Financial Effectiveness

Making Money Work

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PREFACE

As I have worked through the process of summarizing what 21st century Americans need to understand about personal finance, a recurring theme is that being successful with money requires consistently doing a number of relatively small things well. This is strikingly in contrast to what most people think. The common narrative in our culture is that being financially successful is all about hitting it big, being an early investor in the next Facebook, or getting hired at just the right company at just the right time. Any of these outcomes would be great, but financial success is most often achieved by maintaining good habits. The foundation for success is individual choices and actions that, in and of themselves, don't look terribly significant. In aggregate though, they add up to make all the difference.

I have come to write this book after working in finance for two decades. Over this period, I have seen the world of money from many angles. I worked on an energy trading floor during the Enron era. I have consulted to a range of companies and organizations on financial risk management. I have written hundreds of articles for individual investors, professional money managers, and financial advisors. My current work focuses on financial technology. I am also an avid investor and student of markets and economics. Before entering finance, I worked for NASA as a research scientist. Somewhere in my late twenties I realized that, despite having a Ph.D. and working in a highly quantitative discipline, I was largely in the dark about how to manage money effectively. At that point, I started to educate myself on financial matters, and I got sufficiently interested that I ultimately left science to work in finance. I am the kind of person who is constantly trying to make sense of how the world works. Finance and economics are interesting not least because they provide a conceptual framework for understanding aspects of modern life that would otherwise seem baffling.

One of the challenges that I have grappled with in writing this book is that many attempts to increase financial literacy have been unsuccessful. A 2014 research paper analyzed 200 previous studies on the efficacy of financial literacy programs[1]. The results suggest that efforts to date have not had a meaningful impact. Part of the problem may be that financial literacy is something that must be learned and practiced over extended periods of time. A single class or series of exercises is not sufficient. I have written this book to support ongoing thinking and learning rather than providing a one-time shot of information. I also believe that trying to deal with financial literacy without considering psychology is almost guaranteed to end in failure. The ways that we deal with money are set in a much broader cultural and psychological context. Subconscious feelings about what money and consumption represent very often dominate practical considerations. Many people associate buying expensive things with success and taking expensive trips with freedom, for example, even when doing these things often results in their being less financially successful and, ultimately, having less freedom.

To manage money effectively, people must understand *how* money works (these are the elements of financial literacy) but also take the additional steps to implement this knowledge in their lives (*making* money work). The failure of many financial literacy efforts comes down to focusing entirely on the mechanics of managing money and less on actualizing the knowledge in real life. My goal in this book is to capture both elements.

[1] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2333898

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INTRODUCTION

We live in an incredibly wealthy and productive economy, but many people struggle with managing their finances. Americans tend to borrow and spend too much, and to save and invest far too little. A 2017 survey found that almost 80% of U.S. households are living paycheck-to-paycheck[2] and many would quickly be at the point of financial crisis in an unforeseen circumstance that requires coming up with even a modest amount of cash. One major survey found that 40% of Americans would be hard pressed to get their hands on $400 in an emergency[3], for example. We have legions of students emerging from college with levels of debt that they will struggle to repay for decades. We have older people reaching retirement with so little in savings and assets that Social Security is most, if not all, of their retirement income. Many of these situations are easily avoidable. The student who racked up substantial debt to attend a private college would typically have been just as well off by attending a good state university[4]. Modest incremental additions to savings over a working lifetime can add up to substantial increases in retirement income. Furthermore, our financial decisions have implications for others. Those paying off excessive college debts into their forties are likely to be constrained in saving for their own children's education, for example. Our financial decisions today often have magnified downstream consequences.

Along with the financial challenges, current generations have unprecedented freedoms and choices. For many people, work and location are decoupled and people can live in places far from their employers and clients. Financial services today are better and cheaper than ever, and people can manage their entire financial lives from a cell phone or laptop. Technology has revolutionized the world of work and personal finance and, as a result, has enabled a host of new career options. Teams can collaborate in real time from far-flung locations. If you want to be a software developer but you also want to live in a surf town in Costa Rica, this is possible. Furthermore,while working from your cabin by the beach, you can set up a retirement savings plan that is superior to what many corporations provide to their employees. Being self-employed has never looked better. Many traditional employers are now willing to offer perks such as remote work and flexible schedules, recognizing that these options attract and retain better employees[5] [6].

Making your best financial choices, whatever your goals, requires working knowledge of money, along with handling the tradeoff between what you want today and what you may want in the future. The desire to consume is a complex and powerful part of human psychology. People make major decisions based on symbolic considerations rather than sensible financial criteria, often with regrettable outcomes. Our financial choices are frequently based on what we think other people expect of us or will be impressed by rather than what we have some innate personal desire for. In other words, we make spending decisions because we (often subconsciously) anticipate social benefits such as acceptance, admiration, or respect. We also tend to discount the future relative to what we want right now.

In this book, the goal is *financial effectiveness*, using money to accomplish the things that you value in the most efficient way. Financial effectiveness will mean different things to different people, of course. To begin, you must identify what you value and how this relates to money. If you want to work in a job that is meaningful to you but that doesn't pay much, you must consider the tradeoffs that such a job will

[2] https://www.fool.com/careers/2018/02/13/are-americans-responsible-with-their-paychecks.aspx
[3] http://money.cnn.com/2018/05/22/pf/emergency-expenses-household-finances/index.html
[4] Peer-reviewed studies demonstrating this assertion are provided later in the text
[5] https://www.owllabs.com/blog/remote-work-statistics
[6] https://www.zenefits.com/blog/7-big-statistics-about-the-state-of-flexible-work-arrangements/

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require in terms of material lifestyle and plan accordingly. If you aspire to substantial wealth, you need to understand the sacrifices in time and energy that will be required[7]. Even if your material wants are modest, having money enables you to support the causes that you care about at a higher level. Earning more and giving more may ultimately provide greater benefits for a philanthropic organization than working for a non-profit[8]. On the other hand, you may be deeply dissatisfied with your life if you put too much emphasis on earning potential relative to your other values—even if you are giving lots of money away. Some decisions about money management come down to giving yourself options to make future choices. If you think that you may want to take time off to write a book or to volunteer or hike the Appalachian Trail, these aspirations have implications for the type of work that you choose now, both in terms of earning potential and the types of long-term lifestyle options that are consistent with these goals. If you want to be intensively involved in raising your children, to be able to pay for your children to attend college, or to have other enriching experiences, these goals have implications for financial choices. The decisions that we make involving money are an expression of our values, so the starting point in thinking about finances is defining your values and whether or how these depend on material resources.

Part of financial effectiveness is articulating the causes that matter to you and identifying political candidates who represent your views. The policies and regulations instituted by our government inevitably come back to financial considerations. Immigration and trade policy impact job growth. Climate policy ultimately comes down to economics. Changes to Social Security and Medicare have enormous long-term economic implications. And, of course, the most fundamental way that the government is involved in finances is through taxes. We have an enormously complex tax code that gives incentives to certain groups and rewards certain behaviors at the expense of others. To be an effective voter and citizen, you must understand a range of financial topics and prioritize their importance.

Financial effectiveness requires examining the current state of your financial life. This process starts with getting the important details down on paper and tallying all your assets and debts, as well as looking at income and spending. The details of this process are discussed in the next section. Determining where you are financially is also a reminder of the choices that you have made in the past. Looking back on these decisions can be useful in determining how you want to manage your money in the future. Perhaps, upon reflection, you regret spending money on things that really didn’t bring you much satisfaction. Maybe you will realize that the decisions you have made in balancing time, meaning, and money aren’t quite right. Perhaps you will conclude that working less and spending more time with family would have made you happier. Many people will wish that they had been disciplined enough to save more[9]. Others will regret being too conservative or too aggressive in investing the money that they did save. On the other hand, perhaps you will realize that the disciplined choices that you have made over the years have really paid off. This can be an inspiration to continue. Whether reinforcing past decisions or motivating change, taking a close look at where you are provides guidance in how to proceed.

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[7]https://www.theatlantic.com/business/archive/2014/02/the-woes-of-wall-street-why-young-bankers-are-so-miserable/283927/

[8] https://www.reuters.com/article/us-global-charities-altruism-idUSKCN0Q10M220150727

[9]https://www.usatoday.com/story/money/personalfinance/2018/01/17/men-most-regret-not-investing-women-regret-not-saving-enough/1037402001/

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After getting a handle on the current state of your finances, the next step is figuring out whether you are on the right trajectory to meet your goals—and changing things if you need to. Questions such as whether you will be able to afford to buy a home, to pay for some or all of your children's education costs, to retire comfortably, or to change careers are addressed in this process. This part of financial planning is difficult because it requires assumptions about future income and expenses, as well as the level of growth that you can expect from investments. There are many professionals who provide financial planning services. There are also books and online tools for people who want to do the work themselves. The decision to do your own financial planning or to hire an advisor comes down to how engaged you are willing to be. Whether you do it yourself or work with an advisor, the goal is to come up with plans that can withstand contingencies and that are achievable, even as you acknowledge the host of uncertainties.

Beyond earning money, the hardest part of financial effectiveness is understanding and managing the psychological drives involving money. People's struggles with money often come down to the interactions of practical reality (earning, saving, and investing) with the complex psychological issues surrounding wealth and consumption. If you feel that you need to work hard and earn a lot to prove that you are capable, for example, it may be worth taking some time to consider whether this is really what you want to spend your life on. If you believe that you will be happier only when you achieve some future financial goal—buying the bigger house or vacation home—reflect on why you believe that these things will make you happier. As discussed in a later section, people are not very good at predicting what will make them happy[10]. In addition, the satisfaction that we get from each new goal that we achieve or item we acquire tends to be short-lived, and we typically settle back into our long-term level of happiness and satisfaction with life[11]. For these reasons, a crucial part of financial decision-making is being more aware of the basis for your desires.

The Rules are Changing

One of the challenges in dealing with personal finances is that the world is changing quickly. From globalization to changes in the tax structure and emerging technology, rules of personal finance that applied in past generations may not be terribly useful today—and may even be harmful. As recently as one or two generations ago, college students could make enough from summer jobs to cover the cost of tuition for the next year. Private and public-sector workers could count on seeing their incomes rise steadily over time. People didn't need to understand much about personal finance because almost all employers provided the assurance of long-term employment, retirement plans, and health insurance. Only a generation or two ago, you could be middle class, send your kids to college, and have a robust retirement plan, while knowing nothing about stocks or bonds, investment risk, or safe withdrawal rates of income from a portfolio. Back then, being able to balance a checkbook was almost all the financial knowledge you really needed.

Today, people are responsible for making many important and life-altering decisions in managing money. People spend less time with a single job and need to understand, for example, how to balance the costs and benefits of switching employers and how to make sure that the retirement funds they built up at past employers get transferred into appropriate accounts. The massive shift from traditional pensions to self-directed savings plans is probably the most significant change in the ways that people

[10] https://www.apa.org/science/about/psa/2004/04/pelham
[11] https://www.psychologytoday.com/us/blog/meditation-modern-life/201709/your-set-point-happiness

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need to approach financial planning. Each family needs to determine how much to save and how to invest these savings appropriately to provide for themselves in retirement.

Now that college education almost invariably runs to six figures, even affluent households need to plan for college costs carefully. In the United States, total college debt exceeds $1.5 Trillion, more than any other form of debt except for mortgages[12] [13]. What's more, unlike realizing that you have over-spent on a house and deciding to sell, the decision to borrow for college is irreversible. Once you have the debt, it's yours until it's paid off. Educational debt is almost impossible to discharge in bankruptcy.

Another big change for Americans is income growth. For decades, it has been the expectation that each generation will be better-off than the last. Over the past thirty years, though, wages for the median worker have not increased at all[14]. Stagnant wages have profound implications for how people manage money. In past generations, household incomes grew fast enough to compensate for higher levels of spending through time. Today, this is not the case. Many households can't rely on future income gains to compensate for financial mis-steps.

Globalization has also altered the ways that we need to think about personal finances. If you do a job that can be sent to another country or state where the work can be done more cheaply, your income is at risk. While the political tide goes back and forth on this issue, more and more jobs are migrating to where they can be done the cheapest. In general, this is bad news for Americans because American workers have very high wages relative to most of the world.

Another trend that is related to globalization is the increase in consulting, contract, freelance, and remote work. Many jobs can be performed from any location that has internet and phone access. These types of work require different approaches to money management than apply to traditional employment. There are financial and non-financial benefits for workers who can choose where they live and the work they perform somewhat separately, but these new employment options necessitate a higher level of personal engagement in retirement planning, buying insurance, and managing taxes.

Financial Values

Some people define their goals in terms of financial milestones while others avoid thinking about or dealing with financial planning. Whatever your personal feelings and beliefs about money, modern life requires that almost everyone has core financial skills. Very few people have the luxury of not needing to think about money. Bills must get paid, taxes collected, and children need to be fed, sheltered, and educated. And, of course, you need to save money for future needs and wants. Then there is the question of what it means to be financially responsible as a citizen, as a parent, etc. How much money do you need to earn and save to provide for the things you are responsible for? Some people feel a responsibility to ensure that their children graduate from college without debt, while others conclude that the children should bear some or all of the burden of paying for college. If you inherit money, do you have the responsibility to pass money along to your children? How much of our income should we donate to worthy causes, and when? One of the trickiest questions that relates to children and important causes is how to set financial priorities relative to saving for your own retirement. As we go through our lives, how will we choose to apportion our labor to generate income, and what fraction of income will we devote to ourselves, to our families, to broader causes, and to saving for the future

[12] https://www.forbes.com/sites/zackfriedman/2017/02/21/student-loan-debt-statistics-2017/
[13] https://studentloanhero.com/student-loan-debt-statistics/
[14] https://hbr.org/2017/10/why-wages-arent-growing-in-america

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needs of all three of these? In sum, these issues come down to each adult being a thoughtful steward of their financial and human capital.

Many people have the option to craft their lives in ways that previous generations could not have imagined, and financial planning is a key component of this process. Whatever your values are, you are more likely to be successful in accomplishing your goals if you are proactive in managing your work, money, and taxes, and by being intentional in how you consume. As members of a representative democracy, we also need to understand and pay attention to financial issues in society at large. The quality of our society depends on financial policies related to inequality, support for the disadvantaged, public education, and healthcare. Policy and regulations are key determinants of the future of the American worker, the viability of the middle-class, and of pension and retirement plans. Our aspirations for the future of our country depend on a range of financial policy issues that people are not terribly familiar with.

Roadmap

I have broken the rest of this book into four sections. Section 1 is called *Foundations* and introduces the steps in figuring out where you are in your financial life. Section 2 is called *How Money Works* and presents the core financial knowledge required to manage finances effectively. These are the topics that comprise financial literacy. Section 3 is called *The Psychology of Wealth* and explores behavioral aspects of money management and how unconscious tendencies drive decisions. Section 4, *The Legislative Landscape*, is a discussion of some important topics in financial policy and regulation.

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FOUNDATIONS

The starting point in financial effectiveness is determining where you are today and whether you are on the right path to meet your goals. To figure this out, you need to create two documents. One is a monthly budget, summing up income and expenses. The second is a balance sheet, a listing of your debts and your assets. Despite being well-educated and comfortable working with numbers, I did not appreciate the importance of these two documents until I was around thirty years old. Like many people, I just thought in terms of making sure that I was consistently bringing in enough to cover my expenses and contribute to my retirement account. Today, I view these two documents as defining the baseline of financial well-being.

Budget

A budget is a summary of what you make, what you save, and what you spend, including how much you pay in taxes. Despite all the worry that people have about their finances, most don't have a budget and, as a result, don't really understand where their money is going. A 2016 survey found that only four out of ten Americans maintain a budget at all[15]. The flow of money into, and out of, your personal control says a great deal about you and your current situation. Make a budget and then ask yourself if this budget is consistent with how you want to live your life. The details of your budget will probably reveal things that are surprising.

So, start with Google Sheets, an EXCEL worksheet, or just a piece of paper and make a tabulation of the money that came in last month and the expenses that you incurred. You can start with the broad categories: rent or mortgage, car payment, car-related expenses (gas, insurance, maintenance), groceries, entertainment, utilities, cell phone, and health insurance. Also note how much of your income goes to debt repayment and savings. Ideally, sum up your income and expenses each month so that you can see the variability over time.

When you take the time to maintain a budget, many elements of your financial life will come into focus.

A basic budget might look like this:

[15] http://money.cnn.com/2016/10/24/pf/financial-mistake-budget/index.html

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Monthly Pre-Tax Income	**$6,000**
Monthly Pre-Tax Retirement Savings	$600
Employee Health Insurance Contribution	$300
Monthly After-Tax Income	**$3,600**
Monthly Expenses	
Mortgage	$1,500
Utilities (Electricity, Gas, Water, Garbage)	$200
Cell Phone / Internet	$100
Groceries	$600
Car payment	$250
Car insurance	$100
Clothing	$200
Entertainment	$400
Giving	$100
Total Expenses	**$3,450**

This person is depositing $3,600 a month into the bank after her employer has taken out taxes, the employee share of health insurance, and retirement plan contributions. Pre-tax pay, taxes, health insurance premiums, and contributions to employer-sponsored retirement plans can all be found on a standard pay stub. This person has total monthly expenses of $3,450. At the end of each month, she can expect to have $150 left over.

In the case of a self-employed person, things get more complex because she will have to determine how much to save towards taxes herself—preferably keeping funds to cover estimated taxes in a separate account. A self-employed person also needs to set up her own retirement account(s) and contribute to them.

My favorite tool for sanity checking a budget is what is called the 50/30/20 plan[16]. Proposed by Senator Elizabeth Warren and Amelia Warren Tyagi in their book, *All Your Worth: The Ultimate Lifetime Money Plan*[17], this framework suggests devoting 50% of your money to *needs*, 30% to *wants*, and 20% to *saving* (including debt repayment beyond minimum monthly payments). *Needs* include the mortgage or rent, groceries, car payments, health insurance, and other costs that must be covered each month. *Wants* are the things you like but could cut from your expenses if you needed to. This would include vacations, gym memberships, music lessons, sporting events, and eating out. Savings include what you put into retirement accounts, college savings accounts, and general savings, as well as extra monthly payments on your mortgage, college loans, and any other outstanding debts. While there are exceptions, especially for people just starting out in their working lives, the 50/30/20 budget is a great foundation in getting a handle on your budget.

[16] https://www.mint.com/budgeting-3/how-to-make-the-502030-budgeting-method-work-for-you
[17] https://www.amazon.com/All-Your-Worth-Ultimate-Lifetime/dp/0743269888

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A key idea with the 50/30/20 budget is identifying monthly expenses that you could cut out if you get into financial hardship. If you can stick to a 50/30/20, you can immediately reduce your cost of living by 30% because you have identified these areas of extra expense in advance. In a real crisis, you can also suspend your savings and be able to live on 50% of what you currently earn. This is far from ideal—savings are crucial—but having the potential to dramatically reduce your monthly expenses provides breathing room in the event of a rough patch in your financial life.

Your Money or Your Life by Vicki Robins and Joe Dominguez, an enormously influential handbook of the financial independence movement, suggests that people translate every expense into the number of hours of work that it takes to cover the cost. To perform this task, you start by adding up all the hours that you spend in work-related activities. This includes commuting, getting ready for work, and extra hours you work on the weekends, as well as the hours you spend at work. Your effective hourly wage is the amount of money that you earn each year, minus the various expenses associated with work (business attire and costs of commuting, for example) divided by total hours in work-related activities. Once you have an effective hourly wage, you can translate each item in your budget into the number of hours of your life that this represents. Don't forget to calculate your effective hourly wage in after-tax dollars. Expressing expenses in this way is a powerful way to grasp the number of hours of your life that each budget item represents. Imagine that you have a job that pays $75,000 a year. You have a 20 mile commute (round trip) that takes you 20 minutes each way. You find that you spend about 50 hours a week at the office, but you also spend around four hours each weekend on work-related tasks. With vacation and holidays, you work about 48 weeks a year. Including the time spent commuting (160 hours per year), your employment requires 2,752 hours each year. AAA estimates that it costs about 60c per mile to operate a car, so your commute costs $2,880 per year in after-tax dollars. Let's say that you have an effective all-in tax rate of 25% so you need to earn $3,840 to pay for your commute. Your effective hourly rate is ($75,000-$3,840)/2752 = $25.85 per hour before taxes. On an after-tax basis, each hour earns you $25.85*(1-0.25) = $19.40. So, a $100 pair of shoes represents five hours of your life, for example. In real life, things are somewhat more complex. An employer might provide some or all of the costs of your health insurance or make contributions to a retirement plan on your behalf.

One of the challenges in maintaining a budget over time is dealing with *lifestyle drift*. As you earn more, there is an almost universal tendency to spend more and this will be very evident in your budget. If your income grows but your savings rate does not increase, you may be falling prey to excessive lifestyle drift. There is enormous financial power in keeping expenses relatively constant and translating higher income to higher savings. By tracking a budget over time—keeping a budget table for each month or year—you can see whether your spending seems to be trending upwards and whether your savings are accelerating at a rate that will get you to your goals on time.

Balance Sheet

A balance sheet shows your aggregate wealth and is made up of two major categories: assets and debts (more commonly referred to as *liabilities* in accounting). Assets include all the things that you own that have value. For most American adults, their most valuable asset is their home. Households' other highest-value assets are typically retirement savings. You can include assets such as cars in your list of assets, but it is important to realize that these are what are referred to as *depreciating assets*—they decline in value over time and will generally become worthless within a decade or so. For this reason, I prefer to leave cars and other vehicles off of the household balance sheet.

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The difference between your assets and liabilities is your net worth. The median household net worth in the United States is around $100,000[18], meaning that 50% of households have net worth at or above this level and 50% of households have net worth below this level. To be in the top 10% of American households by net worth, you would need to have $1.2 Million in net worth[19], while being in the top 5% requires net worth of $2.4 Million. In general, people get wealthier as they get older, so the percentiles of wealth will tend to be lower for younger people.

There is one important category of assets that doesn't show up on your personal balance sheet: human capital, a person's ability to work and to earn money. A young doctor emerging from medical school may have substantial educational debt and a net worth far below zero, but she also has a substantial asset in her store of human capital. She enters the workforce at a high income and can expect to earn a lot over the span of her career.

A family's balance sheet can typically fit on one page of a small notebook and tracking net worth over time is a powerful way to see progress. A basic balance sheet might look like this:

Assets		**Liabilities (Debts)**	
House	$400,000	**Mortgage**	$300,000
Tax-Advantaged Savings		**Revolving Debt**	
401(k) Account 1	$72,000	Credit Card Debt	$8,000
401(k) Account 2	$34,000		
IRA 1	$7,000	**Education Debt**	
IRA 2	$12,300	College Loan 1	$23,000
College Savings (529)	$20,000	College Loan 2	$34,000
Health Savings Account	$12,000		
Taxable Savings			
Brokerage Account	$35,000		
College Savings	$16,000		
Savings Account	$10,000		
Checking Account	$3,000		
Total Assets=	$621,300	**Total Liabilities=**	$365,000
Net Worth (Assets - Liabilities) = $256,300			

On the Assets side, there are three major categories: real estate, tax-advantaged savings, and taxable savings. Tax-advantaged savings are assets that the government gives you certain tax benefits to build (as well as placing restrictions on how you spend them). These are discussed in detail later in the text. Taxable savings are held in accounts on which you may pay taxes each year. On the liability side, there are several major categories. A loan on a home, a mortgage, is often the largest debt that people have. Revolving credit accounts are those that you spend on and pay down over multiple cycles. The main

[18] https://dqydj.com/net-worth-brackets-wealth-brackets-one-percent/
[19] See previous footnote

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category is credit cards, but there are other forms. If you have a loan on a car, that would get its own category.

For assets like cash in a savings account, CDs, stocks, bonds, and mutual funds (don't worry if you don't know what these things are yet), all you need to do is to look at your financial statements to see their value. To determine the value of a home (if you own one) or other real estate, the simplest solution is to look at the estimated property value on Zillow.com or Realtor.com. These sites estimate the current value for every property using tax records and sales trends. These online estimators are not perfect, but they provide a decent estimate for the market value of property.

Putting your assets and liabilities together in one place and separating assets and liabilities into the categories shown provides considerable insight. Savings are separated into taxable accounts (savings, checking, brokerage) and tax-advantaged accounts such as 401(k), IRAs, college 529 accounts, and Health Saving Accounts (HSAs). Don't worry if you are unfamiliar with these types of accounts. They are explained later in the text. There are two reasons for breaking these out as distinct groups. First, tax-advantaged accounts are restricted in terms of when and how you can use the money without incurring financial penalties. Second, you can manage your overall tax situation based on how much you contribute or withdraw from different types of accounts.

If you have a budget and a balance sheet, you have the basic tally of:

1) What you have
2) What you owe
3) How much comes in each month
4) How much you consume each month
5) How much goes to taxes
6) How much you are contributing to others

Getting a handle on each of these elements is the first step in managing money. Looking at these items over time will show you how effectively you are growing your wealth and managing your debts.

Financial Outlook

Once you have a budget and a balance sheet, you have the foundation for a financial plan. You know what you have, what you are earning, and how much you are contributing to building wealth and paying down debts. When your net worth is less than zero, you have compounding interest working against you. Debts tend to grow over time because of interest charges. For every $10,000 in debt with a 5% interest rate, you are accruing $500 interest costs each year. You will ultimately spend $12,720[20] to pay off a $10,000 loan over ten years (at a 5% interest rate).

When you cross into positive net worth, compounding works in your favor because the financial value of your assets generally increases over time because you can invest your money. I think of the effect of compounding as being like gravity. Having negative net worth is like pushing a wagon up the hill (making payments every month). If you stop pushing (repaying the debt), the wagon accelerates downhill and you are going backwards. When you reach the top of the hill (zero net worth), you don't have to push anymore but neither are you making progress. Once you pass the crest of the hill and start to build up positive net worth, your net worth will grow on its own—now the gravity of compounding works in your

[20] https://www.bankrate.com/calculators/managing-debt/annual-percentage-rate-calculator.aspx

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favor and you build momentum. If you have negative net worth, the primary goal is to reach the zero point, with assets equal to your liabilities. This is the hardest part of the wealth-building process, but also the most critical: going from having compounding working **against** you to working **for** you.

A question that arises when we look at our budgets and balance sheets is thinking through how much is **enough**. How much income and wealth do you require for all your needs and, in addition, to provide the additional wants that will make you satisfied? I was recently looking at a web application called *Dollar Street*[21] (thanks to an endorsement by Bill Gates[22]) that examines the standards of living of households from around the world. You can look at individual families and see pictures and read descriptions of how they live. These cases are an inspiration to reconsider the age-old question of how much is enough for people to be happy and satisfied. It is also a reminder that our material aspirations are very often determined by how much the people around us have, rather than being based on a thoughtful consideration of what we truly want[23].

The financial plan lays out your destination and how you are going to get there. There is a tradeoff to each decision along the way. If your financial goal is to build a million-dollar portfolio, to retire by age 50, or to quit the corporate world and devote your time to working for philanthropic causes, these aspirations probably determine many of the choices that you will need to make along the way. Are you satisfied with your current standard of living? If so, are you maintaining that standard of living while also saving enough to build the wealth that you will need for the future? How much wealth will you need in the future?

The largest single future expense facing most Americans is retirement. A simple and well-known rule of thumb for retirement planning is that you can draw income equal to about 4% of the value of your investments in your first year of retirement[24][25], adjust this to increase with inflation, and have a high probability of being able to sustain this income for 30 years. This is simplistic, but not a bad place to start. You would need $1,000,000 to provide about $40,000 in inflation-adjusted income for 30 years, for example. Other time horizons and withdrawal percentages are presented in the linked articles. For a 20-year retirement, about a 5% withdrawal rate is quite reasonable. Retirement savings are discussed in several later sections, but these simple estimates provide a baseline for how much retirement income a specific amount of savings can support. In practice, most people will probably not spend thirty years in retirement, either because they can't afford to or because they value work for its many benefits. With the increase in lifespans, however, even people who work until their early to mid 70's probably need to plan for the possibility of twenty years in retirement[26].

When I talk with young people about career choices and training, I typically suggest that they think about the kind of lifestyle that they want and to figure out the income that is required to provide that lifestyle. If your desired lifestyle, combined with ongoing retirement savings, requires $6,000 a month in

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[21] https://www.gapminder.org/category/dollarstreet/
[22] https://twitter.com/BillGates/status/994913765295575041
[23] http://content.time.com/time/health/article/0,8599,1974718,00.html
[24] https://www.forbes.com/sites/wadepfau/2018/01/16/the-trinity-study-and-portfolio-success-rates-updated-to-2018/
[25] https://www.advisorperspectives.com/articles/2013/07/30/the-power-of-diversification-and-safe-withdrawal-rates
[26] https://www.amazon.com/100-Year-Life-Living-Working-Longevity/dp/1472930150

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pre-tax income, your long-term plan is going to be very different than if your desired lifestyle requires $15,000 a month in pre-tax income.

