Economics for Life

Real-World Financial Literacy

Donald T. Wargo

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I dedicate this book to my family, my wife, Susan,
and my children, Catherine and John,
who have always supported me.

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Introduction

This book presents financial literacy in a real-world context. Therefore, I admit that some of the information is biased, based on my own experience. My experience includes thirty years as an executive in business, of which fifteen were spent running my own company in commercial real estate development. I bring that on-the-job, real-world bias to the information presented in this book. I have also distilled many years of experience in teaching economics and financial literacy into the opinions I express. For example, I have found that college students want to know the best way to finance the purchase of a house or automobile and not just a discussion of the various types of mortgages you can use to buy a house.

This textbook is primarily written for a course in financial literacy for college undergraduates. However, they do not have to be business or economics majors. In my most recent class, using this book, there were Art History majors and Engineering majors who were quite comfortable with this textbook. The only math prerequisite is an understanding of high school algebra and ability to read graphs. Any formulae in the book are not complicated beyond elementary algebra.

Admittedly, some of the information in this book may be already out-of-date by the time you read it. This includes time-sensitive material such as current prices on the stock market, current interest rates, the fiscal and monetary responses of the federal government, and the status of the Pandemic Recession. In each case of time-sensitive data, I have provided you with website links to view current data. For example, you can watch real time activity of the stock market and of individual stocks on yahoofinance.com.

The economy's performance in the Pandemic Recession, however, is a special case. As of the publication of this text, the Pandemic Recession is officially over, lasting only from February 2020 until April 2020. Thus, I have been able to discuss it from beginning to end and examine in detail the partial recovery of the 22 million lost jobs.

Overall, the advice in this book is based on sound economic theory, which has certainly stood the test of time. While there are some disagreements among economists, they are generally not about the fundamental principles of economics. The major disagreement among economists is between those that are Keynesian economists and those that are Free Market economists. This

division is roughly the same as the split between “Demand Side” economists and “Supply Side (trickle-down)” economists. Demand side economists (Keynesians) believe that in a recession, the government needs to get money to the middle class to stimulate demand and to increase government spending to save jobs. Supply side economists believe the government should cut taxes on corporations and the rich who will invest in business and create jobs. As an economist, I am firmly in the Keynesian camp, as I have seen in economic history very little job creation or economic trickle down from Supply Side policy. After thirty years of deregulation by the U.S. government, beginning with the presidency of Ronald Regan in 1981, the income and wealth distribution in this country have dramatically worsened. Further, while the poverty rate has been slowly decreasing over the last decade, it still remains stubbornly high for a nation that is the wealthiest in the world: Therefore, my policy discussions in this book are Keynesian.

The first two chapters will upend most of what you have been told about how to find a job. My thanks especially to Dr. Eric Shlesinger, retired Director of Human Resources for The World Bank (and a Temple alumnus), for guiding me in the discussion on how to find a job. According to Ben Bernanke, former Chair of the Federal Reserve Bank, the “why” of economics is to increase wellbeing for people. Therefore, Chapter 2, which discusses well-being in the workplace and in your life, speaks to the heart of the purpose of economics.

According to current psychological research, money is both a tool and an addictive drug. It is a tool in that we see money as the ability to fulfill our needs, wants and fantasies. It is a drug in that we are addicted to money. So, in Chapters 3 and 4, we discuss what money is, and we use Behavioral Economics to discuss our attitudes toward money and how we make economic decisions.

Chapters 5 and 6 will help you understand where you stand financially and how to become and stay financially healthy. Unfortunately, many people—either through necessity or bad habits—deposit their paycheck in their bank account and spend it until they run out of money in the account. These chapters will help with simple actions that will enable you to save money for future needs, such as emergencies, home ownership, college tuition, or retirement.

Consider these statistics about personal debt in America. More than 191 million Americans have credit cards. The average credit card holder has at least 2.7 cards. The average household credit card debt is $5,315. Total U.S. consumer debt is at $14.9 trillion. That includes mortgages, auto loans, credit cards and

student loans. We need to reduce credit card and student loan debt, and we examine this in chapters 7 and 8.

