

**A Beginner's Guide to Investing: How to Grow Your Money the Smart
and Easy Way
By Ivy Bytes**

content

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Preface

A Beginner's Guide to Investing is not just a book, but the "pilot" for a new kind of publishing company. We call ourselves "Ivy Bytes." The idea is pretty simple: produce authoritative, clear, non-biased and concise guides that cut through the noise of the news and provide real context and information about a vital subject. We produce these guides solely with digital platforms like the Kindle, Ipad, and smart phone in mind, and are thus lower cost, more concise, and more interactive than existing options.

That's the market opportunity from an economic point of view. But for us, Ivy Bytes is about a lot more than economics. We are passionate foremost about the opportunity for compelling digital content to "elevate the discourse" in America, and the world, right now. If you have flipped on the TV, looked at the best-seller list, or browsed a news website over the past two years, you may have noticed an increasing level of divisiveness and rancor. A shortened attention span and growing illiteracy in all matters economic, financial, and political have allowed sharp opinions to replace facts, far-out conspiracy theories to replace mainstream thought, and absurd sound bites to replace carefully prepared analyses. Technology should not be about "dumbing us down" but about making us more knowledgeable, better, and more productive. At an important inflection point for the entire global economy, we need to do better, and we hope that our humble guidebooks can be a start.

So why begin such a vision with an investment guide? Because investing is a topic that actually fits all the pieces of our thesis. The financial news media collectively has ADD and is dominated by sound bite pieces about what the market has done in the last four hours, rather than reasoned analyses of where we stand and how we have gotten here. Even the best-seller list is dominated primarily by opinion-pieces from authors who stand far outside the mainstream. It is no wonder that an epidemic of financial illiteracy plagues individual investors, who have achieved stunningly poor returns over the past twenty years, and may be rapidly losing faith in the markets and a system that they perceive as "rigged" against them. Meanwhile, political and economic divisions are ever-widened by the ability of a relatively small segment of the population to handsomely profit off the financial illiteracy of the masses.

Our small and humble antidote to all of this is to write the best investment guide we can. I hope that you will find this book clear, authoritative, and interesting. If you have any comments, questions, or feedback of any kind, please let us know. This guide - and this entire concept for a company - remain a test. If you like what you see, please consider leaving us feedback and passing along a recommendation to a friend or friends. And please let us know personally what you think via one of the contact methods below:

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Lesson 1: How to double your money every seven years

The Bottom Line

A small initial investment can increase to a surprisingly large amount if it is held over several decades thanks to an amazing property of returns known as "compound interest." Most investors fail to realize this potential for vast wealth creation both because they start saving too late in their career, and because they fail to achieve even an average rate of return due to fees and investment mistakes. This financial illiteracy can cost the average investor more than \$1 million over the course of a lifetime.

The Lesson

The parable of Jill and Average Joe

We begin with a story. Our story has two heroes, whose names are "Jill" and "Average Joe." Each goes to a four-year college, graduates at age 22, and enters the workforce making \$40k a year. Each retires at 65 and lives the next twenty years off of accumulated savings. Each goes through the normal ups and downs of life - unexpected job loss, marriage, divorce, kids. But through it all, both Jill and Average Joe make saving money a priority - and while some years are better than others, they each manage to put an average of 10% of their income into a retirement fund yearly, only taking a break for three years in their mid 30s when family expenses and job concerns catch up to them. Jill and Average Joe differ in only two regards. First, Jill starts saving immediately upon entering the workforce at age 22; Average Joe waits until he is 30 to begin saving, reasoning that retirement is still so far off. Second, Jill buys an index mutual fund that tracks the overall stock market, never touching her money and earning the same return as the overall stock market. Average Joe "tinkers around" with his portfolio, purchasing some mutual funds through his financial advisor, and investing in stocks whenever he gets a particularly juicy tip from his neighbor. Joe earns the same return as the average investor in the stock market.

When they retire at age 65, each checks the balance on his investment account to see what kind of lifestyle the next twenty years will bring. Jill finds she has accumulated \$967,000 (in today's dollars). Average Joe's portfolio has grown to less than 1/3 of this amount - \$309,000ⁱ. The difference does not stop there. Provided their investment habits continue into retirement, Jill will be able to earn as much as \$84,000 a year from her investmentsⁱⁱ. Average Joe will spend his retirement living from Social Security check to Social Security check, receiving \$15,000 a year from his investments. The rest of this chapter will explore why this huge difference exists between two people with such strikingly similar earning and saving habits, and where Average Joe went so horribly wrong. Because at its core, the parable of Jill and Average Joe represents the difference between the kinds of investment returns millions of Americans *should* be receiving, versus the kind that they actually are receiving. As a direct consequence, it

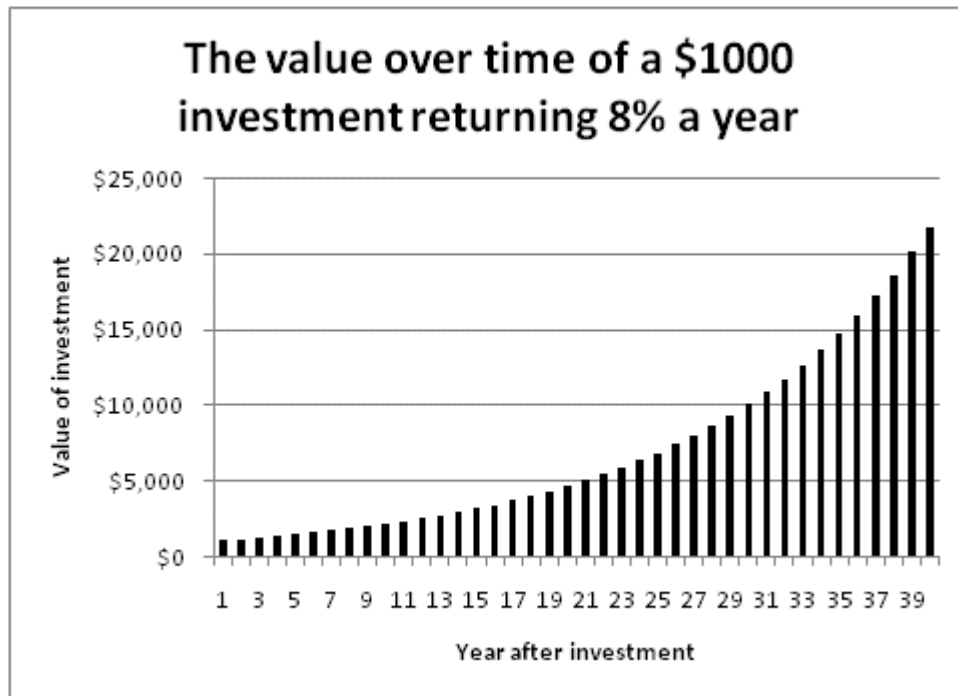
also represents the lifestyles we *should* be living, versus the kind so many of us actually are.

The miracle of compounded interest

At its root, finance is pretty simple. There are only two things to do with money: use it to purchase goods or services, or save it. Since spending money is obviously more fun than saving it, one reason people rationally choose to save anyway is the hope that, in doing so, they will be able to consume an even larger amount of goods or services at a later date.

Historically, this has indeed been the case. Over the past century, savings invested in the stock market have appreciated over long periods by an average of 10% a year (more like 6% after accounting for the fact that the prices of goods has also tended to increase over time),ⁱⁱⁱ though there has of course been considerable variation from year to year and even decade to decade.

An important feature of investment returns is something called "compound interest." This means that it is not just an initial investment that appreciates in value, but also the gains on that initial investment. For example, we might expect that an investment of \$100 that appreciates at the 10% annual rate of the stock market over the past century would appreciate to \$110 after one year and \$120 after two years without compound interest. But if no money is taken out, then in the second year it is not just the initial investment (\$100) that grows at 10%, but also the *gains* on the initial investment from the first year (\$10). So after two years the investment is actually worth \$121. After many years, the "gains on the gains" of an investment can become remarkably significant, as they result in what is called "exponential growth", meaning that the dollar value of an investment increases at a faster and faster rate over time. You can see this visually below.



The "rule of 72" is a handy rule of thumb that illustrates the power of exponential growth over time. It says that to determine the approximate number of years an investment will take to double in value, simply divide 72 by the average annual rate of return. So an investment with a 10% annual rate of return will double every seven years (72 divided by 10 is about 7). What is really interesting is the effect that compound interest has when the holding period is extended beyond those 7 years. An investment that doubles every seven years will double twice every 14 years (2×2), resulting in a quadrupling in value. Over 21 years it will increase 8 times ($2 \times 2 \times 2$), over 28 years it will increase 16 times ($2 \times 2 \times 2 \times 2$) and over 35 years it will increase 32 times ($2 \times 2 \times 2 \times 2 \times 2$). Over 42 years - well within the holding period of a typical worker who starts saving early in life - it will increase an astonishing 64 times in value ($2 \times 2 \times 2 \times 2 \times 2 \times 2$). This is why even a small amount of money, if allowed to accumulate over a long enough time period, can grow to an extraordinary fortune. Getting back to the parable - By starting his saving 10 years earlier than Average Joe, Jill was able to increase the time that compound interest could work for her, greatly increasing her retirement wealth.

The chart below pictures the real growth of \$1 invested in the stock market in 1960. While the ride is more bumpy than in our hypothetical 8% return example above, a worker that invested \$1 of income in 1960 would have over \$100 today - about a 10% compound annual return.