Stages of Financial Life

There are distinct stages of financial life. Young people, engaged in getting educated and building their skills, have different priorities than college graduates or others who have completed their education. Young professionals have different priorities than parents raising children, and empty nesters will typically have concerns that are distinct from any of these cohorts. People in college or other forms of educational pursuits typically don't earn much or save substantial amounts. In this stage of life, the key issues are building skills and credentials and keeping costs and debts under control. Transitioning into working life, the big challenges are often educational debt repayment, lifestyle inflation, starting to save towards buying a home, and building wealth to fund life's major expenses. Once people start to have children, there are years of growing expenses and a serious time crunch. It is important to have a lot of your finances on autopilot when you reach this point because you will be busy. While there are increasing demands for spending as you progress through life (buying a car, buying a home, paying for pre-schools or nannies, etc.), it is crucial to maintain savings discipline. As your children get older, saving for their education must be managed alongside saving for your retirement and other goals. As you head into your *empty nest* years, you need to look realistically at how well-prepared you are for the future, including career transitions, paying off debts, and retirement. Depending on your age when you had kids, the time between having kids leave home and retirement could be very short or it could be decades. At this stage of life, people may be in wildly different financial situations. Those who have saved a substantial portion of their income may be financially prepared to retire at this point. Others will realize that they need to really buckle down, save a lot of their income, and may need to adjust to a reduced material lifestyle to support higher savings.

There are phases of life during which people are living, wholly or in part, on income derived from savings or other non-labor sources. In the traditional employment model, these would be retirees who are living on pensions. Today, the population of people living on investment income, with or without other sources, is much broader. There are plenty of people who work full-time until their mid-to-late 60's and then retire completely. There are also people who save very aggressively over a shorter traditional career and then leave traditional employment and live on a combination of part-time work and investment income[27] [28]. People who derive some or all of their income from investments (as opposed to labor) typically need to bring a special focus to budget management and investing. These people are relying on their accumulated assets to provide reliable income, so they need to manage risk, return, and income draws to reduce the possibility of depleting savings.

The idea that people can craft their financial lives to meet their personal aspirations is becoming increasingly mainstream. People are finding solutions that don't look like a traditional career track. There are numerous blogs in which people lay out how they are charting their own courses and how they are managing money to do so[29] [30] [31]. The Financial Independence / Retire Early (FIRE) movement

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[27] There is a community of these people who refer to themselves by the acronym FIRE: Financial Independence Retire Early

[28] See, for example: https://www.newyorker.com/magazine/2016/02/29/mr-money-mustache-the-frugal-guru

[29] See the two previous footnotes

[30] https://www.gocurrycracker.com/

[31] https://www.madfientist.com/

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encompasses a wide range of people and varying goals. These are not, in general, people who want to quit work and play golf for the rest of their lives. The FIRE movement is more about helping people to figure out alternative ways to manage the financial elements of life, rather than being tied to traditional employment until they reach traditional retirement age.

Some of the later sections in this book may be less relevant to you than others, depending on where you are in your financial life and your specific situation and goals. Young people often don't need to worry much about tax deductions, brokerage accounts, or home mortgages. Many people will not invest outside of employer-sponsored retirement accounts so taxable investing topics may not be necessary. College funding and debt are not issues if you don't attend college, or if you attend on a full academic or sports scholarship. I have selected topics that span the widest-possible range of life situations and I trust that readers will be able to determine what applies to them and what does not. Each section is written to be largely standalone, so skipping sections will not be a problem.

Note: You can keep a copy of your budget, personal balance sheet, or financial outlook on your phone or in the cloud using Google Sheets or EXCEL. Do not, under any circumstances, keep any identifying information in a spreadsheet or other document that is stored in the cloud, however. No account numbers. No social security numbers. Etc.

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HOW MONEY WORKS

If you can match your consumption and goals to your income and build and apply a working knowledge of money management, you are likely to be able to navigate life's financial challenges. One of the major issues that we face as a society, however, is that few Americans have the financial knowledge necessary for successful planning and decision making. The K-12 curriculum typically has no significant financial literacy component and most people acquire financial knowledge somewhat haphazardly. This section introduces the information that is necessary for financial effectiveness in the modern world. I think of financial literacy in terms of eight areas:

1) Spending
2) Borrowing
3) Saving
4) Investing
5) Education and Work
6) Taxes
7) Insurance
8) Intermediation

Many people will be unfamiliar with the last topic in the list: intermediation. In a range of financial transactions, there are people or companies getting paid to facilitate the transaction and these are referred to as intermediaries. Understanding the roles and costs of intermediaries, as well as the potential conflicts of interest in their advice, is an important part of financial literacy.

There are subsequent sections devoted to each of these eight elements. In presenting these topics, I am incorporating both very practical 'how to' information and some of the interesting economic issues that place these functional topics in a broader context.

SPENDING

For some portion of the population, all spending decisions are dictated by necessity. If you barely make enough to afford housing and to pay for food and transportation, your choices are limited. Beyond subsistence, spending decisions get more complicated. We make consumption choices based on a complex interaction of needs and wants. For the purposes of this discussion, the terms *spending* and *consumption* are synonymous.

The 50/30/20 budget mentioned in the previous section is a sensible foundation for thinking through spending: 50% of income spent on *must haves*, 30% spent on *wants*, and 20% devoted to accelerated debt repayment and savings. This section on spending deals with the 80% of income represented by the *must haves* and *wants*.

A major issue in personal finance is *symbolic consumption*[32], spending on things that represent something that we value. Symbolic consumption is often directed at signaling to other people that we are successful. Coming to grips with symbolic consumption is often a big component of money management.

[32] https://archive.nytimes.com/www.nytimes.com/books/first/s/schor-overspent.html?_r=1

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The ways that Americans think about spending and consumption have changed dramatically over recent decades, with ever-increasing consumption becoming the aspirational norm—what economist Juliet Schor refers to as *the new consumerism*[33]. The key feature of the new consumerism is an intense desire for ever-higher levels of consumption. This unending pursuit of more has also been referred to as *affluenza*[34].

One component of the *new consumerism* is that parents increasingly feel driven to provide their children with all possible opportunities or risk that their children will enter the adult world at a disadvantage[35]:

Within the middle class-and even the upper middle class-many families experience an almost threatening pressure to keep up, both for themselves and their children. They are deeply concerned about the rigors of the global economy, and the need to have their children attend "good" schools. This means living in a community with relatively high housing costs. For some households this also means providing their children with advantages purchased on the private market (computers, lessons, extra-curriculars, private schooling).

From this perspective, it is not surprising that two of the fastest-increasing costs for Americans are housing in good neighborhoods and education. What makes a neighborhood desirable (and expensive) is often access to the best public schools.

Housing

Housing is the largest single expense for most American families[36]. In addition to the physical attributes of a house or apartment and its surroundings, where you live determines how far you commute, the types of schools that are available for your children, and who your neighbors are. Housing is also one of the areas of spending that is most freighted with symbolic elements. Americans have long considered home ownership a key component of financial success and a hallmark of the 'American dream'.

In the past, purchasing a home was considered uniformly desirable. Today, with soaring housing prices, slow wage growth, and less job security, more people are renting, and a home purchase is out-of-reach for many residents of expensive urban areas. For older generations who owned homes through the high-inflation 1970s, a fixed rate mortgage was an amazing deal because they were able to pay off their homes with far-less-valuable inflated dollars. This was also a period of robust wage growth. Today, with low inflation, slow growth in wages and high real estate prices, the decision to buy vs. rent is less clear for many people. As I write this, real estate prices are at or near record highs in many places, so people who have put a lot of their money into real estate feel smart and those who have delayed wish they had pulled the trigger earlier. Remember, though, that housing prices can fall precipitously in bad times. From 2006 through 2009, one major index of housing prices in the U.S. fell more than 30%[37]. After the housing crash of 2008, there were 7 million households who owed more on their mortgages than their homes were worth[38]. Over long periods of time, say a decade or more, owning a home has historically paid off well. For any individual case, however, a great deal depends on the specific geographic location,

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[33] http://bostonreview.net/archives/BR24.3/schor.html
[34] https://en.wikipedia.org/wiki/Affluenza
[35] http://bostonreview.net/archives/BR24.3/schor.html
[36]https://www.fool.com/retirement/general/2016/02/15/heres-how-much-the-average-american-family-spend-2.aspx
[37] https://en.wikipedia.org/wiki/United_States_housing_bubble
[38] http://money.cnn.com/2008/10/30/real_estate/underwater_borrowers/index.htm?cnn=yes

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where you are in the economic cycle when you buy, and how long you keep the property, as well as the way you finance the purchase.

Thinking about housing choices is very important for those who can choose how much they spend on housing (as opposed to relying on the lowest cost option out of necessity). There is a rule of thumb that households should spend no more than 30% of income on housing. This is a good starting point, but situations vary[39]. If you are 27 years old, living in an expensive urban area, and spending 35% of your salary on housing while you build up your professional credentials, this may be just fine. If you are 50 years old and spending 35% of your income on the mortgage on your home, you are quite likely to be spending so much on housing that you are under-saving for retirement.

Homes tend to be the most valuable asset owned by American families[40]. This is largely because getting a mortgage is a mechanism for forcing people to save regularly as they pay down their mortgages, increasing their equity stake in their homes over time (what economists refer to as a *commitment device*). For this reason alone, buying a house can be a great way to start building wealth. In addition, buying a house allows people to largely fix the cost of housing for the long-term, meaning that their housing budgets are constant even as rental rates and real estate prices rise with inflation over time.

Education

Many parents will spend every available dollar to provide the educational resources that may give their children a leg up in life. For wealthier families, this often starts with private preschool programs and evolves to include private schools, tutors, private lessons, test prep classes, and college admissions coaching. Ironically, we spend enormous resources making sure that kids are prepared for higher education but not all that much on helping our children to make the choices between educational options. More than three quarters of college graduates aged 40 and younger regret choices relating to college finances[41] and many recent graduates report that they did not understand the financial implications of their decisions[42].

For most students, there is no economic payoff from going to a top-ranked private college or university relative to a state school [43] [44], but many people are willing to pay the substantial premium to attend private colleges. This is one of the most confounding economic issues in America, especially considering the enormous growth in educational debt and the long-term impacts of this debt[45]. The reality of the situation is that the choice of higher education is rarely driven by data. Parents and kids become convinced that going to an 'elite' school will provide some special advantages. One of the most common beliefs is that these schools provide access to a high-powered social network. It would be quite surprising if having an exclusive professional network did not impact earnings at all, but the data is very clear and robust: once you correct for the qualities of the students themselves when they enter college, there is no evidence that graduates of even the most prestigious colleges earn more than graduates of other schools.

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[39] http://fortune.com/2015/08/04/housing-30-percent-rule/
[40] https://www.census.gov/content/dam/Census/library/publications/2017/demo/p70br-143.pdf
[41] http://time.com/3608266/student-debt-regret/
[42] https://www.cnbc.com/2016/04/07/college-buyers-remorse-is-real.html
[43] http://www.nber.org/papers/w7322
[44] http://www.nber.org/papers/w17159
[45]http://www.nytimes.com/2012/05/13/business/student-loans-weighing-down-a-generation-with-heavy-debt.html?pagewanted=all

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There is no question that a lack of education results in limited economic and intellectual opportunity. The College Board[46] and other organizations note that a college degree has historically been an amazing investment. This does not mean that cost is no object, though. There are a range of professions in which the educational costs have risen to the point that future income may not justify the expense. Veterinarians, for example, face levels of debt that are very hard to service—and this situation has resulted in considerable unhappiness in the field, including elevated rates of depression and suicide that some suggest are related to financial stresses related to educational debt[47].

The 2018 book, *Squeezed: Why Our Families Can't Afford America*[48], explores a range of factors that are straining the budgets of middle class families. A theme linking many of the people that the book profiles is educational debt that is hard or impossible to service with post-graduation income. Educational choices are among the most expensive decisions that we make in our lifetimes and these choices are irreversible. You can sell a house if you realize you can't afford the mortgage, but there is no similar option if you realize your education debt is sinking you financially. Most people cannot afford to ignore the long-term costs of educational choices even as everyone recognizes that education is incredibly valuable.

Cars

When you add up the cost of buying a vehicle, maintenance, insurance, taxes, registration and fuel, the total is substantial when compared to average household income. Edmunds.com provides a calculator called True Cost to Own (TCO) that estimates the all-in costs for buying and maintaining cars[49]. You input the model, year and where you live, and the tool provides a sum of all the costs over five years, adjusting the estimated costs based on the specifics of the vehicle. The site estimates, for example, that my 2015 Subaru Forester will cost me $38,000 over the next five years. This total assumes that I am buying and financing this as a used car today and includes financing costs (interest on a car loan) that adds up to $3,000 over five years. So, let's assume that I don't have a loan on the car—now my all-in costs are $35,000. That means that it will cost me $7,000 a year to operate one car that I already own outright. This calculation is not assuming that I only keep the car for five years--this is just the cost of owning and operating this car for the next five years. Imagine a family making $100,000 a year and operating two cars. They are looking at spending 14% of their pre-tax income on cars (assuming they own paid-off fairly-inexpensive vehicles like my Subaru). In terms of what the family takes home after taxes, this is closer to 20%.

Consumption Tradeoffs

Education, housing, and transportation are all substantial components of consumption. Things get interesting when you start to look at tradeoffs between these. Houses in districts with the best public schools tend to be expensive. Similarly, housing that is located near amenities and public transportation is worth more because you can reduce time and money spent on driving. The decision to live in a suburb may provide access to better public schools but may also result in much higher commuting time and costs. Perhaps the largest consumption tradeoff is time vs. money and this takes us back to the idea of translating consumption choices into the number of hours of life that each represents.

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[46] https://trends.collegeboard.org/education-pays/figures-tables/lifetime-earnings-education-level
[47] https://cvm.msu.edu/news/2016/fix-the-debt
[48] https://www.amazon.com/Squeezed-Families-Cant-Afford-America/dp/0062412256/
[49] https://www.edmunds.com/tco.html

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Lifestyle Overhead

A useful concept in thinking about consumption is what may be referred to as *lifestyle overhead*, the ongoing costs associated with how you live. If you feel that your lifestyle requires you to wear an expensive suit or to drive a nicer car to look sufficiently accomplished in your profession, that increases your overhead costs. If you must commute a substantial distance to work, that also increases overhead. Some people spend a considerable amount of money outsourcing their household tasks. Higher overhead increases your monthly outflow and can be a major financial drain. High overhead also reduces your ability to cope with financial shocks, especially when this overhead is hard to reduce quickly.

There is a long-standing argument that people inadvertently allow a series of seemingly small lifestyle choices to throw their long-term finances off course— the so-called *latte factor*[50]. The idea here is that habits with small financial decisions can really add up, such that buying an expensive Starbucks beverage on your way to work each day may determine whether you are financially successful. More recently, this has morphed into attributing Millennials' relatively poor financial condition with too many small indulgences[51]. Financial journalist Helaine Olen dismisses the entire latte factor as essentially victim blaming in the wake of the financial crash of 2008 and subsequent out-of-control escalations in housing costs in many urban areas[52]. Regardless of the actual meaningfulness of the latte factor, it is undeniable that lifestyle overhead should be a consideration for everyone, but especially for younger people for whom the compounding effects of current debt relative to savings have many more years to play out.

BORROWING

In modern American society, various forms of debt are a fact of life for most people (mortgages, student loans, auto loans, credit card debt) and average levels of debt continue to increase substantially faster than wages[53]. Debt can be an effective tool for reaching goals, but easy access to credit is also the jumping off point for many financial disasters.

The ability to borrow allows people to accomplish a range of desirable things that would otherwise be impossible. Owning a home, for example, would be out of reach for most people if there were no mortgages. Mortgages give people the ability to start to build equity in a home, and home ownership comprises the bulk of the median American household's wealth. Debt is often necessary to pay for education, too. High-paying jobs tend to require specialized education but only about a third of households can afford to pay for higher education out of pocket[54].

High levels of debt make households *financially fragile*[55], less able to cope with adverse circumstances. Debt also limits people's ability to take advantage of new opportunities because they are so constrained by servicing their debts. Labor mobility, the ability of workers to move locations to take advantage of job opportunities, is important in the pursuit of financial prosperity but debt can limit mobility. If the market price of your house falls below what you owe on a mortgage, it may be impossible to move to a new area for a better job because you would need to come up with cash beyond the proceeds of the sale of your home when you sell. Data confirms this effect, with homeowners in areas with falling house values

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[50] http://www.dictionary.com/browse/latte-factor
[51] http://money.cnn.com/2017/05/15/news/millennials-home-buying-avocado-toast/index.html
[52]http://www.latimes.com/business/technology/la-fi-avocado-toast-millennials-home-buying-20170515-story.html
[53] https://www.creditkarma.com/studies/i/average-debt-american-household-on-rise/
[54] https://studentloanhero.com/student-loan-debt-statistics/
[55] https://economics.mit.edu/files/5998

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less likely to relocate to take a new job than renters in the same area[56]. Similarly, people with high monthly debt repayments are less likely to be able to take a job in a promising startup which has low pay but substantial long-term potential. Debt has consequences that go far beyond the immediate costs of repayment by limiting the ability to cope with crisis and cutting off a range of avenues that might be advantageous or desirable.

A great deal of the decision to take on debt comes down to how much the debt will cost, and this is determined by the available interest rates. We are currently in a period of historically-low interest rates, making debt cheaper. Taking on debt—especially mortgage debt—can look relatively inexpensive in terms of the monthly payment. The rapid gains in real estate prices over the recent years are largely driven by the lower payments that can be had due to low interest rates. This is not a free lunch, however. The purchasing power of $100,000 today is higher than it will be in ten years thanks to inflation. The problem is that low interest rates (which lower the monthly payments) also typically coincide with lower inflation, which means that the future value of the dollars you will be repaying are relatively higher. In the long term, lower inflation makes repaying debt more expensive.

As of 2017, Americans have amassed about $1 Trillion[57] in credit card debt and $1.4 Trillion in educational debt. The average credit card balance for households that have credit card debt is $16,000 [58]. The average levels of debt don't really tell the story, though, because some people have a lot, and some have little or none. Seven percent of college borrowers have $100,000 or more in debt, while twenty three percent of people with postgraduate degrees have more than this amount of education debt[59]. Whether or not these debt levels are reasonable depends on borrowers' incomes after they graduate. A growing number of professional degrees have reached costs that are very high compared to the salaries that are available. I mentioned the crisis among veterinarians[60] in the previous section, but there are many more. Even doctors, who are among the best-paid professionals in America, sometimes find that their compensation does not necessarily justify the debt incurred for their education[61] [62].

When you decide to borrow money, you will be able to borrow at a lower interest rate if you have good credit. Your credit score builds over your lifetime, starting from having no credit history as a teen. Good credit scores come from borrowing and then consistently paying back the lenders. You can track your credit history at no cost using a resource such as CreditKarma.com.

MORTGAGES

Home mortgages are the largest single category of debt in America and getting a mortgage to buy a home is one of the easiest ways to borrow a substantial sum. The primary reason for the relative ease of getting a mortgage is that the property itself is collateral for the loan. The bank is entirely confident that they will get the property if you fail to repay.

When you buy a home, you typically pay for a fraction of the cost of the property up front (the down payment), and then take a mortgage for the rest. Mortgages are most commonly set up for 30-year or

[56] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2320572
[57] https://www.wsj.com/articles/the-nations-credit-card-tab-hits-1-trillion-1491593929
[58] https://www.cnbc.com/2017/02/17/credit-card-users-rack-up-over-1-trillion-in-debt.html
[59] http://www.pewresearch.org/fact-tank/2017/08/24/5-facts-about-student-loans/
[60] https://www.avma.org/News/JAVMANews/Pages/170801d.aspx
[61] https://www.cbsnews.com/news/1-million-mistake-becoming-a-doctor/
[62] https://news.aamc.org/medical-education/article/taking-sting-out-medical-school-debt/

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15-year repayment periods. Mortgages come in different forms. There are fixed-rate mortgages, which have a constant interest rate over the life of the loan. There are also adjustable-rate mortgages (ARMs), in which the interest rate that you pay can vary through time, depending on the terms of the mortgage. The typical structure for an ARM is to link the interest rate on the loan to prevailing interest rates[63]. As interest rates rise, payments rise.

The question of whether to take a fixed-rate mortgage or ARM can have major long-term implications for a household's finances. ARMs have lower initial interest rates than fixed-rate mortgages, and this translates to a smaller starting monthly payment, allowing people to buy more expensive homes. The risk in taking a variable-rate mortgage is that your monthly payment can increase quite dramatically over time. Banks and mortgage lenders are, of course, aware that people tend to think in terms of the initial monthly payment and will naturally prefer to pay less per month. The main issue for borrowers is whether it makes sense to take on interest rate risk in your home payment and to make sure that you will be able to cover the increased mortgage payments if rates rise.

A fixed-rate mortgage gives you a fixed payment for the term of the loan. When inflation is high, interest rates are higher and vice versa. If inflation is high, thereby devaluing dollars over time, your payment is going to look smaller in the future. With an ARM, rising interest rates can make your payment go up substantially over time. In an inflationary environment, an ARM's payments get higher faster. ARMs are very popular when interest rates are low, and rates have been low for quite some time. The risk is that an ARM payment that is manageable in its early years may become too expensive when interest rates increase. I am generally of the opinion that it is better to buy a fixed rate mortgage than an ARM. Buying a house with a fixed rate mortgage means that you are locking in the cost of your housing and protecting against inflation in general and in housing prices, specifically. People who take on ARMs are assuming interest rate risk, a risk that they often don't really understand.

One aspect of mortgage debt that is special is the tax deduction on interest. Each year, the mortgage company tallies up how much you paid in interest on the loan and sends a statement. This amount can be deducted from taxable income, thereby lowering your tax bill. This means that the after-tax cost of the debt is reduced. The deduction for mortgage interest is far less significant than many people believe, however, because you only derive a benefit if you *itemize* your deductions and only about 30% of households do this[64]. In brief, itemizing deductions means that the taxpayer makes a list of all their individual deductions and then sums these up to reach the total deductions[65]. Alternatively, the taxpayer can claim the *standard deduction*, a flat amount per individual household that is specified in the tax code. In the most recent tax bill, the standard deduction has been raised dramatically, so even fewer households will benefit from itemizing in the future.

EDUCATIONAL DEBT

Today, more than 70% of college students are taking on debt in the pursuit of their educations and the average borrower, graduating in 2016, had $37,000 in debt[66]. When education debt is tallied at the household level, the average educational debt reaches $47,000[67]. Since the average college graduate is

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[63] https://www.consumerfinance.gov/ask-cfpb/for-an-adjustable-rate-mortgage-arm-what-are-the-index-and-margin-and-how-do-they-work-en-1949/
[64] https://taxfoundation.org/who-itemizes-deductions/
[65] https://www.hrblock.com/tax-center/irs/tax-reform/new-standard-deduction-eliminated-exemptions/
[66] https://studentloanhero.com/student-loan-debt-statistics/
[67] https://www.nerdwallet.com/blog/average-credit-card-debt-household/

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expected to earn $1 Million more over his or her career than a high school graduate,[68] that may not sound like a lot of debt, but the financial reality of college debt is determined by personal circumstances. An elementary school teacher or adjunct professor who owes $37,000 on college loans is in a very different situation than a software developer or a physician assistant (PA) with the same amount of debt. Many Millennial borrowers are not seeing the value of their degrees justifying the debt they accrued. In a recent survey of college graduates with debt[69], 57% said they regretted how much they borrowed and a third said that they would not have gone to college if they had understood the total cost.

Entering the working world with debt also results in delays in the ability to make other investments, what economists refer to as an *opportunity cost*. One survey concluded that college debt among Millennials has resulted in an average seven-year delay in the ability to purchase a home[70], for example. Educational debt results in deferral of other investments, such that the long-term costs are higher than most people realize[71]. People paying off educational debts tend to contribute less to retirement accounts[72] [73], for example, thereby missing out on the benefits of long-term investment growth and the tax benefits that come with retirement plan contributions (more on this later) as well as potentially not claiming matching contributions that many employers offer.

A key problem with educational loans is that the people taking on the debt may not understand the tradeoffs involved. Asking an eighteen-year-old to understand what $40,000+ in debt will mean for his or her future is probably not realistic, especially given that very few students receive any financial education in their K-12 years. Even for those with some financial knowledge, the economics of borrowing to pay for college are complex and depend on factors that most borrowers do not fully understand[74] [75]. As a result, challenges associated with servicing debt impact the lives of even the best-educated and highly-paid professionals[76] [77].

A common rule of thumb in financial planning is to borrow no more for education that you can reasonably expect to earn in your first year of employment[78].

CONSUMER DEBT

The average American household carrying credit card debt owes about $7,000 on these cards[79]. Credit cards charge very high interest rates when you carry a balance from month to month. In early 2018, the

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[68] https://cew.georgetown.edu/wp-content/uploads/Exec-Summary-web-B.pdf
[69] https://www.forbes.com/sites/jmaureenhenderson/2016/04/07/the-scary-truth-about-millennials-and-student-loan-debt/
[70] https://www.nar.realtor/newsroom/student-debt-delaying-millennial-homeownership-by-7-years
[71] http://www.demos.org/what-cost-how-student-debt-reduces-lifetime-wealth
[72] https://www.cnbc.com/2018/05/23/how-your-student-loans-can-hurt-you-later-on-.html
[73] http://crr.bc.edu/wp-content/uploads/2018/06/IB_18-13.pdf
[74] https://work.qz.com/1221690/mba-programs-create-crippling-student-debt-not-entrepreneurs/
[75] https://abovethelaw.com/2017/09/will-you-ever-be-able-to-pay-off-your-law-school-debt/
[76] https://abovethelaw.com/2015/08/how-are-lawyers-managing-their-law-school-debt-most-will-never-be-able-to-pay-it-off/
[77] http://www.demos.org/blog/extreme-student-debt-indentures-young-doctors-and-lawyers-highest-bidder
[78] https://www.usnews.com/education/best-colleges/paying-for-college/articles/2009/06/09/how-much-money-should-i-borrow-for-college
[79] https://www.nerdwallet.com/blog/average-credit-card-debt-household/

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average rate of interest charged on credit card accounts was over 16% per year[80]. It is very hard to pay off a debt that is accruing interest at this level. If there is a single predictor of someone in financial trouble or someone who has a high probability of being in financial distress in the future, it is carrying a balance on a credit card.

TAXES

Taxes are how the government funds all the services that it provides, from roads and public schools to police, firefighters, and the military. Tax revenue also funds scientific research at the national labs, the Centers for Disease Control, etc. And, of course, Medicare and Social Security are funded by tax money. Taxes are also a mechanism for redistribution of wealth, from wealthier citizens to those who are poor, handicapped, or who are otherwise less capable of taking care of themselves. Tax policy is also designed to provide incentives to make good financial choices, such as saving for retirement and to educate your children.

Of the money that a family earns, the largest single 'expense' is typically taxes. We pay state and federal income tax, Social Security and Medicare tax, property tax and sales tax. When you add up the four income-based sources of taxes (Federal and state income tax, Social Security, and Medicare), the average tax burden for Americans is about 30%[81] of pre-tax income.

The rich and the less-well-off think about taxes differently. To most Americans, taxes are something that they submit to. To the wealthy, taxes are something that they manage, just like managing other aspects of household finances. The potential to manage one's tax bill is available to every American, but it is mainly the wealthy who have tax advisors guiding them.

The first step in understanding taxes is grasping how tax brackets work. By way of example, the Federal income tax brackets are shown below.

Rate	For Unmarried Individuals, Taxable Income Over	For Married Individuals Filing Joint Returns, Taxable Income Over	For Heads of Households, Taxable Income Over
10%	$0	$0	$0
12%	$9,700	$19,400	$13,850
22%	$39,475	$78,950	$52,850
24%	$84,200	$168,400	$84,200
32%	$160,725	$321,450	$160,700
35%	$204,100	$408,200	$204,100
37%	$510,300	$612,350	$510,300

Source: TaxFoundation.org (https://taxfoundation.org/2019-tax-brackets/)

Your income tax is calculated in tiers. Let's say that you are making $50,000 per year and you are single. The first thing you do is subtract the standard deduction, which is $12,200 for individuals ($24,400 for married filing jointly). Then you subtract contributions that you made to pre-tax retirement plans (such as a 401(k) or IRA--these are discussed in detail later). Then your taxable income is what remains. If you

[80] https://www.creditcards.com/credit-card-news/interest-rate-report-011018-unchanged-2121.php
[81] https://www.usatoday.com/story/money/personalfinance/2017/03/10/whats-the-average-americans-tax-rate/98734396/

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contributed $4,000 to a retirement plan, your taxable income is $50,000 minus $16,200, $33,800. This is what you look up in a tax table. For the first $9,699, you will pay 10% in taxes (see table above). For the remainder of your taxable income (above $9,699), you are taxed at 12%. All of your income falls into these first two tax brackets. State taxes, if your state has a state tax, tends to be at a flat rate, regardless of income.