In order to make good decisions about money, we need to understand it and learn how to deal with it rationally. We need to think like an economist. Very few people have been taught that, even by their parents. Chapters 9 and 10 will teach you to think like an economist.

Owning a home is the American Dream. However, a home is both a nest and an investment. Chapters 11 and 12 will examine how to buy a home, how to finance a home, and how to insure a home (and your other physical assets).

Almost everyone dreams about becoming a millionaire in the stock market. This is actually a very easy thing to do. Chapters 13, 14, and 15 will teach you how to invest and how to avoid all the traps of the stock market and other investment markets. Finally, chapter 16 explains the range of government policy that can be used (and has been used) to stimulate the economy when we are in a recession.

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1. Your First Big Job: How to Get It

Insights from *Authentic Happiness on Careers*

Everyone wants to find their dream job, but it might take you a few tries before you actually get it. A number of successful people in business, philanthropy, and the arts have told me they had to have a few different gigs before they landed their dream job.

So what is a "dream job"? Simply put, it is a job you love. And, as the saying goes, "Choose a job you love, and you will never have to work a day in your life." But even if you do not get it on the first try, you can still find a job you at least enjoy. The key is to match your **character strengths** (what makes you who you are) with the job you want.

Dr. Martin Seligman from the University of Pennsylvania emphasizes how important it is to identify your top character strengths. In his book Authentic Happiness, he states that if you find a career that utilizes your strengths, you will have higher job satisfaction.

Dr. Seligman has made it easy to figure out those strengths by providing the VIA Survey of Character Strengths. I strongly recommend you also take the Authentic Happiness Inventory and the Grit Survey. Click on the Questionnaire Item on the menu at the top of the page. Take the questionnaire titled, "VIA Survey of Character Strengths (Measures 24 Character Strengths)." This questionnaire takes about 50 minutes, so do not rush through it. You will be asked to create a username and password but do not worry about that. They will not contact you for any other purpose. The purpose is to identify you as a unique subject for their research. It also allows you to return to the site and take other questionnaires.

Once you find out your top character strengths, discuss them with your family, friends, and advisors. Ask them what they think of the findings (you will be surprised how much they agree with the results), and then ask them to help you think of careers that would utilize these strengths. For example, if you like science and you are good at working with others, you might be happy

with a career in the medical field. Or if you prefer solitude and are interested in computers, you could look for a career in information technology instead.

If you do not figure out your top character strengths before you search for a career, you will have no real criteria for choosing the kind of job you want. When you chose your major, you already took some steps in defining your career interests. However, your major is not always a reliable indicator of where you will find job satisfaction. Several students change majors, and many graduates end up in fields unrelated to what they studied in college.

Wisdom from *What Color Is Your Parachute?*

Now that you know your top character strengths, it is time to start looking for a job. In *What Color Is Your Parachute for Teens*, Carol Christen lays out four basic steps to finding your dream job:

1. Conduct informational interviews.
2. Cultivate contacts and create networks.
3. Research organizations of interest.
4. Begin a campaign to get the job you want.

Conduct Informational Interviews

Informational interviews might be one of the most fun things you can do. Basically, you are having a conversation with someone in a career you are interested in. Since you are both interested in this line of work, you will have plenty to talk about. Ask how they chose their career. What skills are required to get a job in the field? What do they like and not like about it? What are the salary ranges? What are the challenges in this particular industry? Finally, can they introduce you to two or three other people in the field that you can talk to? Your job is to get them to talk and then to just listen.

You might not know anyone with your dream job, but it is easy to find someone in the field who will talk to you. Most people are willing to help a

young person with career advice, just like someone helped them in their own careers. Search online for organizations in your field and reach out to the person that's best to talk to. Or you might even know someone who knows someone who knows someone else.