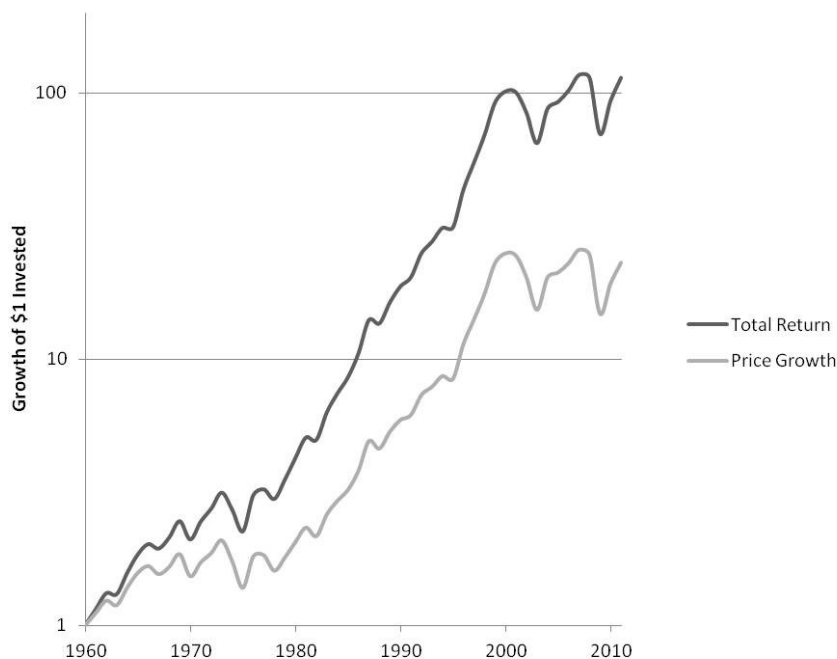


Figure 1- The growth of \$1 invested in the US stock market at the end of 1960

Why most investors fail to achieve this ideal

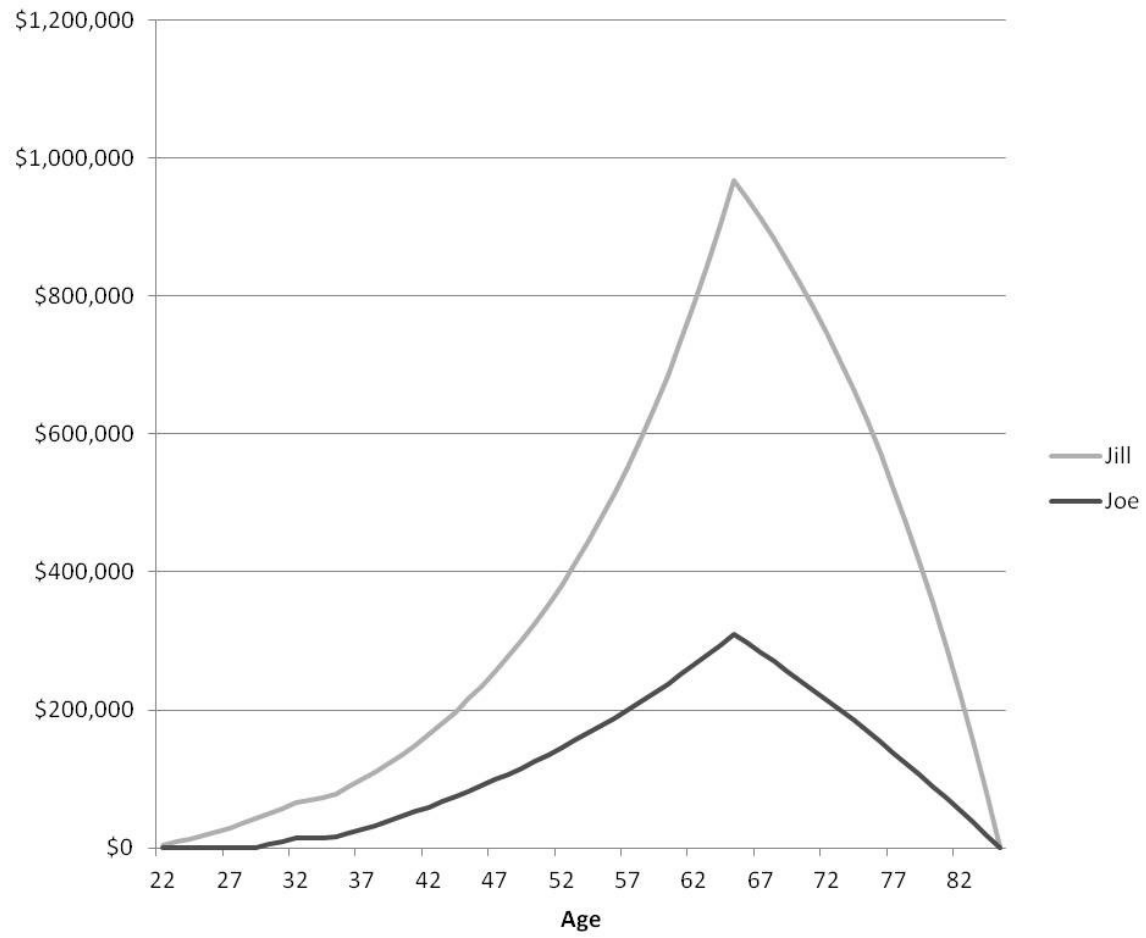
With the miracle of compound interest propelling Jill, with a very middle-class wage and modest savings level, to millionaire status by the time of her retirement, one might wonder why there are so many struggling retirees. This brings us to the second reason Jill ended up sipping pina colodas while Average Joe lived from Social Security check to Social Security check. The dirty little secret of the investing world is that even diligent savers like Average Joe largely fail to realize the ideal of returns that compound at the rate of the stock market. Although the stock market overall has increased at a 10% average rate over the last century, the *average investor* in the stock market has seen returns that significantly lag this rate. Over the past 20 years, research by Dalbar, a financial advising group, reports that the return the average equity investor achieved was more than 5% below the return of the overall stock market^{iv}. There are two reasons why the returns of the average investor fall far short of where they should:

1. Fees. While Jill paid relatively few fees, some 2% of Average Joe's assets disappeared into the hands of a financial advisor, investment manager, broker, or some combination thereof every year^v. Without these fees, Average Joe's portfolio would have been worth \$432,000 instead of 309,000 at retirement, even with his late-start.
2. Poor investment decisions. Historically, investors have been carried away by optimism when times are good and by pessimism when times are bad. The result is

herd behavior - with money moving into stocks just in time to capture a market crash, and money moving out just in time to miss the start of a bull market. For instance, in 2000 investors added \$325 bil to equity mutual funds at a time when the S&P 500 was selling in the range of 1400 to 1500. In 2002, they sold a net of \$12 billion when the S&P 500 was selling in the range from 820 to 1170^{vi}. Without the effect of poor investment decisions and fees that took another 2% off his returns, Average Joe's portfolio would have been worth \$623,000 even with his late-start.

Each of these factors can really be attributed to one thing: financial illiteracy. Simply put, the average investor lacks the confidence to manage money on his or her own, and lacks the ability to achieve even market-level returns. To put the cost of financial illiteracy into perspective, think of the result of the parable above. Jill and Average Joe were both alike - except that Jill took the time to become financially literate at a young age, and Jill did not, pushing off savings until he was at a stage where he could hire an advisor. To Average Joe, this advice seemed to cost only 2% a year - far less than he was making on his investments. But over the course of his lifetime, it would end up costing him some \$500,000 in lost savings. Is putting a few hours of hard work in now to become financially literate worth \$500,000 dollars to you? If so, read on.

Portfolio Value over Time



Lesson 2: Making sense of the investment world

The Bottom Line

At their most basic level, investments represent an exchange between two parties - one who needs money now in order to build something that will generate money in later years, and another who has money now and would like to exchange it for more money in later years. Stocks and bonds represent two different ways of structuring this kind of agreement. Secondary markets like the New York Stock Exchange allow investors to "trade" their initial investments to others in exchange for cash. The intrinsic value of any investment is just the future income stream that it will produce, discounted back to the present to account for the time value of money.

The Lesson

What an investment really is

In a modern world complete with a litany of complicated investment options, it is easy to lose sight of what an investment in the financial markets actually means. It can be instructive to imagine what things would have been like in a simpler time and place - an ancient town where "Ted" and "Bill" are two farmers and neighbors.

In our scenario, Ted's farm is in the land of plenty. He has had several good farming years and has more food stockpiled than his family will be able to eat. He would like to be able to exchange food today for food in the future, when he might not be as lucky in his harvest, or as able to work.

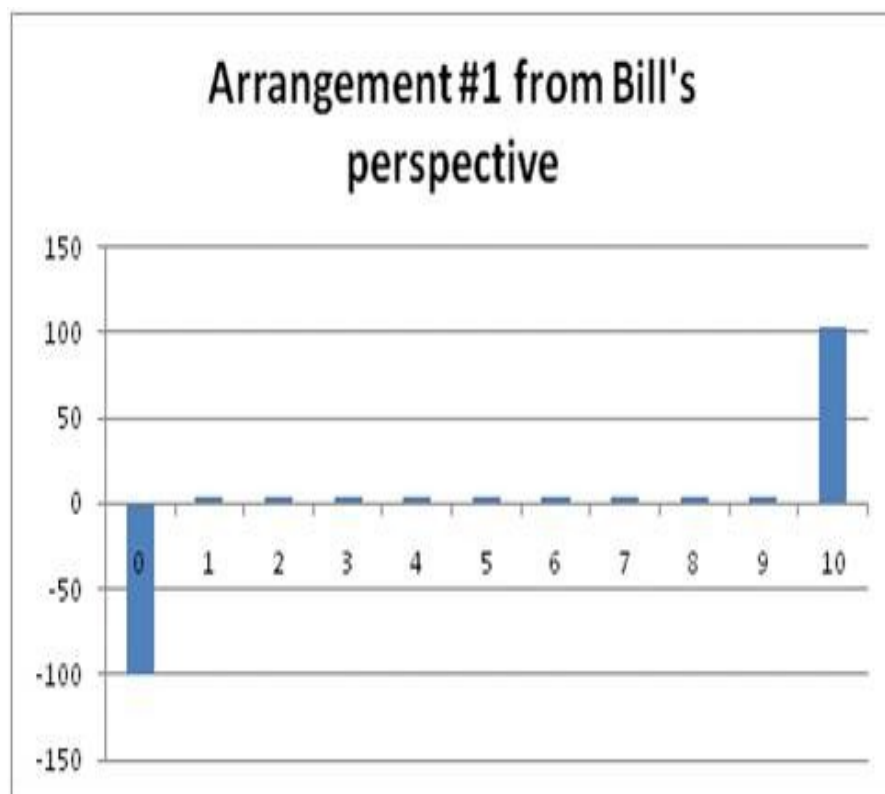
Bill is just starting out, and would like to spend time working on enlarging the farm and building a new barn so that he can expand his operation in future years in order to be more like Ted. However, if he spends his time enlarging the farm he will not be able to harvest his crops this year. This would not make Bill's hungry wife and kids very happy.

Since Bill needs food now in order to produce more food later, and Ted has extra food now and would like to get more food later, it seems like a mutually beneficial arrangement should be possible. But the problems in structuring this trade are significant, since it is taking place across time. Ted wants to be sure that he will get as much or more food in the future as he is giving up now. Otherwise he could ground his corn, put it into storage, and hire another neighbor to guard it from Bill's hungry children. Ted also naturally worries that Bill will just run off with the extra food and never deliver on his end of the deal. Finally, Ted wonders whether there are other farmers like Bill, in towns far away, that might give him a better deal.

For all their complexity, the modern financial markets evolved to solve precisely these kinds of age-old problems. In the next section, we will look at how stocks and bonds represent two different ways that Bill and Ted could have structured a mutually-beneficial agreement.

Know your stocks and bonds: An introduction to financial instruments and terminology

The first way that Ted and Bill might have decided to structure their arrangement is a simple "pay you back later" agreement, equivalent to saying "Can I borrow your car? I promise I will bring it back in two hours." To make the deal attractive for Ted, Bill might offer to give him an additional three bushels of corn at the end of every year until the debt has been paid off (sort of similar to "Can I borrow your car? I'll fill it up with gas before I bring it back"). So Bill would receive yearly corn payments in addition to the return of his initial investment at the end of the loan term. This situation is pictured below from Bill's perspective, with a negative number indicating he is giving up corn and a positive number indicating he is receiving corn.



If Ted and Bill had structured the arrangement in this way, they would have created something similar to a bond. Today, bonds are a type of debt that represents an IOU from a user of money such as a company or government, to a provider of money such as a saver/investor. In exchange for immediate use of the saver's money, the

recipient agrees to make a periodic interest payment to the saver, as well as to return the full amount at the end of a fixed term. The saver/lender has the opportunity to make a positive return over the course of the investment because he gets his initial investment back when he needs it a later date, and also receives interest payments in the mean time.

Ted and Bill could have also structured their arrangement another way. If the farm improvements Bill was planning were relatively risky - for instance, if he was building a new kind of production machinery and there was a chance it would not work as planned - Bill might not want to have a fixed sum debt hanging over him, and Ted might be uncomfortable with the low rate of return from a bond, given the risk that Bill will not be able to produce enough food to pay him back. An alternative would be for Ted to provide Bill with 100 lbs of corn in exchange for a portion of the ownership of the new farm, say 10%. This way, Ted would be entitled to 10% of the future production of Bill's farm. If the improvements were successful, Ted could receive much more corn than he initially gave up, earning a positive return on his investment. If the improvements were unsuccessful, he might end up receiving less than he initially gave Bill. This kind of arrangement allows Ted and Bill to share in the risk of the project, and is similar to a stock.

Today, stocks are certificates issued by companies when they do not have the cash on hand to build a new factory, launch a new product, or invest in their business. In exchange for providing needed money, savers/investors receive partial ownership of the company. If the company makes profits in the future, it will give a portion of its earnings to its owners in annual or quarterly payments known as "dividends". By purchasing stocks, the saver has the opportunity to make a positive return over the course of the investment if the total dividends received from the company are greater than the value of their initial investment.

Thus far, we have assumed that the circumstances for Ted and Bill do not change between the time they enter into the agreement, and the time the agreement is complete. But imagine that shortly after giving his surplus food to Ted, Bill's farm is overrun by corn-eating locusts. He could try to get his food back from his neighbor, but Ted has already held his fields fallow for a year, and there is not enough to feed both families. A solution to this problem could be for Ted to sell his contract with Bill to a third farmer, "Joel", who also has a surplus of corn. Joel would give Ted corn now in exchange for receiving future corn payments from Bill.

The modern equivalent of this kind of "re-selling" of contracts is secondary markets like the oft quoted New York Stock Exchange. Markets for financial contracts let an individual who initially invested in a stock or bond issue sell it to another individual that would like to "take it over." The prices for stocks and bonds that are frequently quoted in newspapers and the internet are simply the most recent price at which these secondary exchanges between individuals are taking place.

One downside of both stocks and bonds is that many individual investors do not have enough money or time to manage a very large portfolio of them. Mutual funds arose as a solution to this problem. A mutual fund pools together money from many different savers and invests this larger pool in a portfolio of stocks. Each investor in the mutual fund owns a portion of this portfolio and receives a portion of any income or investment gains. Mutual funds are managed by a professional investor who is usually employed by a company like Fidelity or T. Rowe Price.

So what is it all worth - The theory of Intrinsic Value

Often, commentators will talk about a stock or bond as being particularly "overvalued" or "undervalued." Such a description poses the question of how to define what "fair value" would mean.