The first major tax management strategy that everyone should be aware of is controlling the amount of income that is subject to tax each year. One of the keys to building wealth is to keep as much of your income as possible in an *unrealized form*[82]. Simply put, realized income is income that you owe taxes on. Unrealized income stays in a form that does not incur taxes. The money that you divert from your paycheck to fund your 401(k) or other tax-deferred retirement accounts is unrealized income, whereas the money that you transfer into your bank account is realized income and is subject to income tax. If you invest in a stock and the investment has a $5,000 gain because the stock price rises, that gain is part of your unrealized income and you owe no tax in the current year. If you sell the stock, that $5,000 is now a realized gain and you will owe capital gains taxes on that amount in the current year. Unrealized capital gains and investments in tax deferred accounts reduce the amount of your total income that is subject to tax each year. You will probably eventually pay taxes on these types of investments but keeping income unrealized for as long as possible gives you the use of the full value for investing until the time when you need to spend the money. In general, the longer that you can defer paying taxes, the better off you are. Using the various standard methods for delaying when you pay taxes is a powerful tool.

Tax Deferred Savings Accounts

IRA and 401(k) accounts are tax-deferred accounts for retirement savings. There are also tax-deferred (and even tax-free) savings accounts for education (529 plans) and for health expenses (Health Savings Accounts). Income that you contribute to these accounts, up to specific limits, goes in without having to pay income taxes first. Contributions to these accounts are part of unrealized income. You invest the money in these accounts, typically using mutual funds of stocks and bonds (fully explained in a later section). The gains on the investments in these accounts compound over time, and no tax is owed--even when there are realized gains. With IRA and 401(k) accounts, you only pay taxes when you withdraw from these accounts. With 529 withdrawals for educational expenses and HSA withdrawals for medical expenses, you don't pay taxes on withdrawals at all.

A 401(k) account is the most common form of tax deferred retirement savings plan offered by employers. Individual Retirement Accounts (IRAs) are a similar type of account that people set up independent of an employer-sponsored plan. Depending on your income, you may be able to have the tax deferral benefits of both a 401(k) and an IRA, but people above certain income levels will not be able to make tax-deferred contributions to both a 401(k) and an IRA at the same time. In the case of IRAs and 401(k) contributions, you will pay taxes on the money when you take it out in retirement, but these accounts give you the use of the entire pre-tax contribution amounts for investing during your working years. The long-term benefits of being able to contribute to these accounts are huge. The annual contribution limit for 401(k) plans is $18,500 for 2018. If you are over 50, however, you can contribute an additional $6,000 per year, pre-tax. If you are self-employed, there are a variety of retirement plans, similar to 401(k)'s or IRA's, that enable you to contribute considerably more on a pre-tax basis. A number of these allow the self-employed to contribute more than $50,000 per year. If you are

[82] http://www.thomasjstanley.com/2013/01/to-build-wealth-maximize-your-unrealized-income/

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self-employed and have the income to support higher levels of contributions, these types of plans can substantially reduce your current taxes by keeping a larger fraction of income unrealized.

Contributions to a traditional IRA go into the account pre-tax, the money can grow tax free until retirement, and the assets in the account are only taxed when withdrawals are made in retirement. Roth IRA contributions are taxed, but the money grows tax free and is never taxed again—including when you make withdrawals in retirement. In both cases there are limits to how much you can contribute each year and the deductibility of IRA contributions depends upon your income[83]. People with high incomes may not qualify to make pre-tax contributions to an IRA, even though they can still benefit from deferring all taxes on gains in the account until money is taken out in retirement.

It is important to understand that contributions to IRAs and 401(k) plans are not a free lunch. You will be taxed when you withdraw money from these plans and all withdrawals will be taxed as ordinary income rather than as capital gains. Capital gains tax rates are about half of the level of ordinary income tax rates (discussed in more detail in the next section), so there is a real tradeoff here. In most cases, however, the benefits of tax deferral over a working lifetime outweigh the higher tax rates when you take the money out. In addition, most people are in lower tax brackets when they retire than in their working years.

There is a special variation of tax-advantaged retirement accounts called Roth IRAs and Roth 401(k)s. Roth accounts are retirement savings accounts in which the money contributed is after tax but for which the capital gains are not taxed when money is withdrawn in retirement. Roths provide tax-free retirement income. In general, Roth IRAs and 401(k)s are most attractive if you expect your tax rate in retirement will be higher than your current tax rate. For young people, at the beginning of their careers, Roths can be very attractive because these people tend to be in low tax brackets.

There are other types of accounts that provide tax deferrals, as well. Health Savings Accounts (HSAs) are an excellent way to defer or eliminate taxes. You are not taxed on HSA contributions, you can invest the money in an HSA, and any money that you take out for medical expenses is not taxed. The money in an HSA builds up over time if you don't use it. If you reach retirement age and there is money in an HSA, you can take that money out to pay for retirement expenses, taxed like withdrawals from an IRA or a 401(k), or you can continue to use the HSA to cover medical expenses and pay no tax. There are limits to how much you can contribute to an HSA each year, however. For 2019, an individual can contribute up to $3,500 and a couple filing jointly can contribute up to $7,000. If you are 55 or older, you can contribute an additional $1,000 a year. Considering that the limit for contributing to a 401(k) is $19,000 per year, HSAs provide a way to really boost tax-deferred savings.

There are also what are called *529 savings plans* for college savings[84]. With a 529 savings plan, you often get a state tax deduction for contributions (this varies between states) and withdrawals from a 529 plan are not taxed at all if the money is spent on qualifying educational expenses. If you have a reasonably-long time horizon, you can accrue substantial capital gains in 529 asset investments and then you get to take this money out without incurring any taxes. In some states, you can get a tax benefit simply by adding money to a 529 and then, after a short holding period, paying college expenses directly from the 529 account. Let's say that you didn't save for college, or just didn't save enough. In the current year, you contribute $15,000 to a 529, wait the state-specified holding period, and then take

[83] http://time.com/money/4990121/401k-ira-contribution-limits-2018/
[84] https://en.wikipedia.org/wiki/529_plan

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$15,000 right back out (after leaving it in the account for as little as a week, depending on the state) to pay for your or your kid's tuition, fees, or dorm room. If you live in a state that allows full deduction of 529 contributions and that has a 5% state income tax rate, you have just made $750 simply for adding the money to the 529 and then taking it back out. The rules vary by state, as do the state income tax benefits.

Taxes on Ordinary Income vs. Capital Gains

Ordinary income, the income you get from a paycheck, is taxed very differently than income you get from your investments, which is referred to as capital gains. For most Americans, ordinary income is taxed at about twice the Federal tax rate for capital gains[85]. In addition, you pay payroll taxes (Social Security and Medicare) on ordinary income but not on capital gains. A single person making a total income between $84,200 and $160,725 is in the 22% Federal income tax bracket for ordinary income but the 15% long-term capital gains tax bracket.

For most Americans, almost all income is derived from wages or salaries. The wealthiest households, however, earn much or most of their incomes from capital gains[86]. A married couple filing jointly with $100,000 of capital gains income per year may pay no income tax at all[87]. This is not the case for a couple making $100,000 in income from working traditional jobs. A married couple, filing jointly, pays 0% in long-term capital gains tax[88] up to about a maximum of $77,000[89] in income in 2018. The standard deduction for a couple filing jointly in 2018 is $24,000. This allows a couple making $100K to reduce their taxable income below the $77,000 level and, thereby, to be in the 0% capital gains bracket.

The differences between capital gains tax rates and ordinary income tax rates are important to understand for several reasons. First, a dollar of investment income taxed at the long-term capital gains rate is worth more than a dollar of wages because of the substantially higher tax rates on ordinary income. Second, when considering the relative benefit of investing money in a retirement account such as a 401(k) or IRA, it is valuable to understand the tax implications. Specifically, when you take money out of an IRA or 401(k) in retirement, every dollar is taxed as ordinary income. When you take money out of a taxable investment account, you are only taxed on your gains and the tax is calculated at the lower capital gains rate. Depending on your situation, some of your retirement savings may be better off in taxable investment accounts, rather than qualified retirement accounts such as 401(k)s or IRAs.

The tax rates on capital gains are intended to encourage long-term investing and to discourage speculative trading. As such, any capital gains realized in investments held for less than a year (referred to as short-term capital gains) are taxed the same as ordinary income. Only gains from positions held for a year or more and dividends are taxed at the lower long-term capital gains rate.

Final Thoughts on Taxes

There are substantial benefits to understanding how best to manage your tax exposure. The government provides a range of ways to control how much tax you pay in the current year and to manage your future tax liabilities. Many people think of tax planning as boring—and I would certainly

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[85] https://www.schwab.com/public/schwab/investing/retirement_and_planning/taxes/resources/taxes-whats-new
[86] https://www.cnbc.com/2015/04/09/where-the-rich-make-their-income.html
[87] This is discussed extensively on the GoCurryCracker.com blog
[88]https://www.kitces.com/blog/understanding-the-mechanics-of-the-0-long-term-capital-gains-tax-rate-how-to-harvest-capital-gains-for-a-free-step-up-in-basis/
[89] https://www.fool.com/taxes/2017/12/11/long-term-capital-gains-tax-rates-in-2018.aspx

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agree that it's not exciting—but figuring out how to plan and manage tax liabilities can be incredibly profitable. Financial advisor and author Phil Demuth argues compellingly that managing taxes may ultimately be more significant than almost any other financial planning activity[90].

EDUCATION AND WORK

Each person has a limited number of hours available to them and a substantial fraction of those hours will most likely be devoted to work. Economists refer to a person's capacity to do work of some kind as their human capital. Unless you have a great deal of financial wealth, are fairly old, or both, your human capital is the most economically-valuable asset that you have. For this reason, any discussion of personal finance must include a discussion of this asset.

Education is the key to building the value of your human capital. One of the most divisive questions in choosing an educational path, however, is the extent to which people should consider the financial implications. Some see higher education as largely vocational while others believe that higher education is primarily about personal and intellectual growth and fulfillment. Some people encourage young people to follow their dreams, regardless of financial considerations. While this sounds good, many who take this advice end up in difficult financial situations. If your passion is to study Russian literature and to attend [insert name of expensive private college here] to do so, you'd better understand where this path leads. Having an advanced degree is no guarantee that you will be able to sustain a middle-class lifestyle, as adjunct professors can attest[91] [92]. None of these issues matter if you have a sufficiently large trust fund, of course, but very few people are in that situation. I am by no means suggesting that everyone should try to be engineers, computer scientists, doctors or lawyers just because these jobs pay well. It is a recipe for unhappy outcomes, however, to ignore the financial outcomes of an educational path—whatever path you take.

Schools have limited incentive to encourage prospective students to seriously consider costs and how the resulting debts will be repaid. Many schools will facilitate students taking on crushing debts to pursue degrees that have no meaningful employment prospects[93]. Especially given the rapid rise in education costs, very few people can afford to ignore economics when choosing a degree program.

Much of the work that people do is non-paid. We might choose to spend more time in paid work and to hire others to take on some of our non-paid tasks. From an economic standpoint, it makes the most sense to perform the work that you get paid the most to do and to hire out tasks that pay less. On the other hand, someone who enjoys cooking may prefer to prepare their own meals, regardless of whether they would be economically better-off to work more hours and hire a personal chef. An economist would say that the person who works fewer highly-paid hours to cook his own meals must, therefore, derive some satisfaction (what economists refer to as *utility*) from cooking that is higher than the satisfaction that he would get from the extra money he might otherwise earn. This example may sound abstract and contrived, but the tradeoff between doing things ourselves and earning the money to pay

[90] https://www.amazon.com/Overtaxed-Investor-Slash-Your-Alpha/dp/0997059605/

[91]https://www.npr.org/sections/ed/2015/12/17/459707022/low-pay-long-commutes-the-plight-of-the-adjunct-professor

[92]https://www.theatlantic.com/business/archive/2015/09/higher-education-college-adjunct-professor-salary/404461/

[93] https://chicago.suntimes.com/feature/a-generation-of-college-students-buried-in-debt/

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people to do them for us is a major consideration in how we spend our lives. This issue is especially significant for parents raising children, for example.

The type of work that one performs for pay is partly determined by the desire to support a certain lifestyle, along with a person's aptitudes, training, values and beliefs. Because I am writing about personal finance here, I focus only on the financial aspects of work, although these overlap into other areas. Those who earn enough to retire early will have the freedom to devote years of their lives to efforts that may be deeply important to them but that provide little or no income. Similarly, someone who earns a high hourly rate of pay may have the freedom to work fewer hours and spend more time on passion projects. On the other hand, if you can be content with a low-overhead lifestyle, you will have the option to consider many more types of work.

The traditional (modern) model of paid work is for people to take a job with a single employer. The employee receives a regular paycheck. In addition to a salary or wage, employers often provide benefits such as health insurance and retirement plans. In 21st century America, this type of employment is far from the whole story. Many people work as contractors, temps, freelancers or consultants. I refer to these groups, collectively, as *free agent workers (FAWs)*. These people typically get paid per hour, receive no additional benefits, and have little or no assurance as to how long any source of income will last. There are also artisans, merchants, farmers, and small business owners who sell goods and services and take income from the profits. Remarkably, we don't have very good estimates for the fraction of the population who derive their income in these ways, but a range of estimates suggest that as many as one third of U.S. workers are wholly or partly self-employed or otherwise part of the contingent workforce[94] [95] [96]. Some people thrive as employees while others place a high premium on the flexibility and diversity of work that come with being a free agent. Some types of work lend themselves to free agency, while others are almost impossible to do outside of a traditional workplace.

Personal finance is quite different for free agent workers (FAWs) than for traditional employees. The self-employed must purchase their own health insurance and set up their own retirement plans. There are, however, financial benefits to self-employment. First, there are many more tax deductions for FAWs than are available to traditional employees. FAWs can claim tax deductions for health insurance premiums, the costs of maintaining a home office, and some of the costs of a vehicle (to the extent that the vehicle is used for work purposes). Another financial benefit available to FAWs is the ability to contribute far more to tax-deferred retirement plans than traditional employees can. For 2017, traditional employees can contribute as much as $18,000 in pre-tax dollars to a 401(k), although total contribution amount is boosted if the employer provides matching contributions. The self-employed can contribute as much as $54,000 in pre-tax dollars to a solo 401(k) plan[97], a special type of 401(k) available to self-employed people with no employees. For people who want to save aggressively and who make enough income, the higher contribution limit for the self-employed can be very valuable. Another little-appreciated economic benefit of self-employment is that plans such as solo 401(k)'s can be set up with much lower annual expenses than the typical costs associated with traditional 401(k) plans. Many

[94] http://money.cnn.com/2017/05/24/news/economy/gig-economy-intuit/index.html
[95] https://www.forbes.com/sites/elainepofeldt/2017/06/13/new-study-why-self-employment-keeps-accelerating
[96] https://www.hcmworks.com/blog/10-shocking-stats-about-the-rise-of-the-contingent-workforce-in-2015
[97]https://www.forbes.com/sites/greatspeculations/2017/01/17/solo-401k-annual-contribution-limits-to-increase-in-2017

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traditional 401(k) plans have all-in fees higher than 2% of client assets[98]. Solo 401(k)'s and related plans can be set up with fees that are a fraction of the average traditional 401(k) plan and the aggregate impact of the lower costs over the span of a career can amount to substantially higher lifetime wealth accumulation[99].

Another potential benefit of being a FAW is *income diversification*. Having several clients or projects at the same time means that you are better prepared to weather adverse circumstances. You have multiple income sources rather than just one. FAWs also own or control more of their own work infrastructure. This means, for example, that a FAW controls her own retirement plan, health insurance, computers, etc. As a result, there is far less dislocation when a FAW moves between engagements than when a traditional employee moves between jobs.

Whether or not the growing number of FAWs is a good thing depends on where you are standing. Many professional FAWs are doing well and prefer their situation to traditional employment[100], but the low-pay no-benefit *gig economy* leaves many people at risk.

Building Human Capital

Almost every career requires a combination of specialized training and experience. Many people spend a great deal of time and money pursuing degrees and acquiring credentials that will allow them to pursue a profession. Professional training and accreditation all increase the value of human capital. As you get older, you gradually deplete some of your human capital in terms of the number of potential hours that you have available in your life for work, but you can increase the value of each of the remaining hours as you learn new skills and build expertise. One of the challenges in managing your human capital is choosing paths that will increase the value of your work potential. Seeking out new areas for growth and learning is a major component of increasing human capital. Building and maintaining a unique portfolio of economically-viable skills, experience, and credentials is an important part of working life.

Education is the primary way by which people initially build human capital. As discussed in the sections on consumption and debt, balancing educational opportunities with costs is crucial. Reading articles on college debt, it appears that many people don't know how to weigh the tradeoffs between cost and opportunity in making educational choices[101]. Today, there are tools that will help people to evaluate whether a degree can justify its costs[102]—at least in economic terms. It's fine if people make educational choices with low economic outcomes relative to cost and debt, but these tools help to make the choices clear.

The most economically-valuable skills (other than required job-specific expertise) are creativity, problem solving, and vision, especially when coupled with strong organizational skills and the ability to get things done. Strengths in motivating and managing people are also highly sought after. These are, not surprisingly, aspects of work that are very hard—perhaps impossible—to automate.

Seeking Work

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[98] https://www.brightscope.com/financial-planning/advice/article/15556/The-One-Chart-That-Explains-401K-Fees/
[99] https://www.tonyrobbins.com/wealth-lifestyle/401k-fees-matter-video/
[100] https://hbr.org/2012/05/the-rise-of-the-supertemp
[101] https://www.bustle.com/p/ive-paid-18000-to-a-24000-student-loan-i-still-owe-24000-9000788
[102] https://www.payscale.com/college-roi

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The ways that people seek work and get hired are changing quickly. Back in the old days, a great resume was considered very important. You tried to compress your education, work experience, and skills into one or two pages and printed the results on high-quality paper (yes, career counselors told people that the quality of the paper mattered). Today, the role of the resume has largely been replaced by the online portfolio[103], even though a resume is still required. If you apply for a job, you should expect that people will Google you. The resume is a starting point, introducing you, providing information on how to contact you and, more importantly, how to seek information about you. In almost every profession, individuals should maintain a web presence that summarizes their portfolio of work, education, and other experiences. LinkedIn provides a powerful platform for creating an online portfolio, although maintaining a standalone website provides additional ways to really showcase one's work.

As the duration of employment has gotten shorter, it is ever more important for organizations to find employees who can contribute immediately. To this end, employers are often seeking very specific skill sets and experience. The result is that the length of time that employers spend to identify and hire for an open position has gotten longer[104]. What employers most want is a combination of relevant work experience, expertise, strong communication skills, creative problem solving, and the ability to hit the ground running[105]. All these facets need to come across in the resume and online presence.

One result of the longer cycle in hiring, in combination with shorter job tenure overall, is that people need to be prepared to weather extended periods without paid work. The average duration of unemployment[106] has gradually increased over the past fifty years, along with varying dramatically through economic cycles[107]. Average duration of unemployment in the U.S. reached a 70-year high in September of 2011, at more than forty weeks. While the time out of work has fallen rapidly since 2011, the average in March of 2018 is twenty-four weeks. From 1948 until the 2008 financial crisis and recession, the average duration of unemployment never reached this level.

[103] https://www.wsj.com/articles/SB10001424052970203750404577173031991814896
[104] https://www.usatoday.com/story/money/2017/08/09/its-taking-longer-than-ever-get-hired-glassdoor-survey-shows/551001001/
[105] http://www.cnn.com/2009/LIVING/worklife/11/02/cb.hire.reasons.job/index.html
[106] Duration of unemployment is counted only among people seeking paid work
[107] https://fred.stlouisfed.org/series/UEMPMEAN

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Average duration of unemployment in the U.S. (https://fred.stlouisfed.org/series/UEMPMEAN)

The data suggest that longer and more-frequent periods outside of the workforce are likely to be a feature of the emerging world of work. If current trends persist, this has substantial implications for personal financial planning. Being prepared for an extended period of unemployment requires substantial easily-accessible savings, for example. A year with lower-than-average income is also an opportunity to contribute to a Roth IRA or to realize capital gains to take advantage of being in a lower tax bracket. Taking advantage of these tax benefits requires awareness of them.

Periods between engagements or jobs provide the time to build and maintain your portfolio. Writing a professional blog or publishing articles enables people to demonstrate thought leadership and expertise. These times can be incredibly refreshing in that you get to develop ideas or shift directions in your career, as well as learning new things that bolster your human capital.

Location-Independent Work

Many more people are working from home or some other location of their choosing. This trend will continue as telecommunications technology increasingly empowers collaborative teams that are geographically distributed. Remote work has its challenges, but it also has substantial economic and non-economic benefits for both workers and employers. One benefit of remote work is the reduction in overhead costs for both the employer and the worker. In the common case in which remote workers are based at home, the employer has no costs in maintaining office space and related infrastructure. While workers must cover the costs of their own office space, they are saving the time and money associated with commuting—a huge benefit for many people. Both the direct costs of commuting and the time spent in transit add up to a substantial effective overhead cost for traditional workers. The greatest advantage of remote work for employees is the ability to live wherever they want. I put considerable emphasis on this. I live in Boulder, Colorado, a beautiful place with a high quality of life. I have not worked for a company located in Boulder for the last 16 years. I have been able to work with clients from across the U.S.A. and even in other countries. The ability to live where you want and pursue work in other places is a remarkable feature of the modern world of work, whether as a traditional employee or as a free agent worker.

Working Lifecycle

The entire notion of a *normal* life cycle of work has changed substantially in the last couple of decades. The standard concept in the industrial period was very linear. People got their educations in the earliest stage of life, worked and saved continuously over a period of 30 to 40 years, and retired completely at some point in their sixties or seventies[108]. Some people retire earlier and some later, but the stages were very standardized. This model forms the foundation of most thinking about personal finance[109]. There are just three stages: youth, working adult, and retiree. The paradigm of lifecycle planning in academic economics is what is referred to as *consumption smoothing*[110]. Economists have proposed that people will be most satisfied if they can maintain a stable level of consumption over their lifetimes, so financial planning should attempt to budget lifetime earnings and spending to provide for this[111]. People save

[108] https://www.bogleheads.org/wiki/Life-cycle_finance

[109] https://www.forbes.com/sites/wadepfau/2014/03/03/lifecycle-finance-an-alternative-for-a-lifetime-financial-plan/

[110] https://www.princeton.edu/~deaton/downloads/romelecture.pdf

[111] https://www.bogleheads.org/wiki/Life-cycle_finance#Consumption_smoothing

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during their earning years to support themselves through their non-working years—nobody wants a feast or famine existence.

In the emerging world of work, it is becoming less common for people to follow the traditional model (education, full-time work, full-time retirement)[112]. Many people work part-time after they leave their full-time careers. Further, more people have careers that consist of a series of jobs, either in sequence (one job after another) or in parallel (consultants and other free agent workers with multiple clients or projects at the same time). I think that the most sensible model of work for many people is to plan for periods of more or less work throughout adult life, rather than assuming that they will follow a full-time work / full-time retirement trajectory[113]. Part-time work during the traditional retirement years provides social benefits[114] in addition to the income and, potentially, health insurance. Many families with small children will prefer to have one or even both parents reduce their work hours for some period. As lifespans increase, people are more likely to need periods to retrain or to redefine their paths, too. Ideas for less linear models for work are engagingly explored in *The 100-Year Life*[115].

Many people will have widely varying work loads throughout their lives. Periods without paid work may occur by choice (to stay home with young children, to take a sabbatical, to pursue educational or other growth opportunities) or because of an extended job search.

Commoditization of Labor

Two of the most significant advances in the Industrial Revolution were the introductions of standardization and the production line. Standardization resulted in manufactured parts that are interchangeable[116]. The production line made labor interchangeable, just like parts. Both cases are examples of commoditization, the process through which things becomes entirely substitutable. Since the introduction of the production line, which largely replaced craftsmen with people who were trained to do one or a few simple tasks repeatedly, labor has become increasingly commoditized. I believe that there are two inexorable realities of commoditization in work. First, any work than can be commoditized will be. Second, the wages paid for any type of commodity labor will decline over time. We have seen this process move through many different industries, taking jobs that required substantial human expertise and skill and replacing these with a combination of lower-skill human labor and technology. The lesson is to try to avoid fields that have the highest potential for becoming commoditized. The class of jobs with the least potential to be de-skilled are those that require high-level analytical thought and unique, creative solutions. Another class of jobs that typically fare well in the new world of work rely on specialized niche skills or knowledge combined with technological reach. One example of this kind of work is people who create videos, music, online tutorials and other content.

Commoditization and automation go hand in hand. Each stage of technological advances allows more jobs to be standardized and automated, requiring less human expertise. Self-driving cars represent a new phase of automation and are poised to replace many human drivers. While automation tends to lower the costs of goods and services, the societal impact may be considerable. Will we have enough jobs to provide employment to the people displaced by the next wave of automation? John Maynard

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112 https://www.rand.org/pubs/research_briefs/RB10022.html
113 https://www.nytimes.com/2018/03/02/business/retirement/aging-workers-opportunity.html
114 https://money.usnews.com/money/retirement/second-careers/articles/2017-04-10/7-reasons-to-work-part-time-in-retirement
115 http://www.100yearlife.com/
116 https://en.wikipedia.org/wiki/Interchangeable_parts

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Keynes, during an earlier stage of industrial development in 1930, wrote about the potential for *technological unemployment*, a term that he coined[117]. The standard economic argument is that technology paves the way for more efficient application of labor and frees workers to perform higher-value work. Keynes' ultimate hope was that technological advances would increase productivity so much that people could work fewer hours to support themselves. Implicit in this happy outcome is that workers reap a meaningful portion of the economic gains of their technologically-enhanced productivity. The alternative outcome is that lower-skilled workers displaced by automation become a persistent class of poor, long-term unemployables.

A major challenge is to make sure that people displaced by automation get the training they need to move to the next level of work. Beyond training, we have the question of whether the workers and the work are geographically compatible. Will new high-tech businesses move to Detroit, Cleveland and other economically-depressed areas with high unemployment? As congestion and the cost of living skyrocket in Silicon Valley, why have we not seen companies expanding more rapidly into areas with high unemployment and lower costs of living? The standard answer is that most of the places with low cost of living lack the critical density of highly-skilled workers. These are also often places that better-educated and higher-income people don't want to live.

Globalization

Another issue relating to where companies build facilities is globalization. Labor tends to be much cheaper outside of the U.S. and the wealthier countries in Europe[118]. Manufacturing wages in the Czech Republic, for example, are less than 1/3 of the U.S. level, for example. As wages rise in some parts of the world relative to others, the work tends to flow to cheaper locations, even as we also see communities of highly-compensated workers who cluster in high-cost areas (e.g. Seattle, Silicon Valley). At the most practical level, it is incredibly valuable to do work that is hard to offshore. Jobs that are commoditized are, of course, much easier to move to the lowest-cost location. While politicians endlessly debate things like how to bring high-paying manufacturing jobs back to the U.S.A., I have concluded that this is never going to happen at large scale. This is a result of many factors, including trade policy, technology, and the decline ofeven as labor unions.

Big Ideas About Work

Historically, people have spent more of their adult lives working than in any other single activity. Work is an important source of meaning and self-esteem, along with providing income. In this discussion, I have focused on the financial aspects of work, but it is impossible to discuss work in a meaningful way without also thinking about the broader implications of the work that we do.

The social contract between employers and employees is radically different than in the past: less like marriage, more like dating. Most people will move through a series of employment situations over their working lives. The relationship between location and available work is becoming more flexible. In the past, companies would seek the best person who was available nearby or who was willing to relocate. Today, many organizations are willing to hire remote and/or contract workers if they feel that they can

[117] Economic Possibilities for Our Grandchildren (https://assets.aspeninstitute.org/content/uploads/files/content/upload/Intro_Session1.pdf)
[118] https://www.conference-board.org/ilcprogram/index.cfm?id=38269

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hire a better person with such arrangements. Free agent and remote workers are a growing share of the workforce.

The evolution of work has profound implications for personal finance. Retirement savings accounts are far more portable than in previous generations, but investing in retirement accounts is typically now the responsibility of individuals rather than firms. People have less job security, but concurrently have increasing flexibility in choosing how and where they work.

The people who are best positioned for the emerging world of employment are those whose work cannot easily be commoditized, offshored, or automated. What is even better is providing something that is at the far opposite end of the scale from commoditization. What is in short supply and most richly rewarded is the ability to be creative, to solve problems, to work well with diverse teams, to articulate new ideas and solutions, and having the skills and drive to bring these ideas to fruition. Intriguingly, there are many new jobs that have emerged because of technology combined with specialized non-commodity skills. Software developers can develop apps from their dining room tables, with no infrastructure other than a computer. There are all sorts of professional coaches, providing guidance to clients on everything from sports performance to career management, and these coaches can serve clients who live far from where the coaches are based. Anyone with basic computer skills can build a website to sell anything, from their artisanal crafts to rare books. People build businesses around providing online tutorials and classes on how to use software tools more effectively, how to visualize quantitative data, etc. My daughter took music lessons using Skype after her instructor moved out of state. The possibilities are endless.