Cultivate Contacts and Create Networks

People you interview become part of your **network**. Keep in touch and ask them to let you know when there are any openings in your field. Friends and family can also be a part of your network, and they might be willing to help you in your job search.

LinkedIn is another good tool to develop your network. Start an account while you are still in college and add students who will graduate before you. Also, almost all colleges have an alumni/ae network you can use to meet graduates in your field. Try visiting the alumni/ae office for advice on how to connect with them.

Most importantly, stay in touch with your contacts, not only during college, but after you get your first job. On average, employees only stay about three years at a job, so you will want to keep those contacts for your next search. In addition, you should pay it forward by helping other young job seekers. Keep in touch with your alumni/ae group for those kinds of opportunities.

Research Organizations of Interest

There are two times to research organizations in your field. The first is to find companies you would like to work for, and the second is when you have been invited for an interview. A simple Google search can help you find companies in your field, and online recruitment sites will give you a sense of how well a company treats its employees and potential salaries it might offer. Also, you can often find articles that list the top companies to work for in your city.

When you are researching a potential employer, you should try to find answers to these questions:

- Is the company financially stable?

- Does it treat its employees well?
- Is the company ethical?
- Does it have significant competition?
- Do employees have well-defined career paths?
- How are the employee benefits?

The Inverted Pyramid of Hiring

Eric Schlesinger, the former Senior Director of Human Resources at the World Bank (and my good friend) says that most new hires are found in a way that's completely opposite of what most people would think. He calls it the "Inverted Pyramid of Hiring."

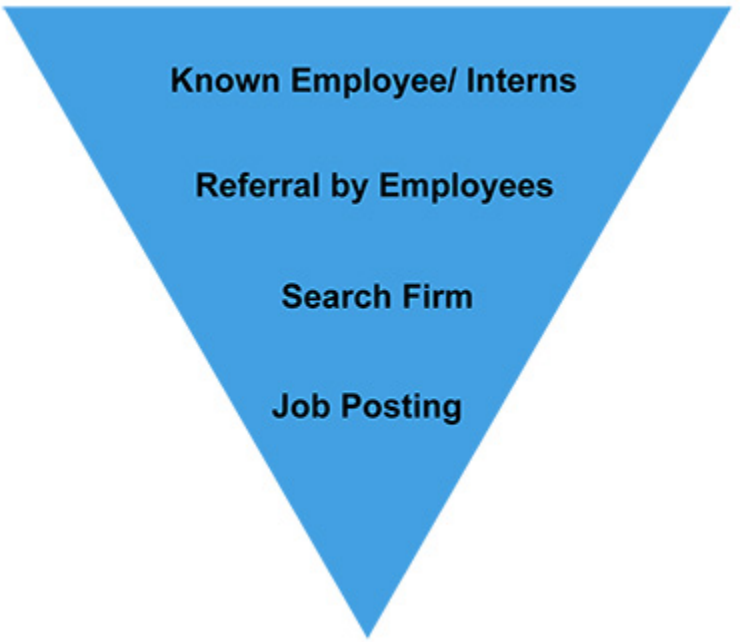


Figure 1.1. *The Inverted Pyramid of Hiring*

Given this hiring structure, Schlesinger has this advice for job seekers:

1. 80% of vacancies are not advertised, so the best way to find job openings and get an interview is to network. The best people to network with are the Four F's: Friends, Family, Faculty, and Former employers.

2. Do not focus on job listings. You can apply to these, but they represent only 20% of current vacancies.

3. Once you get an interview, remember that the employer is not really interested in what they can do for you; rather, they want to know what you can do for them. You should be able to say, "I see you have a problem. I can solve it."

4. While you are in college, get as many internships as you can. Career counselors say that 80% of internships lead to a full-time job offer.

Internships

If you have had retail or service jobs, it likely will not impress a potential employer nearly as much as an internship. Of course, a lot of students have to take part-time jobs, but you should first try to find a paid internship. A professional development or career center at your college can help you find internships and might offer stipends to help with unpaid opportunities.

