Real Returns

Stock as % of Investments	Portfolio Description				Long-Term Real Return Excluding Costs
	Large Co. Stock	Growth Co. Stock	Long-Term Corp. Bonds	Treasury Bills	
90%	50%	40%	0.0%	10%	**7.0%**
80%	50%	30%	10.0%	10%	**6.4%**
70%	50%	20%	20.0%	10%	**5.7%**
60%	50%	10%	30.0%	10%	**5.1%**
50%	50%	0%	40.0%	10%	**4.4%**
40%	40%		50.0%	10%	**4.0%**
30%	30%		60.0%	10%	**3.5%**
20%	20%		70.0%	10%	**3.1%**
10%	10%		80.0%	10%	**2.7%**
0%	0%		90.0%	10%	**2.3%**

FIGURE 6.13 Use your equity percentage in the first column and find an approximate historical real return in the last column.

Gate 4: The Retiree's Autopilot

After completing Figure 6.10 and Figure 6.14 in the first year of analysis, you will utilize Figure 6.15 for subsequent years provided there are no major changes in your investment portfolio or other major finance related changes. Figure 6.15 is where the autopilot kicks in and makes adjustments to compensate for changes in inflation, and stock market performance and

Figure 6.15

Autopilot Feedback Calculations Are Simple (Figure 6.15)

Step	Description	Calculation	Example	Amount	Comments
1	Last Years Affordable Expenses	Step 8 from last year's Figure 6.15 or Step 22 from last year's figure 6.10 if you do not use autopilot feedback last year.	$32,000		
2	Annual Growth Factor	1.000 + last year's inflation, e.g., 1.000 + 4% = 1.0.40. Or, you can divide this year's Social Security by last year's to get the same result.	1.040		
3	Last Years Inflation Adjusted Affordable Expenses	Step 1 times Step 2	$33,280		
4	This Years Affordable Expenses	Step 22 from this year's Figure 6.10.	$39,308		
5	Absorber P1 (Last Year factor)	Step 3 times 0.75.	$24,960		
6	Absorber P2 (This Year factor)	Step 4 times 0.25.	$9,827		
7	Estimated Absorber	Step 5 plus Step 6.	$34,787		
8	**Affordable Expense Budget**	Use the smaller of Step 3 or Step 7.	**$33,280**		

- Step 01: Last Years Affordable Expenses – Lookup; Enter Affordable Expenses Budget from last year, this will either be in Figure 6.10 or Figure 6.15 from last year.
- Step 02: Annual Growth Factor – Inflation rate growth for last year. 1.000 + last years inflation (e.g. 1.00 + 4% = 1.040), or you can divide this years Social Security by last years to get the same result.
- Step 03: Last Years Inflation Adjusted Affordable Expenses - Calculation; Last Years Affordable Expenses (Step 01) times Annual Growth Factor (Step 02).
- Step 04: This Years Affordable Expenses – Lookup; Affordable Expenses Budget (Step 22) from this years Figure 6.10.
- Step 05: Absorber P1 (Last Year factor) – Calculation; Last Years Inflation Adjusted Affordable Expenses (Step 03) times 0.75.
- Step 06: Absorber P2 (This Year factor) – Calculation; This Years Affordable Expenses (Step 04) times 0.25.
- Step 07: Estimated Absorber – Calculation; Absorber P1 (Step 05) plus Absorber P2 (Step 06).
- Step 08: Affordable Expense Budget – Calculation; The Smaller of Last Years Inflation Adjusted Affordable Expenses (Step 03) or Estimated Absorber (Step 07).

The Retirement Autopilot's Benefits In this section we compare budgets for various retirement plans to see how they stack up against the autopilot method. The following is our baseline conditions for all scenarios:

- Retirement Age: 55
- Time period: 40 years
- Starting Balance: $1,000,000
- Desired Budget for living expenses: $30,000/year *Note: Social Security is not included since it is inflation adjusted and will be the same in all scenarios.*
- Tax Rate: 15%
- Stock Allocation: Adjusted yearly based on the equation of: 110 – (the retiree's age).
  - Stock performance based on the S & P 500 – 1.5% for investment cost.
- Money Market Funds = 10% of investments
  - Performance based on Treasury Bills less 0.3% cost
- Long Term Bonds – Remaining balance in Corporate bonds with 1.0% investment cost.