SAVING

The money that is left after you pay taxes, cover monthly expenses, and donate is the amount that you can save. I have given saving into its own section because so few Americans save anywhere close to enough[119] and because there are different ways to build wealth. And, of course, there are questions of how much saving is enough and where you invest money once you've saved it. You can pay down debts with savings, you can maintain a pool of cash, and you can choose potentially-volatile longer-term investments.

The central considerations in choosing how to invest savings are liquidity, return potential, and risk. Liquidity refers to the ability to rapidly convert something to cash to pay for immediate needs or wants. Cash itself is the most liquid asset. A house is a classic example of an illiquid asset. Paying down your mortgage increases your store of illiquid wealth. Maintaining a pool of assets that are highly liquid is important in case of emergencies or to take advantage of opportunities that necessitate fast action.

How Much of Your Income Do You Save?

Following the 50/30/20 budget, people would devote 20% of their after-tax incomes to savings and accelerated debt repayment. To calculate the parts of the 50/30/20 budget, you start with your after-tax income but include your employer-sponsored retirement plan contributions as part of your total income. So, if you receive $4,000 in take-home pay but that includes $500 a month that your employer has deducted from your pay to put into a 401(k) plan, your after-tax income is $4,500. The goal would be

[119]https://www.marketwatch.com/story/the-amount-of-americans-not-saving-for-retirement-is-even-worse-than-you-thought-2017-02-21

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to save and pay down debts (beyond the minimum monthly payments) with $900 a month, which means you need to save an additional $400 out of the $4000 in take-home pay.

The 50/30/20 guideline is far more than most households save today. For young people, saving 20% may not be possible, regardless of occupation, and that's okay. Once you are established professionally, though, it is highly desirable to create a lifestyle that supports this level of savings. As with all 'rules of thumb,' this is too general to apply to everyone, but it's a good place to start.

Saving a substantial portion of your income today gives you vastly more choices in the future. A range of financial experts suggest that people save 10%-20% and this provides a place to start. The Financial Independence / Retire Early (FIRE) movement advocates higher savings rates [120] [121] because the practitioners aspire to spend far fewer years in the workforce than the average American. Figuring out how much you can realistically save, accounting for all the tax breaks that are available for various forms of saving, is a central issue in financial planning.

Different Types of Savings

There are four broad categories of savings:

1) Accelerated debt repayment
2) Long-term investments
3) Intermediate-term investments
4) Cash and short-term investments

Using income to pay down debts is analogous to saving. By accelerating your debt repayment, you are avoiding the expense of accrued interest. Debt repayment is equivalent to an investment at the annual percentage rate charged on the debt. If you have debt with an 8% interest rate, every extra dollar you put into that debt is equivalent to a risk-free investment at that rate. Debt repayment typically reduces your liquidity, however. Having paid down your mortgage or college debt at an accelerated rate means that you have less in assets available for a sudden need or to pursue a great opportunity. If your mortgage rate is 4%, paying extra on the mortgage may seem like a good idea if it is not possible to make a risk-free 4% rate of return elsewhere. If you suddenly need the extra money that you paid into your mortgage, however, you would need a line of credit against your home and the interest rate on a line of credit is almost always greater than the primary mortgage rate. In addition, if you need the money because you have lost your job, the bank might not be willing to give you a line of credit because you have no income. This is the danger of having too much of your savings tied up in an illiquid investment.

Long-term investments are savings that have been put into accounts that you plan not to tap for many years (think longer than 10 years). The most important example is retirement savings. Many types of retirement accounts have substantial tax advantages to encourage people to save for old age, but they also have significant financial penalties if you take money out before you reach retirement age. If you take money out of a 401(k) or IRA account early, for example, you will pay a penalty plus forfeit the tax advantages you were given when you invested. There are specific cases in which you can withdraw money early without penalty, but you should never think of your retirement savings as money that is

[120] http://money.cnn.com/2017/06/06/retirement/retire-5-years/index.html
[121] https://www.mrmoneymustache.com/2012/01/13/the-shockingly-simple-math-behind-early-retirement/

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easily available. With 401(k)s and IRAs, you sacrifice liquidity, but you gain the substantial tax advantages.

Aside from financial penalties for tapping into long-term savings early, the way that you invest long-term savings is very different than how you invest short-term or intermediate-term money. Long-term investments are typically held in riskier assets with higher potential for gain. Over long holding periods, you can ride out the inevitable fluctuations in value due to market cycles. If you have a sudden need for cash, you don't want to have to pull from risky assets because they might be in the low ebb of their value—you don't want to be forced to sell low.

Intermediate-term assets are those that you plan to leave invested for more than three years but less than ten. You can afford to take moderate investment risk with this money. Intermediate-term savings are typically held in a brokerage account and the investment of these assets will vary depending upon the details of your situation. Intermediate-term savings will likely be a combination of stocks and bonds.

Short-term assets should be held in cash, Certificates of Deposit (CDs) or high-grade low-risk bonds (these terms are defined in a later section). This pool of money includes your emergency savings. Short-term savings might be held in either a bank or a brokerage account.

College savings accounts are long-term holdings when children are young but need to be thought of as intermediate-term once kids are in high school and gradually shift towards short-term during college.

One of the big questions that many people grapple with is how much of their savings to devote to paying off debt quickly vs. investing in retirement accounts or other types of investment accounts. The prioritization of relative contributions to debts and investments is what I refer to as *the hierarchy of saving*. The goal is to balance liquidity needs against interest rates on debt and the tax benefits that are available in a range of savings vehicles.

HIERARCHY OF SAVING

You choose how to split up your savings between extra payments on debts and the range of available savings and investment accounts. If you are going to focus on debt repayment, you must then decide where to allocate extra payments. High-interest debt is where to focus first. About two thirds of households that have credit cards carry a balance from month to month and incur interest rates averaging 15%[122]. There is no better return on money than paying off these debts.

Before accelerating debt payments, make sure that you have sufficient emergency savings. If you have credit card debt or other high-interest debt, the tradeoff is tricky. In general, it is better to pay off credit card debt rather than building emergency savings. Credit card debt accrues high interest costs and, if you end up in an emergency and you have paid off your credit cards, you will have the ability to use credit to cover the emergency.

Deciding whether to accelerate debt repayment relative to saving for retirement or other goals is one of the most critical considerations in managing money effectively. Retirement accounts, college savings accounts, and paying down a mortgage all result in less liquidity. Money saved in these ways is hard or relatively expensive to access if you need money on short notice. You can take money out of retirement accounts if you have a sudden need (prior to retirement), but you will pay both a penalty and face a tax

[122] http://time.com/money/4213757/average-american-credit-card-debt/

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bill, for example. If you put extra money towards your mortgage and then you need to access these funds, you will have to take out a line of credit, a second mortgage, or perhaps even refinance your mortgage entirely. All three of these options take some time and have costs. Even considering the loss of liquidity from prepaying debts, however, rapidly paying down high-interest debt is typically the best choice.

Another balancing act between paying down debt and saving is determining how much to contribute to your workplace retirement plan (typically a 401(k) plan) relative to paying down debt. The first thing to consider is whether your employer provides matching money for 401(k) contributions. Many employers match employee 401(k) contributions up to some percentage of income. The conventional wisdom is to always contribute at least enough to get all the employer match. If the 401(k) has a 1-to-1 match up to a maximum of 3% of your salary, contributing less than 3% of your salary means that you are giving up free money. People with high-expense 401(k) plans may determine that retirement savings beyond what is required to get the full employer match may better in an IRA, although there are limits to IRA contributions (discussed later).

Beyond the matching threshold, how do you figure out how much to save for retirement vs. paying down debt? The answer to this question depends on the interest rate of your debt, how much you can expect to earn in your retirement accounts or other investments, the uncertainty on those investment returns, and your tax rates today and in the future. This is one of the areas of personal finance for which I know of no universally-applicable prescriptions. The following list may provide some ideas, though. These should be considered in sequence:

1) Contribute enough to 401(k) plans to get 100% of employer match
2) Accelerate payments on non-mortgage debt, starting with highest interest rate first
    a. Pay off the highest-rate debt completely before moving to making extra payments on the next-highest
3) Build up emergency (highly-liquid) savings—ideally at least two months of living expenses
4) Contribute to a Health Savings Account (HSA), if available
5) Contribute more to 401(k) if low-cost or contribute to an IRA
6) After paying off all non-mortgage debt and maxing out 401(k) contributions, save in taxable investment accounts
7) Make extra mortgage payments

One additional consideration applies to people who are saving up to buy a home. In this case most people need to accumulate a down payment, which will be in the form of after-tax savings. You may reasonably decide not to max out your 401(k) contributions and save for the home instead. If you have high interest rate debt, however, it’s usually a better plan to pay off these debts as fast as possible and to delay buying a home. The basic savings hierarchy above cannot capture all the complexity of real life, but these are issues worth thinking through.

TYPES OF ACCOUNTS

As a working adult, there are five types of financial accounts that you will probably want:

1) Checking account
2) Credit card account

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3) Brokerage account
4) IRA (Individual Retirement Account)
5) 401(k) account (employer-sponsored retirement savings) / Solo(k) if self-employed

Most Americans deposit their paychecks into a checking account and pay their bills from this account, increasingly with electronic payments such as autopay. Cash deposits at banks are insured by the Federal government (FDIC insured) against the eventuality of a bank failure, so these assets are risk-free. Because they pay little or no interest, checking accounts are not a place to hold a lot of money (beyond emergency savings) unless some major purchase or expense is imminent. Cash held in a checking account is a useful form of emergency savings because cash is totally liquid.

Credit cards are essentially required for buying things such as airline tickets, paying for hotels and rental cars, and a range of other purchases. In addition, using a credit card and then repaying the credit card company on time builds up your credit rating. If you pay your bill in full each month, you don't accrue any interest charges so it's not a bad idea to pay for everything you buy with a credit card—from groceries to health insurance. Sometimes, a vendor will add on an extra charge if you want to pay with a credit card and, in this case, you will probably want to pay in some other form. Because of their very high interest rates, credit cards are a terrible way to borrow money, e.g. by buying things that you will pay off over a series of months.

A brokerage account allows you to deposit money and then invest in stocks, bonds, mutual funds, and other securities (more on this topic in the next section). Many brokerage accounts will issue you a check book so that you can write checks against the money in these accounts and the cash held in brokerage accounts is insured by the Federal government (FDIC). It is often possible to use a brokerage account in place of a checking account. Brokerage accounts also have insurance that protects your investments (e.g. stocks, bonds, funds) against fraud or financial collapse at the brokerage firm (SIPC insurance).

Brokerage accounts are easy to set up and manage online. Brokerages issue monthly statements that summarize your account activity, losses and gains, and current holdings. These firms also issue tax statements that tally taxable income and losses. Statements are available electronically or in paper form. There are different types of brokerage accounts and, when most people talk about a brokerage account, they are referring to a taxable account. Brokerage firms typically also offer retirement accounts (such as IRAs), but the common usage is to refer to a taxable brokerage account as simply a brokerage account and IRAs and related accounts by name, even though they may also be held at brokerages. Various forms of retirement savings accounts for the self-employed, such as Solo(k) plans, SEPs, and SIMPLEs, are typically set up at brokerage accounts.

INVESTING

Once you have savings, you need to figure out how to invest this money in a productive way. Investing is a vast topic and I am only going to cover the basics here because there are many good books and other resources that go into detail on every aspect of investing[123] [124] [125]. In this section, I will introduce the major asset classes that most people invest in for retirement, long-term and intermediate-term savings:

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[123] https://www.amazon.com/Four-Pillars-Investing-Building-Portfolio-ebook/dp/B0041842TW
[124] https://www.bogleheads.org/wiki/Lazy_portfolios
[125] *The Little Book of Common Sense Investing* by John Bogle

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stocks and bonds. For most people, this section goes beyond what you absolutely need to know to be functional.

There are many types of investments. Some are simply stores of value, such as gold. Other investments generate earnings and can provide a stream of income, such as when you own stock in a company or rental real estate. Another common investment, bonds, involves lending money to a company, government, or municipality. When you buy a bond, you are lending money. The loan is paid back over time with interest. The most common investments held by individuals are stocks, bonds, real estate and precious metals.

Most people invest in stocks and bonds by buying shares of *funds* rather than by buying individual stocks and bonds. Buying a share of a fund is equivalent to buying a small piece of a portfolio that holds many individual stocks, bonds, or other assets. Funds are created and maintained by management companies such as Vanguard, Fidelity, T. Rowe Price, and BlackRock, to name a few. There are thousands of individual funds that are available to investors. Funds were created to simplify the investing process and to reduce costs. Today, it is more practical than ever before to own a portfolio of individual stocks or bonds rather than, or in addition to, owning funds (more on this later).

A key metric in investing is *rate of return*. The return of an investment is expressed as a percentage which represents how much an initial investment would have grown over a specific period. It is common to read that stocks have returned X% per year over the past 20 years or that stock returns have beaten bond returns, for example. Performance data for assets such as stocks and funds are typically shown in a table, with returns for various periods of time (below).

Trailing Total Returns VFINX

Daily | Monthly | Quarterly

Total Return % (04/02/2018)	1-Day	1-Week	1-Month	3-Month	YTD	1-Year	3-Year	5-Year	10-Year	15-Year
VFINX	-2.24	-2.86	-3.95	-3.81	-3.01	11.30	9.81	12.62	8.76	9.52
S&P 500 TR USD	-2.23	-2.86	-3.94	-3.78	-2.97	11.45	9.96	12.78	8.88	9.66
Category (LB)	-2.14	-2.63	-3.56	-3.84	-3.10	10.41	8.12	11.25	8.01	9.04
+/- S&P 500 TR USD	-0.00	-0.00	-0.01	-0.04	-0.04	-0.15	-0.15	-0.16	-0.13	-0.13
+/- Category (LB)	-0.10	-0.23	-0.39	0.02	0.09	0.89	1.69	1.37	0.74	0.48
Rank in Category	62	60	65	51	51	41	15	18	28	32

S&P 500 TR USD return as of 04/02/2018 Category: LB return as of 04/02/2018 VFINX return as of 04/02/2018

Historical returns for an S&P500 mutual fund (VFINX) Source: Morningstar[126]

VFINX is a Vanguard stock fund that holds the 500 stocks that make up the S&P500 stock index (the stocks of 500 of the largest companies in America). Over the fifteen years through April 2nd, 2018, this fund has an *annualized* return of 9.52% per year. The standard practice is to convert returns to an annualized number for periods greater than one year but use actual returns for periods shorter than one year. For the three-month period, VFINX has lost 3.81% and for the three-year period, VFINX has gained 9.81% *per year*.

Note that the table above refers to *total return*, the sum of the dividends paid and the price gains over the period. More on this below.

[126] http://performance.morningstar.com/fund/performance-return.action?t=VFINX&region=usa&culture=en_US

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Tables showing historical returns are the most common data that investors consider when looking for investments. Historical performance numbers (historical returns) are important and useful, but it is easy to fall into the trap of selecting investments by naively assuming that these numbers will be representative of what you can expect in the future. Investors tend to pile into the stock market or a specific stock or fund after a period of very good returns. This means, of course, that people are buying **after** prices have gone up a lot. This tendency is referred to as *performance chasing*[127] [128] and, not surprisingly, tends not to work well in the long term. Buying after a period of high returns means that you are buying when things are expensive. It is obviously preferable to buy things when they are cheap, but that means that investors must buy after a period of low returns, when prices are depressed. The problem is that investors are heavily impacted by recency bias[129], inferring that the most likely future outcomes are going to be similar to what has happened in the recent past. As a result, investors tend to avoid investing in things that have recently declined and to buy things that have recently seen price increases. Investing more heavily after a period of decline, when things are cheap, is obviously a more rational approach but this is psychologically difficult. Only the very disciplined were putting money into stocks after the rout in 2008, though we can see in retrospect how well that has worked out: the 5-year annualized returns for the S&P 500 fund (look back at the table above) are much higher than the 10-year and 15-year annualized returns.

Stocks

When you buy stocks, you are purchasing an ownership stake in a company and have a claim on a proportionate share of the company's future earnings. Once a company lists its stock on an exchange, the shares can be easily bought or sold through brokerage firms. As a shareholder, you cannot lose more than the value of your shares, even if the company goes bankrupt and owes its creditors money. If a company is successful and grows, the shareholders are likely to see the value of their shares increase because the company's earnings increase over time.

As a shareholder, you make money in two ways. One is through the increase in the share price over time and the other is through dividends. A dividend is a payment of cash (or, less commonly, additional shares) to the current shareholders. Dividends allow the company to give some of its earnings directly to the shareholders. Not all companies pay dividends. Many companies, and especially those that are growing quickly, prefer to retain their earnings to spend on growth opportunities. Some investors specifically seek out stocks that pay dividends, while others are indifferent to whether a company distributes some portion of its earnings to the shareholders. There is an enormous literature on why one might prefer a company that retains earnings vs. one that pays dividends. One argument in favor of dividends is that companies that have a long track record of paying dividends tend to be more disciplined with managing their earnings. The counter argument is that allowing companies to reinvest earnings enables faster growth. Historically, investors expected to receive returns almost entirely in the form of dividends, but today's investors have been trained not to care about whether a company pays dividends and to focus only on 'total returns,' the sum of dividends and price appreciation. A depression-era saying (attribution unknown) on investing illustrates the old-school thinking: *Milk from*

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[127]https://money.usnews.com/money/blogs/the-smarter-mutual-fund-investor/articles/2017-02-08/chasing-performance-is-a-quick-way-to-disaster
[128]https://pressroom.vanguard.com/nonindexed/Quantifying_the_impact_of_chasing_fund_performance_July_2014.pdf
[129] http://fortune.com/2017/02/23/investment-psychology-recency-bias/

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the cow, eggs from the hens, and stocks, by God, for their dividends. Today, there are relatively few people who invest mainly for dividends. The tremendous growth stories in the last several decades are companies that pay no dividends—companies like Google and Amazon, for example—and, partly as a result, most investors ignore dividends.

The price of a stock is a consensus level reflecting the convergence between the price that the buyers are willing to pay and that the sellers are willing to accept. When the aggregate opinion of investors is that a company's prospects look better than expected and more people want to buy the stock than want to sell it, prices rise (and vice versa). Stock prices often rise when a company announces earnings that are better than expected by analysts and vice versa. Stock prices also tend to rise and fall along with the broader market. In statistical parlance, stock returns tend to be correlated to the return of the market. This suggests that investors tend to add and remove money from stocks in response to overall market conditions, as well as by looking at the specifics of a company's performance.

Stock holdings incur tax only when they generate cash for the owner of the stock, either because the owner sells stock at a profit or the company pays a dividend to the shareholders. Increases in stock prices are *unrealized gains* (which means that no tax is due) until the stock is sold. Dividends and profits from selling stocks for more than the purchase price are *realized gains*. Dividends and profits from selling stock (or bonds or funds) held for a year or more are taxed at the long-term capital gains rate. Profits from selling stocks that you own for less than a year are taxed at the short-term capital gains rate, which is the same as the tax rate on ordinary income (income from work, wages). We are talking about Federal tax rates here. State income taxes tend to be the same, regardless of whether you are generating income from work, dividends, or selling stock. Some dividends are taxed at the higher short-term capital gains / ordinary income tax rate (these are referred to as non-qualified dividends). If you buy a stock in a company that pays no dividends and you never sell, you will never incur any taxes, regardless of how much the stock appreciates in price. This is why buying stocks and holding them for long periods of time tends to be such a good strategy: you get the benefit of the growth on all your money without paying taxes on gains each year. Ultimately, you will pay taxes when you sell, but you will have gotten to enjoy the benefits of tax-free growth for the period over which you hold the stock.

Understanding Stock Prices

Historically, the U.S. stock market has provided very attractive returns for investors. Over long periods of time (multiple decades), the U.S. stock market has averaged 8%-10% return per year. There is no reason to expect that this should continue to be the case, however, not least because stocks are more expensive now than their historical average. What does this mean? The standard measures of value (the relative expensiveness) for stocks compare stock prices to company earnings, dividends, or the value of a company's total assets (the total value of everything the company owns). When you buy a stock, you are buying the rights to part of the future earnings that the company generates. You are also purchasing a share of all the assets of the firm, the factories and patents, etc. Judging stock prices relative to corporate earnings is like valuing a house in terms of the income that you could earn from renting the house out. A standard measure of value for stocks is the ratio of stock price to earnings (referred to as the P/E ratio). P, the stock price, is divided by E, the earnings per share over the past twelve months. A high P/E indicates that stocks are expensive and vice versa. P/E ratios are calculated for individual companies and then aggregated up to market-level indexes.

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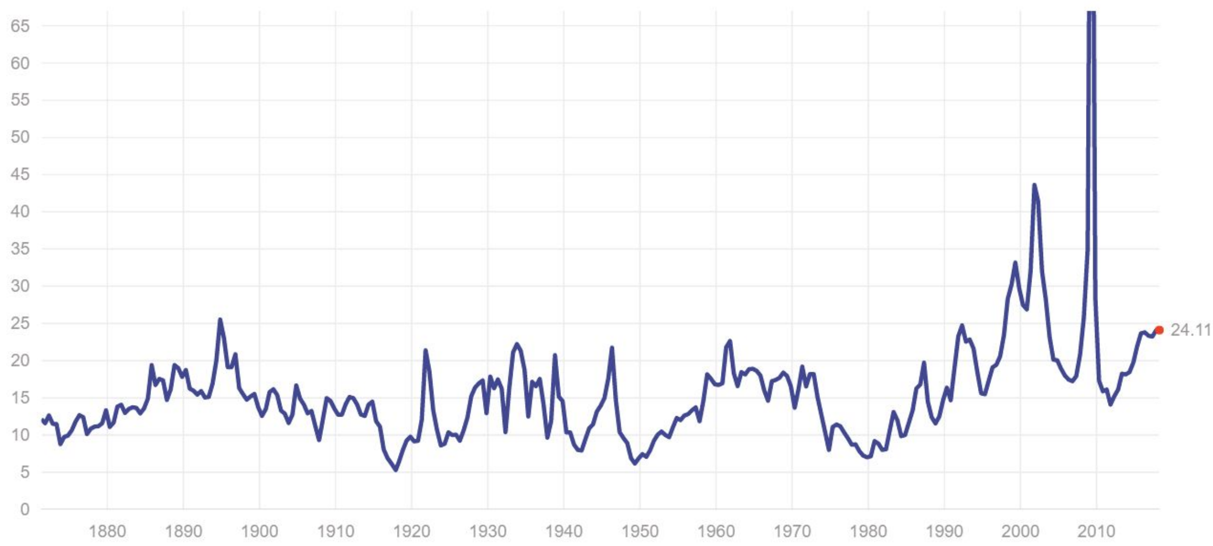

Historical P/E for the U.S. stock market (the S&P500) by year. P/E is shown on the vertical axis and year is shown on the horizontal axis (Source: www.multpl.com)

The P/E ratio of the S&P 500 in 2018, at about 24, is quite high by historical standards, though it remains far below its level prior to the crash in 2008. The long-term average P/E for U.S. stocks is around 15, but there is also a long-term upward drift in P/E since 1980. There is no question that you'd prefer to invest at low P/E rather than high P/E, and there is no immutable law that establishes that P/E will vary around some baseline, although the data seemed to suggest that this was the case prior to the 1980's. The question of whether historical P/E levels are a sensible expectation for stocks in the 21st century remains open. The P/E ratio shows how much investors are willing to pay for $1 of company earnings. A P/E of 15 means than investors are paying $15 to receive $1 in expected earnings each year, although investors also expect earnings to grow, so that the $15 paid today might be expected to provide $1.10 in earnings next year, $1.20 the year thereafter, etc. If the long-term rate of earnings growth rate is expected to increase, a higher current P/E can be justified. The challenge, however, is that earnings growth rates are hard to predict with any confidence.

A company's reported earnings per share are used to calculate the P/E ratio, but earnings are an accounting concept rather than something entirely concrete. Sometimes a company will go back and 'restate' it's prior reported earnings, for example[130]. Another measure of stock value is the dividend yield, the ratio of the annual dividends paid out to shareholders (D) and the stock price (P). Dividends are what shareholders are actually paid and, as a result, are more 'real' than earnings. The problem with using dividend yield (D/P) as a measure of value is that an increasing number of companies don't pay any dividends to shareholders and choose, instead, to retain earnings to invest in growth opportunities. In addition, companies may use retained earnings to buy back their own shares in the market rather than paying dividends. Share buybacks reduce the number of available shares and increase the value of the remaining shares. When the total number of shares decreases due to buybacks, an investor's shares represents a larger percentage of the total number of shares than before the buyback and, as a result, the investor owns a larger proportional stake in the company. Many companies prefer share buybacks

[130]http://knowledge.wharton.upenn.edu/article/why-firms-restate-annual-earnings-and-why-investors-should-beware/

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rather than paying a dividend if they want to distribute some portion of earnings to shareholders. A share buyback reduces the P/E ratio of a company's shares because the company's earnings are divided by a smaller number of available shares in arriving at the earnings per share. In theory, shareholders should be indifferent as to whether their earnings are paid to them through dividends, buybacks, or reinvestment in growth. Financial research is not conclusive on this issue, however, with some evidence that buybacks are not the best use of investors' capital[131]. If a company uses earnings to purchase its own shares when these shares are very expensive, for example, the long-term outcome for investors may be poor.

The P/E and D/P tend to vary between industries and sectors of the market, reflecting different outlooks for growth. Investors who are betting on high growth rates for a company or sector are typically willing to pay a higher price relative to current earnings or dividends. Technology companies, for example, tend to have much higher P/E ratios (and lower dividend yields) than slow-growing companies such as railroads, utilities, and retailers.

Another measure of value for stocks is the price-to-book ratio (P/B). The book value per share (B) is the value of everything that the company owns—factories, patents, etc.—divided by the number of outstanding shares. Book value is somewhat hard to tally. The fair value of a patent, other intellectual property, and any other intangible property is uncertain. Nonetheless, P/B is a common ratio that is used in discussing stock value.

Some investors and money managers believe that historical P/E ratios and dividend yields simply don't tell us much that is useful about whether a stock or the market is expensive or cheap because the world is changing so rapidly. Looking at data on P/E and D/P in the days before computers, cell phones, and even jet aircraft may be of limited usefulness. Along with changes in the economy, we also have major shifts in the ways that companies manage their finances and the expectations of investors. Many companies today do not consider dividend payments to be a good way to spend earnings and we have seen a massive shift in companies' propensity to pay dividends at all[132].

Even though technologies and markets have evolved, basic measures of markets remain meaningful. Stocks look expensive when the P/E ratio of the S&P 500 index is above 30 and cheap when the P/E gets close to 15. Keeping an eye on P/E is a decent way to understand where we are in a market cycle. P/E is also a sensible way to compare different categories of stocks. As I write this in early 2018, for example, non-U.S. stocks have much lower P/E ratios than U.S. stocks. It is reasonable, on this basis, to think that non-U.S. stocks look cheap relative to U.S. stocks. Still, valuation measures such as P/E or D/P are only part of the story and it's not a good idea to try to time buying and selling using only these measures. There are often very good reasons why things are cheap. If the expected earnings growth of U.S. stocks are higher than in other countries, U.S. stocks may be more attractive even at high P/E ratios.

Bonds

Bonds are called *debt instruments*. When a company or government entity wants to borrow money, it typically does so by issuing bonds. The bond issue provides the company with the money that it needs, and the bondholders (people who buy the bond) are the lenders. The issuer of the bond (company, state, government entity) promises to repay the bondholders at a specific interest rate (called the

[131] https://www.bloomberg.com/quicktake/buybacks-dividends
[132] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=203092

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coupon rate) over a set period, the term of the bond. The interest rate is also referred to as the bond yield (dollars in interest paid per year / dollar value of the bond).

The coupon rate on a bond is determined by the length of the repayment period and the credit quality of the issuer. Some companies, states, and government entities are considered more creditworthy than others, and thus can issue bonds at lower coupon rates. The credit quality associated with a bond and issuer is similar, conceptually, to an individual's credit score.

Once a bond is issued (the company sells shares of the bonds to investors and the company gets the money from the proceeds of the sale), the bond price is determined by the balance of buyers and sellers for that bond in the open market. A bond is specified in terms of the amount of money borrowed by the issuer and the coupon rate. A company might issue 10-year $100 bonds (the par value) at a coupon rate of 3% per year. Over the course of ten years, the company will repay the owner of that bond $100 plus $3 a year in interest. Once the bond is issued and the bonds are bought and sold, the market price of the bond may go above or below $100. If the price rises to $102, the investors who bought the bond at $100 can make $2 by selling the bond. In this situation, the *effective yield* for the buyer is now lower than 3% ($3/$102 rather than $3/$100). **Yields go down when bond prices go up, and vice versa.**

The credit rating on a bond tells you the probability of default (non-payment by the issuer) at some point in the future. Higher credit quality means lower probability of default, and vice versa. Not surprisingly, investors are willing to lend money at lower interest rates to companies and governments with high credit quality and investors demand higher interest rates from companies or governments that are lower credit quality, meaning that they are viewed as having a higher probability of being unable to repay their debts in the future. U.S. Treasury bonds have very high credit ratings because the U.S. government is seen as having an exceedingly low likelihood of defaulting on its debts. When countries are in some type of distress, their bond yields get very high as investors sell off holdings, lowering the price of bonds and increasing effective yield. Ten-year bonds issued by the Greek government reached a high of 33% in 2012, when Greece was in crisis[133]. Today, Greek ten-year bonds are yielding 4.8%. U.S. government ten-year bonds are yielding about 2.9%, for comparison.