Mount Holyoke College recently introduced a program to give students stipends so that they could take one or more internships (Townsley et al., 2017). They found that along with GPA, the graduates with more internships had higher odds of being employed six months after graduation. A recent Gallup-Purdue survey also found that employers valued work experience more than a student's GPA when hiring.

Resumes

In *What Color is Your Parachute*, Carol Christen says, "Resumes are not a very effective job-search tool for adults. They are even less effective for younger workers. Usually younger workers lack experience in the jobs or fields in which

they most want to work" (2015). Instead, she says it's better for job seekers to create a website. My experience is that websites are the expected vehicle for people in creative fields, such as copywriters, cinematographers and artists, but companies will still want to see resumes. For graduating job-seekers, the classic "skills-focused" resume highlights your strengths and your work experience. Your school's career center can help you refine your resume. Temple University's Career Center has a number of sample resumes from students from a variety of majors.

Currently, there is debate about whether resumes should be one page or two pages long. The existing wisdom is that two pages is perfectly acceptable. However, Eric Schlesinger cites research that one-page resumes are read more often than two-page resumes, and conversely, two-page resumes are more often ignored. Whatever the length of your resume, it should be well designed and contain no errors or fabrications. Any errors will show sloppy (or unethical) character and get you rejected fast. Even if you do not get caught fabricating anything at first, you could be fired when it comes to light.

The purpose of the resume is not to sell yourself but to get an interview. You want to make a good impression; eight seconds is the average time an employer spends initially looking at your resume. After that, each resume goes into one of two piles: "Fuggetaboutit" and "Maybe."

You might feel angry it only takes eight seconds to be rejected or accepted, but there are a lot of candidates out there similar to you. As much as your parents and teachers praised your "uniqueness," others out there are just as "unique" as you. In order to make your resume stand out, you should think of the qualities that make you a better candidate than other applicants.

Most candidates have multiple resumes to emphasize different skills they have. For example, let's say you are good at engineering and at making sales. You want to emphasize your strength in sales for a sales job and your engineering ability for an engineering job. In other words, your resume should be custom tailored to each job opening.

Cover Letters

Always send a cover letter. The letter should show you have knowledge of the organization and be addressed to the appropriate person. As with your resume,

it should be one page and customized to emphasize your skills. Temple's Career Services has some sample cover letters that you can check out.

The Job Interview

When you are invited to interview, the employer has decided you likely have the minimum skills required for the job, and now they want to find out more about you. Think about what they might want to know and what questions they could ask. You will need to come up with your **elevator speech**. Imagine you happen to get into an elevator with the CEO of a company you want to work for. You have about one minute to get them interested in you. Practice this elevator speech to prepare for your interview.

Your college's career center likely gives practice interviews, and some even have alumni/ae conduct the interviews themselves. Make sure your answers are no less than 20 seconds (or you will appear to lack communication skills) and no longer than 2 minutes (or you will appear too self-involved). Talk half the time and listen for the other half. Ask for more details about the job and company.

Remember: the employer is not interested in what they can do for you; they want to know what you can do for them. As I said before, this is when you should do some research into the company. Find out what they are trying to accomplish and what challenges they face. It could be that they want to make more sales, or it could be that they lack organization. Whatever the case may be, you can use your research in the interview. Show a detailed understanding of the company and let them know how your skills fit their needs. Essentially, to manage a company is to confront a series of problems every day. If you show your potential employer you can help solve their problems, you will be golden.

Job interviews are for both you and the employer to see if you are a good fit with the organization. However, the probability of each of you figuring this out in one or two interviews is very low. There are even researchers who say that face-to-face job interviews are useless in gaining any information that will tell the potential employer whether you will be a good employee or not. That is why you need to do a lot of research about the organization (and possibly even about the person who will be interviewing you) ahead of time.