The theory of *intrinsic value* says that an investment should have a value equal to the value it would have to a hypothetical investor who holds the investment forever (even though, with the advent of secondary markets, most investors do not actually do so). Intrinsic value rests on the idea that there is what economists call a *time value of money*. The basic idea is that receiving \$1 today is worth more than receiving \$1 in the future, say five years from now. There are three inter-related reasons for this. First, a dollar today can be invested in various productive ways to produce more dollars in the future. Second, a future dollar will buy less real goods than a current dollar due to inflation. Finally, there is a very human preference for immediate gratification over delayed gratification (i.e. most people would rather have cake now than one week from now).

A good estimate for the time value of money today is the interest rate on a very safe investment, such as U.S. Treasury bonds (I.O.U.s from the US government). If we know or can observe what the time value of money is, then we can place a dollar value today on the promise of \$1 five years from now. In doing so, we are "discounting it back to the present." And if we can place a current dollar value on the promise of \$1 five years from now, then there is no reason we cannot place a current dollar value on any stream of future dividends or interest payments. This is precisely what is needed to value a stock, bond, or any other kind of investment - simply estimate the income the investment stream the investment will provide, and discount it back to the present at an appropriate time value of money.

In the Bill and Ted example, the intrinsic value of Bill's investment would always be his best guess on how many pounds of food that Ted would give him in the future. This would vary with the probability of success of the project and/or Bill's credit worthiness. In today's markets, intrinsic value equates to the estimated future dividend/income stream of a company into perpetuity (or as long as the company or bond remains alive and income-generating), discounted back to the present to reflect the time value of money and the riskiness of the investment.

Explaining market volatility

It may seem difficult to explain the wild gyrations of the stock market in the context of a theory that says stock prices should, in principle, never diverge from their intrinsic value. Large market gyrations can be a result of two factors. First, it is exceedingly difficult to estimate what the intrinsic value of a company is, since this rests on estimating profits forever into the future and discounting them back to current dollars at an equally uncertain time value of money. Estimates can change dramatically based on changes in technology, competition, regulatory environment, wars, natural disasters, overall economic growth, estimates of future inflation, and changes in the individual preference for money now vs. later. Since we live in a dynamic world where all of these things are changing on a daily basis, rational estimates of intrinsic value are certain to change with time.

Second, the markets are composed of human participants and may not be immune from emotional factors like "fear and greed." Human emotions could have a particularly large role today because the average holding period of a stock is now only four months according to *The Economist*^{vii}. This short holding period creates an incentive for market participants, especially those such as professional fund managers who are judged by short-term measures like the performance of their fund over the past quarter, to play what prominent economist John Maynard Keynes referred to as a "beauty contest"^{viii}. The idea is that the markets can, in periods of intense speculation, come to resemble a game where the objective is not so much to figure out which companies are more valuable, but to figure out which companies the most investors will think are most valuable. Apparently rational investors may buy into shares trading at prices that are much higher than any reasonable estimate of their intrinsic value if they think that others will be willing in the future to purchase those shares at even higher prices still. This kind of dynamic can create market volatility independent of changes in the fundamentals of a business or the economy.

It gets somewhat beyond the scope of an introductory guide, but an important piece of the volatility puzzle may also come from what billionaire hedge-fund speculator George Soros describes as "reflexivity." The idea is that movements in stock prices do not just reflect estimates of the future, but they can, in fact, directly *impact* the future. An easy example to see this is the 2008 financial crisis. Falling prices on investments like stocks at first reflected lower intrinsic value of assets as a result of deteriorations in the real economy. But falling prices then *caused* even further deteriorations in the economy because households looked at the lower values of their stocks, bonds, and houses, realized they were not as wealthy as they once had thought, and cut spending. When everyone cut spending at once, the economy deteriorated further, causing even more pressure on investment prices. "Reflexivity" can create markets that are susceptible to wild jumps from one extreme to the other.

Lesson 3: A practical guide to choosing an investment account

The Bottom Line

Opening an investment account is a crucial first step to saving wisely. Investors have the option to invest through a discount brokerage account, a mutual fund account, a full-service brokerage account, and even a bank account. They should pay extremely close attention to fees when choosing an account, since seemingly small yearly charges can act as brakes on the amazing effects of compound interest. Discount brokerages will be appropriate for many, since they combine low fees with the widest selection of investment options.

The Lesson

Why expenses matter - a lot

Cooking is something that a lot of us have a love-hate relationship with. While we love being able to control exactly what goes into our bodies, having an unlimited array of culinary possibilities, and saving money versus eating at restaurants, we hate figuring out what combinations of food will taste good, burning rice for the third time in two weeks, and spending time in front of a stove with a potholder and not in front of a TV with a beer. Frequently this tradeoff ends up with a takeout order being placed. Many are perfectly okay with this because it is still relatively affordable to outsource this part of our lives at \$10 a meal or so. But if our local takeout places were charging \$10,000 a meal you can bet we would be in a baking class as soon as possible. No one would eat out at those kinds of prices.

Yet an equivalent price structure exists in the world of investment accounts, and rather than learning to cook, most people are instead opting to buy a \$400,000 bad hamburger. To see why, let's go back to looking at Jill and Average Joe.

Imagine each makes an identical \$100k investment that earns 8% a year before fees. Jill invests directly in a low cost index fund that charges a fee of .2% of assets. Average Joe invests in an average mutual fund through an average financial advisor. The mutual fund charges a management fee of 1.3% of assets (not all funds are as expensive, but 1.3% is about average for an actively managed fund) and his financial advisor charges a fee of 1% of assets for managing the investment on his behalf. While it might *seem* like it is worth it to Joe to pay roughly 2% of his assets a year for the convenience of professional management, especially since his investment returns more than this every year, in actuality he is reducing his returns by a stunning amount over time. After 30 years, Jim's account would have grown to \$952,000 while Bill's account would have grown to only \$528,000. Just as a virtue of paying 2% a year less in fees, Bill will be nearly twice as wealthy as Jim. The fees that Joe paid did not seem high relative to the returns he was making at the time, but over the course of 30 years they ended up "costing" him \$424,000, or four times his initial investment!

How to cook your own stock market stew

The first step to figuring out the right place to open an account is to decide what kind of company to deal with. There are four general choices: full-service brokerages, mutual fund companies, discount brokerages, and deposit taking banks. Discount brokerages, the "eat your own cooking" account, are compelling choices for many.

Discount brokerages are low-cost online accounts from firms like Etrade, Charles Schwab, and Fidelity. They allow do-it-yourself investors to purchase a large variety of common stocks, mutual funds, and ETFs (exchange traded funds... We will discuss these in chapter 7), making them a great one-stop shop for financial products. There is often no annual fee for using a discount brokerage. Instead, these accounts make money by charging a small fee every time you buy or sell a stock or fund, usually 5 to 15 dollars per trade. This fee is only assessed on the purchase or sale of a stock or ETF position. Discount brokerages are the lowest cost option for most investors, and also offer the widest selection of investments.

A **mutual fund account** from a company like T Rowe Price or Vanguard is the investing equivalent of going to a chain restaurant. These kinds of accounts generally allow investors to purchase funds sold by that company, but not directly invest in stocks themselves (though larger firms like Fidelity and Vanguard will likely also offer discount brokerage accounts - these may be a compelling value since they let you invest in stocks alongside their own funds). Mutual funds appeal to those that seek the professional management capabilities of a mutual fund manager. However, mutual funds often come with higher fees that, as we have seen, can lead to huge amounts of lost wealth over time. Mutual fund fees can vary enormously from one company to another (and from one fund to another at the same company). Some firms charge 1.3% of assets or more to manage your money; others even add on a "load" fee that will cost you as much as 5% of your money up-front just for the privilege of investing in their fund. Well-run mutual funds from companies like Vanguard and T. Rowe Price offer much lower fees and no load.

Full service brokerage accounts from the likes of Morgan Stanley and Goldman Sachs are the financial equivalent of hiring a private chef. These accounts are like discount brokerages except they offer more personal services like wealth management and advice, and they generally charge more. Be aware that the advisor may be tempted to recommend investments that pay him or her a high commission (financial term for a kickback) rather than what is best for you. Even if the advice is un-conflicted, it is extremely difficult to make up the cost of these additional expenses over a thirty year period.

While generally not considered investment accounts, **bank checking and saving accounts** are the financial equivalent of microwaving a TV dinner. Like the humble microwaveable dinner, bank accounts have their advantages. The return earned from

them is free of any risk, and money invested is guaranteed by the government. Moreover, money can easily be withdrawn from the account at full value whenever it is needed, a feature that economists call "liquidity." Nonetheless, the compounded return you can get over a lifetime from a bank account pales in comparison to the wealth creation opportunities from investing in the stock market. Checking and savings accounts are great places to keep money that might be needed in the next couple of years, but higher return assets like stocks and mutual funds will, on average, offer much higher returns over the long-term. TV dinners have their time and place, but you do not want to live on them.

How to choose a discount brokerage

Luckily, finding a good discount brokerage is a lot easier than learning how to cook. Competition amongst online providers has pushed trade costs to all-time lows, leaving more money in the pockets of smart individual investors. Large players like TD Ameritrade, ETrade, Scottrade, and Fidelity all have compelling offers and are good places to start. A few factors to consider:

- You should not have to pay much more than \$10 per trade
- You should be able to avoid paying any monthly maintenance fees, or having a minimum monthly level of spend that you have hit.
- You should have free access to online tools, calculators, and stock quotes
- The minimum account size should be in the range of what you are looking for and there should be no charges for contributing or withdrawing money

Once you have decided on an appropriate provider (and it is difficult to go to wrong in choosing between the main players), opening an account is easy. You will just need your Social Security number, personal information, and have access to a funding source like a bank account. Usually, you can electronically transfer money from a bank account to a brokerage account if you have the routing number and account number (which should be on your checks). Once an account has been opened, you may need to wait a few days for everything to clear, and then you can begin investing! The remainder of this book will focus on what to do with your new account.

Lesson 4: How to use tax-advantaged accounts to avoid investing solely for the benefit of Uncle Sam

The Bottom Line

It is essential to consider the role of taxes in devising an investment strategy, as they will represent the largest investment expense for most investors. Tax-advantaged accounts such as the 401(k) and the IRA were set up by the government to encourage citizens to save for their own retirement. They offer compelling tax advantages and should be properly utilized by just about everyone.

The Lesson

For thousands of years of history, the best retirement planning that was available to the middle-class was to have a lot of kids. In an agrarian lifestyle, kids could grow up, take over the family farm, and tend to their elderly parents when they were no longer productive. Government did not have much of a role to play.

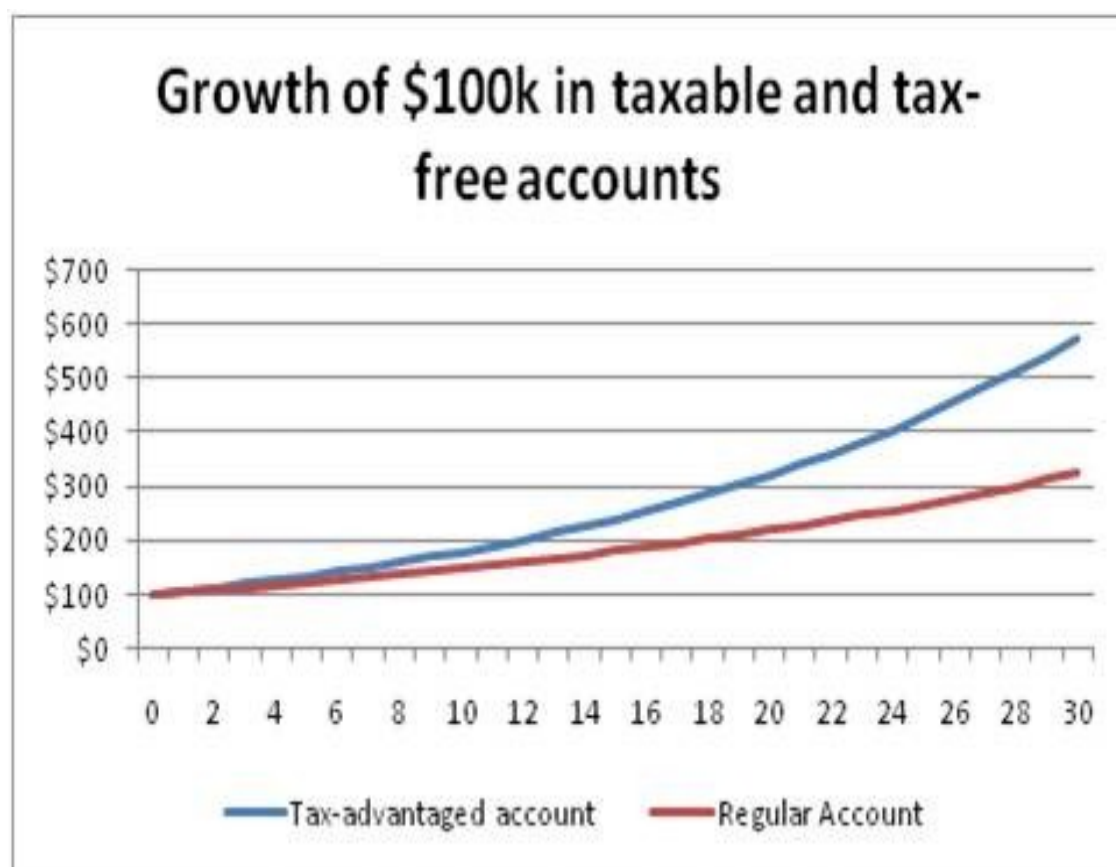
This changed in the Great Depression and WWII. The Great Depression brought the government into the retirement industry in the form of Social Security, a program that taxes people during their working years and pays them during their retirement years. Government price controls during WWII also encouraged private companies to compete by offering pension plans, starting a tradition of employer-provided retirement coverage. In the late 20th century it became evident that neither Social Security nor private pension plans would be sufficient to pay for the retirement of the baby boomer generation. The government responded again by offering tax breaks that encourage workers to save and invest for their own retirements. The combination of these forces produced the Individual Retirement Account (IRA), and the 401(k) employer-provided retirement account. This chapter will look at how you can take advantage of the IRA, 401(k), and traditional (taxable) investment account in planning for your retirement. This complicated amalgamation of different account types has made things more confusing for the individual investor, but it has also opened the door to enormous tax savings that you do not want to pass up.