The term of a bond is the amount of time from when the bond is issued until the bond reaches maturity – the end of the loan. A ten-year bond is issued with a term of ten years. With five years until maturity, the remaining term is five years, etc. In general, the longer the term of the bond, the higher the coupon rate to compensate investors for the higher probability of default (failure to repay) over a longer time horizon. The longer the term, the greater the chance of bad surprises for bondholders in terms of interest rates, too. Over a long period, there is a higher probability of a period of high inflation that will devalue the dollars (or other currency) that the bond is paying to shareholders. When inflation rises, banks increase the rates at which they lend money—they want additional compensation for being paid back in less valuable dollars. Bond investors are the same. Increasing inflation and interest rates reduce the value of currently-available bonds because new bonds issued in a rising-rate environment will pay a higher interest rate. Prices of previously-issued bonds fall until the effective yield (the yield that new investors get by buying the bond at a lower price) is comparable to the higher rate of new bond issues.

The information above will allow you to make sense of financial and economic news on interest rates and bonds. When the Fed (Federal Reserve) announces an increase in interest rates, bond prices tend to

[133] https://www.ft.com/content/a7697f60-3fc7-3f2b-99f8-22b96598ea8c

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fall, and yields rise (and vice versa). When inflation is rising, bond prices tend to fall, and yields rise. Shorter-term bonds tend to be less sensitive to changes in interest rates than long-term bonds.

If a company goes bankrupt, the bondholders have preference in being repaid when the company's assets are sold. The stockholders will typically be wiped out—their equity will have no value, but bondholders often recoup some of the value of their investment.

The taxation of bonds is somewhat different than for stocks and stock funds. In general, interest on bonds is taxed at ordinary income rates while capital gains from price appreciation are taxed at either the long-term or short-term rates (depending on whether you owned the bond for more or less than a year, respectively) and stock dividends are taxed at the long-term capital gains rate. Taxes on ordinary income are about twice as high as the long-term capital gains rates (the exact amount varies somewhat with income). Some types of bonds are tax advantaged (municipal bonds, in particular), incurring lower taxes. Aside from tax-advantaged classes, bonds are considered *tax inefficient*, which means that they tend to generate a substantial amount of tax costs when held in a taxable account.

Understanding Bond Prices

The relative level of bond prices (whether bonds look expensive or cheap) is discussed in terms of the yields for various standard types of bonds. The most common benchmark is the yield on 10-year Treasury bonds, bonds issued by the U.S. government. Looking at the history of this yield provides a view of the cycles in the U.S. economy. The chart tells an incredible story.

Yield on 10-year Treasury Bonds over time (Source: http://www.multpl.com/10-year-treasury-rate)

The current yield on 10-year U.S. government bonds (called Treasury bonds or Treasuries) is 2.87%, well above its low of about 1.5% in mid-2016. The incredibly-high yields above 10% occurred during the high-inflation period of the late 70's and early 80's. When inflation is high, bond yields must be high to entice investors to lend (buy bonds) because the investors expect that they will be paid back in inflated (e.g. less valuable) dollars.

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Falling interest rates are good for bond investors because bond prices go up when interest rates go down, and vice versa. The last forty years have been very good for bond investors because interest rates have been in a long-term decline. If/when interest rates go through an extended rising period, people who have purchased bonds with very low yields in recent years will see the value of their bonds decline. The period from mid-2016 until now (mid-2018) is an example.

Many older people prefer to own a higher allocation to bonds vs. stocks than younger people. Bonds are less volatile than stocks and provide regular income (the coupon payments). Over the last thirty years, interest rates and bond yields have been in a major decline (with some variability). Declining interest rates have created a very favorable environment for retirees. Today, with very low interest rates, retirees can obtain far less income from buying bonds and interest rates essentially have nowhere to go but up. This is not strictly true, but at today's rates, the probability of an increase is elevated if history is any guide (as the chart above shows). People retiring in the current environment are receiving less low-risk income than people who retired over most of the last thirty years.

MUTUAL FUNDS

Mutual funds provide a way for investors to own entire portfolios of stocks, bonds, or both, in a single share purchase. Investors buy or sell shares of a fund, and each share is a small piece of a portfolio that can hold thousands of securities (stocks, bonds, and, less commonly, other financial instruments). A mutual fund can be run by a manager with a specific strategy (called an active or actively-managed fund) or may be designed to track an index (passive or index funds). The advantage of the structure of mutual funds is that an individual with just a few hundred dollars can own a massively-diversified and/or professionally-managed portfolio. Actively-managed funds are run by one or more professionals who attempt to add value by selecting the best stocks or bonds. Passive funds hold a portfolio that replicates a predefined universe of stocks or bonds (such as the S&P 500 index or the Barclays Aggregate Bond Index) or that use a formula to select holdings. In theory, an index fund doesn't need a manager at all—a passive fund could be entirely automated. A formula-driven passive fund might hold the one hundred stocks in the S&P500 with the highest dividend yield, for example, or those with the lowest volatility. Passive funds that specifically track an index are called index funds.

The companies that sell mutual funds make their money by charging a percentage of the value of the assets that they manage. If a fund has a 1% per year *expense ratio*, 1% of your money will flow out of the fund to the managers each year. Active funds tend to have higher expense ratios than passive funds because active funds have managers and analysts spending time researching and selecting investments while index funds can be run largely by a computer. The expense ratio of a fund can be looked up on Morningstar.com, at any brokerage firm, on many financial websites (Yahoo! Finance, for example), or in the materials provided by the fund company. The expense ratios of both active and passive mutual funds have declined substantially over time, as technology has enabled funds to be run more cheaply and due to the economy of scale that results as funds grow[134].

Some mutual funds charge additional fees that are not included in the expense ratio. The most common of these is called a sales load, a percentage of the amount invested that is used to pay the broker who sells you the product. Funds that don't charge a load are called *no-load funds*. There is a long-term flow of assets out of funds that have loads and into no-load funds[135].

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[134] http://www.icifactbook.org/ch5/17_fb_ch5
[135] https://www.ici.org/pdf/per23-03.pdf

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There are many different index funds available. The S&P 500[136] is an index of 500 of the largest companies in the U.S. and there are S&P 500 index funds from many major fund companies (Vanguard, T. Rowe Price, Schwab, Fidelity, etc.). The Russell 2000 is an index of smaller companies and there are a multitude of index funds that track this index, too. Investors should be largely indifferent as to whether their index funds come from one provider or another—the only practical difference is the expense ratio. The NASDAQ 100 is an index comprised mainly of technology companies. The EAFE index tracks stocks from the largest developed economies outside of the U.S.[137] There are also bond indexes. Perhaps the most commonly-tracked bond index is the Barclays Aggregate[138].

The price of a share of a mutual fund is determined once per day, with the share price equal to the aggregate of the prices of the assets (stocks or bonds) that the mutual fund owns[139]. In other words, the price of a mutual fund share is always exactly equal to the value of the securities that the fund owns, the Net Asset Value (NAV).

In an employer-sponsored retirement plan such as a 401(k), you will typically have a set of pre-selected mutual funds from which to choose. As of this writing, mutual funds are by far the most common—and often the only—investment choice that employer-provided retirement plans provide.

There is a long-standing debate as to whether actively-managed funds justify their higher costs with improved performance[140] [141]. Actively-managed funds strive to beat the performance of the market (represented by a market index such as the S&P 500), while index funds (by definition) seek to track the market indexes. In aggregate, of course, active management is a zero-sum game[142] [143] (for every winner there must be a loser) and the <u>average</u> active fund investor will have returns below the market index because of the fees charged by the funds. Index fund investors tend to pay low fees and can expect total returns close to the market averages. A deeper discussion of the debate over active vs. passive management is beyond the scope of this book, but there is no question that potential out-performance from active management is uncertain while the performance boost from low fees is predictable and consistent. Low fees are a consistent predictor of future fund performance[144].

EXCHANGE TRADED FUNDS

Exchange-Traded Funds (ETFs) are like mutual funds in that an investor can buy shares of a fund that owns an entire portfolio of individual securities. ETFs are different from mutual funds in several technical aspects, with three differences that are most relevant to individual investors. The first is that the price of an ETF varies through the trading day, based on the balance of buyers and sellers, just like an individual stock. A second difference from mutual funds is that the price of an ETF can be different from the value of what the ETF owns. People refer to an ETF trading at a premium to (above) or a

[136] https://en.wikipedia.org/wiki/S%26P_500_Index
[137] https://en.wikipedia.org/wiki/MSCI_EAFE
[138] https://en.wikipedia.org/wiki/Bloomberg_Barclays_US_Aggregate_Bond_Index
[139] Mutual funds can hold other types of assets—but stocks and bonds are the most common fund holdings
[140] https://www.bloomberg.com/quicktake/active-vs-passive-investing
[141] https://www.investopedia.com/news/active-vs-passive-investing/
[142] https://web.stanford.edu/~wfsharpe/art/active/active.htm
[143] https://famafrench.dimensional.com/essays/why-active-investing-is-a-negative-sum-game.aspx
[144] https://www.morningstar.com/articles/752485/fund-fees-predict-future-success-or-failure.html

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discount to (below) the NAV. The third relevant difference between mutual funds and ETFs is that, because of the details of their structure, ETFs tend to be more tax efficient than mutual funds[145].

Mutual funds have been around much longer than ETFs and the ETF market is still evolving. I expect that ETFs will eventually become commonly available in 401(k) plans, but this is not yet the case. For investors who buy and hold shares of funds for long periods of time, there is little effective difference between an ETF and a mutual fund. ETFs tend to be cheaper than index mutual funds[146], but there are index mutual funds that are cheaper than similar ETFs. The iShares MSCI Emerging Markets ETF (ticker: EEM) has an expense ratio of 0.69%[147] while the Vanguard Emerging Markets mutual fund (VEIEX) has an expense ratio of 0.32%[148]. These are both well-known funds with tens of billions of dollars under management ($30.5 Billion for EEM and $88.5 Billion for VEIEX). I note the size of the funds only to emphasize that this is not a fringe case.

RISK VS. RETURN

People invest with the goal of getting an attractive rate of return and, in the process, take on the risk of seeing the market value of their investments fall. Ultimately, there is the chance of losing some or all the money invested. While individual investors tend to be conversant with the idea of return, their concepts of risk tend to be less well-defined. Risk can be quantified in several ways but the standard description in finance is in terms of the variability in returns over time. In the previous table, for example, we showed the annualized return of an S&P 500 fund over the past ten years. This has not been a smooth ride to end up with 8.76% per year in return over this period.

History (03/31/2018)	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	YTD
VFINX	-37.02	26.49	14.91	1.97	15.82	32.18	13.51	1.25	11.82	21.67	-0.79
S&P 500 TR USD	-37.00	26.46	15.06	2.11	16.00	32.39	13.69	1.38	11.96	21.83	-0.76
Category (LB)	-37.79	28.17	14.01	-1.27	14.96	31.50	10.96	-1.07	10.37	20.44	-0.98
+/- S&P 500 TR USD	-0.02	0.02	-0.15	-0.15	-0.18	-0.21	-0.18	-0.14	-0.14	-0.16	-0.04
+/- Category (LB)	0.77	-1.68	0.91	3.24	0.86	0.67	2.55	2.32	1.45	1.23	0.18
Annual Report Net Expense Ratio	0.16	0.18	0.17	0.17	0.17	0.17	0.17	0.16	0.14	0.14	—
Turnover Ratio	6	12	5	4	3	3	3	3	4	3	—
Rank in Category	38	54	31	19	38	44	20	22	29	33	46
Fund Category	LB	LB	LB	LB	LB	LB	LB	LB	LB	LB	LB

S&P 500 TR USD return as of 03/31/2018 Category: LB return as of 03/31/2018 VFINX return as of 03/31/2018

Year-by-year returns for VFINX, the Vanguard S&P500 index fund (Source: Morningstar[149])

In 2008, for example, VFINX lost 37%. The subsequent annual returns over the past decade have ranged from 1.25% (2015) to 32.18% (2013). The standard measure of risk in finance, called *volatility*, is the annualized standard deviation of return. For those who have some background with statistics, standard deviation is a familiar concept[150], but it is not crucial to follow the discussion here. Morningstar and many other sources provide volatility measures for funds and for individual stocks[151]: The larger the variability in return over time, the higher the standard deviation.

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[145] https://assets.kpmg.com/content/dam/kpmg/us/pdf/etf-tax-efficiency-web.pdf
[146] https://www.fidelity.com/learning-center/investment-products/etf/etfs-cost-comparison
[147] https://www.morningstar.com/etfs/arcx/eem/quote.html
[148] https://www.morningstar.com/funds/xnas/veiex/quote.html
[149] http://performance.morningstar.com/fund/performance-return.action?t=VFINX&region=usa&culture=en_US
[150] In finance, the standard deviation of returns is referred to as volatility and this is the most widely cited benchmark for risk.
[151] http://performance.morningstar.com/fund/ratings-risk.action?t=VFINX&region=usa&culture=en_US

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Volatility Measures VFINX

3-Year	5-Year	10-Year	**15-Year**

15-Year Trailing	Standard Deviation
VFINX	13.17
S&P 500 TR USD	13.17

Historical volatility for VFINX from Morningstar[152]

Many people, seeing the data above, will think that it is an obvious choice to accept the bumpy ride from year to year to get the large return overall return at the end. This is obviously true. Any rational person who was certain they'd end up with 9% return at the end of ten years should be willing to accept severe down years in the interim. The problem, however, is that we are not assured that the long-term cumulative return will be attractive.

Volatility is an important measure of risk independent of the possibility of permanent loss. An example of a permanent loss would be Enron's bankruptcy. Variability from year to year, volatility, means that the market value of your portfolio changes. If you don't know when you are going to need your money, having it in a volatile investment means that there is the chance that, when you need it, the value of the investment is low. The risk is that you need to sell at a bad time and ending up with less than expected.

When most of us think about risk, we are worried about permanent loss (declining value over time with no recovery) not fluctuations in value[153]. Even so, volatility is an important indicator of risk. When the price of a stock is volatile, this means that the market's consensus view of the current and future value of the company is fluctuating a lot and is uncertain. Companies that have a long history of maintaining and growing their earnings tend to be lower volatility and these companies are unlikely to suddenly blow up and go bankrupt. A recent study demonstrated that stock volatility and corporate credit ratings tend to be coupled[154]. Since credit ratings are a measure of the probability that a company will go bankrupt, this research, suggests that volatility is a useful measure of the potential for permanent loss.

Stocks tend to be far riskier (more volatile) than bonds, but a long view of history shows that stocks have historically been a vastly better bet. The classic case for stocks, staunchly championed by Wharton professor Jeremy Siegel[155], is that the historical performance of stocks so completely dominates every other asset class that investors are likely to be well-served by holding a high allocation to stocks, as shown in the chart below.

[152] See link in previous footnote
[153] http://www.pmjar.com/wp-content/uploads/2014/05/My-Top-10-Peeves.pdf
[154]https://bus.wisc.edu/-/media/bus/knowledge-expertise/academic-departments/finance/adriendavernas_jmp.pdf?la=en
[155] Dr. Siegel is best known for making this case in his best-selling book, *Stocks for the Long Run*

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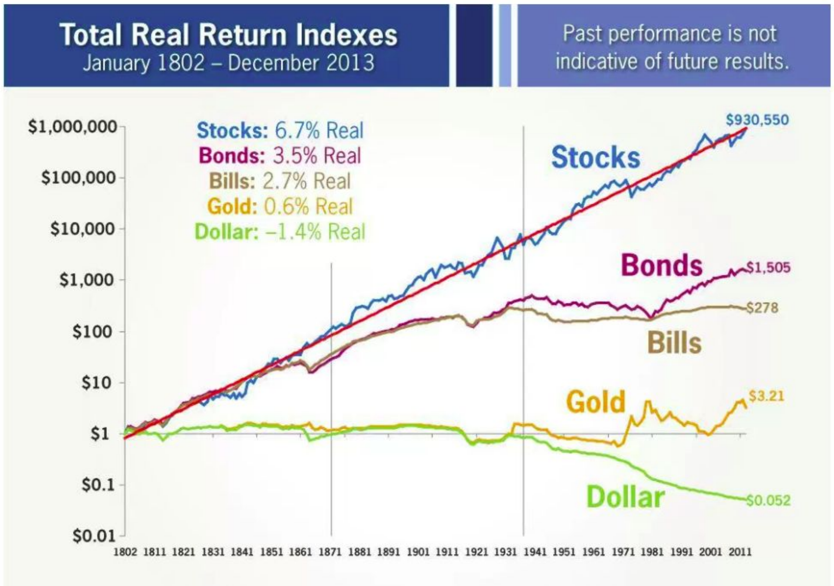

Cumulative inflation-adjusted value of $1 invested in stocks, bonds, T-bills, and gold in 1802 to the present (Source: http://blog.aaii.com/real-returns-favor-holding-stocks-3/)

This is a very important chart, so it's worth spending some time on it here. Stocks, in this chart, are represented by a broad stock index (a basket of stocks in a portfolio)—think of the S&P 500. Bonds are also represented by a broad index. For the moment, don't worry about Bills (this refers to Treasury Bills, which are very short-term government bonds) in this chart. The chart refers to *real* returns, which mean returns corrected for inflation. A dollar from 1802 is worth about 5 cents today because of inflation. Cash declines in value over time because of inflation. A dollar invested in a broad basket of stocks in 1802 would be worth $930,550 today, corrected for inflation. Using a chart like the one above, it looks as though stocks are a sure thing. Very few people have an investment time horizon longer than a few decades, however, and there have been 30-year periods in which bonds delivered higher returns than stocks (most recently, we ended one of these periods in 2011[156])—although you would never guess that such an outcome was possible from this chart because of the log vertical scale--each step represents an increase of a factor of ten in value. A log scale is useful for capturing very large ranges of values but tends to obscure variability.

While stocks have historically delivered much higher returns than bonds, there have been some gut-wrenching drops in the interim. The drop of 37% in the stock market in 2008 looks like a mere blip on this chart. In reality, of course, living through a 37% decline in the stock market is harrowing. Many people will succumb to fear, sell at low prices after a decline, and miss the market recovery. For people who have remained invested for long periods, however, a high allocation to stocks has been very well rewarded. History in no way assures us that this will always be the case, of course.

ASSET ALLOCATION

Asset allocation is the process of choosing how much of your wealth goes into different asset classes (U.S. stocks, international stocks, small company stocks, government bonds, corporate bonds, etc.).

[156] https://www.cbsnews.com/news/bonds-beat-stocks-over-30-years-so-what/

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Asset allocation is the primary determinant of how volatile a portfolio is and how high the return will be. The goal of asset allocation is to have money spread across assets that respond differently to varying economic conditions, and this is referred to as *diversification*. Through diversifying, it is less likely that all your assets will fall at the same time. Diversification tends to reduce overall portfolio risk, although it is certainly possible to have a highly-diversified portfolio that is also very risky. Diversification may also be described as the process of seeking investments with offsetting risks. Some asset types fall when inflation rises, while others rise. By diversifying, you can limit the inflation sensitivity of a portfolio. There are a variety of other factors that impact investments, and the result of asset allocation is that you limit your exposure to any single factor.

The starting point for asset allocation is deciding what percentage of your money to put into stocks vs. bonds. Bonds tend to be low-risk and stocks tend to be riskier (defining risk in terms of volatility). Bonds tend to decline in rising interest rate environments, while stocks tend to do okay in these conditions. Investors tend to shift money from stocks to bonds in periods of economic uncertainty. In 2008, for example, the Barclays Aggregate Bond Index, a common benchmark for bonds, went up almost 8%[157] as the S&P 500 declined by 37%. For many investors, simply holding two mutual funds or ETFs—a broad stock index fund and a bond index fund-- can be sufficient. The stock fund provides the riskier growth potential and the bond fund provides stability. An old rule of thumb is to hold a percentage of your portfolio in bonds that is equal to your age. If you are thirty, you hold 30% in bonds and 70% in stocks, etc. A more modern variation on *age in bonds* is to hold a percentage of stocks equal to 120 minus your age, and the balance in bonds[158]. For a stock fund, you might choose something like VTI, an ETF that tracks the total U.S. stock market. If you want a more international choice, you could go with VT, which is a global stock market ETF[159], and includes exposure to both the U.S. and a wide range of other countries' markets. Alternatively, you can break apart your U.S. and non-U.S. stock exposure and go with a three-fund portfolio. These simple two- and three-fund strategies, discussed below, are broadly invested and control risk through the relative allocation to stocks and bonds.

Beyond diversifying between U.S. stocks, non-U.S. stocks, and bonds, there are many permutations of asset allocations. Setting up a target asset allocation can be as simple as buying a couple of funds or it might entail allocations to individual sectors or emphasizing stocks within each sector that meet certain criteria. The selection of more complex asset allocations depends on your tax situation and the degree to which you or an advisor are willing to be hands-on in managing the portfolio. A discussion of these is beyond the scope of this document. There is also a wide range of opinions, even among experts, on what a basic asset allocation should look like. A great starting point in making asset allocation choices is to look at some of the more popular *lazy portfolios*[160], asset allocations made up of a small number of funds that cover a range of asset classes and that are designed to hold up across a range of market conditions.

It is possible to build a portfolio using individual stocks and bonds, with or without allocations to mutual funds and ETFs. More information on this is provided in Appendix A.

[157] http://performance.morningstar.com/funds/etf/total-returns.action?t=AGG&region=USA&culture=en_US
[158] http://money.cnn.com/retirement/guide/investing_basics.moneymag/index7.htm
[159] http://portfolios.morningstar.com/fund/summary?t=VT&region=usa&culture=en_US
[160] https://www.bogleheads.org/wiki/Lazy_portfolios

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INVESTING IN REAL ASSETS

Aside from securities, stocks and bonds, people invest in a range of real assets, physical things like houses, land, or precious metals. Some people invest in art or collectibles. Investments in real assets have additional considerations, as compared to securities (stocks, bonds, funds). First, there are tax differences. Many states charge personal property taxes on real estate, for example. There are also different tax treatments on the capital gains from selling certain classes of real assets[161] [162]. The tax burden on gains from real assets may be higher than long-term capital gains rates. There are, however, some tax loopholes for real assets[163].

Buying houses or apartments and then renting them out for income is common. The typical practice is to borrow money to buy the property and then rent the property to generate income that will cover the mortgage costs and provide net income. The rental income must also cover maintenance, insurance, and property taxes. As with all sources of income, rental income is taxed. The goal, of course, is to buy properties that will appreciate in value over time, as well as providing regular rental income. A discussion of real estate investing is beyond the scope of this book.

INVESTING VS. SPECULATING

One of the challenges of money management is understanding the difference between investing and speculating[164]. Most people think of investing as buying something with the reasonable expectation that the asset will rise in value over time. But aren't speculators doing the same thing? A common perspective is that investing requires analysis based on financial projections for an asset, whereas speculation is akin to gambling. John Maynard Keynes characterized the difference as: "investing is an activity of forecasting the yield over the life of the asset; speculation is the activity of forecasting the psychology of the market."[165] By yield, Keynes meant the stream of income that the investment generates. Most of what the modern financial media focuses on is in the latter category, changes in the perception of whether a company is prospering or failing. In discussing this issue, investing legend Benjamin Graham is reputed to have said that "In the short run, the market is a voting machine but in the long run, it is a weighing machine."[166] Speculators are betting on how other people will vote. Investors are making an objective assessment of future income potential and relating this to current value.

The markets in bitcoin and related crypto currencies looks like gambling / speculation to many people[167]. I agree because I can see no objective way to estimate the underlying value of bitcoin. On the other hand, people investing in Apple stock in the early days of microcomputers cannot reasonably have claimed that they had a solid estimate for the potential growth in this market either. The very nature of

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[161] http://stephenlnelson.com/articles/real-estate-capital-gains/
[162] https://www.cpajournal.com/2017/11/13/planning-tax-considerations-collectibles/
[163] https://www.investopedia.com/financial-edge/0110/10-things-to-know-about-1031-exchanges.aspx
[164]https://blogs.cfainstitute.org/investor/2013/02/27/what-is-the-difference-between-investing-and-speculation-2/
[165]https://www.telegraph.co.uk/finance/personalfinance/investing/10405386/How-to-invest-like...-John-Maynard-Keynes.html
[166] https://www.goodreads.com/quotes/831517-in-the-short-run-the-market-is-a-voting-machine
[167]https://www.forbes.com/sites/jessedamiani/2018/04/30/warren-buffett-says-buying-bitcoin-is-gambling-not-investment

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massive innovation is that we have little idea as to the future of the technology or what the business potential looks like.

Ultimately, there is no definitive separation between investing and speculating. Some investors will insist on using financial metrics for assessing an investment's price relative to its underlying worth. These are the people who side with Benjamin Graham and Warren Buffett and are referred to as *value investors*. The challenge for value investors is being aware that you will miss out on investing in disruptive change, even as you also avoid a lot of the speculative gambles.

For most people, the most reasonable approach is to invest broadly and consistently. This type of approach will mean that you don't get the bragging rights that you made a fortune in bitcoin or Facebook in the early days, of course, but also means that you are far less likely to blow yourself up. Much of successful investing is about avoiding the big mistakes and one of the most common big mistakes is investing as if you are buying lottery tickets.

CHOOSING AN INVESTMENT STRATEGY

The simplest way to invest is to believe that markets are generally rational or, at least, that your expertise in selecting investments is likely no better than the consensus of the market. In this approach, investors might choose to own only two or three mutual funds or ETFs that track the broad market indexes. A famous example is the **three-fund portfolio**[168] which holds one broad domestic stock fund, one international stock fund, and one bond fund. You can create an ultra-low-cost three-fund portfolio using funds from various families, and the Bogleheads wiki page[169] on this strategy provides examples. The stock funds are market-cap-weighted indexes, which means that their relative allocations to individual companies' stocks are determined by the market values of the companies—the stock price times the number of outstanding shares. You own a bigger allocation to bigger companies. A wide range of data and analysis suggest that this is a sensible way to invest and there are many people who invest this way. They put money into these three funds consistently over time and don't worry about whether the market is high or low. They manage risk by selecting how much they hold in stocks vs. bonds.

For an introduction to some of the additional dimensions of investing strategies, see Appendix A.

FINAL THOUGHTS ON INVESTING

We earn money by working, and the portion of that money that we invest works for us. Without that second element, making our savings productive, it is much harder to be financially successful. For this reason, almost nobody can afford to be ignorant of the basics of investing. The good news is that we live in an age in which investing is easier, cheaper, and more convenient than it has ever been in history. Detailed information on a vast array of investment choices is available online[170], along with the tools to allow investors to screen and filter their alternatives. You can manage a multi-million-dollar portfolio from your smartphone.

Investing is a vast and complex topic and I have tried to introduce some of the basic ideas here. There are no absolute answers and there is no magic formula. There are long market cycles in which doing everything right, based on the best available research and strategies, may not result in the best returns.

[168] https://www.bogleheads.org/wiki/Three-fund_portfolio
[169] See previous footnote
[170] Morningstar.com provides a remarkable array of investing data and information at no cost.

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Stocks have historically provided much higher returns than bonds, but as recently as 2011 we ended a 30-year period in which bonds outperformed stocks[171]. The stock and bond markets in the U.S. have rewarded investors substantially over the past 100+ years, but this is no guarantee as to future performance.

Being a good investor starts with avoiding the big mistakes and doing a series of straightforward things right. The common big mistakes are betting on fads or panicking and selling when the market drops. Another common big mistake is thinking that you have more expertise and knowledge that you do—a bias towards overconfidence[172]. Individual investors often overlook the large number of small things in the pursuit of the one desirable big thing—picking winners. They spend time trying to identify the next hot company or the fund manager who will beat the market. This is what most of the financial media focuses on, too. The host of small things are typically the costs—tax costs, management fees, and other expenses. Managing these things is kind of boring, but these are often the major determinants of success. The one big thing—identifying investments that will outperform-- is very hard to do consistently.

INSURANCE

Insurance is a powerful tool for managing the amounts and types of risk that you are exposed to. The simple idea behind insurance is that you pay a periodic premium, in return for which an insurer promises to pay you a substantial amount in the event of a specific bad outcome. Almost all insurance has a *deductible*, which is the amount of loss or expense that you must pay out-of-pocket before the insurance starts to kick in. In America, people buy many different forms of insurance. The most common types of insurance are life insurance, auto insurance, health insurance, homeowner's insurance, and mortgage insurance[173]. Annuities are insurance products that protect against the possibility of outliving your retirement savings.