Comparing Plans – The following retirement plans are used in comparison:

- 4% Draw – Assuming the retiree removed 4% of their portfolio value every year
- Planner – Represents a typical plan offered by most professional planners using a more comprehensive software program.

Figure 6.17, Figure 6.18, Figure 6.19

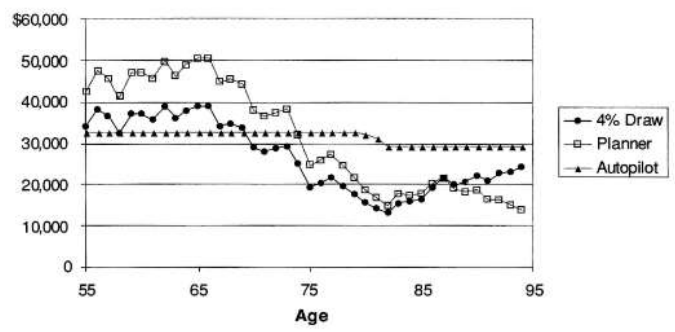


FIGURE 6.17 Scenarios starting in 1955 comparing annual expense budgets for three methods: 4% draws each year, the planner, and the autopilot.

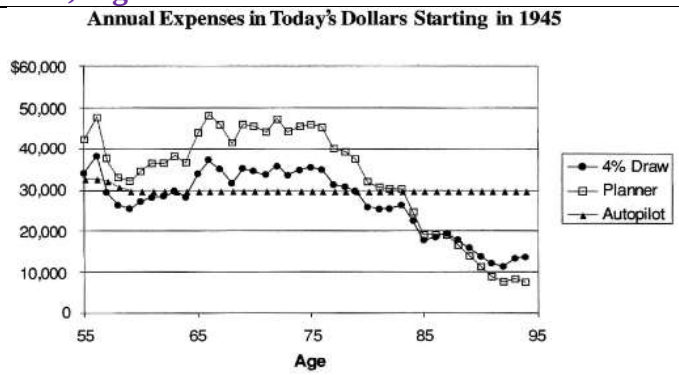


FIGURE 6.18 Scenarios starting in 1945 comparing annual expense budgets for three methods: 4% draws each year, the planner, and the autopilot.

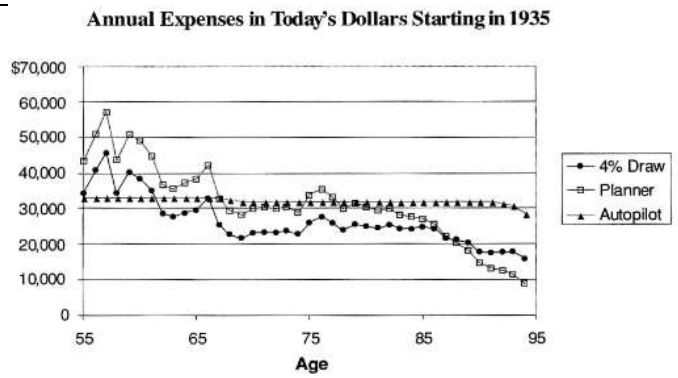


FIGURE 6.19 Scenarios starting in 1935 comparing annual expense budgets for three methods: 4% draws each year, the planner, and the autopilot.

We can see from these comparisons that the while the autopilot method provides a lower income early in retirement, the other plans require drastic decreases in budgets later in life.

Gate 5: Staying on Track

At this point you have been provided all the information you need to plan for a successful retirement:

- Allocation – Determined the appropriate Allocation of investments for your comfort and needs.
- Vehicles – Know what investments to place in what retirement vehicles to minimize taxes and maximize gains.
- Investments – Selection of appropriate and easy to manage investments.
- Budget – Created a realistic living expenses budget in retirement.
- Big Ticket – Identified and budget for big-ticket and one-time expense items in retirement.