Taxes are the most significant investment expense you will pay

Just as paying seemingly small amounts for money management every year adds up to stunningly reduced wealth over time, paying apparently modest amounts of taxes every year can take a IRS-sized bite out of your wealth. Money that is not in a tax-sheltered retirement account (more on these below) is subject to three layers of taxes. Interest payments on bonds as well as short-term gains (money made from selling investments at a higher price than they were purchased at) on investments held for less than one year are taxed at the ordinary income rate. Long-term capital

gains as a result of selling an investment held for longer than one year at a higher price than it was purchased for, are taxed at a special capital gains tax rate of (usually) 15%. Be aware that tax rates have changed markedly in the past and are likely to increase in the future. Finally, all dividends received from stocks are taxed either at the ordinary income rate or at a qualified dividend rate which may be lower (currently 15% for most tax payers). These taxes act as a sharp brake on the amazing effects of compound interest that we went over in chapter 1.

To see the huge potential impact that taxes can make, imagine an employee is in the 33% tax bracket and has \$100k invested in a long term bond that pays out 6% interest a year, and is able to reinvest the interest in this bond at a similar rate. Inside a tax-sheltered account, this money will actually compound at 6%, growing to \$575,000 over thirty years. Outside a 401(k), this money would compound at a true after-tax rate of 4% (since 1/3 of the income goes to the government every year), growing to only \$324,000 (see below). It is easy to see that taking advantages of the tax savings inside of a 401(k) can make a material difference to the lifestyle that you are able to afford in retirement!



The two major account types that you must become familiar with to be an informed investor are the 401(k) and the Individual Retirement Account (IRA).

The 401(k) - Worth opening for the free contributions and keeping for tax savings

A 401(k) is a retirement account that is provided by employers. Employees can elect to have a portion of their wages deducted directly from their paycheck and invested in the 401(k). This is often referred to as a direct contribution (DC) retirement plan because employees bear all investment risk in the account. It is the contributions, not the benefits, that are guaranteed.

To see the advantages of a 401(k), we'll look at Janet, a 35 year old middle manager making \$50,000 a year. Investing in a 401(k) has three huge advantages for Janet.

First, employers will usually match a portion of employee contributions up to a certain level - this means that if you put in a given amount, your employer will make an automatic contribution on your behalf. Janet's company matches half of an employee's contribution up to 6% of his or her salary every pay period. This means that if Janet puts in 6% of her salary, her employer will add another 3% out of its own pocket. This extra contribution can add up significantly over time. At Janet's salary of \$50,000 per year, it will mean an extra \$1,500 a year in retirement savings just for making the minimum contributions. After a thirty year period, this extra \$1,500 a year will add \$170,000 to the value of her retirement account if it is invested at an 8% annual return. Automatic employer matches are essentially free money that employees would be foolish not to take advantage of.

Second, the amount that is contributed to a 401(k) plan can be deducted from income for tax purposes. For instance, if Janet contributes \$10,000 to her 401(k) her taxable income will be reduced from \$50,000 to \$40,000. Janet is in a 25% tax bracket, so lowering her taxable income by \$10,000 directly saves her \$2500 dollars a year in taxes.

Third, the income and gains from investments in a 401(k) are exempt from taxes as they accumulate. Normally, interest on investments is taxed as income or dividends, but inside a 401(k) this money is allowed to grow tax-free until it is taken out. So Janet's investments inside her 401(k) will compound tax-free, as described above, and likely grow faster than if she had invested an equivalent amount of money outside the 401(k).

While its huge benefits make it an important cornerstone of anyone's retirement, the 401(k) does come with a few significant liabilities. The first is that the money is intended for retirement, and there are tax penalties that are imposed if it is taken out and used before the age of 60. This makes the 401(k) a poor place to save for short-term goals like a new car. The second is that withdrawals from the 401(k) during retirement are taxed as income at the ordinary income tax rate. So when Janet goes to withdraw money from her plan in retirement, she will have to pay ordinary income taxes. Depending on her income in retirement, this could result in large taxes. Finally, the investment choices in a 401(k) will likely be limited to a set approved by

the employer. While some plans are quite good, this can severely limit the flexibility that a worker has in planning for their retirement. For this reason, many people choose to roll their 401(k) over into an IRA if they change jobs or retire.

The IRA (Individual Retirement Account) - A great all-around retirement savings vehicle

The IRA is a tax advantaged account that was created by the government to encourage people to save for their retirement outside of employer provided plans. IRAs come in two varieties: the traditional IRA and the Roth IRA. A traditional IRA has the same tax advantages as a 401(k), but it is entirely self-managed, so it lacks the constraints in investment selection of the 401(k). The IRA does have two disadvantages relative to the 401(k). First, for those that have a employer-sponsored retirement plan available to them, contributions to an IRA are deductible from taxable income only if you (the saver) have a net income of less than a limit defined by the IRS. For 2011, the limit for full deductibility is \$56,000 for singles and \$90,000 for couples filing a joint return (\$169,000 if you file jointly and one of you is covered by a plan but the other is not). Higher income persons can still contribute and get the benefit of tax deferral on the income earned, but they cannot get a tax break on their contributions, which removes most of the advantage of the account.

Second, the contribution limit on a traditional IRA is significantly lower than on a 401(k) (\$5,000 a year for those under 50 and \$6,000 dollars a year for those over 50 vs. \$16,500 for the 401(k)). The government realizes it is giving away amazing tax savings and does not want people to take advantage of these too much.

Roth vs. Traditional? Flip a coin...

A further complication of IRA and (some) 401(k) accounts is that they actually come in two different varieties, called the "Roth" and "Traditional" (not all employers offer a Roth 401(k) - if yours does not, do not worry about it). The basic difference is that with a traditional account, contributions are tax deductible with withdrawals are taxed at the income rate, while with a roth account contributions are after-tax but withdrawals are tax-free. Being forced to decide between the two is exactly the sort of thing that quite understandably makes the average investor flee to one or more of: financial advisor, liquor store, bed. A good principle is that if your eyes start to glaze over at any point in this discussion, flip a coin and be done with it. Why? Because *it really just does not matter that much*. In fact, traditional and Roth accounts will produce a mathematically equivalent income in retirement for many people.

For those that want to delve into potential differences:

- If you expect to be in a lower tax bracket in retirement than you are now then a traditional account may be the best choice since it makes sense to take your tax deduction now, when it is worth more. This may be the case if you have

only modest retirement savings and expect your retirement income to be much lower than your current income.

- Conversely, if you expect to be in a higher tax bracket in retirement than you are now then a Roth account makes sense. This may be the case if you have large retirement savings.
- If you expect to be in a similar tax bracket but are worried that taxes will increase in the future in order to pay down deficits, a Roth account might be your best choice.
- If you are already maxing the contributions to your retirement accounts and would like to be able to contribute more, a Roth account may be your best choice. This is because you are contributing after-tax dollars to the Roth, so the effective contribution limit is greater.
- For IRA accounts, a Roth has more flexibility for when you take withdrawals, which can be an important feature. Roth accounts allow you to withdraw contributions (but not investment gains) at any time, they let you withdraw up to \$10,000 for a first-time house at any time, and they let you refrain from ever taking withdrawals, while normally you are forced to begin taking them at age 70 1/2. This last feature can increase the amount you are able to pass on to heirs.

The following table summarizes the main points of the major types of retirement accounts:

Table 1 Key Parameters of Retirement Accounts

	<u>Traditional 401(K)</u>	<u>Roth 401(k)</u>	<u>Traditional IRA</u>	<u>Roth IRA</u>
Availability	Provided by employer	Provided by employer	Everyone, self-managed	Everyone, self-managed. Income must be under \$105,000 (single filer) or \$169,000 (joint filer) to contribute in full
Are contributions deductible from income?	Yes	No	Yes - if income falls under limit (\$90,000 for single filers in 2011)	No
Tax-Rate on withdrawals	Full Income Rate	None	Full Income Rate	None
Contribution Limit (2011)	\$16,500	\$16,500	\$5,000 \$6,000 if 50 or older	\$5,000 \$6,000 if 50 or older
Distributions	Permitted at age 59 1/2. Required at 70 1/2	Permitted at age 59 1/2. Required at 70 1/2	Permitted at age 59 1/2. Required at 70 1/2	Permitted at age 59 1/2. Never required.

Taxable (Normal) Account - Use it to save for short-term goals

A plain vanilla taxable investment account lacks any of the tax advantages of a 401(k) or IRA. Investors are responsible for paying taxes on all dividends, interest, and capital gains from the account. Nonetheless, taxable accounts merit a place in just about everyone's portfolio for two reasons. First, access to money without penalties makes taxable accounts the right vehicle to save for short-term goals like a new car or second home, as well as to build up a reserve fund for contingencies. Second, taxable accounts are an appropriate place to hold excess savings beyond what can be contributed to a retirement account, since there is no limit to the amount of money that can be saved in a standard investment account.

Most people should have all three accounts

Because each account type has its own particular advantages, most investors should open and use both an IRA and a taxable investment account in addition to using their company-provided 401(k), if they have one. It would be foolish not to use a 401(k) to receive an automatic match from an employer; it would be equally foolhardy to pass

up on the tax benefits and flexibility of the IRA; and the need for a reserve fund that can be easily accessed at any time makes the vanilla taxable account an essential component of a portfolio.

Lesson 5: Forming an investing plan

The Bottom Line

Before jumping into investing, it is essential to have a plan composed of base case and stretch goals for wealth the amount of money you will need to retire, a yearly savings target, and a plan for how much money to invest in each account. This lesson presents a framework for thinking about these issues.

The Lesson

Running a marathon - a 26.2 mile (40km) road race - is a serious effort that might seem masochistic to most. Yet millions of Americans are drawn to these races every year, often embarking on months-long training programs that call for them to gradually ramp up the miles they are running every week from 20 miles to 40-50 miles or more. One of the things that makes training for and completing a marathon so compelling to many is that there is a clear and concrete "goal post" at the end of the process. On the flip side of the coin, it is the lack of this clearly defined goal post that is precisely what makes retirement planning so frustrating.

The equivalent of the "marathon date" for retirement planning is your retirement date. By this time, you should have accumulated enough savings to comfortably last you through your idle years. Contrary to the marathon training process though, the goal posts here are not quite so clear - it takes a bit of effort to figure out what this "number" is, but coming up with some kind of goal is essential to designing a "training plan." The exercise below will help.

Setting the goal posts - Figuring out how much money you need at the time of retirement by dividing your retirement income by a withdrawal rate (5% for most)

It is useful to consider first the minimum amount of income from your investments that you would be comfortable living on in retirement. From this, we can begin to think about the amount of money that you will have need to have accumulated in an investment account at the time of retirement. When thinking about a minimum income level to provide a sufficient lifestyle in retirement, consider several questions:

- How much money are you spending today? This can be a good starting point for what you will spend in retirement.
- Do you anticipate having lower expenses in retirement? For instance, will you downsize to a smaller shelter? Pay off a mortgage? Spend less on children? Most people can get by on 2/3 of their income or spending today since they have less expenses in retirement^{ix}.