Show Them You Will Be an Engaged Employee

But that's not all! Here's the secret sauce that will almost certainly get you a job offer: signal that you will be an **engaged employee**. Every employer wants engaged employees, workers who are committed to the goals and values of the organization. The Gallup Organization has built a large consulting practice around measuring employee engagement. In a 2015 telephone survey of 80,000 workers who worked for American organizations,Gallup found that:

1. The percentage of U.S. workers in 2015 who Gallup considered "engaged" in their jobs averaged 32%.
2. The majority (50.8%) of employees were "not engaged."
3. Another 17.2% were "actively disengaged."
4. The 2015 averages are largely on par with the 2014 averages and reflect little improvement in employee engagement over the past year.
5. The percentage of engaged employees has been essentially flat since Gallup began taking the survey in the year 2000.

The biennial Gallup Employee Engagement Survey in 2017 showed the number of engaged employees essentially constant at 33% vs. 32% in the 2015 survey. What employer would want to hire another "not engaged employee?" Yet American organizations are stuck with the vast majority of their workers being "not-engaged" or "actively disengaged."

Do your research and show the potential employer that you are familiar with the company's values. Almost every organization has a mission statement and code of ethics on their website. Prepare a short (but sincere sounding) speech that shows you understand and identify with the company's goals and values.

Recent evidence shows that signaling you will be a committed employee will give you a good chance of getting hired over a somewhat more qualified competitor for job. In a recent article in The Wall Street Journal, "Afraid You're 'Too' Qualified for a Job? Here's What You Can Do", Heidi Mitchell (2019) reports on the work of Oliver Hahl, assistant professor of organizational theory and strategy at the Tepper School of Business at Carnegie Mellon University. In Hahl's study, hiring managers were given the resumes of both highly qualified and just sufficiently qualified candidates. They were told that the candidates'

commitment level to the organization had been assessed and they were determined to be either “neutral” or “committed.”

In the case of two “neutral” candidates, where there was no mention of loyalty to the company, the less qualified candidate was more likely to be hired. When asked for a justification, Hahl reports that hiring managers stated their belief that the more qualified “neutral” candidate might not stay and would be difficult to manage. Among candidates who were deemed to be “committed,” the highly qualified applicants were more likely to be hired. However, if hiring managers were provided with a “neutral” candidate and a “committed” candidate, the “committed” employee had a more than 50% chance of being hired over a more qualified candidate. And when given two equally qualified candidates, the “committed” one is more likely to be hired. Hahl concludes, “Managers are concerned with selecting not just the highest-ability candidate but the one who is both capable and committed.”(Mitchell, 2019).

Always Send a Thank-You Note

Job hunters send out lots of resumes but often receive no response, which is rude on the part of employers . You, the applicant, should respond to each rejection letter or email and ask if the employer knows of any other job openings or employers that could use your talents.

Also, after every interview, always send a thank-you note. For job seekers, it is not just common courtesy but an important competitive advantage. It will help you stand out, and it gives you the opportunity to emphasize two or three things you want them to remember about you. At the same time, if you misstated something or did not represent yourself well, the thank you note gives you a chance to clear things up. Even if it is obvious from the interview you are not going to be hired, you can use the note to ask if they can let you know any other organizations that could use your skills. I guarantee your courtesy will be rewarded.

Do Not Take the First Offer (Maybe)

Do not ask about salary too early in the interview, as that can make you seem

only interested in yourself. However, it is perfectly fine to ask for information about benefits, though you'd be better off waiting until you are near the end of the interview. Read the interviewer and decide for yourself if it seems like you are a good fit for the job. Obviously, if it is clear you and the organization are not a match, asking about benefits is a waste of time for both of you. When you do feel like there is potential, though, asking about benefits is an easy way to lead into asking about salary without appearing greedy.

Benefits vary widely from company to company and should be considered when making a decision about a job offer. Base your choice on the total compensation package you are offered, not just the base salary. For example, in 2019, the average annual health insurance premiums for an individual were about $8,000 and about $20,000 for a family of four. Most companies ask employees to pay 25-50% of the premium as a co-pay. A co-pay reduces your salary dollar for dollar.