The most sensible rule for purchasing insurance is to insure those risks that would be devastating, and to bear risk yourself for everything else. From this perspective, insuring your cell phone is probably not a good choice. Yes, having to shell out $700 for a new iPhone is unpleasant but this expense is not catastrophic for most people. If you can't cover the $700 replacement cost and you can't be without a phone, the insurance might make sense. The argument for bearing risk yourself is that insurance costs more than the expected value of the potential loss (the combination of the probability of the loss and the cost of covering the loss). This is how the insurance company makes money. People pay more than the actuarial fair value of insurance because either (1) the loss event would be catastrophic or (2) because the insurance cost is perceived as being low enough that people would rather pay the premium than suffer the inconvenience of covering the loss themselves. Insurance on cell phones and other consumer goods falls into the second category. Homeowners insurance, which covers against having your house burn down or other disasters, falls into the first category. A good wealth management practice is to only buy insurance on things in group (1).

When you buy insurance, you can typically choose less expensive premiums in exchange for higher deductibles. Choosing an insurance plan with a very low deductible rarely makes the most financial sense. Auto and homeowner's insurance often have a wide array of choices of premium vs. deductible.

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[171] https://www.cbsnews.com/news/bonds-beat-stocks-over-30-years-so-what/
[172] http://faculty.haas.berkeley.edu/odean/Papers/gender/BoysWillBeBoys.pdf
[173] https://en.wikipedia.org/wiki/Mortgage_insurance

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This is another case in which the best choice is to use insurance to cover the risks that you truly cannot afford and then bear the lesser risks yourself.

There are insurance products that combine investments with insurance. The most common examples are *whole life insurance* and *variable annuities* (both of which are discussed below). I have done some reading and research on these types of products and, to be honest, there are so many complexities and permutations that it's hard to determine whether they are cost effective. My personal rule is to buy insurance products and investments separately, thereby avoiding a lot of the complexity.

Health Insurance

In 2017, the average health insurance premium in the United States for an individual was $383 per month and the average for a family was $1021 per month[174]. The costs of health insurance have been increasing well beyond the average rate of inflation for decades. Under current law, people are required to have health insurance or pay a penalty to the federal government. The penalty is modest compared to the costs of insurance, however[175]. The requirement to purchase health insurance accompanied Obamacare, which also requires insurance companies to provide coverage regardless of pre-existing conditions. The penalty is needed to discourage people from going uninsured and then buying coverage only when they anticipate needing care.

Health insurance plans vary in a range of ways, with one major difference being how large the deductibles are. Deductibles in health care can be confusing. If you have a health insurance plan with a $4,000 deductible, this does not necessarily mean that you will pay the first $4,000 of annual healthcare costs yourself, before insurance starts to pay. Many health insurance plans have what are called co-pays, an amount that the insured person pays for medical services, with the insurance company covering the difference—even before the deductible for the year is reached. Once the deductible has been reached, the insurer will pay more of the costs of medical care but will not necessarily pay 100% of all medical costs. Some types of medical treatments are not covered at all.

Rising healthcare costs are a significant financial concern for individuals and families as well as a major policy challenge (more on this later). Health insurance is a legal requirement (albeit one with modest penalties for failing to do so) but, more importantly, a major disease or accident can run to hundreds of thousands of dollars in costs, such that all but the most well-off families would be financially decimated without insurance.

Life Insurance

Life insurance provides a payout to your family (or any other beneficiary you choose) in the event of your death. In general, life insurance makes sense only to cover future expenses that you consider very important. You don't need life insurance unless your death would place a financial burden on someone else. As a rule, people with dependents need life insurance.

There are two substantially different types of life insurance. *Term life policies* provide for a specific payout if you die, in return for which you pay a certain amount of premium each year. The premium payment is constant for the entire term of the contract—hence the name. Once the term ends, so does the insurance. *Whole life policies* are a combination of an insurance product and an investment product

[174] https://resources.ehealthinsurance.com/affordable-care-act/much-obamacare-cost-2017
[175] https://www.aarp.org/health/health-insurance/info-2018/penalty-no-health-insurance-2018-fd.html

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[176]. Term life policies tend to be simpler and cheaper than whole life policies, not least because insurance agents tend to receive higher sales commissions for selling whole life policies. The Consumer Reports article in the previous footnote provides an overview of term life vs. whole life policies. As mentioned above, I have concluded that it generally makes sense to buy a pure insurance product for insurance and keep investments separate. There is nothing inherently wrong with the hybrid structure—it's just that the costs are typically opaque.

Annuities

Annuities are a special type of insurance. Rather than providing protection against a disaster or other catastrophic event, they protect against the risk of living so long that you run out of retirement savings—so-called *longevity risk*. Traditional pension plans that provide guaranteed income for life and Social Security are both forms of annuities. If people want to provide for a guaranteed stream of retirement income for the balance of their lives, an annuity is how they do it. In theory, annuities (in addition to Social Security) should be widely used by individuals as part of their retirement funding[177] [178], but annuities can be hard to understand, and investors struggle to figure out whether they are a good deal[179]. There are solid reasons for people to consider using at least part of their retirement savings to purchase annuities once they retire[180], but there are tradeoffs involved. When you buy an annuity, you are typically paying a substantial amount of your retirement savings to an insurance company in return for the promise of a future income stream. This decision is irreversible. In addition, if you buy an annuity and then die shortly thereafter, your heirs may feel shortchanged. There are versions of annuities that will provide payments for some period if you die early, but these guarantees reduce the baseline annuity income.

The simplest form of annuity is called a Single Premium Immediate Annuity (SPIA). At the start or during retirement, you pay an insurance company a lump sum of money and they, in return, promise to pay you a specific amount each month for the rest of your life. The insurance company is protecting against longevity risk, the chance that you will live a long time. There are online tools that provide quotes on how much income you can get for a specific amount of up-front cost[181]. The annuity income depends on your gender, age, and where you live. One of the most important things to know when you look at annuity quotes is whether they have cost-of-living adjustments to keep up with inflation. The basic SPIA structure is for a fixed monthly dollar payment, without inflation adjustments. Over time, this means that your real purchasing power will decline. Inflation-adjusted SPIAs provide less income when they start because the income will need to increase with inflation over time.

Variable annuities (VAs) combine properties of a SPIA with investments in stocks and bonds[182]. There are many forms of VA, but their typical features involve periodic investments, with the invested money used to buy shares of stock or bond funds. When you retire and start to draw income from the annuity, the amount of income is determined by the total amount that you have accumulated over your years of contributions, which includes both the money that you paid into the annuity and the performance of the

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[176] https://www.consumerreports.org/cro/news/2015/04/is-whole-life-insurance-right-for-you/index.htm
[177] https://www.cfainstitute.org/en/research/financial-analysts-journal/2013/life-annuities-an-optimal-product
[178] https://www.cfapubs.org/doi/pdf/10.2469/faj.v71.n1.6
[179] https://www.cfapubs.org/doi/pdf/10.2470/rf.v2007.n1.4580
[180] https://www.advisorperspectives.com/articles/2010/07/27/why-immediate-annuities-make-sense
[181] https://www.immediateannuities.com/
[182] https://www.sec.gov/reportspubs/investor-publications/investorpubsvaranntyhtm.html

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investments. A meaningful discussion of VAs is beyond the scope of this book, but the SEC's publication (referenced in the previous footnote) is a good place to start. The biggest challenge in examining VAs, in my opinion, is really understanding the total costs. The SEC lists five different sources of fees or expenses associated with VAs, in addition to the sales commissions that you incur when you purchase the VA.

In summation, insurance products provide ways to manage the panoply of unexpected outcomes in life—from car accidents to living so long that you deplete your retirement savings. The decisions to buy insurance or to bear risk yourself require a balanced approach. Trying to remove all of life's risk and buying too much insurance can be a real drag on the ability to build wealth. Going uninsured or underinsured can expose you or your family to financially-catastrophic events.

INTERMEDIATION

An important, yet often ignored, issue in personal finance is *intermediation*[183], the process by which *middle men* are agents in our financial lives. The legendary John Bogle, founder of Vanguard, has focused considerable effort on getting people to appreciate the impacts and costs of financial intermediaries in modern society[184]. Banks, investment advisors, stock brokers, mortgage brokers, realtors, and insurance agents are all examples of financial intermediaries. Following Mr. Bogle, I believe that financial success can depend to a meaningful degree on the appropriate use of intermediation.

Many intermediary services are absolutely required. You can't build and manage a portfolio of securities (stocks and bonds) without intermediaries (brokerage firms) that facilitate trading and record keeping, for example. Your 401(k) at work is administered and managed by intermediary service providers. Mutual fund companies provide other types of intermediation, creating and managing the funds. An investment advisor or financial planner is another type of intermediary. Insurance agents and mortgage brokers are also intermediaries.

One of the crucial rules for financial success is knowing how much you are paying to the intermediaries who are involved in managing or handling your assets. Many people have no idea how much they are paying in financial intermediation[185]. One of the least transparent accounts regarding intermediation costs is the 401(k). Participants in 401(k) plans can end up paying vastly different fees[186], ranging from as low as 0.5% of their account balance each year to over 3% a year. Most people who have 401(k) accounts don't know how much they are paying in fees[187], with more than 2/3 of respondents in one major survey who thought that they were paying no fees. The combination of highly-variable costs and a lack of investor knowledge is potentially very costly. One recent analysis finds that an average American worker could lose more than $500,000 of lifetime wealth accumulation for each 1% in investment fees[188]. Other calculations suggest that each additional 1% in fees over a working lifetime will

[183] http://www.nber.org/papers/w8928
[184] https://www.vanguard.com/bogle_site/sp20060101.htm
[185] https://www.aarp.org/work/retirement-planning/info-02-2011/401k-fees-awareness-11.html
[186] https://www.brightscope.com/financial-planning/advice/article/15556/The-One-Chart-That-Explains-401K-Fees/
[187] https://www.usatoday.com/story/money/personalfinance/2017/01/03/401k-fees-could-eating-away-your-retirement-savings-right-now/
[188] https://www.nerdwallet.com/blog/investing/millennial-retirement-fees-one-percent-half-million-savings-impact/

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cost 10 years of retirement income[189]. What sounds like a small fee, compounded over a lifetime of saving and investing, can have a substantial impact on the ability to accumulate wealth.

People selling investment or insurance products are intermediaries who get paid when you buy their products. It is crucial to understand how these people get paid and how that shapes their incentives to suggest certain products. The sales commissions for variable annuities and whole life insurance tend to be higher than for SPIAs and term life policies because the former tend to be more profitable than the latter. This does not mean that lower-cost / lower-commission products are superior. It is very important, however, to know when an intermediary has a financial incentive to sell you one product rather than another and when these incentives result in a conflict of interest.

There is a body of research into the economics of intermediation. Economists refer to an intermediary as an *agent*, someone who acts on your behalf to perform some function or service. Economists are especially interested in what they refer to as *agency problems* in which the interests of the agent conflict with the interests of the client. The major issue with agents in the context of personal finance is understanding how much weight to give to an intermediary's advice. *Freakonomics*, the wildly-popular economics book, discusses agency problems with realtors in some depth and introduced many people to thinking about these types of potential conflicts of interest. Agency issues with investment advice are the basis of the push for laws that anyone giving investment advice be held to a *fiduciary standard*, being required to give advice that is exclusively in the client's best interest[190].

In summation, you should always know whether someone giving you advice may have a conflict of interest. You should also know how much you are paying to the people giving you advice and compare the costs of other comparable service providers.

CONCLUDING THOUGHTS ON HOW MONEY WORKS

In this section, we have covered a series of topics that, collectively, comprise financial literacy. Different people may have different topics that they favor, but I am quite comfortable asserting that the core knowledge that individuals need in order to be financially effective is introduced here. Each of these topics can, of course, be studied in far more depth. Investing, for example, is an enormous topic and I have spent many years researching investment theory and practice. I have an intellectual, as well as a practical, interest in investing. Many people prefer to know only as much as is absolutely necessary. My intent here has been to introduce the key topics and to provide some additional detail as a jumping-off point for those who are interested in learning more.

The financial literacy issue that worries me the most is Americans' low savings rates and tendency to discount the future in favor of consumption today. If you routinely rely on consumer debt and don't save and invest a meaningful fraction of your income, it is essentially impossible to be financially secure. For people who do save and build up wealth, understanding the other elements of financial literacy boosts this process. Using tax-advantaged savings accounts, for example, gives your investments extra kick because you can delay paying taxes for decades and potentially reduce your lifetime tax burden.

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[189] https://www.usatoday.com/story/money/personalfinance/retirement/2018/02/26/fees-could-sink-your-retirement-savings-what-do/364998002/

[190] https://money.usnews.com/money/blogs/the-smarter-mutual-fund-investor/2015/03/19/is-your-financial-advisor-a-fiduciary

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I am deeply concerned about the costs of higher education and how people finance these costs. Education is incredibly valuable for both financial and non-financial reasons, but an increasing number of Americans are incurring educational debts that may handicap them for decades, if not for their entire lives[191].

The good news is that it is possible to manage money far less expensively and more effectively than ever before. Improvements in technology and consequent reductions in cost are a boon to the engaged person. Financial knowledge has never been more valuable or easier to apply. Especially with the shift from traditional pensions to self-directed 401(k) plans and IRAs, applying a baseline of financial literacy has the potential to substantially improve your life and those of the people you love, as well as enabling you to amplify your contributions to causes you care about.

[191] https://www.nytimes.com/2014/05/25/business/the-ripple-effects-of-rising-student-debt.html

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THE PSYCHOLOGY OF MONEY

Along with the ability to earn money and the functional knowledge required for managing our finances, the psychology of how we make financial choices is the single greatest determinant of whether we are successful with money. Our beliefs, explicit and implicit, about money are shaped by a complex set of factors. Many of our early lessons about money come from what we observe in our families. As soon as we are exposed to mass media, we are bombarded with messaging that encourages consumption. As a result, our money psychology is largely shaped by people who are trying to sell us things. It is scary to realize that we often form our deep beliefs and ideas about money inadvertently rather than with intention. In addition, many people are ashamed or embarrassed by their financial decisions and, as a result, don't discuss financial topics with peers or their children. In this section, I review the major psychological drivers that shape how we deal with money. By understanding the psychological aspects of money, we can focus financial decisions on what we truly value and avoid common pitfalls.

WHY WE SPEND

Aside from the basic costs of life, much of what Americans spend is about signaling, both to ourselves and to others. We feel the desire to demonstrate that we are well-off and, by extension, successful. Quite often, the drive to appear affluent results in choices we cannot really afford. As Will Rogers famously quipped[192], *too many people spend money they haven't earned, to buy things they don't want, to impress people that they don't like*. Given that most people are not saving nearly enough towards retirement and are thereby risking an austere old age, spending to show affluence is clearly a powerful drive. The level of *symbolic consumption*[193] is perhaps impossible to quantify, but most people know it when they see it.

Discretionary spending represents a tradeoff between what we want today and the value of all possible alternative uses of the money, from today forward. The big question is the degree to which we are making consumption decisions that are harmful to us, our families, our communities, our society, and the environment. We must start at the personal level. Are our spending decisions today going to hurt us in the future? Is this tradeoff really what we want? Living in an outsized house, driving expensive cars, or travelling extensively for international vacations typically consumes considerable wealth, money that could have major impacts in other areas of our lives and in the lives of others. I am not a moral authority and I make no claims to have the correct answers to these questions, but it is obvious that the long-term implications of discretionary financial choices are often profound.

An underpinning assumption of classical economics is that people are rational consumers, capable of judging the tradeoff of time and money against the things that they can get in return. An intriguing problem, however, is that a range of experiments suggest that people are actually very poor at predicting how much satisfaction they will get from some future acquisition or outcome. This issue has been extensively studied by Harvard's Dr. Daniel Gilbert[194]. He refers to the mismatch between the satisfaction we expect and what we experience as *mis-wanting*[195][196]. The importance of this body of research can hardly be overestimated. When we spend money, we anticipate some happiness or satisfaction from the results, but the research suggests that the actual satisfaction is highly uncertain,

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[192] https://www.goodreads.com/quotes/238077-too-many-people-spend-money-they-haven-t-earned-to-buy
[193] http://bostonreview.net/archives/BR24.3/schor.html
[194] https://psychology.fas.harvard.edu/people/daniel-gilbert
[195] http://www.apa.org/science/about/psa/2004/04/pelham.aspx
[196] https://dash.harvard.edu/bitstream/handle/1/14549983/Miswanting.pdf?sequence=1

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and that people often expect far more satisfaction than they get when wants are satisfied. Modern marketing is all about convincing us that some new product will make us happier, thereby playing on our natural inability to predict how satisfying some new purchase will be. The research on mis-wanting should give us pause.

WHEN GETTING MORE MEANS LESS

One of the few universal truisms of economics is that each additional amount of something desirable satisfies you less. This is referred to in economics jargon as *diminishing marginal utility*. In economics, *utility* refers to deriving value from something, but it does not have to be useful in the traditional meaning. A piece of chocolate has utility because people derive enjoyment from it, for example. On a hot day, the first sip of lemonade is deeply satisfying. As we continue to drink, the additional enjoyment is less. After some amount of consumption, we are just continuing to drink because it's there. Diminishing marginal utility applies to essentially every material aspect of life. If you don't have enough clothing, getting a new shirt or pair of shoes can bring a great increase in quality of life (you can choose your clothing to ensure that you are warm enough and you can do your laundry while remaining fully dressed). Your fifth shirt or pair of shoes brings much less additional value and satisfaction. Having a house that is comfortable and secure is one of the things people most desire. Once you have such a house, you might want a larger or nicer house, but the additional utility that you derive from a new house is small compared to the value you derive from having your current house. This rule applies to money as well. As we become wealthier, each additional amount of money that we acquire becomes less meaningful and adds less value to our lives[197].

The question, of course, is whether people understand and internalize the probability that each additional widget, unit of consumption, or dollar will be inherently less satisfying than those that have come before. Considering the research on *miswanting* and from observations of general insatiability in our consumer culture, one might wonder whether our psyches have disconnected from, or simply cannot grasp, the idea that there is some point at which we have enough and that any additional gains will have a vanishingly-small impact on our happiness.

THE HEDONIC TREADMILL AND THE HAPPINESS SET POINT

One of the most important aspects of money psychology is how our desire for, and satisfaction from, various things evolve over time. In general, people are happy when they get something that they have wanted, but their happiness wanes over time until the new thing is viewed as part of their normal lives rather than something special. As the happiness or satisfaction from new things decreases, we start to look forward to getting something more. This cycle of aspiration, getting, declining satisfaction, and then aspiring to something more or different, is referred to as the *hedonic treadmill*[198]. A substantial body of research suggests that, as we become accustomed to any new circumstance, we tend to return to whatever level of happiness we had before we acquired that thing. Each person appears to have a baseline level of happiness that behaviorists refer to as the *happiness set point*[199]. From the perspective of financial decisions, the hedonic treadmill can lead to people being essentially insatiable in their desire for more of everything. The hedonic treadmill effect bears some resemblance to a drug user's increasing tolerance level over time. The research on happiness set point does not mean that happiness is

[197] https://www.fastcompany.com/40534358/how-much-money-do-you-need-to-be-happy-less-than-most-people-are-making
[198] http://faculty.som.yale.edu/ShaneFrederick/HedonicTreadmill.pdf
[199] https://www.psychologytoday.com/blog/happiness-in-world/201304/how-reset-your-happiness-set-point

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hardwired, but rather that the key to being happier may be to change your mindset rather than pursuing a higher level of consumption.

The basis of marketing is convincing people that some new product or experience will make them happier and more satisfied, but the research on the happiness set point and the hedonic treadmill demonstrates that this is likely to be a fruitless pursuit. We may desire something, seek it, obtain it, and even derive some temporary pleasure. Ultimately, though, our happiness and sense of satisfaction returns to its psychologically-determined baseline. If people don't recognize that what they crave is unlikely to result in any persistent increase in happiness, they will simply keep seeking the next jolt of satisfaction.

Our commercial culture acts to perpetuate and reinforce our beliefs that we will be happier if we can get something else. This is the very opposite of the concept of having enough. Consumerism requires continually making people feel that they are short of what is needed to feel content. This works because of the human tendency to get stuck on the hedonic treadmill, playing off an innate human drive.

WHY WE GAMBLE

Many people enjoy gambling, even when the odds are stacked against them. We just seem to love the idea that we might enjoy a windfall gain for playing a game and risking some tiny amount. Consider the following statistics. Americans spend more on lottery tickets than on sports, movie tickets, video games, books, and recorded music, combined[200]. Almost 43 million people visited Las Vegas in 2016. American gamblers spent more than $150 Billion on illegal sports bets in 2016, and total gambling losses (across all categories of bets) were $117 Billion[201]. Beyond the explicit games of chance, there are people who flock to get in on every new stock listing. There is a visceral thrill to the idea of betting a small amount of money and suddenly being rich--or at least richer.

There is an element of gambling in much of what passes for investing. Buying the latest IPO is viewed as more legitimate than betting on the ponies, even though the underlying impulse and decision-making process is similar. The enormous attention lavished on Bitcoin in the media ties in to our gambling tendencies. There are numerous historical precedents for speculative frenzies in things with little or no inherent value[202].

Being successful with money depends on the ability to distinguish between gambling and investing, but the gambling impulse seems to be hard-wired into (many) human brains.

THE LURE OF THE FREE LUNCH

One of the most consistent aspects of financial behavior is the belief that there is some secret to easily acquiring wealth. This notion is at the heart of many financial frauds (such as Bernie Madoff's decades-long scheme) as well as being part of what drives speculative bubbles. When we look at the world, and how some people seem so effortlessly successful with money, it is tempting to believe that there must be some secret to making money. Savvy fraudsters like Bernie Madoff are able to lead many intelligent people and organizations astray with the promise of secret methods that provide high returns with low risk.

[200] https://www.theatlantic.com/business/archive/2015/05/lotteries-americas-70-billion-shame/392870/
[201] https://www.economist.com/blogs/graphicdetail/2017/02/daily-chart-4
[202] https://en.wikipedia.org/wiki/Tulip_mania

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The mythology surrounding alchemy, turning lead into gold, is the archetype of the belief in a free lunch. The idea that such a thing is possible has lead even great intellects astray, notably including Isaac Newton[203]. Modern people know that alchemy is entirely rooted in dreams of wealth and has no basis in science but people still fall for similar promises. A recent example is Theranos, a company that attracted massive investments even though the firm never provided any concrete evidence that their technology worked.

The 'free lunch' phenomenon is the starting point for all sorts of financial folly and fraud. We seem to fall prey to these tendencies on a regular basis and often at a massive scale. Enron, once the darling of Wall Street, turned out to be built on a complex network of fraudulent activity that neither analysts, investors, nor regulators detected. When the truth came out, Enron went bankrupt, wiping out $78 Billion in investors' money. Enron's narrative was largely built on the idea that somehow the company had figured out miraculous ways to make more money from its energy-related businesses than any other firms in the business. Much like Madoff's fraud, the investors and employees believed that the geniuses managing everything had discovered some remarkable secret to wealth.

People are susceptible to the lure of alchemy, the magic formula, or the free lunch because they so desperately want to believe. The desire for such a thing to exist overwhelms reason. Financial fraudsters rely on this tendency. Maintaining a high degree of skepticism when someone promises outsized gains with little or no risk is the key defense against all sorts of financial scams.

DEALING WITH RISK

Boxer Mike Tyson famously said that everyone has a plan until they get punched in the mouth[204]. In 2008, the S&P 500 dropped by 37%, and stock investors got their punch in the mouth. Much of success in investing has to do with how people react in these situations. The problem is that people have little idea of how risk averse they are until something bad happens. Many investors panic and sell when markets decline substantially, thereby selling low. People pour money into the market after a period of high returns and end up buying stocks when they are expensive. This is, of course, the opposite of what we should do, which is buying when prices are low and selling when they are high. Paradoxically, people perceive that risk is lowest at the times when it is often highest—after a period of major stock market gains, for example. The longer people go without experiencing a bad outcome, the lower the probability they assign to bad outcomes. People perceive risk as highest after a period of market declines, even though they can buy assets at a substantial discount which inherently lowers risk.

Modern society requires that people learn to balance the amount of risk that they take in their lives. Being excessively risk averse is itself a risk. So, for example, an investor may avoid investment risk and, by missing the long-term gains from volatile asset classes such as stocks, thereby increasing longevity risk, the chance of running out of money in retirement. There are many products and services designed to exploit risk aversion and that play to the natural fear of uncertainty. Some people over-insure themselves, for example, trying to completely mitigate the unknown. Buying supplemental insurance on consumer goods such as cell phones is an example of this type of coverage[205].

[203] https://news.nationalgeographic.com/2016/04/160404-isaac-newton-alchemy-mercury-recipe-chemistry-science/

[204] https://www.brainyquote.com/quotes/mike_tyson_382439

[205] http://time.com/money/4361439/worth-it-buy-cell-phone-insurance/

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Aside from investments in stocks and bonds, there are other areas in which people need to be cognizant of the type and magnitude of risks that they assume. Adjustable rate mortgages (ARMs) are a good example. Taking on a fixed rate mortgage insulates the borrower against rising costs due to increases in interest rates. Having an ARM means that you are assuming interest rate risk. ARMs typically have lower initial payments, of course, because people tend to seek ARMs when interest rates are low and because ARMs may fix payments at a low level for some period of time. The key question with the decision to take an ARM is whether you understand and can deal with taking on interest rate risk[206]. For some portion of the population, ARMs are a better alternative. My suspicion, however, is that many people choose ARMs because their initial payments are low, with little understanding of the additional risk.

Perceptions of risk are very important in how people deal with money. There is an entire pathology associated with people who are so afraid of poverty that they are unable to make effective decisions[207]. Being successful requires a thoughtful approach to taking on risk. Taking very little risk in your investing may be comforting in the short-term but is likely to expose you to a higher risk of not being able to save enough money to reach financial goals. Taking too much risk has obvious consequences. Determining the kinds of risk you want to take on, and how much risk makes sense, can be challenging and requires practice.

AVAILABILITY BIAS

An important aspect of psychology is how certain vivid experiences or imagery tend to override our ability to make rational decisions. We assign higher probability to things that that conjure powerful imagery, a tendency referred to as *availability bias*. This behavioral bias has a large impact on how people manage their money. It is documented that people who grew up during the Great Depression or other financially turbulent periods tend to be financially conservative for the rest of their lives[208], for example. Reading about the importance of seatbelts probably has far less impact than seeing the severity of injuries in an auto accident in which people were not belted in--hence the gruesome driver education movies that many high school students are forced to watch.

Viscerally powerful occurrences take on elevated significance in our minds, even when these events are likely to occur with very low probability. Extreme events sometimes cause us anxiety even when we just imagine them. People worry far more about bear attacks than about the probability of getting in a car accident on the way to the hiking trail, even though the latter is vastly more likely than the former.

Many Millennials, having come of age around the time of the worst market crash since the Great Depression (2008), tend to perceive the stock market as too risky[209]. The memory of the event overshadows data on the long-term benefits of owning stocks and continues to shape perceptions.

SOCIAL PRESSURE AND HERDING

People often feel social pressure to do what others around them are doing, especially with spending and consumption. There is no rational reason why we should make the same financial decisions as our peers but experiments on social pressure demonstrate that people feel compelled to conform to a group

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[206] https://www.wsj.com/articles/are-adjustable-rates-worth-the-risk-1385607470
[207] *Peniaphobia* is the name for a pathological fear of poverty
[208] http://www.nber.org/papers/w14813
[209] https://www.usatoday.com/story/money/markets/2017/05/09/millennials-investing-stock-market/101463962/

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consensus, even when they are quite confident that the group is wrong[210]. The tendency to do what everyone else is doing is referred to in behavioral science as *herding*[211].

The push to 'keep up with the Joneses,' a common example of social herding, often results in overspending and under-saving. Part of the social pressure to have what others have is driven by social signaling. We feel the need to show other people (signal) that we are as financially successful as our peers. Spending money on things that signal wealth is referred to as *conspicuous consumption*. If we look around and see that our friends and neighbors drive expensive foreign cars and we don't, we are likely to feel that we don't measure up in some way. Having an expensive car, especially one that gets us positive attention, overtly suggests that we have wealth to spare. Never mind that the car may be purchased at the expense of saving a sufficient amount to fund retirement or other future needs. While this may sound absurd, it is common[212] [213].

Herding behavior with educational choices is taking a toll on the wealth of the middle class and even the upper middle class. As cited in earlier sections, college debt is an enormous and growing burden in this country. Even for families that can cover the costs themselves, spending as much as $300,000 on an undergraduate degree represents a substantial trade off against other uses of the money—from philanthropy to funding retirement. Many families are short changing their retirement savings to cover education costs[214]. While the research in this area is somewhat limited, the existing work indicates that social herding is a significant influence on college choice[215].