- Subtract any additional sources of income you anticipate having in retirement from your figure. Consider how much you are projected to receive in Social Security benefits (you can find this on your last Social Security statement). Do you or your spouse have a pension plan from a company or the government? Do you anticipate holding a part-time job? Are you the kind of person that is going to keep working long past 65?

It is important to note that this does not have to be an exact exercise. Whatever number you come up with, write it down - we will use it in the next step.

Next, it is time to have some fun and come up with some stretch goals. Have you always wanted to travel the world? Buy a yacht? Take a cruise? Just live a more luxurious lifestyle? Write these down and estimate the amount of money you will need to get there, in addition to what you will need to cover basic needs. Add this additional amount of income to your total from above to get a stretch retirement income target.

Finally, we are set to figure out how much total savings you would have to have at the time of your retirement in order to produce this required amount of retirement income. In retirement, you will continue to invest your "nest egg" in the markets so that it continues to grow while you also withdrawal money to cover your living expenses. The goal is to have a portfolio that will last 25 years or more after retirement (the typical retirement lifetime). How much of a portfolio can be safely withdrawn every year is subject to fierce debate, but in general the following approach is reasonable. If you are very concerned about outliving your assets, have little room to adjust spending in the event of a market downturn, or just want to be extra conservative, a 4% withdrawal rate will protect your assets in all but the worst bear markets. Most people should be able to withdraw 5% of their assets during retirement (this assumes a relatively modest 2% rate of return after inflation over the retirement period). If you have significant flexibility to adjust your lifestyle in the event that returns are lower than expected, you might be able to withdraw money at a 6% or 7% rate instead^x.

In either case, to determine the amount of retirement wealth that you will need to produce your stretch and base cases, divide the income that you will need by your chosen withdrawal rate. For instance if you need \$30,000 in retirement income and have a little flexibility to adjust your lifestyle in the event of a market downturn, than you will need $\$30,000 / .05 = \$600,000$ in savings at the time of retirement. If you require only \$20,000 in addition to your other income sources and you have greater flexibility to adjust your income and want to be a little aggressive, than you may need to budget only $\$20,000 / .06 = \$330,000$ at the age of retirement. Perform this calculation for both your stretch and base income goals.

Design a savings plan to meet your goals. Determine your yearly savings target by referring to our handy chart

Once they have decided when they are going to run 26.2 miles, aspiring marathoners next have to figure out how to prepare their bodies to go this distance at the set date. A first step is figuring out a weekly training mileage. Rules of thumb are to build up to almost twice the distance of the race (i.e. 40-50 miles a week) and not to increase the miles in any one week by more than 10%.

The retirement planning equivalent of weekly training mileage is yearly savings. Below, we will go over some good rules of thumb to figure out how much you should be saving each year in order to meet your goal.

We will approach each of these by calculating the percentage of your goal that you need to accumulate each year. The advantage of this approach is that people with different goals will get the same answer - for instance, if you have 20 years until retirement, you should be putting down a minimum of 3% of your final goal every year, regardless of whether that goal is \$800,000 or \$8,000.

The percentage of your goal that you need to save each year is dependent on how much you are able to generate in investment returns and the number of years of saving and investing you have ahead of you (until retirement). By using the investment strategies advocated here, it should be possible to achieve returns of 4% a year in real (after inflation) terms over the very long term, though actual returns could fall below this level over a long period, and nothing is certain in the markets. The chart below calculates the appropriate savings level in terms of percentage of goal as a function of the number of years remaining until retirement. Locate the number of years you have remaining until retirement on the left hand of the page and find the corresponding entry under the "4% return" column. You can also look to see how the kind of return you expect to get can affect how much you need to save.

<u>Years until retire</u>	3% return	4% return	5% return	6% return	7% return
<u>2</u>	49.3%	49.0%	48.8%	48.5%	48.3%
<u>4</u>	23.9%	23.5%	23.2%	22.9%	22.5%
<u>6</u>	15.5%	15.1%	14.7%	14.3%	14.0%
<u>8</u>	11.2%	10.9%	10.5%	10.1%	9.7%
<u>10</u>	8.7%	8.3%	8.0%	7.6%	7.2%
<u>12</u>	7.0%	6.7%	6.3%	5.9%	5.6%
<u>14</u>	5.9%	5.5%	5.1%	4.8%	4.4%
<u>16</u>	5.0%	4.6%	4.2%	3.9%	3.6%
<u>18</u>	4.3%	3.9%	3.6%	3.2%	2.9%
<u>20</u>	3.7%	3.4%	3.0%	2.7%	2.4%
<u>22</u>	3.3%	2.9%	2.6%	2.3%	2.0%
<u>24</u>	2.9%	2.6%	2.2%	2.0%	1.7%
<u>26</u>	2.6%	2.3%	2.0%	1.7%	1.5%
<u>28</u>	2.3%	2.0%	1.7%	1.5%	1.2%
<u>30</u>	2.1%	1.8%	1.5%	1.3%	1.1%
<u>32</u>	1.9%	1.6%	1.3%	1.1%	0.9%
<u>34</u>	1.7%	1.4%	1.2%	1.0%	0.8%
<u>36</u>	1.6%	1.3%	1.0%	0.8%	0.7%
<u>38</u>	1.4%	1.2%	0.9%	0.7%	0.6%
<u>40</u>	1.3%	1.1%	0.8%	0.6%	0.5%

Figure 2 - Percentage of end goal that you should be saving every year based on number of year remaining until retirement and rate of return

Multiply the numbers you just wrote down by the numbers you just found in the table. This is the amount that you need to save on a yearly basis. For example, let's assume you are retiring in 20 years and you need to generate \$200,000 from in additional savings to meet your conservative goal and \$300,000 to meet your stretch goals. Looking at the "4% return" column that corresponds to 20 years, you would find that you need to save 3.4% of your goal every year. $.034 \times \$200,000 = \$6,800$ a year towards the basic goal. $.034 \times \$300,000 = \$10,200$ a year towards the stretch goal.

Finally, compare your conservative savings target to your current income and savings rates. Does it seem feasible with your current lifestyle, or would this require a difficult lifestyle adjustment for you or your family? Consider the same for your stretch goals. Think about how much you would have to adjust your lifestyle in order

to reach this goal, and consider whether it is worth it. Find a number that is hopefully between your conservative and stretch targets and that still leaves you enough income to live at a comfortable level. This is your annual savings target.

Allocate yearly savings to different accounts through a simple 5 step plan

Once marathon runners have picked a date for their race and decided on weekly training mileage, the final step in their planning process is to split up weekly miles into distinct workouts. The three key workouts in any marathon training program are the long run (which is as fun as it sounds...), the tempo run, and the speed workout.

The retirement plan equivalent is determining how to split yearly savings into different accounts, and there are also three choices: these are just the IRA, 401(k), and taxable accounts discussed in the previous chapter. Figuring out how much money to contribute to each is a five step process.

First, priority should be to start with the 401(k) and contribute enough to maximize the employer match. For instance, if your employer matches half of contributions up to 6% of salary, then make sure you are contributing 6% of your salary per pay period. Turning away free money is almost never a good idea. If you do not have a 401(k) or if your company does not match any of your contributions, then skip to step two.

Second, if you do not have an emergency savings fund built up to three months of estimated living expenses, you may want to add money to your taxable account or bank account until it reaches the appropriate level. It is nice having a buffer in a cash account that can be accessed at any time in case of an unexpected layoff, natural disasters, or other unforeseen consequence. Depending on your degree of risk tolerance, you can choose to build this up over time, or to put all savings into this fund until it reaches the desired level. Of course, if you have any high-interest credit card debt or anything with an interest rate above 8%, you should pay the entire balance off before you start to build up your cash reserve.

Third, if you are eligible for tax deductions on an IRA (or if you are eligible for a Roth IRA), you should contribute any excess savings to an IRA account (\$5,000 max, \$6,000 if over 50). Max out the account every year if you can and meet the eligibility requirements for deductions - the tax benefits and variety of choices in IRA investing are unparalleled.

Fourth, if you still have savings to invest and have maxed out your IRA contributions (or if you are not eligible for tax deductions on IRA contributions), it makes sense to max out the 401(k) as well (the limit is currently about \$16,000 per year).

Fifth, contribute additional funds to the taxable account. Though it is last in the process, for investors in high income brackets, the taxable account may grow to become the largest account because of the restrictions placed on the amount that can be invested in retirement accounts.

Lesson 6: Knowing your alphas and betas

The Bottom Line

The returns of any portfolio can be broken down into two pieces. One is a result of "beta," or movements in the overall market. The other is the result of "alpha," or the difference in returns between the portfolio and the overall market. Beta returns are compensation for taking investment risk and forgoing immediate consumption; alpha returns are a result of skill (or lack thereof...) in picking investments. Most investors should focus more on beta than alpha, as relatively few people in the world are truly capable of producing reliable alpha (beating the market), and beta is much cheaper to acquire.

The Lesson

I have always been a believer that you can judge how bustling and entrepreneurial a city is by visiting it in the middle of a rainstorm. In the true entrepreneurial metropolises, you will inevitably find that, shortly after the first rain drops, a smiling man carrying a pile of umbrellas will approach you and humbly offer his services to keep you dry. I've always appreciated the friendly neighborhood umbrella salesman, and have a collection of rain-protecting devices sitting in my closet as evidence of this.

Frequently after such encounters, I've also thought that I would make a pretty terrible umbrella salesman. I fundamentally lack the same drive for relentless "customer service" as the best umbrella peddlers. But in the middle of a torrential downpour, even I could sell umbrellas. This highlights the rather obvious connection between the success of an individual umbrella salesman, and the weather. If you wanted to determine whether an umbrella salesman was any good at his craft, it would not be enough to examine how his sales have done over the past month. You would want to know how the weather affected his sales efforts, perhaps by comparing him to other umbrella salesmen in his region. This is no less true of money managers, but the connection seems to be less obvious to many, perhaps because market movements are not as tangible as raindrops.

The difference between alpha and beta

Before deciding how you will actually invest your retirement money, it is important to know a bit about where investment returns come from. In this chapter, we will break down the investment returns of a portfolio of stock market investments into two distinct sources, which can be called "beta" and "alpha", but which you can think of in the umbrella example as "rain" and "salesmanship."

We will start with beta. In the context of the stock market, beta measures the return you can get as a result of owning the entire stock market. For a portfolio invested totally in US stocks, the return from beta exposure would just be the return of a broad US stock index like the often-quoted S&P 500. A portfolio that buys the entire stock market (which can be easily accomplished through the use of an index fund or ETF, instruments that will be discussed later) can be thought of as having a pure beta exposure to stocks (Finance professors would say that this portfolio has a beta of 1).

But just as one umbrella salesman may have more hustle and charm than another operating in the same weather conditions, one portfolio of stocks may be invested more wisely than another portfolio of stocks, and therefore earn higher returns over time. We can say that differences between portfolios that arise as a result of skill in investment selection is a result of alpha. Alpha measures the difference between the returns of a portfolio of stocks and the return of the overall stock market. Positive alpha means that the stocks in the individual portfolio have performed better than the overall stock market, negative alpha means they have performed worse than the overall stock market.

An important distinction between alpha and beta as it pertains to both stocks and umbrellas is that alpha is the result of skill, while beta is compensation for just being involved in the investment or job. A good way to see this is to imagine a period like 2008 when the overall stock market fell dramatically. A particularly skilled portfolio manager might have outperformed the overall stock market, but still had a negative return (lost money) in absolute terms. In this case, the return from beta would be negative, while the return from alpha would be positive. A key advantage to looking at investment returns this way is to allow the investor to differentiate between the performance of the overall market and the skill of a particular manager.

Thinking back to the first lesson, which discussed generically where investment returns come from, we can think of beta return as the compensation that investors demand to hold risky assets and to forgo immediate consumption for future consumption. If there was no beta return, then investors would have no reason to own stocks instead of putting money into risk-free Treasury bonds, or even guaranteed bank accounts. The uncertainty of stock investments means that investors demand to be compensated for the beta risk that they are taking, which is why stocks should return more than less risky kinds of investments over time.

By contrast, the notion of alpha did not appear anywhere in the first lesson. This is because alpha risk is not something that investors are compensated for, on average. By definition, the alpha for the entire stock market will always be 0. If an investor can produce positive alpha from good selection of stocks, it is not a result of taking any risks, it is simply a result of skill (or luck) in investing. In the same vein, if one investor has a lot of positive alpha (out-performance of the market), there must be at least one other investor somewhere that has negative alpha (under-performance of the overall market). This is an important point. Across the universe of all portfolios, alpha must average to zero.