Going forward, these are four things you should do to make sure your funds last through retirement. Briefly these items are:

- Yearly Checkup – Once a year re-analyze your investment status for allocations and returns.
- Yearly Budget Update – Calculate and adjust how much you can spend each year.
- Budget Breakdown – Make a budget breakdown.
- Cash Control – Institute a top-down cash control policy.
- Say No – Be willing to say no to non planned expenses.

The next few sections provide details on each of these items.

Analyze Your Investment Status at Least Once a Year Compare your stock investment performance to a major index such as the S&P 500. If your portfolio performance is significantly lower (ie 2% or more) than the general index for two years in a row, re-evaluate your investments to see if you need to make adjustments. Other indexes such as the Dow Jones Industrial Average (DJIA), NASDAQ, Russell 2000 should be included when evaluating the performance of your investments.

Calculate How Much You Can Spend Once a year review your retirement calculations in Figure 6.10 and Figure 6.15 yearly and make corrections/updates as needed to recalculate your budget for the year.

Make Some Kind of a Budget Breakdown Use Figure 6.21 to outline your budget for the year to plan and track your yearly budget. The Total Yearly Affordable Expenses here should match the Affordable Expenses identified in Figure 6.10 and Figure 6. 15.

Figure 6.21

Budget Control for Affordable Expenses
Figure 6.21

Date:	

Ref	Title	Description	Annually	Monthly	Weekly	Comments
1	Rent - If applicable (but not mortgage)					
2	Utilities and Maintenance					
3	Cell, Internet services					
3	Property Taxes					
4	Auto and Transportation					
5	Insurance					
6	Uninsured Medical and Dental					
7	Groceries					
8	Restaurants					
9	Other Essentials					
10	Support of others					
11	Clothing					
12	Vacation and Travel					
13	Entertainment and Hobbies					
14	Gifts and Charities					
15	Subscriptions and Education					
16	Other Discretionary Items					
17	Other 1					
18	Other 2					
19	Yearly Total					

Total Yearly Affordable Expenses	

Institute a Top-Down Cash Control Policy A good technique to ensure you are staying on budget is to have a dedicated account just for your Yearly Affordable Expenses, and a dedicated account for big-ticket items and taxes. This ensures that you know pretty quickly if you are on budget for the year. You could also utilize separate credit cards for the various budgets.

Try to Say No! Learn to say no when tempted by extra unbudgeted expenses. The success of your retirement plan is based on you staying within budget, just remember you jeopardize your plans whenever you spend money that wasn't anticipated.

Gate 6: Always Look Ahead

The success of your developed retirement plan is based on following through with your planned expenses and budget. It is also important to understand events/choices that you encounter in retirement going forward. Some of these key events are identified below.

Age 59 ½ You can not withdraw funds from your tax-deferred accounts without facing a penalty for early withdraw. There are some situations where you can tap this money earlier, but you need to be aware of the rules.

Age 62 This is the earliest you can start taking Social Security. There are many reasons why you may want wait until full retirement age of 65 or even delay until you are 70 to get the maximum retirement benefit. Review Gate 3 of Chapter 5 for an overview of these benefits. This topic was reviewed in detail on one of the Money Matter discussions entitled What You Should Know about Social Security (2021-09-13) on the ArtCentrics Money Matters webpage. Download the summary document (PDF) here. This is also the standard age for Senior discount rates.

Age 65 You should now be able to enroll in Medicare. You should begin this process a few months before you reach 65. The standard deduction for income taxes also increases. You may face lifetime penalties for not signing up for parts of Medicare, make sure you understand the pitfalls to avoid. There is a two year look back period for determining what rates you will pay for Medicare, so plan you budget accordingly. Finally, you can work without fear of loosing some Social Security benefits. This is the standard Full Retirement age for Social Security.

Age 70 Maximum Social Security benefits. If you have not yet started receiving Social Security, you need to start now since the benefits of this program will no longer increase once you pass age 70.

Age 72 *Note; The rule age that Required Minimum Distributions (RMDs) has been changed from 70 ½ to 72 through passage of the SECURE Act on December 20, 2019.* When you reach this age, it is VITAL that you withdraw the required amount each year as specified by IRA rules or you may be subject to a 50% tax penalty on the amount that you should have but didn't withdraw for that year. Note the new age of 72 for RMDs may be modified in the future make sure you have the latest data for this rule.