In ***The Millionaire Next Door***[216], an influential book on wealth in America, the authors found that many people who appeared to be wealthy based on their houses, cars, clothing, and other consumption choices were simply spending far beyond their means. By contrast, mainstream wealthy people (as opposed to CEOs, professional athletes, and celebrities) often attain their wealthy status specifically because they do not spend money on conspicuous consumption, thereby having more money to invest in economically productive pursuits. This book is an enduring classic because it was the first large-scale study of how wealthy people make consumption choices, as compared to everyone else. By contrast, a widely-read article in The Atlantic, *The Secret Shame of the Middle Class*[217], explored the situation of Americans (including the article's author) who maintain outward appearances of affluence while perpetually teetering on the edge of financial ruin, along with severely under-saving for retirement. A related article in the New York Times[218] tells the story of Carl Richards, a professional financial advisor who lost his home due to profligate consumer spending funded by cashing out his home equity. In both articles, the authors spent excessively to support high-consumption lifestyles because they observed the same behavior among their peers, even though financial common sense or any decent financial planning book would have suggested that they were heading for trouble.

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[210] https://www.psychologytoday.com/us/blog/am-i-right/201404/the-astonishing-power-social-pressure
[211] http://rstb.royalsocietypublishing.org/content/royptb/365/1538/281.full.pdf
[212]https://www.inc.com/minda-zetlin/most-americans-have-almost-no-savings-even-if-they-make-more-than-100000-a-yea.html
[213] https://qz.com/520414/the-high-earning-poor/
[214] https://www.plansponsor.com/parents-sacrificing-retirement-savings-pay-childrens-college/
[215] http://theop.princeton.edu/reports/wp/Fletcher_2010.pdf
[216] https://www.amazon.com/Millionaire-Next-Thomas-Stanley-Ph-D-ebook/dp/B00CLT31D6
[217] https://www.theatlantic.com/magazine/archive/2016/05/my-secret-shame/476415/
[218] https://www.nytimes.com/2011/11/09/business/how-a-financial-pro-lost-his-house.html

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Social pressure to consume is one of the most pernicious factors in dealing effectively with money. If economic choices have no limiting factor in the future, and thus no negative long-term impact—if you have massive financial resources—social pressure is less important. For most people, however, the decision to take on major college debt or deplete a family's financial resources can have major consequences. The growing data on families struggling with the long-term effects of educational debt makes this very clear[219]. Social pressure in financial choices is so powerful because people receive substantial positive social feedback when they make the popular decision, in addition to the fact that more consumption tends to be materially satisfying. The problem, however, is that the social confirmation and material enjoyment are highly present-biased.

PLANNING FOR THE FUTURE

Just about every week, another study concludes that Americans are saving far too little to be able to support themselves comfortably in retirement[220]. The research suggests that many people simply feel little connection between who they are today and that hypothetical old person they will be decades from now[221]. People are disinclined to deny themselves enjoyment just to support some future old person. Perhaps the most famous study in this area found that people were far more likely to save for retirement if they were shown an age progressed photo of themselves[222]. This photo enabled them to identify with their future (old) selves.

Another interesting (and famous) study of the ability to envision the future looked at how children balance the desire for immediate consumption with the potential for higher consumption even a short time into the future. Researchers placed a child alone in a room with a marshmallow (or Oreo) and told the child that he or she could eat the treat if they wanted, but that they would receive a second marshmallow or Oreo if they waited for a short period of time without eating the first. The ability of a child to delay gratification for the higher reward predicted a range of success factors in future school performance[223]. More recent studies suggest that a child's ability to delay the reward may reflect more about that child's socio-economic status, with affluent children having been taught to delay consumption while less-advantaged children have learned to consume whenever conditions allow[224].

Anyone who has been involved in financial planning will recognize that some people are planners, and some are not[225]. I have heard stories about middle-aged or older people who make solid six-figure incomes and save nothing for retirement and surveys suggest that this is not uncommon[226]. It is not clear whether planning is something that we learn, a capability that some people have innately, or some combination of both.

Planning for the future involves giving up something we might want today to reach a goal that will occur in the future, the challenge of delayed gratification. From a financial standpoint, planning comes down

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[219] https://www.cnbc.com/2015/12/08/the-long-term-consequences-of-student-loans.html
[220] https://www.morningstar.com/articles/869554/easing-the-retirement-crisis.html
[221] https://www.psychologytoday.com/us/articles/200811/mind-your-body-making-foresight-2020?collection=88464
[222] http://www.dangoldstein.com/papers/Hershfield_Goldstein_et_al_Increasing_Saving_Behavior_Age_Progressed_Renderings_Future_Self.pdf
[223] https://www.apa.org/helpcenter/willpower-gratification.pdf
[224] https://www.theatlantic.com/family/archive/2018/06/marshmallow-test/561779/
[225] https://www.amazon.com/Number-Completely-Different-Think-About-ebook/dp/B000FCKO2M
[226] http://www.wealthmanagement.com/retirement-planning/make-six-figures-theres-decent-chance-youve-got-almost-nothing-bank

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to spending less now in the hope that we can spend more at some later date. A well-documented behavioral bias in planning is what is referred to as *present bias*[227]. Some people dramatically underestimate the future costs or consequences of decisions that they make today. Credit card companies are, quite literally, banking on present bias to encourage people to get what they want now, without properly considering the long-term costs. In America today, all evidence suggests that people are dramatically under-saving and over-consuming. We are discounting the importance of future wants and needs[228] [229] relative to our immediate wants.

HOW PSYCHOLOGY CAN HELP US

What should we do with all this research that suggests that our natural tendencies may handicap us in how we deal with money? We seem innately susceptible to being lured in pursuit of the easy win, the miracle diet, and the formula for turning lead into gold. Meanwhile, we show incredible present bias, discounting the future in favor of immediate gratification. We also tend to follow the herd, especially when this allows or encourages us to consume more extravagantly. The answer is that we can become aware of our psychological weaknesses and change our behavior accordingly. Knowing that we are swayed by marketing, we can use the psychological findings to remind ourselves that the object of material desire is not going to make us happier—at least not for long, and not as much as we expect. We can also train ourselves to resist the visceral urges to gamble or to succumb to trivial immediate gratification at the expense of things we really care about.

A big lesson to be learned from studying psychology is how to avoid the pitfalls that lead us to waste our money in pursuit the free lunch or by 'investing' with scammers who convince us that they have found the secret formula to high returns with little or no risk. Following the investing crowd into implausible investments often leads to enormous financial regrets—but it's easy to get sucked in. No less an intellect than Isaac Newton fell prey to one of the greatest investment scams of all time[230]. Fraudsters rely on exploiting our psychological vulnerabilities. Being aware of these natural weaknesses can help us to avoid being ripped off.

We will all probably be happier if we ask ourselves whether we truly value the things we seek. In his book *Money and the Meaning of Life*, Dr. Jacob Needleman beautifully captures the economic dilemma that we face[231]:

> *Hell is the state in which we are barred from receiving what we truly need because of the value we give to what we merely want.*

This is clearly an unpleasant outcome, realizing that we have sacrificed what really matters in the pursuit of things that don't. The behavioral research helps us to examine our drives and desires and to put the emphasis on the things that we truly need, both materially and at a deeper psychological level.

[227] http://www.bbc.com/news/science-environment-26258662
[228] https://www.ezonomics.com/whatis/hyperbolic_discounting/
[229] https://economics.mit.edu/files/683
[230] https://www.smithsonianmag.com/smart-news/market-crash-cost-newton-fortune-180961655/
[231] https://www.amazon.com/Money-Meaning-Life-Jacob-Needleman/dp/0385262426/

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THE LEGISLATIVE LANDSCAPE

After a discussion of the practical aspects of money management and the behavioral factors that drive decisions, it is time to examine legislative and policy issues that involve money. The people we elect to public office will have a great deal to do with the financial future of our country. Economic policies express how we, as a nation, prioritize fairness, promote equality of opportunity, encourage risk-taking and entrepreneurship, and protect people in distress or who are otherwise not able to take care of themselves.

There are a handful of financial policy issues that are enormously important to the future of America and to the functioning of civil society. Americans have, over recent decades, consistently voted for spending and tax policies that are unsustainable and that will ultimately be paid for by our children and their children. Economist and professor Lawrence Kotlikoff has referred to our systematic discounting of the needs of the young to finance what older voters want as *fiscal child abuse*[232]. The failure of individuals to engage in responsible financial planning is magnified at the societal level as we make policies to enrich ourselves today at the expense of future generations--both in terms of reckless financial policies and environmental degradation.

Burgeoning inequality, a weak social safety net, unlimited political influence of lobbyists, and reduced support for public education are negatively impacting individuals and society. In this section, I have compiled a brief overview of some important legislative issues in finance. Each citizen can make his or her own decision as to where they stand on these topics, but these are all enormously important to understand, regardless of political orientation.

FINANCIAL LITERACY

As a society, we choose to provide public education to all children. Financial literacy is not a standard part of public education. People who lack financial literacy pay an enormous price in terms of poor choices and missed opportunities. It is hard to believe that, even as the complexity of financial choices has increased dramatically, there has been so little corresponding effort in educating people on how to navigate their financial lives. Individuals bear the responsibility for determining how much to save for retirement and how to invest these savings—a task that was handled by investing professionals for previous generations who had traditional pension plans. Somehow, we expect individuals to be able to make these choices appropriately, even though the professionals who make these types of decisions for pension plans have years of specialized training and experience.

Another societal change that makes financial literacy so crucial is the ease with which individuals can make huge and potentially irreversible financial choices using debt. We allow young people, with no financial education or experience, to make financial choices that can burden them for their entire lives. Easily-available credit encourages people to consume now, and to discount the long-term costs. And, of course, the firms selling the loans do a great job of convincing people that they can afford to indulge. The only way to counteract these forces is with financial education.

We must all be concerned about a lack of financial literacy not least because of the importance of some degree of financial knowledge in voting. We need citizens who vote for sustainable policies and not simply based on promises to put more money in their pockets today.

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[232] https://www.project-syndicate.org/commentary/fiscal-child-abuse?barrier=accesspaylog

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INEQUALITY

Inequality, the differences in who has what in a society, is an overarching social and political issue. Most societies believe that the government should play at least some role in redistributing wealth from those who have the most to those who have the least. Funding for public schools relies on the belief that all children, regardless of their family wealth, should be educated. The argument for such funding depends on the societal view that people deserve some equality of opportunity in life. Government programs to support the poor and handicapped start with the fundamental belief that those who are capable of earning should help those who are less capable or in distress. How far should the government go in leveling the economic playing field? To what extent should government services pay for housing, food, and medical care for the poor?

As the world economy becomes more productive, the distribution of wealth and power is becoming ever more skewed. Inequality within countries is rising around the world, even as inequality between countries is decreasing[233]. Some argue that inequality is not an issue if everyone enjoys gains over time. The problem, however, is that inequality breeds discontent and those at the lower end of the economic scale feel disenfranchised. Behavioral finance studies show that an individual's satisfaction with their financial situation has a great deal to do with how they compare to their neighbors[234] [235] rather than their own income or wealth. Inequality increases the disparity in financial status and thus leads to dissatisfaction and, ultimately, to social unrest. For at least a decade, I have characterized the growing inequality in America in the following way: we must decide whether we want to look more like England or more like Brazil.

There is increasing discussion in policy circles about the idea of a Universal Basic Income (UBI), some amount of money that the government pays to every person simply for being a citizen[236] [237]. UBI is currently in vogue as a potential solution for unemployment caused by increasing automation. While a UBI would increase standards of living at the low end of the income scale, it may have little or no impact on inequality. Most of the disparity in household income is from the wealthier end of the scale. In addition, a UBI would increase inflation because people at low incomes could afford to demand higher wages so the costs of goods and services that require low-skill labor would increase proportionately. A UBI would increase the cost of living for many people even as it also increased their incomes.

HEALTHCARE

In the U.S., we have a serious problem with the cost of our healthcare. Among the 35 OECD[238] countries, the U.S. spends the most per capita on healthcare yet ranks 27th in life expectancy from birth[239]. Compared to the rest of the world, the U.S. is a true outlier when you compare how much we spend to health outcomes. We like to think that our high costs are a result of the high-tech diagnostics and advanced care that we receive, but the data shows that our outcomes are worse than for people in far less affluent countries. Slovenians spend 1/3 of what we spend on healthcare yet live, on average, two

[233] https://www.brookings.edu/wp-content/uploads/2017/12/global-inequality.pdf
[234] http://content.time.com/time/health/article/0,8599,1974718,00.html
[235] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4718872/
[236] https://www.economist.com/open-future/2018/05/31/the-question-of-a-universal-basic-income
[237] https://www.cnbc.com/2018/05/01/nearly-half-of-americans-believe-a-universal-basic-income-could-be-the-answer-to-automation-.html
[238] OECD is a group of 35 countries that work together on economic issues (http://www.oecd.org/about/)
[239] https://www.bloomberg.com/graphics/2017-health-care-spending/

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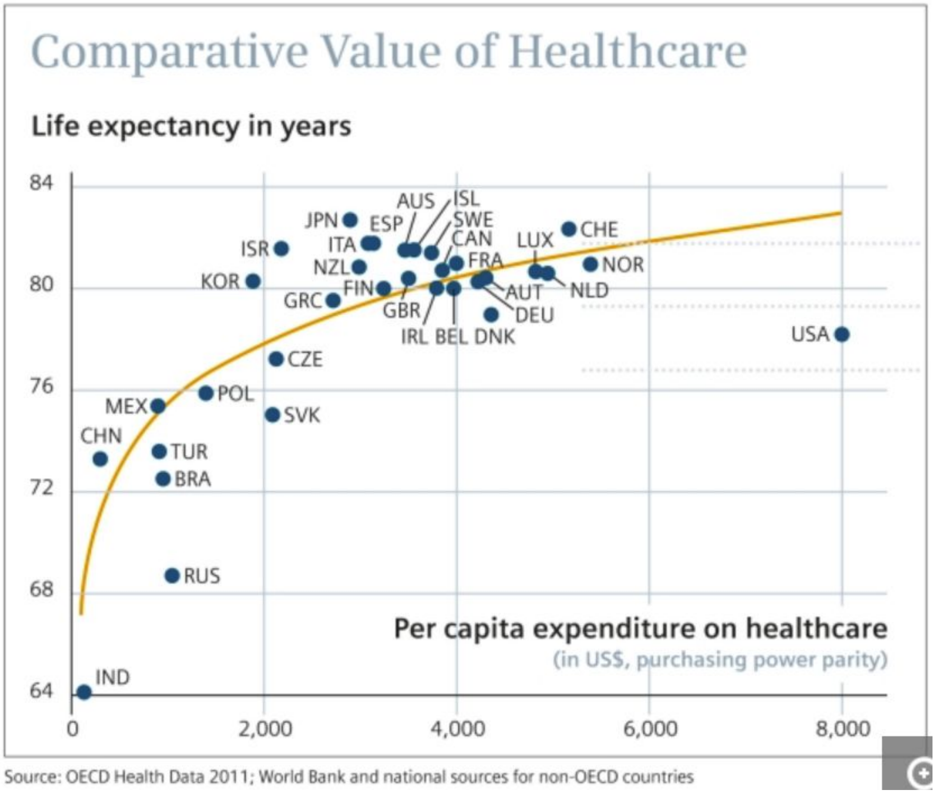
years longer than Americans. The French spend half what we do (per capita) yet live about three and a half years longer.



Source: [*https://www.siemens.com/innovation/en/home/pictures-of-the-future/health-and-well-being/cardiology-and-neuroscience-facts-and-forecasts.html*](https://www.siemens.com/innovation/en/home/pictures-of-the-future/health-and-well-being/cardiology-and-neuroscience-facts-and-forecasts.html)

Other statistics, such as infant mortality, are similarly troubling[240]. The U.S. national infant mortality rate is 51st in the world, comparable to that in Croatia[241], even though the U.S. has three times the per capita GDP of Croatia. Norway, the Czech Republic, Sweden, Portugal, Japan and Finland all have infant mortality rates less than half the level in the U.S.

Something must change in how we deliver medical services. It is hard to be economically competitive when people in the U.S. incur massively higher healthcare costs, with worse outcomes, than their counterparts in other countries. Consider a simple case of a family of four, with two working parents. The data above suggest that this family incurs healthcare costs of $32,000 per year ($8,000 per person). An equivalent family in a European country incurs healthcare costs of $16,000 and the people in that family can expect to live two years longer, on average. The additional cost of $16,000 per household is essentially overhead for a family or the businesses that employ the adult family members. Increased overhead reduces the efficiency of the entire economy as well as reducing the material quality of life of each household.

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[240] https://www.washingtonpost.com/news/wonk/wp/2014/09/29/our-infant-mortality-rate-is-a-national-embarrassment

[241] http://faculty.chicagobooth.edu/emily.oster/papers/imr.pdf

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RETIREMENT

The United States needs to create a more robust system for assisting and encouraging people in saving for retirement. In the 'old days' of the mid-to-late 20th century, it was said that retirement funding was a three-legged stool[242]. One leg of the stool was a traditional pension plan. The second leg of the stool was Social Security. The third leg of the stool was personal savings. Today, Social Security is on an unsustainable path and traditional pensions are disappearing. About 18% of private sector employees had a traditional pension in 2017, as compared to 38% in 1980[243]. Americans in retirement will be relying more heavily on their savings in 401(k) plans and IRAs and the equity in their homes than in previous generations. The problem, however, is that people are not saving nearly enough in self-directed retirement plans[244]. Having a retirement account is not sufficient--people need to be saving substantially more in these plans.

Social Security was designed as a pay-as-you-go system. The money coming from today's workers is used to support those who are already retired. Many of today's recipients will ultimately take out far more from the system than the proceeds of what they paid in. This is largely because people are living longer than was expected when the benefit schedules were drawn up. Compounding longer lifespans, Americans are having fewer children. As a result, there is an increasing number of old people drawing from Social Security relative to the number of working people who are paying into Social Security. Unless some substantial changes are made, the Social Security system will not be able to make good on its promised benefits starting in 2037[245]. Assuming no changes are made, Social Security benefits will need to fall to about 76% of their currently-promised levels at that time. The drop in benefits will be the result of the depletion of the social security trust fund, the unused money accumulated from earlier years' contributions. There are different ways to fix Social Security, including increasing the retirement age, increasing Social Security taxes, and reducing the cost-of-living adjustments for current retirees. The challenge is to be fair to each generation. In considering fairness, it is important to realize that the payroll tax rates (Social Security plus Medicare) have increased substantially over the past fifty years[246], even as the retirement age to collect benefits has been increasing. While it makes sense to change the benefit structure as people live longer, older people have reaped outsized benefits relative to what they have contributed, and each successive generation is expected to get less and less[247].

With the decline in the funding for Social Security and fewer companies offering traditional pensions, Americans must rely more heavily on personal savings to fund their retirement incomes. Retirement accounts such as 401(k)s and IRAs are the most common types of retirement savings accounts. Giving people a tax break on contributions to these accounts is a great incentive to prepare for old age, but there are problems with the current system. First and foremost, only about half (49%) of all workers contribute anything at all to a 401(k) plan and about 37% contribute to an IRA[248]. In 2016, one survey found that 56% of Americans had less than $10,000 saved for retirement and 1/3 had nothing saved in

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[242] http://beta.morningstar.com/videos/781530/The-Three-Legged-Stool-of-Retirement-is-Wobbly-.html
[243] https://www.fool.com/investing/2018/06/05/pensions-are-disappearing-heres-how-to-save-for-re.aspx
[244] https://www.nirsonline.org/reports/the-retirement-savings-crisis-is-it-worse-than-we-think/
[245] https://www.ssa.gov/policy/docs/ssb/v70n3/v70n3p111.html
[246] https://files.taxfoundation.org/legacy/docs/soc_security_rates_1937-2009-20090504.pdf
[247]http://www.politifact.com/truth-o-meter/article/2013/feb/01/medicare-and-social-security-what-you-paid-wha t-yo/
[248] https://www.planadviser.com/half-americans-not-contributing-401k/

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IRAs or 401(k) accounts at all[249]. This is bad, but not as bad as it sounds. About 73% of Americans have an IRA or 401(k) savings, a traditional pension, or both[250]. In other words, many of the people without retirement savings in 401(k) or IRA accounts have traditional pensions, and vice versa. This still leaves 27% of Americans with no retirement savings or pension. In addition, as discussed in the next section, many pensions are on shaky financial ground themselves.

There are a variety of ways to remedy the problem of insufficient savings in retirement plans or other expected retirement benefits. One is to force people to save more through mandatory 401(k) plan contributions[251]. Another possibility is to scale up Social Security to provide greater benefits and to pay for these increased benefits with higher taxes. Alternatively, and this seems to be our current trajectory, we can continue with the retirement model that we have today, and many Americans will have to work longer, learn to live on far less money in retirement than in their working years, or both. These outcomes are not ideal, but neither are they necessarily dire[252].

PENSION SHORTFALLS

Another challenging policy issue is the underfunding of the remaining traditional pension plans[253 254]. Millions of Americans are relying on pension benefits that are promised by current or past employers. They have accepted lower wages in return for the promise of retirement income. What happens when employers don't have the assets to make good on these promises? In both state and company pensions, there is a pervasive problem of underfunding: many pension plans have nowhere near the amount of assets that they will need to meet their commitments to their retired workers. As I write this, one of the largest multi-employer private pension plans is in danger of collapse[255]. This is the plan that serves the Teamsters and a variety of similar groups. Many state and city pensions are also massively under-funded. The huge pension plans for public servants in Cook County Illinois (the county where Chicago is located) will fail without major reforms or additional contributions[256 257]. These situations are repeated across the country. If pension plans default, millions of old people will lose much, or all, of their income and current workers will desert these systems in droves as they lose faith that their employers will make good on pension promises. The idea of a city like Chicago with a massive shortage of police officers, firemen, and teachers is scary. Add to this a population of suddenly-impoverished retirees and you have a public and private disaster.

One of the contributing factors to the pension funding crisis is that many pension plans have invested in hedge funds and other so-called *alternative investments* that, their managers suggest, can deliver above-average returns. Hedge funds are a '*hail Mary*' play for underfunded pension plans seeking some way to improve their balance sheets. The one consistent result from these investments is that the

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249 http://time.com/money/4258451/retirement-savings-survey/
250 https://www.forbes.com/sites/andrewbiggs/2017/01/18/are-half-of-americans-approaching-retirement-with-no-savings/
251 https://www.kiplinger.com/article/retirement/T001-C014-S001-mandatory-401-k-s-join-the-debate-with-our-readers.html
252 https://www.wsj.com/articles/is-there-really-a-retirement-savings-crisis-1492999861
253 https://www.forbes.com/sites/pensionresearchcouncil/2015/08/25/unfunded-pension-debts-of-u-s-states-still-exceed-3-trillion/
254 https://www.brookings.edu/opinions/the-politics-of-pensions-in-america/
255 http://money.cnn.com/2018/05/07/retirement/pension-fund-cuts-teamsters/index.html
256 http://www.news-gazette.com/opinion/editorials/2018-04-04/editorial-problem-without-solution.html
257 http://nprillinois.org/post/when-will-illinois-really-run-out-money-could-be-august#stream/0

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managers of the hedge funds have profited handsomely. The results for the pension plans have been less than stellar, and pension plans that invested in hedge funds have tended to underperform those that did not[258 259]. So why do pension plans keep investing in hedge funds? The hedge funds' potential for higher expected returns allows the pension plans to appear better-funded than would otherwise be the case. If the pension can claim to expect 7% returns per year (due in part to high estimated hedge fund returns), the plan might appear to be in decent shape whereas planning for 6% returns per year makes it look under-funded. An underfunded plan presents a host of problems to the plan sponsor (the state or company or union, etc.) and nobody wants to go to their constituents and talk about austerity or potentially raising taxes or cutting benefits. Pension plan managers willfully accept hedge funds' projections of high expected returns so that the plans appear to be in better shape than would otherwise be the case, thereby avoiding politically unpopular alternatives for shoring up plan finances.

There are three obvious potential outcomes for underfunded pension plans. One of these is to reduce benefits. Many pension plans have curtailed promised benefits for current workers, while maintaining benefits for people who have already retired. The argument for this approach is that current workers have the flexibility to leave and work elsewhere, but retirees have no options. The second major solution to underfunded pensions is to increase taxes. Higher taxes can be used to improve the balance sheets for public sector pensions and to bail out defaulted private pensions. Asking voters, most of whom lack traditional pensions themselves, to pay higher taxes to repair pensions for others is likely to be highly unpopular. The third solution is for pension plans to default and restructure through some form of bankruptcy proceedings. The likely outcome in default is that all pensioners would see a permanent, and potentially substantial, reduction in benefits. This is where the Teamsters' pensions seem to be headed[260]. The federal government has a program called the Pension Benefit Guaranty Corporation (PBGC) that has historically ensured that pensioners in defaulted pensions continue to receive income (although typically less than they would have received if their pensions had not failed), but the PBGC itself is currently dramatically underfunded because of increasing numbers of defaulting pension plans[261].

EDUCATION

Much of what America will look like in the future is determined by how we support education. Public education for K-12 students is regarded as a worthy cause in general, but we have not done a satisfactory job of dealing with emerging challenges. Especially for our poorest citizens, the odds of emerging from high school ready to enter the work world are increasingly slim. The Chicago Public Schools (CPS), for example, have a 5-year high school graduation rate of 70%[262]. This means that almost 1/3 of the students attending high school do not graduate in anything like a timely manner, if at all. The

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[258]https://www.bloomberg.com/view/articles/2018-02-15/hedge-funds-underperform-yet-keep-attracting-pension-fund-money
[259] http://fortune.com/2017/07/28/retirement-pensions-hedge-funds/
[260]https://www.ohio.com/akron/news/local/retired-teamsters-facing-dramatic-pension-cuts-see-hope-in-new-federal-legislation
[261]https://www.forbes.com/sites/tedknutson/2018/05/31/pbgc-over-90-chance-union-pension-guarantee-program-will-run-out-of-money-by-2025
[262]http://www.chicagotribune.com/news/ct-chicago-school-graduation-rate-change-met-1002-20151001-story.html

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economic prospects for people who don't graduate high school are awful. The median weekly pay for people working full-time without a high school diploma is $515 per week[263].

Higher education is funded from three sources: students' tuition and fees, state and federal support, and private donations. Schools which receive substantial donations can build up a body of wealth, an endowment, that they can invest to generate additional funds. Total state and federal funding of higher education are of comparable size: each contributes about $75 Billion a year[264]. Schools need to cover the direct costs of paying salaries and maintaining facilities, along with research grants, scholarships, and support for student loans. Private colleges and universities have their direct costs paid by their endowments and the tuition and fees paid by students. Public colleges and universities pay their direct costs with a combination of government funding and tuition and fees, although some public institutions have endowments. Both public and private colleges and universities can receive government-funded research grants which support faculty and graduate students, as well as providing money to run research labs and related projects.

A substantial amount of the rapid increases in tuition and fees at public colleges and universities is attributable to declining state support[265]. In 1987, the University of Colorado at Boulder (where I attended graduate school) received 19.9% of its total revenue from state and federal support. By 2012, that had fallen to 3.9%. Over this same period, Georgia Tech (where I did my undergrad) went from getting 27.3% of its funding from state and federal support to 18.6%.

One of the least-understood issues in educational funding is the large tax subsidy that primarily accrues to students at wealthy private colleges[266]. The endowments at colleges and universities are tax exempt, which costs taxpayers about $20 Billion a year in lost tax revenue[267], an amount comparable to more than 1/4th of total federal spending on higher education[268]. Federal expenditures on research grants to universities, veterans' educational benefits, Pell grants, and all other Federal financial aid grants total $76 Billion a year. The vast majority of endowment dollars are held by a small number of wealthy private colleges, which means that the bulk of the tax benefit accrues to a very narrow slice of the population. Harvard, Princeton, Yale, and Stanford have 19% of the total endowment dollars across all colleges and universities in the U.S., for example[269]. A child with parents in the top 1% of U.S. households by income is 77 times more likely to attend an Ivy League school than children from families in the bottom 20%, so the tax break for college endowments represents a disproportionate benefit to wealthier families. Robert Reich, a professor of Public Policy at Berkeley and Secretary of Labor under Bill Clinton, estimates that <u>effective</u> government funding per student is about ten times greater at elite private colleges than at the average public university because of this tax break[270].