Why beta trumps alpha - It is reliable and cheap while alpha is unreliable and expensive

From the above discussion, "alpha" should seem quite appealing, since it is the result of skill and not subject to the random fluctuations of the stock market. Yet there are three strong reasons that most investors should spend the vast majority of their time thinking about beta rather than alpha.

First, when comparing real-world portfolios, different beta exposures are far more significant in explaining difference in returns than are different levels of alpha. Study after study has indicated that the asset allocation of a portfolio (will be discussed more next chapter - but is a measure of beta) is not only the single most significant decision that can be made, but it totally dwarfs any other decision, accounting for more than 90% of the differences between the returns of different portfolios. Which particular stocks different portfolio managers own is far less significant than their overall exposure to the stock market.

Second, trying to produce alpha is a losing battle for all but the most elite investors. Studies indicate that 97% of professional mutual fund managers are incapable of reliably beating the market (apart from luck) after deducting their fees. The top 3% may legitimately be capable of producing alpha, but they are hard to find^{xi}. Buying those with the best track records is generally not a winning strategy in itself - many of these managers have merely gotten lucky. A few elite hedge fund and private equity managers do seem to produce consistent alpha at a high and statistically significant level, but most of these with verifiable track records are already closed to new capital or else otherwise inaccessible to individual investors.

Third, and this should seem like a recurring theme, beta exposure is very easy and inexpensive to get, while alpha is quite hard to get and also hideously expensive just to try achieve. Pure beta exposure can be achieved through exchange traded funds (ETFs) that purchase diversified portfolios of stocks that nearly exactly match a broader market. The fees in popular ETFs can be as low as .1% a year. By contrast, mutual funds that try to select stocks that will outperform the overall market are subject to multiple levels of fees, including a management expense, trading costs, and compensation to the sales person or advisor that sells the funds. These fees can average 1.3% or more. Moreover, there is no certainty that the investment will actually produce alpha. Poor decisions can cost even more money - just ask those that bought technology stocks in 2000 or real estate in 2008.

How to get beta - Use an index fund or ETF as a one-stop shop

Alpha generation is a topic for another book, the remainder of this one will focus on efficient generation of beta returns. There are a few ways to get beta

Active Mutual funds
Index mutual funds
Portfolios of individual stocks
ETFs

Active Mutual Funds

Mutual funds are entities that buy a diversified mix of stocks on behalf of their own shareholders. There have traditionally been many advantages to an investor to own shares in a mutual fund versus owning a diversified portfolio of stocks outright. These include convenience, the ability to split transaction costs over multiple owners, and the benefits of professional management.

Mutual funds come in two varieties - "active" and "passive". Actively managed funds try to pick stocks that will do better than the overall market. Many fund companies hire hundreds of analysts and portfolio managers that meet with company management and do other extensive research on a company's prospects, trying to determine whether the prevailing stock price is too high or low.

Index (passive) funds

Index funds have many of the same benefits as actively managed funds, except they do not spend any effort trying to pick stocks that will do better than the overall market. Instead, index funds just buy every stock in market, or at least every stock in the market index they are trying to match (The size of the investment in any one stock is based on the total value of all of its outstanding shares). This ensures that while they may not be able to beat the market, they are guaranteed to do at least as well as the market. Because they have no need to hire hundreds of analysts like actively managed funds, index funds are able to charge lower fees.

Exchange Traded Funds (ETFs)

ETFs can be thought of as index funds that are traded on an exchange like stocks. Because of this, they can be purchased easily through a discount brokerage just like you would buy a stock. It is not necessary to understand the details of this instrument, what is important to know is that they offer a cheap way to get pure beta exposure to a broad market index while also offering many of the advantages of individual stocks, like the ease of buying and selling whenever you want. ETFs also have tax advantages versus mutual funds as they are less likely to generate taxable gains until you sell the shares.

ETFs and Index Funds stand out as the most sensible way for the majority of investors to get beta exposure to the overall market. For those with greater than \$50K or so in savings, ETFs make the most sense since they have the advantages of an index fund in a liquid, stock-like form and can be purchased directly from a discount brokerage account.

Lesson 7: Beyond the stock market - An introduction to asset classes

The Bottom Line

By this point, you have consolidated your accounts at one or two providers, opened an IRA (if needed), and setup contributions to your 401(k) and IRA. This chapter will look at the kinds of things that you can actually invest in.

The Lesson

Despite my genuine praise, I may have been a bit unfair to the enterprising umbrellas salesmen discussed in the previous chapter. The best umbrella salesmen are undoubtedly wise enough to realize that their sales are only really going to flourish in one particular type of climate. Unless they live in the Pacific Northwest where it is reliably rainy most of the year, the enterprising salesmen would probably balance out his exposure to the weather by also selling something that flourishes in a very different kind of climate - like sun glasses. That way, whether it was sunny or rainy, he could always be hanging out, putting those customer service skills to work, and hawking something.

Similarly, in our discussion of alphas and betas to date we have been a bit unfair in concentrating too much on the stock market, and in particular, the US stock market. It is, after all, possible to put your money in other kinds of investments that may do well at a time when the US stock market is not.

Introduction to asset classes - Stocks, Bonds, TIPS, REITs, commodities and more

The analog to umbrellas and sunglasses in the investment world are the different *asset classes* of the financial world. Broadly speaking, these are the kinds of "things" that you can put your savings into. They include stocks - which can be further divided into US stocks, international stocks, and emerging markets stocks - bonds, inflation-protected bonds, commodities, and real estate.

Stocks are financial assets that represent fractional ownership in actual companies. Stocks have real value because as companies make money they usually return a portion of the earnings to shareholders in the form of cash dividends that are paid every year. In the absence of any kind of stock market like the New York Stock Exchange, the value of any stock would simply be the expected value of its future stream of dividends, discounted to today's dollars to account for inflation. In the real world where stocks constantly trade hands on an exchange, prices fluctuate wildly because nobody really knows for certain what the value of that dividend stream will be.

Investors in stocks expect to make a return on their investment in two different ways. Dividends are the annual or semi-annual payments to shareholders that represent earnings returned to owners. Capital gains result from selling the stock to someone else for a higher price than what it was purchased at.

Stocks can be split further into different asset classes based on where the company is from. The logic of this divide is that the economic cycles of different regions of the world will not always exactly coincide - i.e. Chinese stocks may do well at a time when Brazilian stocks do not.

Domestic stocks are investments in US companies that are usually listed on the new York Stock Exchange or the NASDAQ market. US stocks are the safest investments for US citizens to hold for two reasons. First, the firmly established legal system in the United States ensures that there is a high probability that the rights of investors will be protected. This is extremely important since any investment involves giving a certain amount of money away today for an uncertain return in the future - with a less established legal system there would be an incentive for companies to take the money and not give anything back. Second, since the investments are in companies whose earnings are mostly in dollars, there is less currency risk than in investing overseas.

International developed-market stocks are companies domiciled in places like Europe, Australia, and Japan. These are also countries that also have long and established histories of capitalism, though the risks for US citizens in investing in other countries may be somewhat greater than in purchasing US assets. The returns to these investments are usually in a different currency like the Euro or Yen. This creates the risk that US investors will lose money if that currency loses value relative to the dollar. However, some of these economies may experience higher growth rates than the United States in the coming years.

Emerging markets stocks from countries like China, India, and Brazil are thought by many to have the highest potential returns as well as the highest potential risks of any stocks. These rapidly developing countries do not always have established histories of capitalism, and there is always a small chance that foreign shareholders will have their stakes appropriated or seized by a foreign government during the time of a crisis. At the same time, the growth rates in places like China and India has been significantly higher than in the United States over the past decade, and it is likely that this disparity will continue into the future as living standards for the people in these countries are still far lower than in the United States.

Treasury Bonds

As discussed previously, bonds are like I.o.u.s to a company or government. Bond holders lend out their money, for a fixed period of time. In return, they are compensated by interest payments every six months. Bonds are considered a safer investment than stocks, because the borrower promises to pay back the full amount

of the loan at the end of the term (with stock investments, there is no such promise made). Furthermore, in the event that the company is unable to pay back its loans and goes bankrupt (think Enron or Lehman Brothers...), bond holders have the first claim on the company's assets.

Investments in government bonds (called Treasury Bonds because they are issued by the Treasury Department) are the safest kind of bond investments because they come with the full backing of the US government, which has the authority to tax citizens of the largest economy in the world, as well as to print money. There is also a large market for corporate bonds, however it is debatable if these have the same diversification benefits when added to a portfolio of stocks (this is a bit of an esoteric argument that goes beyond the scope of this book...)

Inflation Protected Bonds

While ordinary Treasury bonds guarantee return of the full amount of the loan, there is no guarantee as to what that money will be able to purchase when it is returned. For instance, imagine "Average Joe" purchases a 30 year Treasury bond with a 5% interest rate for \$1,000. This means that Joe will receive \$50 every year as well as the return of his original \$1,000 after 30 years. However, in those thirty years inflation (the gradual increase in the price of goods over time) may have accumulated at a 5% annual rate. Using the "rule of 72" from the first chapter, this would mean that the price of goods would double about every 15 years ($72 / 5$ is about 15) and *quadruple* in 30 years. So although Joe did receive his original \$1,000 back as planned, it will only purchase him 1/4 of the things that it would have 30 years ago.

Treasury Inflation Protected Securities, or TIPS, were designed to solve this issue for investors. TIPS pay a smaller amount than nominal Treasury bonds every year as interest, but they include two extremely beneficial features. The first is the interest payment increases at the rate of inflation. The second is that the principal (the amount that is paid back at the end of the loan) also increases at the rate of inflation. So in the above example, Joe would have actually received \$4000 back after 30 years, despite only investing \$1000. And he would be able to buy just as many things with his investment as he could have 30 years ago when he made it (of course, in addition, he received his annual interest payments - though they will generally be smaller than a regular Treasury bond since they are being adjusted for inflation).

Real estate

Real estate might be the asset class that is the most familiar to the average investor. But many do not realize that in addition to purchasing a personal residence, they can also buy shares in apartments, houses, and commercial holdings like shopping malls. Individuals can invest in real estate through a financial instrument called a Real Estate Investment Trust, but more commonly known by its acronym - REIT. REITs are legal entities that own properties like apartment buildings, malls, and office buildings. REITs make money by charging the occupants of their buildings rent every

month. They pass through most of their earnings that they receive every year directly to shareholders in the REIT in the form of dividends. Because a REIT is a special entity that is required by law to distribute most of its earnings every year, it does not have to pay corporate income taxes - a key advantage. REITs are an important asset class to the individual investor, since they often perform well in periods when the stock market is down.

Commodities

Commodities are actual, physical resources like oil, gold, and copper. Purchasing commodities outright is distinct from buying the stocks of companies that extract commodities from the group, such as Exxon-Mobil. Investors can own pieces of funds that invest in actual commodities through an innovative new set of ETFs. These funds mimic the process of actually buying and holding physical commodities through the use of derivative transactions. Fortunately, it is not absolutely necessary to know what a derivative is to intelligently invest for your retirement.

Alternative assets like venture capital, hedge funds, and private equity are other options for high wealth and sophisticated investors, but they will not be covered here.

Lesson 8: Putting intelligent diversification into practice - it's more than the S&P 500

The Bottom Line

Asset allocation, the process of deciding what kinds of investments to put money into, is the most important investment decision you will make. The most important principle to apply in asset allocation is diversification, or investing in multiple asset types. Diversification is the only sure way to increase the expected returns of a portfolio without increasing the risk you are taking. To receive the most benefit from diversification, it is not enough to own a large portfolio of stocks or mutual funds - investors must own multiple asset classes such as international stocks, real estate, bonds, and commodities.

The Lesson

You might be thinking that by this point we have discussed umbrellas more than is warranted in any financial text. Point taken. But thus far one element of our umbrella story is still slightly off. Whereas in our hypothetical umbrella market, there are many professional salesmen that are catering to forgetful ordinary customers, in the stock market transactions are mainly professionals selling to each other. It would be like an umbrella market where everyone has a more or less equal knowledge of umbrellas. What would determine success in this kind of market? Hard work, customer service skills, and overall "hustle" might still add some value. But any success that an individual salesman had would come at some other salesman's expense. The real driver of success would be the choices that each salesman makes in their merchandise selection. A high umbrella to sunglass inventory ratio would lead to success in rainy times, but failure when it is consistently sunny. Salesman that gambled on sunny weather by stocking up on sunglasses would run in to trouble if the weather turned rainy for days on end.