Age 85 If you have a variable annuity you must now either withdraw the entire amount or annuitize your contract. Review your policy because the age of annuitizing may be earlier.

IRA and 401(k) Withdrawal Rules

Some basic information on options in withdrawing money from these accounts is provided here. NOTE that these rules are subject to law changes, so it is vital you verify information provided here before taking any actions.

Under Age 59 ½ For many 401k's you may be able to withdraw funds from these accounts before 59 ½ without penalty if you retire from work and keep the plan with the employer. It is vital you check with your plan administrator before withdrawing funds to avoid penalties. How to Withdraw Retirement Funds Before Age 59. You may want to consider transferring your account to an IRA if you do not plan on accessing these funds until you are older than 59 ½ since IRA's tend to provide more investment options and probably charges less than the organization managing your 401k at work.

Between Ages 59 ½ and 72 You can access your tax deferred accounts (IRA, 401k, SEP, etc) without early withdraw penalties. Remember withdraws are taxable. If you have a considerable amount of funds in these accounts you may want to consider accelerating withdraws from these accounts to avoid being bumped into a higher tax bracket when RMD's at age 72 are required. This excess money can be transferred into a regular investment account. This technique is also useful for heirs since investments in a regular investment account have a step-up basis when your heir inherits these investments. One should review their tax deferred accounts and assess the impact of these accounts on their tax bracket when they reach the age where they will be required to have RMD's. This is the time you can litigate tax implications of large amounts of money in your IRA/401k by withdrawing money from these accounts and placing the funds in regular investment accounts.

Over Age 72 Note RDM age has been updated from 70 ½ to 72 as mentioned earlier. Additionally, rules on inherited tax deferred plans such as IRA and 401ks has changed dramatically due to the SECURE Act; so information provided in the book concerning inheritance should be disregard. Generally, if you are not a spouse and inherit an IRA type of account you have 10 years to withdraw all funds from the account. This is a VERY high level summary, see the chapter references section for more information.

IRA Withdrawals' Effect on your Plan There are a number of factors that need to be considered when determining how to approach drawing down your funder from your tax differed accounts that may have a major impact on taxes for yourself and your heirs including:

- RMDs - How RMD's may bump up your tax bracket if you have large sums of money in these accounts when your reach the age where RMD's kick in.
- Inheritance of IRA's to non-spouse have a much higher effective tax rate than if the funds from the IRA were transferred to a regular investment account and invested in stocks before you die.

Estate Planning

Gifting For 2022, the current limit for gifting where taxes will not be due is set at $16,000/year. This means you and your spouse can gift up to $32,000 to a single person without taxes being due on the gift. Laws on gifting are continuously being change, so it is important to get the latest information on this topic from the IRS website. Estate Tax for 2020 is currently set at $12,060,000. Again, visit the IRS website for the latest information on estate taxes. Lifetime limits on gifts also apply. The article on Gift Tax on Investopedia runs down the basic information.

Mutual Funds Can Amplify Your Gifts and Return Income Other options are available to help avoid taxes including Donor advised funds, Charitable Lead Trust, Charitable Remainder Annuity Trust and others. These options are not limited to mutual funds, but can be accessed through most basic brokerage business.

A Special Deal for Grandparents For those who would like to contribute to a persons education, 529 plans are a good tax advantaged method.

Some IRA Estate Considerations As mentioned earlier persons with large balances in their IRAs may want to consider depleting these funds to minimize taxes that persons inheriting these funds may face.

Something for Everyone A complex will and/or trust is rarely needed for most people, although a Trust can help avoid probate, and hiring a professional to ensure these documents are completed appropriately is recommended.

That's It Folks

If you follow the advice provided in this book, and complete and follow the associated worksheets you should have a very good idea of what to expect in retirement. Best of luck!

Chapter Closing Thoughts

Detailed steps on how to plan your budget in retirement and keep on budget throughout your retirement have been provided, Even if you decide managing your retirement portfolio is not for you, at this point you should be able to have a good understanding of what it takes to have a successful retirement and what lifestyle to expect in retirement based on your resources.