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[263] https://www.bls.gov/opub/ted/2017/high-school-graduates-who-work-full-time-had-median-weekly-earnings-of-718-in-second-quarter.htm

[264] http://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2015/06/federal-and-state-funding-of-higher-education

[265] https://www.chronicle.com/interactives/statesupport

[266] http://blogs.berkeley.edu/2014/10/13/why-elite-private-universities-get-more-per-pupil-government-money/

[267] http://thehill.com/opinion/education/362401-lets-tax-college-endowments-to-pay-for-students-education

[268] http://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2015/06/federal-and-state-funding-of-higher-education

[269] https://nces.ed.gov/fastfacts/display.asp?id=73

[270] See article in footnote 265

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And, of course, there is the massive and growing burden of student debt. As discussed in the sections of text dealing with student loans, more than 70% of college students are borrowing to attend college and many conclude, after the fact, that the advantages that they obtained from their educations did not justify the costs. There are policies that could help to remedy the current student borrowing problems. First, colleges and universities could be required to finance some portion of student debt. In the current environment, colleges have every incentive to raise prices—they make more money—and have no downside if their students end up overburdened with debt. If colleges had to underwrite some amount of student debts, they would have some reason to control costs and to discourage students from borrowing too much.

Some politicians make implausible proposals about how to solve the problems associated with higher education. It's time to get serious. Simply encouraging everyone to attend college is not a solution[271]. Promising that higher education can be free is also generally implausible[272] [273] [274] without major changes across society. There is no question that higher education costs are a problem, but we need sensible policies that are both economically sustainable and fair.

TAX DEDUCTIONS

There are many expenses and types of saving that can be deducted from pre-tax income, thereby lowering the amount of income that is subject to tax[275]. The largest deductions available to individuals and families are (1) contributions to qualified retirement plans, (2) health insurance premiums for the self-employed, (3) interest on home mortgages, (4) contributions to college savings plans (529 plans), and (5) charitable giving.

Americans tend to love the tax deduction on home mortgage interest and this deduction is viewed as being in the interests of the middle class and as advancing economic mobility. The reality, however, is that the economic benefit of this deduction overwhelmingly accrues to wealthier households. To start with, the mortgage deduction applies to mortgages as high as $750,000 for one or more homes[276]. Prior to the new tax law in 2017, you could deduct interest on mortgages as high as $1 Million and people with these mortgages prior to the new law get to continue to claim the deduction. Is this deduction fair to all Americans? It should be noted that tax deductions are valuable only to people who itemize their deductions rather than claiming the standard deduction. Only 30% of households itemize at all, and wealthier households are far more likely to itemize[277].

Contributions to 401(k) and IRA plans do not count towards taxable income, thereby lowering taxable income, although the amount that you can contribute pre-tax is limited. If you make $100,000 a year in wages and contribute $15,000 to your 401(k) plan, you are only taxed on $85,000 of income. This tax deduction is a powerful incentive for people to save towards retirement and I am in favor of allowing

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[271] http://www.slate.com/articles/life/education/2014/03/college_isn_t_for_everyone_let_s_stop_pretending_it_is.html

[272] http://www.slate.com/blogs/moneybox/2013/11/20/college_shouldn_t_be_free_three_big_problems_with_free_college.html

[273] https://www.nationalreview.com/2018/03/why-states-should-abandon-the-free-college-movement/

[274] https://www.denverpost.com/2016/09/23/the-many-problems-with-free-college-for-everyone/

[275] https://turbotax.intuit.com/tax-tips/fun-facts/9-things-you-didnt-know-were-tax-deductions/L6M1dynSH

[276] https://www.marketwatch.com/story/what-the-new-tax-law-will-do-to-your-mortgage-interest-deduction-2018-02-09

[277] https://taxfoundation.org/who-itemizes-deductions

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people to make pre-tax contributions to retirement accounts, but there are some problematic aspects of this policy. First, employees are effectively locked into investing through their employer-sponsored 401(k) plan to get the maximum benefits from this tax break. You, as an employee, cannot shop around for a better deal and many employers offer plans that are far too expensive, as discussed in an earlier section. Second, the tax benefits accrue primarily to wealthy households because it is these households that can afford to save the maximum amounts[278]. In some ways, this is inevitable: wealthier families can afford to save more. Given that the tax deduction on retirement plan contributions costs the government over $100 Billion a year, it is worth considering whether there might be fairer ways to spread the benefits[279].

FINANCIAL INCLUSION

Having access to reasonably-priced financial services is crucial for working class and poor people, but they often must resort to substandard alternatives. Those of us in the middle class and above tend to take banking services for granted. Being able to cash a check or to have a credit card are examples of these types of financial services. And, of course, there is the enormous utility of having a safe place to store money. Many poorer people do not have these basic services and, as a result, rely on expensive alternatives. Remarkably, almost 27% of U.S. households use financial service providers outside the banking system[280]. People without checking or savings accounts at a bank are referred to as being *unbanked*, while those who have one of these accounts but still rely on other non-bank alternative providers are referred to as *under-banked*. Payday lenders and pawnshops are the short-term lender of last resort for many people, for example, and they end up paying fees that take far too much of their already limited financial resources[281].

Many societies and religions have laws against usury[282] [283], the practice of lending at unreasonably high rates of interest (and some religions consider charging any interest to be usury). In the United States, usury laws vary between states[284]. One of the long-debated issues regarding payday lenders, and other companies that provide financial services to those without access to traditional banks, is whether they cross the line into what should be illegal. Payday lenders often charge annualized interest rates of 300%-400%[285] (that is not a typo). Most people using these loans intend to pay them off in two to four weeks, but some borrowers end up rolling loans from one period to the next. Many argue that these levels of interest rates are exploitative and should not be legal[286]. It may also be argued that the expensive financial services available to the poor are better than none[287], but there need to be more reasonably-priced alternatives.

Technology has enormous potential to increase financial inclusion. Allowing people to deposit paychecks using their phones and to pay for goods and services electronically bypasses the need for a physical bank

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[278]https://money.usnews.com/money/blogs/planning-to-retire/2011/05/03/gao-401ks-primarily-benefit-the-wealthy
[279]https://www.brookings.edu/wp-content/uploads/2016/06/flattening_tax_incentives_for_retirement_saving.pdf
[280] https://www.fdic.gov/householdsurvey/
[281] http://www.latimes.com/opinion/editorials/la-ed-payday-loans-20160602-snap-story.html
[282] https://en.wikipedia.org/wiki/Usury
[283] https://www.merriam-webster.com/dictionary/usury
[284] https://www.investopedia.com/terms/u/usury-laws.asp
[285] https://www.consumerfinance.gov/ask-cfpb/what-is-a-payday-loan-en-1567/
[286] https://www.cbsnews.com/news/payday-lenders-face-charges-of-usury-like-rates/
[287] https://www.theatlantic.com/magazine/archive/2016/05/payday-lending/476403/

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office and allows banks to offer these services at a lower cost. One of the key areas for growth is providing loans using purely electronic means. Figuring out how to serve the unbanked represents an enormous opportunity, with a total estimated global value of $380 Billion a year[288].

[288] http://www.visualcapitalist.com/banking-unbanked-emerging-markets/

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CONCLUDING THOUGHTS

We have covered a lot of ground to reach this point, and there is far more to learn for those inclined to do so. What I have tried to include in this short book is a discussion of the most important areas of knowledge for being a financially effective individual and citizen. In this section, I boil things down to the essentials. Most people can be financially effective by following a handful of guidelines:

1) Align your financial plans with what you value
2) Invest in, and use, your human capital thoughtfully
3) Be sensible in educational spending—try to make sure the results justify the costs
4) Maintain a budget and a personal balance sheet
5) Aim to save 20% of income each year (but save at least 10%)
6) Understand your financial intermediaries, both what they cost and their incentives
7) Invest consistently in a diversified portfolio of stocks and bonds
8) Maintain a substantial fraction of unrealized income
9) Be cognizant that higher consumption rarely brings the satisfaction that people expect
10) Don't fall prey to 'get rich quick' – there is no secret formula and alchemy does not work

None of this is especially complex. Even so, implementing all of this requires thoughtful and consistent effort. Once you have everything in place, though, it gets much easier. Most people should be able to manage their finances effectively in a few hours a month. Notice that none of these elements are specific to where you are on the income scale. These steps are generally relevant whether you are making $50,000 or $500,000 a year.

In an ideal world, children would have ongoing financial education. Starting from a young age, they would be taught the basics of money and the tradeoff between immediate gratification and having choices in the future. Before they select a college or other post-secondary education, they would be encouraged to think through the balance of time, human capital, and money that each choice entails. They would also be prompted to think about how much of the choice of school or degree is consistent with their goals and how much is symbolic consumption. If someone genuinely wants to spend $65,000 a year to attend their dream school and they understand the long-term costs, that is just fine. The problem is that we, as a society, are not educating our youth in how to unpack the drivers of consumption or the ultimate costs. There are scores of articles, interviews, and survey data on college graduates who say they would make different choices if they had it all to do over again[289]. Perhaps these are simply unavoidable cases of mis-wanting and buyer's remorse, but how can we expect 17- and 18-year-olds to make choices about expenses on these scales—especially when many have never had meaningful financial education?

Stepping further along in my ideal world, college students would have guidance that emphasizes the outcomes from their choices of studies, including employment options and the incomes that they can expect. All students would have internships so that they build their human capital beyond the classroom and gain a more holistic understanding of the balance of time, energy, creativity, and discipline required in one or more career paths.

As people emerge from college and enter the workforce (in my ideal world), we would have far fewer people with crippling levels of college debt. Or, at the very least, we would have many fewer people who

[289] https://chicago.suntimes.com/feature/a-generation-of-college-students-buried-in-debt/

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can claim to be surprised by the payments required to service their debts. As these people progress through their working lives, they would have the knowledge necessary to make financial choices in support of their values and goals and be equipped to separate the pressures of symbolic consumption from what they really want. They would realize that money saved and invested represents choices and flexibility for themselves, for their children, and for others. They would also have a real sense of what it means to have **enough**[290], and be cognizant of when they reach that point. And, of course, when these adults raise children, they would include financial topics as part of the overall body of knowledge and knowhow that they impart.

At this point, readers will be forgiven if they conclude that I am hopelessly idealistic. I realize that the last few paragraphs are aspirational rather than probable. On the other hand, we can clearly do a much better job of educating people to have a holistic sense of money as a tool to pursue their goals and to support themselves and their families.

Beyond being financially successful—managing money and resources on behalf of yourself or your family—there are critical social and political considerations involving finance and economics. American society, along with much of the rest of the world, is rapidly moving towards levels of inequality that are unprecedented in modern times. This is an undeniable fact. As people and organizations use their political influence to tilt the economic scales to their advantage, far too little attention is being devoted to considerations of the long-term financial consequences. We need citizens who are financially literate, understanding how financial policies today have important implications beyond their immediate financial interests.

Defining values and goals relating to money, building and applying the necessary financial knowledge, and managing the psychological drivers of consumption are the elements of financial effectiveness. We live in a society in which financial illiteracy and poor financial choices exact a huge cost. On the positive side, learning how to use money effectively provides considerable leverage in getting things done and reaching goals. In this book, I have tried to provide a framework of practical knowledge and broader context for personal finance. Whether you want to follow a traditional career path, start your own business, support good causes, or have sufficient resources to go back to school, learn to paint, or to hike the Pacific Crest Trail, understanding and effectively managing money is often a critical part of reaching goals.

[290] http://johncbogle.com/wordpress/wp-content/uploads/2007/05/Georgetown_2007.pdf

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Appendix A: Additional details on investing

If you decide to step beyond the basic two- or three-fund portfolios, things get more complex. One of the largest questions is whether you believe in active management vs. passive management. Another question is whether you want to invest using funds or individual stocks and bonds. A third important question is whether you are happy to invest in a few broadly-diversified funds or would prefer some control over which sectors of the economy (utilities, technology, healthcare, etc.)[291] you invest more heavily in. This issue also applies to investing in the U.S. relative to other countries. And, finally, there is the question of whether you want to have a tilt in your investing to those companies and sectors that have high estimated value relative to their current prices (value investing) or prefer to emphasize companies and sectors that may be expensive today but for which the expected growth brings the potential for high rewards (growth investing). A list of the major considerations in managing a portfolio are below:

1) Active vs. Passive
2) Tactical vs. Strategic
3) Funds vs. individual stocks and bonds
4) International vs. U.S.
5) Sectors vs. Total Market
6) Value vs. Growth
7) Low-beta vs. High Beta

Active vs. Passive

Actively-managed funds hold portfolios of stocks, bonds, and potentially other assets that are selected by fund managers who are seeking to provide higher returns by using their expertise and judgement within a specific strategy or mandate. Passive funds have holdings that are determined from an objectively defined benchmark. Passive funds follow the market and have low fees, while active funds have higher expenses (to compensate the managers) and attempt to beat the market. It should be obvious that the <u>average</u> return across all funds should be somewhat below that of the market as a whole—with the loss being due to average fees. Some active funds will outperform the market, and some will underperform the market, but the market is, by definition, a zero-sum game.

The S&P 500, an index of the 500 largest companies in the U.S., is the basis for index funds from a range of fund families and can be had in either an ETF or mutual fund wrapper. A common index for smaller companies is the Russell 2000. There are index funds that track almost every imaginable sector and style of investing. Actively-managed funds also have benchmarks, but managers aim to beat their benchmarks rather than track them. Managers typically try to maintain portfolios that broadly follow their benchmarks, however. When managers veer too far away from their benchmarks, investors and financial advisors get worried. The tendency of a fund to behave differently from its benchmark is referred to as *tracking error*. This is a major challenge in active management. Investors want higher returns than the benchmark, but they also don't want a high level of tracking error. Some fund managers are so concerned about tracking error that they end up sticking exceedingly close to their benchmarks and their investors end up with a fund that acts like an index fund even though they are

[291] The Sector SPDR ETFs provide a good place to start for understanding the major sectors and provide a solid low-cost approach to emphasizing certain sectors (http://www.sectorspdr.com/sectorspdr/)

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paying the fund managers for active management. This is called *closet indexing*[292]. If the idea that managers are expected to both outperform and stick closely to a benchmark sounds a bit paradoxical, you are correct. Managers must take positions that are different from the index to have the potential to outperform so they try to strike a balance between tracking error and potential for high return.

Choosing between active and passive management is a key part of defining an investment strategy. Most fund assets in the U.S. are in actively-managed funds but there is a trend away from active management and towards passive strategies[293] [294].

Tactical vs. Strategic

In their usage in portfolio management, *strategic management* refers to stable, long-term asset allocation and *tactical management* refers to portfolios that can change in response to changing market conditions. Tactical allocations can have higher turnover and, as a result, may be inefficient from a tax perspective. There are many tactical strategies but the most-studied and validated is probably *momentum*: trying to follow trends in what is currently out-performing[295].

Strategic asset allocation (SAA) involves selecting long-term target allocations to major asset classes. Periodically, assets will be bought and sold because the relative allocations have drifted away from the target allocation (this process is called rebalancing). SAA is low-turnover and tends to be more efficient from a tax perspective than tactical asset allocation. Whenever you build a portfolio with the intention of maintaining a steady exposure to broad asset classes over time, you are doing SAA. The three-fund portfolio is an implementation of SAA.

Funds vs. Individual Stocks and Bonds

Mutual funds and ETFs allow investors to purchase broadly-diversified portfolios holding hundreds or even thousands of stocks and bonds with a small investment. For this service, investors pay an expense ratio (a percentage of their money that goes to the fund company each year). Fund expense ratios vary widely, from a few 100th's of a percent to over 2% a year. There are very good index funds available that charge 0.1% a year or even less. Still, better to pay no expense ratio—and that is an argument for owning individual stocks. For many investors, and especially those who are wealthier, the most cost-effective way to invest is to own a large number of individual stocks and to trade infrequently. In addition to having no expense ratios, there are tax management strategies that are more effective with a portfolio of individual stocks rather than funds. A portfolio of individual stocks is also inherently tax efficient if turnover (buying and selling) is kept to a minimum. Low turnover also reduces costs due to other sources of market friction (see the footnotes for details)[296] [297] [298]. Many experts argue that owning a small number of funds is the optimal approach and that investors should skip individual stocks[299], but

[292] http://www.investmentnews.com/article/20180406/FREE/180409949/13-active-fund-managers-agree-to-reveal-closet-indexing
[293] https://www.bloomberg.com/view/articles/2018-04-23/active-money-managers-are-doomed
[294] https://www.bloomberg.com/quicktake/active-vs-passive-investing
[295] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2435323
[296] https://obliviousinvestor.com/the-cost-to-an-index-fund-of-turnover-in-an-index/
[297] http://www.moneychimp.com/articles/index_funds/turnover.htm
[298] http://www.etf.com/publications/journalofindexes/joi-articles/2623.html?nopaging=1
[299] https://www.cnbc.com/2018/01/03/why-warren-buffett-says-index-funds-are-the-best-investment.html

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this has less to do with individual stocks themselves and more with people holding under-diversified portfolios and trading frequently.

By way of disclosure, I have a long-term consulting relationship with Folio Investing, a brokerage that specializes in supporting investors who maintain portfolios of individual stocks.

International vs. U.S. Stocks and Bonds

If you add up the market value of all the stocks in the world, U.S. companies comprise about 52% of the total[300]. In financial jargon, the total global market capitalization (typically referred to simply as *market cap*) of stocks is about 52% U.S. and 48% non-U.S. One might argue that, since stock prices are determined by the consensus opinion of markets, it makes sense to own stocks in this proportion. There are index funds (both mutual funds and ETFs) that are designed to track a global market cap weighted stocks index (example ticker: VT[301]). If one really believes in the wisdom of markets to assess value, this is a sensible choice. Many, if not most, investors put far more money into the stock markets of their own country than other countries, a situation referred to as *home bias*[302]. This is a very interesting issue, especially with increasing globalization. Even some prominent experts—notably including John Bogle, the inventor of index funds and the founder of Vanguard[303]--believe that U.S. investors don't need to invest in anything other than U.S. companies. Mr. Bogle's argument against investing beyond U.S.-based companies is that (1) U.S. companies, in aggregate, derive about half of all their earnings from business in other countries and (2) investing in non-U.S. companies exposes investors to additional sources of risk, including currency risk (fluctuations in the value of dollars vs. the local currencies), regulatory risk, and risks of political instability. Ultimately, Bogle's argument gets attention because he has been correct for so long. In the two and a half decades since he first asserted his arguments, U.S. stocks have far out-performed a global market cap weighted index[304]. On the other hand, at some price, non-U.S. stocks must look relatively more attractive.

Sectors vs. Total Market

The simplest way to select how to spread your money across companies and industries is to buy an index fund that tracks a market-cap-weighted stock index such as the S&P500 or the Russell 1000. Many investors and money managers prefer to invest more heavily in some industries than others. The decision to emphasize one sector over another can be motivated by several factors:

1) Belief that certain sectors are likely to outperform
2) Desire to emphasize income-generating assets
3) Risk management
4) Desire to have investments reflect personal values

If, for example, you believe that technology will continue to grow much faster than the rest of the economy, you might want to hold more technology companies than are represented by the market cap index. Conversely, if you believe that the world is going to move away from petroleum as a source of

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300 http://portfolios.morningstar.com/fund/summary?t=VT&region=usa&culture=en_US
301 See previous footnote
302 https://en.wikipedia.org/wiki/Equity_home_bias_puzzle
303 http://www.investmentnews.com/article/20170429/FREE/170429919/john-bogle-says-investors-dont-need-to-own-international-stocks
304 See previous footnote

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energy, you might want to hold less in oil companies. For someone considering sector or industry tilts, it is important to start with an understanding of how the individual sectors are represented in the market-cap-weighted index. In the S&P500, for example, technology stocks are 23% of the total index value, and energy stocks are 6% of the index[305].

Another reason why some investors emphasize certain sectors is the desire to generate a regular income stream from a portfolio—these people are referred to as income investors. As noted earlier, some investors favor dividend-paying stocks and stocks in certain sectors pay more in dividends than others. Utility and telecom stocks tend to pay high dividends, for example. Real Estate Investment Trusts (REITs) are companies that own and manage real estate and REITs tend to generate a substantial amount of income as well. Income-focused portfolios will tend to have substantially different sector and industry exposure than the broad market indexes.

Some individual sectors are less risky than others or less-sensitive to economic cycles—these are commonly referred to as *defensive sectors*[306] of the economy. Utilities, healthcare, and consumer goods are typically considered defensive and people tend to consume their products in good times and bad. Investors may choose to invest more heavily in low-risk sectors as a risk management tool.

Finally, some investors want to select investments that are consistent with their values and this frequently means excluding some sectors or industries and emphasizing others. This type of investing is referred to as SRI (Sustainable-Responsible-Impact) or ESG (Environmental-Social-Governance) investing [307].

Value vs. Growth

One way that the investment literature tends to characterize stocks and sectors is in terms of the prices of stocks relative to some measure of underlying value. Value investors seek stocks that are low-priced relative to their earnings, dividends, or book value. Growth investors prefer sectors and individual companies which are growing rapidly, and which are expected to continue to grow rapidly. These tend to be the more exciting parts of the economy. There are many funds that are designed to emphasize value or growth and it is straightforward to screen stocks on this basis. Historically, over multi-decade periods, value investing has out-performed growth investing. Over intermediate periods, either growth or value may dominate[308].

Low Beta vs. High Beta

Beta is a statistical property of a stock that measures how much the price of the stock tends to respond to a change in the price of the market index. If beta is 120%, the price of a stock tends to go up 1.2% when the market goes up 1%, and vice versa. In effect, high-beta stocks amplify the price changes in the overall market, while low-beta stocks tend to mute market price changes. Not surprisingly, low-beta stocks tend to be lower risk than high-beta stocks. Intriguingly, low-beta stocks tend to deliver higher returns than would be expected from the overall balance between risk and return[309] [310]. Low-beta

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[305] http://portfolios.morningstar.com/fund/summary?t=SPY
[306]https://www.msci.com/documents/10199/1283513/MSCI_Cyclical_and_Defensive_Sectors_Indexes_Methodology_Jun14.pdf/
[307] https://www.ussif.org/sribasics
[308] https://blogs.wf.com/assetmanagement/2017/03/the-truth-behind-growth-and-value-cycles/
[309] https://www.advisorperspectives.com/articles/2012/02/14/the-greatest-anomaly-in-finance

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investing is not for everyone, however, because low-beta portfolios tend to exclude certain sectors and will not perform as well as the market during market rallies—low-beta, by definition, mutes both gains and losses. The long-term performance benefits result from low-beta stocks losing less in market downturns, along with not going up as much in rallies, but with an aggregate long-term benefit in returns relative to risk.

This Appendix provides a brief introduction to the major concepts involved in selecting a portfolio strategy. There are abundant resources and many people choose to engage a financial advisor to determine what may be appropriate.

[310] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1585031

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RECOMMENDED PERSONAL FINANCE BOOKS

A Random Walk Down Wall Street: The Time-Tested Strategy for Successful Investing (11th Edition) by Burton Malkiel

This is the first serious book about investing that I read. It is long and is most appropriate for those interested in theory as well as practical information. This is a true classic, but not the best choice for those primarily interested in a brief 'how to' guide.

Enough: True Measures of Money, Business, and Life by John Bogle

John Bogle, founder of Vanguard and the inventor of index funds, was a deep thinker and author on topics far beyond finance. In this book, Bogle articulates his concerns with the current state of the financial sector and the dangers that an out-sized financial sector creates. In this book, he is calling for a renewed spirit of, and commitment to, good stewardship and moral balance in capitalism.

If You Can: How Millennials Can Get Rich Slowly by William Bernstein

William Bernstein is a financial advisor, a very well-known author on finance and investing, and a neurologist. This short book is designed to provide a bare-bones summary of what young people need to do to be financially successful. This is a great book for people starting out in taking control of their financial lives.

Money and the Meaning of Life by Jacob Needleman

This book deserves to be far better known than it is. Dr. Needleman, a professor of religion, takes a fascinating intellectual and philosophical tour through issues involving money, from ancient societies forward. Laced with quotes from the Bible, Dante, Maimonides, and other influential leaders and philosophers, this book is deeply thought provoking for people who are consciously determining the role of money in their lives.

Risk Less and Prosper: Your Guide to Safer Investing by Zvi Bodie and Rachel Taqqu

Dr. Zvi Bodie, a professor of Finance at Boston University and author of a famous college textbook on investing, challenges conventional investing advice and presents a new proposal for retirement investing. I studied Dr. Bodie's analysis in some depth and wrote an article about this strategy[311]. Bodie's warnings about the long-term risks associated with having high allocations to stock are worth understanding.

Stocks for the Long Run: The Definitive Guide to Financial Market Returns & Long-Term Investment Strategies (5th Edition) by Jeremy Siegel

Dr. Jeremy Siegel, a professor at Wharton, is committed to the idea that investors are well-served by holding high allocations to stocks over long periods of time. He makes his case clearly and this book is well worth reading.

[311] https://www.advisorperspectives.com/newsletters09/The_Retirement_Portfolio_Showdown-Jeremy_Siegel_vs_Zvi_Bodie.php

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The Four Pillars of Investing: Lessons for Building a Winning Portfolio by William Bernstein

William Bernstein, the author of the very short **If You Can: How Millennials Can Get Rich** cited above, has written several longer books on investing. The **Four Pillars of Investing** is a great book for people seeking to dig deeper into the details. Dr. Bernstein writes clearly and explains concepts in an accessible way.

The Little Book of Common Sense Investing by John Bogle

In this very short book, John Bogle lays out his arguments for investing using simple portfolios comprised of just a few index funds. There is considerable overlap between this and his other investing books and I really appreciate this book for its concise presentation and brevity.

The Millionaire Next Door: The Surprising Secrets of America's Wealthy by Thomas Stanley and William Danko

This book is a personal finance classic. After interviewing vast numbers of people on their financial habits, the authors conclude that most wealthy people get that way by following simple and sensible practices, along with eschewing flashy conspicuous consumption. This book challenges common conceptions of what it means to be wealthy. Many of the people who appear to be wealthy based on their consumption habits are, in fact, not wealthy and are often jeopardizing their financial well-being by trying to look wealthy. This book also concludes that one of the best ways to become wealthy is to be self-employed or to run a small business well, and to build a life that does not promote endless conspicuous consumption. Along with having a large following, the book also has some influential detractors who claim that the conclusions of the book are deceptive because of changes in the economy over time and sample bias[312] [313]. The fact that many wealthy people are self-employed can only be interpreted correctly if you also tally the number of people who are broke because they tried to be self-employed or start businesses and failed. By looking only at the winners, the conclusions fall prey to what is called *sample bias* or *survivorship bias*.

The Overtaxed Investor: Slash Your Tax Bill & Be A Tax Alpha Dog by Phil DeMuth

When all is said and done, managing your taxes on income from work and from investments may be more significant to financial success than almost anything else. In this book, Phil DeMuth, a financial advisor and author (as well as a friend of mine), delves into how individual investors can develop and optimize a tax strategy. I have become convinced that tax strategy is a crucial part of effective money management and I learned a lot from this book.

Your Money or Your Life: 9 Steps to Transforming Your Relationship with Money and Achieving Financial Independence by Vicki Robin and Joe Dominguez

If there is a single book that can be credited with kickstarting the modern financial independence movement, this is it. The core philosophy espoused here is radical but grounded in good sense and solid thinking. The main thrust of this book is that each person should reconsider the true costs of consumerism and reconsider whether its all worth it. The alternative is to reduce spending, save

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[312] http://www.latimes.com/business/hiltzik/la-fi-mh-the-death-of-the-millionaire-next-door-dream-20150310-column.html

[313] https://en.wikipedia.org/wiki/The_Millionaire_Next_Door

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aggressively, and to save up enough money to leave the workforce as quickly as possible. Once you can live on your investments, you are free to pursue whatever your true calling may be. One of the key ideas of this book is that most people will be a great deal happier with more time and less consumption and the text lays out a strategy to rapidly reaching financial independence. While I love the philosophy of thoughtful consumption and simplicity in the service of financial freedom, the part of the book on investing is not great. Read this book for the exploration of financial freedom but refer to books by others for a better guide to investing.

The Essential Retirement Guide: A Contrarian's Perspective by Frederick Vettese

Guidelines for how much you will need in retirement income and how much to save and invest during working years are largely anecdotal. Vettese, an actuary, presents a rational consideration of financial planning for retirement that puts savings rates, investing, and other aspects of retirement finance on a solid basis. This is a fantastic book for those who want to really understand the basic assumptions of financial planning and why they may not be terribly appropriate for any specific individual. The amount that people need to save for retirement depends on many personal factors and this short book provides a fantastic basis for establishing your own numbers. This book should be required reading for all financial planners and individuals who want to understand where retirement savings guidelines come from and why they may need adjusting.

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AUTHOR BIO

Geoff Considine has worked in finance for about twenty years. Before entering finance, Geoff worked as a research scientist for NASA. He holds a PhD in Atmospheric Sciences from the University of Colorado at Boulder and a BS in Physics from Georgia Tech. When Geoff first left NASA, he worked on a trading floor, developing quantitative models for valuing and trading options and futures on weather, along with energy commodities. He left trading to become a consultant, developing and consulting on energy trading and risk management. Over time, his work evolved to focus on portfolio management and investment applications for more mainstream investments: stocks and bonds. He has worked in wealth management as a quantitative analyst for about fifteen years. Geoff has written articles for, and been quoted in, a range of publications for professional money managers and individual investors. Geoff lives in Boulder, Colorado with his wife, Michelle. They have two children and two dogs.

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