As we have seen, this is a very close approximation of the situation in the financial markets today. In most transactions, there is a professional on both sides of the trade. It may be possible if you are smart and dedicated and have a lot of time on your hands to produce alpha and beat the stock market. But what really matters is what mix of asset classes you invest in. And, as we shall see, what matters even more is ensuring that you are investing in a diversified portfolio of different asset classes.

Why diversification is a free lunch for investors - it lets you earn higher returns for the accepting the same amount of risk

On the surface, it might seem like diversification is something that should just guarantee "average" returns. This is actually the case in most intuitive situations. Imagine you are placing a bet on what number will come up on a fair dice when it is rolled. The odds of being right on any one number are $1/6$. You could bet on three

numbers and you would have a 3 in 6 (50%) chance of being right, but this would cost three times as much as betting on one number, so in the end you would not really be gaining anything.

But investing is different. In investing, diversifying actually creates value; it does not just "average" outcomes. To see why, imagine you had only two assets to invest in - stocks and cash. Suppose that:

- i) In normal years stocks return 12% and cash returns 0%
- ii) In bad years stocks lose 25% and cash still returns 0%
- iii) You expect about 1 in every 5 years to be a bad year

If you just want the highest expected return over the long term, investing in 100% stocks is the way to go. But losing 25% hurts. And there is nothing to say there could not be 2, or even 3 bad years in a row. Most people need some minimum amount of income from their investments to survive, and are unwilling to take the risk of a huge loss that investing 100% in stocks entails. Suppose you want to limit the amount you expect to lose in any one year under our assumptions to 15%. You could do this by holding 60% stocks and 40% cash. Of course this gives up some upside as well, since in good years the portfolio would now only go up 7.2%. Now suppose we add a third asset - Treasury bonds - into the equation. In good years bonds return 2% and in bad years they return 10%. If you invest in Treasury bonds as well as stocks, you can now hold up to 70% of your income in stocks, because in down years you are cushioned by the positive return from bonds. This means that in good years the portfolio would now go up by 8.4% while in down years it would still only lose 15%. Without increasing the risk of the portfolio at all, by adding bonds we increased the expected return.

This is why diversification is a "free lunch" - it allows you to temporarily avoid the usual tradeoff between risk and return. If you diversify an undiversified portfolio you get higher returns without increasing the chance of losing money, or you can reduce the chance of losing money without hurting your long-term returns. Nowhere else in finance is this the case.

A S&P index fund is not a diversified portfolio - you should look beyond US stocks to get the full benefits of diversification

Many have taken the diversification lesson to mean that they should own as many stocks as possible in their portfolios. One result of this widespread belief is the extreme popularity of index funds and ETFs that track the S&P 500, a diversified market index of 500 of the largest companies in the US. These kinds of funds literally hold the stock of every company in the S&P 500. Index funds and ETFs should be a part of everyone's portfolio, yet many investors have unfortunately drawn the wrong lesson here. The primary benefits of diversification occur amongst asset classes and sectors, not amongst individual stocks. Once a US stock portfolio includes more than about twenty-five names, most of the benefits of diversification have already been achieved, because most stocks (particularly those in the same sector) tend to go up and down in sync with one another anyway. Just think of all the stocks you know that

went up in 2008 - there were not many. It is by owning multiple asset classes - foreign stocks, bonds, TIPS, real estate, commodities, etc. - that the true "free lunch" of diversification can be consumed (case in point: TIPS and Treasury Bonds had banner years in 2008). Unfortunately, many investors that own index funds have not caught on to this and are not truly diversified, no matter how many stocks their fund owns.

An intelligent asset allocation plan - look to the smartest investors with some of the best long-term records

A good starting point for an asset allocation plan is one that resembles the allocations of leading university endowments. Innovative endowments like Harvard and Yale were pioneers in reaching beyond the familiar asset classes of stock and bonds to add real estate, commodities, large allocations to international stocks and emerging markets stocks, and alternative assets like hedge funds and private equity. As a result, the Yale endowment has outperformed the US stock market (and the popular S & P 500) by more than 8% a year over the past 20 years, while also experiencing substantially lower volatility (a measure of risk).

David Swensen, the portfolio manager of Yale University's endowment, recommends this allocation to individual investors^{xii}:

- 30% US Stocks
- 20% US Real Estate
- 15% International Developed Markets Stocks
- 5% Emerging Markets Stocks
- 15% TIPS
- 15% US Treasuries

With a 50% allocation to global equities, this portfolio has enough "juice" in it to perform well in a bull or period of long economic growth like the 1990s. At the same time, the 30% allocation to bonds (split between TIPS and standard Treasuries) holds up well in a bear market like 2008, while the TIPS and sizeable Real Estate portion would hold up in a severe inflationary environment like that of the 1970s. That said, there are a few areas where some may want to tweak Swensen's recommendation on the margins (warning: esoteric material follows).

First, Swensen recommends holding all bond allocation in the form of US Treasuries, reasoning that corporate bonds do not provide significant diversification to a portfolio that already holds stocks in the same companies. Others gurus advocate holding corporate bonds, mortgage-backed securities, and international bonds as well.

Second, Swensen's recommendation results in 80% of assets in domestic, US dollar assets. Some may wish to add more international exposure than this, particularly in emerging markets like China and India.

Third, Swensen recommends holding a sizeable chunk in real estate, but does not have any direct commodities exposure. The ability to invest in commodities as an asset class through ETFs that are as easy to buy as stocks is a relatively new development in the world of Finance.

Fourth, Swensen recommends a full 15% allocation to US Treasuries as well as TIPS. Some may want to lower this a bit since current historic-low Treasury yields stand in stark contrast to clear long-term budget deficits, and may in part be a result of artificial demand created by central bank purchases^{xiii}.

Making these adjustments, a large (\$200k plus), portfolio might optimally include:

- 25% US Stocks
- 14% International Developed Market Stocks
- 14% International stocks from emerging markets^{xiv}

- 15% TIPS
- 7% US Treasuries^{xv}

- 8% US Real Estate
- 7% Global Ex-US Real Estate
- 9% Commodities^{xvi}

Some investors may prefer a simplified version with less "tinkering", either because they have a smaller (under \$200k) account, or just do not wish to mess with so many asset classes. It is possible to achieve the main point of the diversified Swensen portfolio with only three or four asset classes that can each be achieved with a single ETF or low-cost index fund.

A simpler version:
50% Global Equities
15% TIPS
20% US Real Estate
15% US Bonds

Unless it is something that interests you, it is not worth getting too bogged down in the details. The key is to pick a plan that is broadly diversified and makes sense to you, and stick with it.

Lesson 9: Implementing your target asset allocation

The Bottom Line

If the steps previously discussed have been closely followed, actually investing a retirement account in a portfolio of ETFs is remarkably easy. There are ETFs that can provide beta exposure to every asset class in a portfolio. This lesson will look at two key factors to consider in picking individual ETFs - cost and liquidity - and provide a few actual ETFs that you can purchase right now to get beta exposure to various asset classes.

The Lesson

How to achieve a target asset allocation in five minutes or less - Use one ETF for each asset class

On the surface, it seems that ETFs should be a remarkably simple instrument - after all the idea is simply to match the performance of an overall market index by purchasing stock in all the companies that are in that index. Yet in its quest to create as many saleable products as possible, the financial industry has cooked up all different manner of funds. There are now "inverse" ETFs that go up when the market goes down, "leveraged" ETFs that go up or down by a multiple of the market's return, and sector ETFs that match the return of an index of companies in the same sector of the economy - such as Energy Stocks or Industrials.

Sophisticated ETFs may have their use in various trading strategies, but for long-term, beta-driven investing it is best to stick with a handful of well-known ETFs that match a broad asset-class index. Vanguard and Barclays (the company behind the iShares line) are two of the largest providers of ETFs. Once an asset allocation has been selected for a portfolio, it is trivial to find an ETF that provides one-stop buy-it-and-forget-it exposure to that asset class.

Selecting ETFs - Use internet databases and find the cheapest and most liquid in each category

A list of ETFs by asset class can be found at <http://etfdb.com/etfdb-categories/> or in the list below. In cases where there is more than one fund that mimics the return of the same asset class, there are two important factors to consider. The first is the level of fees the fund charges. Expenses for ETFs should be well under .5% of assets (often referred to as 50 "basis points", where 1 basis point = .01%), with the lower the fee the better. The second factor to consider is the level of liquidity in the fund. Liquidity is a measure of how active of a market there is for a stock or ETF. If the market for an ETF is not very active, there might be a large gap between the prices that an investor is able to buy and sell a share of it, which results in an implicit

transaction cost every time you buy or sell. Look for larger ETFs (in terms of assets under management) as this is generally a proxy for liquidity.

The following is a list of well-run ETFs that have relatively low management fees and good liquidity. The "ticker" is the three or four letter "code" given to all stocks and ETFs - you will need it when it comes time to enter your orders at your discount brokerage.

A starting point: Good ETFs for each asset class (There are mutual fund equivalents for each of these for those that prefer investing in that structure)

All figures as of Sep 2011

Asset Class	Suggested Weight	Ticker	Expense Ratio	Size (\$ AUM bil)
US Stocks	25%	VTI	.09%	10
International Stocks (Developed Markets)	14%	VEA	.12%	9
Emerging Markets Stocks	14%	VWO	.22%	64
Global Stocks*	-	VT	.25%	1.5
US Real Estate	9%	VNQ	.12%	21
Global Ex-US Real Estate	7%	VNQI	.35%	.3
TIPS	15%	TIP	.20%	21
US Treasuries	7%	BIV	.11%	12
US Bonds	-	BND	.11%	11
Commodities	9%	DBC	.81%	6
Gold**	-	GLD	.40%	66

*Can use instead of combination of VTI, VEA, VWO if you desire a simpler allocation with less ETFs.

**Can use in place of part of commodities exposure if desired (e.g. 5% commodities, 4% gold)

How to purchase ETFs - Just like stocks, find the right ticker and use "Market" orders

ETFs can be purchased through a discount brokerage exactly like stocks. Simply select the "Buy/Sell" or "Trade" option from the brokerage home page, enter the stock ticker of the ETF you want to purchase, and enter the number of shares you wish to buy. The ETFs mentioned above are fairly liquid, so it is safe to use a "market" order. This means that your order is immediately fulfilled at the prevailing price on the stock exchange. The alternative is to use a "limit" order in which you manually set the price that you want to buy or sell shares at. Limit orders are fulfilled when one person is offering to buy at the same price the other is offering to sell.

To determine the number of shares of each ETF to buy, simply do the following

- Multiply the dollar value of your current portfolio by the desired percentage of your allocation to the asset class the ETF is achieving. This will give you the total dollar value of your investment in the ETF. For instance, if you desire a 20% exposure to US stocks and you have a \$100,000 portfolio, you would want to buy \$20,000 of Vanguard's total stock market ETF.

- Divide the dollar value of your desired ETF investment by the share price of the ETF and round down to the nearest share. If you wanted to invest \$20,000 in Vanguard's total stock market ETF and it was trading at \$10 a share then you would want to buy 2000 shares.

Dealing with the 401(k) - Look for index funds, active funds with 4 or 5 star Morningstar ratings and low fees, or bond funds

ETFs are cheap and easy to buy in any discount brokerage account. But if you are investing in an employer sponsored 401(k) retirement plan (and you should be if one is available to you) then you may only have a limited set of mutual funds to select from. This is one of the reasons many choose to a 401(k) to an IRA as soon as they leave any job (this is called a rollover).

However, there may be very good choices available to you inside of a 401(k), it can just take more work to separate the good from the bad. While the mutual fund industry as a whole habitually fails to add any "alpha" (and charges a lot anyway...), there are some good fund families where you have a decent shot of getting some value for your fees. There are a couple strategies you can take to deal with your 401(k):

- Buy an equity index fund for US or International Stocks. At a minimum, most plans should offer a US equity index fund, which you can use for your US equity allocation. If possible, look for one labeled "Total Stock Market" or "Extended Stock Market." This will include smaller companies that are typically left out of the more common S&P 500 index. You may also have an "International Equity Fund." Look to see if this is based off of the EAFE Index. If it is, you can count this as your "International Developed Markets" exposure.
- Find a good actively managed equity fund. This is a bit more tricky, so only try it if you are willing to spend a little bit of time doing some research. You will want to look for a fund that has a reasonable expense ratio (should be less than 1% of assets) and a good long-term track record with the same manager. The morningstar website (www.morningstar.com) is a good resource for this. You can look up your fund family, see the morningstar rating for each fund (they go from one to five stars), and find the expense ratio and the current manager's tenure. Try to find a fund with a four or five star rating. Look for broad funds that would fall in one of the categories we defined above like emerging

markets, US Equities, Emerging Markets, or International Stocks. Emerging Markets could be one area where it might make sense to use a good actively-managed fund since there may be less professional portfolio managers that are already in these markets.

- Buy a bond fund. If you cannot find a good actively-managed fund that falls into one of your asset class categories and still have more money to allocate, use your 401(k) for the bond piece of your portfolio. These are also good funds to hold in a retirement account, since you will be protecting yourself from paying taxes on the high income they generate (more on this next).

What to put where - Keep high-income bonds funds in a tax-sheltered retirement account

If you have a taxable account as well as one or more retirement accounts, then you will have to decide which asset classes to hold where. The key principle to remember here is that - you should maximize the value of the tax shields in your retirement accounts by using them to hold the investments that will generate the most taxes - REITs and Bonds. These investments throw off large amounts of income every year that is taxed at the ordinary income rate. In contrast, if you hold your stock allocation in the form of long-term ETFs then it is very easy to avoid paying many taxes on them until the time comes to actually sell them - and even at this point it will be at the lower capital gains rate (currently 15% for most people). That makes equity ETFs a good candidate to go in your taxable account.

It is very important to also hold TIPS in a retirement account, as they have a tax rule that forces you to pay taxes on income you did not even receive (when your bond principal is adjusted for inflation, this is considered income, even though you do not see the money until the bond matures).

Lesson 10: Managing for the long-term with a lockbox (and a sandbox)

The Bottom Line

The vast majority of individual investors achieve spectacularly poor investment returns because they trade too much, often purchasing investments that have appreciated in value and selling those that have depreciated. Buy-high sell low is not a good investment strategy. A better approach is to put your investment strategy on auto-pilot by consciously not changing your asset allocation or investment mix unless there is a significant change in your own circumstances. Such an approach is akin to installing a "lockbox" for your retirement savings.

The Lesson

One of the all-time great Saturday Night Live skits was Darrell Hammond lampooning Al Gore for saying "lockbox" every other word during the 2000 Presidential debates. The root of his humor was that Gore wanted to keep the entire Social Security surplus segregated from the rest of the yearly government budget items. He did not want Congress to be able to "fiddle" with this money by using it to fund more tax cuts or spending programs. While Gore's insistence on a lockbox provided plenty of comedic value at the time, subsequent years have proven that a lockbox may have had real value, as Congress has quickly turned a budget surplus into an enormous deficit.

In the same context, it is important for the individual investor to keep the vast majority of his or her savings invested in a long-term buy-and-hold allocation that will not change with the times, as there is always going to be a voice inside all of our heads that tells us to make stupid investments. The benefits of long term investing, and the perils of frequent trading are clear.

Why should you keep most of your assets in a personal lock box? To protect yourself from your future self.

Like the one that Gore wanted to create for the Social Security surplus, a lockbox should be a place where investment returns can pile up and not be accessed or changed from the outside. It should have the following properties:

- Invested according to a target asset allocation that changes very infrequently (perhaps never)
- Asset allocation is implemented with index funds, or preferably ETFs, with one (and absolutely no more than 2) funds used for each asset class in the portfolio
- There is a set schedule for checking in on the account, perhaps every six months or one year. No changes will be made outside of that schedule.

- There is a set schedule for rebalancing the account to the target asset allocation, most likely every one year. This is needed because some asset classes will grow faster than others over time, and thus come to dominate a larger portion of the portfolio's assets.

Simply put, implementing a lockbox is all about setting a plan and then sticking to it, regardless of what is going on in the stock market. Let's review some of the reasons why a lockbox is a good idea:

- Quantitative studies indicate that over multiple time periods, the vast majority of investors underperform the markets by as much as 6% a year, earning essentially nothing for the additional risk they are taking versus just holding their money in cash. A major reason for this atrocious performance is the psychological tendency to buy assets that have recently appreciated and sell those that have recently depreciated. Thus, much money rushed into technology stocks in 2000 at the peak of the dot.com bubble and rushed out in 2002 at the low, while the same story played out with real estate stocks a few years later. By keeping a lockbox, you will be immune to this buy-high sell-low destructive tendency, and thus automatically outperform the average retail investor.
- Most active managers fail to beat the stock market. In trading frequently, you are taking the active view that you can outsmart the stock market. But this is not true even for most professional investors and traders. The vast majority of professionally managed mutual funds underperform the stock market averages every year. Without taking time to do huge amounts of research, there is little reason to think that you will be any more successful with your own trades.
- Transaction costs eat away at returns. Every time you buy or sell a stock, there is an explicit commission involved, and also an implicit trading cost. This is because market-makers make money in the difference between the bid price and the ask price for a stock. This means that if you buy a stock at \$22.80 it is unlikely that you could immediately turn around and sell it at the same price. Instead, you may have to offer the stock at \$22.70 to find another buyer. This 10 cent difference per share is an implicit transaction cost. Both implicit and explicit transaction costs can be minimized by buying and holding assets, rather than trading them frequently.

Creating a lockbox is relatively simple. Choose your asset allocation, pick good assets, and keep your account on autopilot going forward. Ignore the talking heads on CNBC and refrain from changing your strategy or investment mix unless at designated times and for very good reasons.

Too boring for you? Then use a small sandbox to learn about the markets and have fun with investing [optional]

Some investors (author included) may have cringed just a bit at the last step. The issue is not that a lockbox does not make rational sense - it just might seem a bit boring to some. If you want investing to be "fun" and dream about the "thrill" of owning a 10-bagger stock, then by all means take a shot at it by putting 5 to 15 percent of your savings into a "sandbox." This is where you can have some responsible fun, make "bets" on individual stocks or sectors, and truly manage your own money.

In addition to being a bit more exciting than a buy it and forget it option, the sandbox serves two extremely important functions. First, it provides an impetus to learn more a lot more about investing. If you think that IBM might be a great buy right now, you are probably going to want to know how to value the company, whether it looks cheap or expensive on various metrics, how management is doing running the company, etc. This is a hugely educational process that will make you a more confident and informed investor that is better able to stick to a plan. You might find that you hate thinking about this kind of stuff, and that is fine, nothing is stopping you from investing your sandbox in ETFs or mutual funds, or closing it altogether. But you also might turn out to be one of those 2-3% of investors that do seem to be capable of consistently beating the market, and it would be a shame to let those talents go to waste.

Secondly, the sandbox serves as a release valve of sort. As mentioned above, one of the reasons it is important to create a lockbox is because investors have a checkered history with investing. There is a huge follow the herd mentality that seems to always cause many to go headlong into technology stocks, or commodities, or housing at the exact wrong time. But the lockbox is only going to be as strong as the will of the investor that created it. And there will come some point in time, no matter how strong his will is, that every individual investor will see other people getting rich around him and want to jump into the fray, or when he will see his wealth disappearing from in front of him and just want to sell everything. The sandbox lets you make a compromise with yourself - if you *really* think that [pets.com](https://www.pets.com) is going to be the next Wal-Mart, then by all means, put a little of your sandbox account money into it, but don't endanger your retirement by investing all of your assets on it.

Best practices and caveats for sandbox design - Keep it small and segregated, put it in a retirement account

The sandbox does not have to be a separate account per se, but it may be easier to make it one by opening up a separate account to house it. For instance, if you use a Vanguard account to house the rest of your accounts, consider opening up an ETrade account for the sandbox. Best practice is carve out a piece of your IRA for this, since this is tax deferred and also self directed. It is important that you maintain discipline about the size of the sandbox, however. Do not let this creep above 20% of your assets. Let's look at what this structure could look like for an investor who wants to put 15% of assets in a lockbox and has \$200,000 in retirement savings - \$50,000 in a 401(k), \$100,000 in traditional IRAs, and \$50,000 in a taxable account. Assume the investor uses Fidelity for existing accounts.

- 15% of \$200,000 is \$30,000, so \$30,000 should go into the sandbox and \$170,000 into the lockbox.
- The investor decides to implement the sandbox in the IRA account, but to open a separate IRA at ETrade in order to make things easier. Their accounts might look like:
 - \$50k retirement account w/ T. Rowe Price
 - \$30 sandbox IRA w/ ETrade
 - \$70 lockbox IRA w/ Fidelity brokerage services
 - \$50k taxable brokerage acct w/ Fidelity brokerage services

Caveats

Finally, a few caveats. If you have under \$100,000 in assets, it may make sense to build up your lockbox a bit before you open up a sandbox. Secondly, be careful not to go crazy and trade too much. Even small commissions can eat up a small account if you are trading more than a few times a month. And unless you have a huge amount of time and skill, day trading is almost always a losing cause.

ⁱ Figures are computed in present, inflation-adjusted dollars based on 6% real returns for Jill (rate of the overall stock market) and 2% for Average Joe (inferred rate of the average investor in Equities, see below data from Dalbar). If anything, the difference between Jill and Average Joe may be understated, as recent Dalbar data shows equity investors earning real returns of about 1% for the past twenty years.

ⁱⁱ This assumes Jill has a retirement lifetime of 20 years, continues to earn an average investment of 10% a year in retirement, and draws his portfolio down to a 0 balance at the end of 20 years. Actual withdrawals may be lower than this in the earlier years if Jill wanted to be prudent. To minimize the chances of running out of money, some financial planners recommend a maximum withdrawal rate of 4.5%.

ⁱⁱⁱ The US stock market had a compounded annual growth rate (CAGR) of 9.5% in nominal terms and 6.33% in real terms from 1900 through the end of 2010, according to the helpful calculator at

http://www.moneychimp.com/features/market_cagr.htm

^{iv} According to Dalbar's 2011 Quantitative Analysis of Investor Behavior (QAIB) report, equity investors received 3.83% annual compounded returns vs. 9.14% for the S&P 500, a broad US market index. See

<http://www.qaib.com/public/about.aspx>.

^v Exact number difficult to compute, but domestic mutual funds had a .78% asset-weighted expense ratio in 2010 according to a Morningstar report available at <http://news.morningstar.com/articlenet/article.aspx?id=378492>. Registered Investment Advisors charged an asset-weighted average of .9% according to study quoted at <http://www.investmentnews.com/article/20090922/FREE/909229985>. Investors also paid an unknown but significant amount in commissions and loads to advisors, brokerages, salesmen.

^{vi} Data from the 2011 Mutual Fund Factbook, google finance

^{vii} See "Not so Fast", Buttonwood column from Aug 6, 2011 print edition. Available online at

<http://www.economist.com/node/21525456>

^{viii} See http://en.wikipedia.org/wiki/Keynesian_beauty_contest for a brief explanation of Keynes' theory

^{ix} Empirical evidence of this ratio comes from the US Consumer Expenditure Survey, conducted by the Bureau of Labor Statistics. This reports spending from between 58% to 66% of pre-retirement income. See http://www.bogleheads.org/wiki/Surveys_of_retirement_spending for a helpful analysis.

^x See <http://www.fpanet.org/journal/CurrentIssue/TableofContents/SafeSavingsRates/> for a discussion of the withdrawal rates that would have been possible historically.

^{xi} See FAMA, E. F. and FRENCH, K. R. (2010), Luck versus Skill in the Cross-Section of Mutual Fund Returns. The Journal of Finance, 65: 1915–1947.

^{xii} From Unconventional Success: A fundamental approach to personal investment by David Swensen. Available for purchase from Amazon.

^{xiii} These can arise from two sources. The US Federal Reserve purchases Treasury bonds as part of its normal open market operations to manage the short-term interest rate (currently set at 0), and as a part of any quantitative easing programs. Foreign central banks purchase Treasuries to maintain their currencies at levels below those that might exist in a free market.

^{xiv} This may seem to be an aggressive allocation to emerging markets to some, however it may be conservative relative to the economic footprint of the emerging world. In a August 2011 article titled "Power Shift", the Economist reports that emerging economies now account for over 50% of world GDP at purchasing power parity and almost 40% at market exchange rates.

^{xv} Bond allocation could be modified to include a broader mix of securities by including international bonds, and/or corporate bonds and mortgages. We chose the narrower Swensen suggestion of Treasuries only here because this piece of the portfolio is primarily intended to provide some protection in the event of a prolonged deflationary depression, a scenario in which corporate bonds and mortgages could suffer. Additionally, we would rather get international exposure through real estate and stocks, which arguably have less chance of default/expropriation.

^{xvi} It is also somewhat controversial to include commodities in a portfolio, however they provide clear diversification benefits, inflation protection, and since they are globally traded, partial protection against a collapse in the value of the US dollar. Readers with an appropriate bent may want to substitute physical gold for part of a commodities allocation. If desired, it may make sense to pull from TIPs for part of this