You should also factor retirement benefits into your decision about a position. Most organizations offer a 401(k) Retirement Plan. Under a 401(K), employees authorize a payroll deduction (typically 3-5% gross salary) and the employer matches some or all of that amount. A 401(k) is valuable as those deductions are tax deferred; you pay no taxes on your contributions or investment gains until retirement. Besides retirement and health, benefits like vacation, childcare, and tuition are also important parts of your compensation.

If you do feel like it is okay to ask about salary, do so gently. Try saying something like, "Can you give me a sense of the salary range for this position?" As with everything else, you should research the salary ahead of time. Websites like *Glassdoor* can give you some sense of a company's salaries, and many industry associations take annual salary surveys you can find online. Getting the employer to quote the salary first lets you make a counteroffer, one that's based off your research. Emphasize that you want to work there but need a more competitive salary.

When thinking about your salary, you should also take the cost of living into account. Living in San Francisco or Manhattan can cost twice as much as living in Kansas City. There are many websites (like this one) that can help you compare the cost of living in various parts of the United States.

I say *maybe* you should not take the first offer from a company because it often depends on the size of the company you are negotiating with. A medium or large company (over 50 employees) will have established a competitive salary range. Your offer should be in that range. If you do some research and find that the offer is competitive, you might want to accept it without trying to

negotiate. However, do not forget: benefits are extremely important to the total compensation package, and you should try to negotiate these if they are not in line with similar positions.

If you receive an offer from an organization of under 50 employees, the company might try to offer the lowest salary possible in order to keep their costs down. If that happens, you should point out that their offer is not competitive and try to negotiate a better total compensation package. Since the company has decided they want you, they should be willing to increase the offer. If, on the other hand, they are not willing to increase their offer, this will show you what type of managers they are.

How to Ask for More Money

Negotiating a salary is different than negotiating a one-time transaction. When you buy a car or a house, you will likely never see the person again. The seller's incentive is to get as high a price as possible, while the buyer wants to pay as little as possible. If you pay too much, well, you can get angry, but that is the end of the transaction. However, once you are employed, you are expected to work for the good of the organization.

In any case, if you are ever in doubt, ask for help! A career counselor will have access to all kinds of job resources, and your family and friends might have some wisdom to offer you. I also recommend reading *What Color Is Your Parachute?* by Richard Bolles, for some helpful rules for salary negotiations.

Drug Tests

Generally, companies have zero tolerance for drug use. In certain fields, you will almost always be required to take a drug test as a condition of employment. These include jobs in public safety, childcare, the federal government, and medicine.

The Last (and Definitive) Word on Job Searches

Searching for a job is more art than science. I have already said that networking is the best method to find job openings and hopefully get an interview. However, the most successful job hunters are those who have the same conviction of Winston Churchill:

> “This is the lesson: never give in, never give in, never, never, never, never – in nothing , great or small, large or petty – never give in except to convictions of honour or good sense.”

2. Flourishing in Your Job and Well-Being in Your Life

How to Behave the First Week on the Job

Since this is a book about financial literacy, this is likely your first or second job, and you will need to learn some of the fundamentals. First, you should remember that a job is immersed in a social setting. You have to get along with people—especially your boss and co-workers! Unfortunately, there is no manual for how to do this.

Instead, you have to use your people skills. Listen to your supervisor and do what they direct you to do. Do not question a supervisor's orders; you will need to earn their trust before you can do that. With your co-workers, be willing to listen and to not be so vocal with your opinions. In the beginning, you are there to learn about the organization and build trust. A know-it-all will not be trusted.

Gossip at Work

R.I. Dunbar states that "Analyses of freely forming conversations indicate that approximately two thirds of conversation time is devoted to social topics, most of which can be given the generic label *gossip*" (2004). This **gossip** is what you need to get connected to in your workplace, and you can find it by making friends at your job. Take co-workers out to lunch or, better yet, go for drinks after work.

When you are with your co-workers, you should listen more than you talk. Your co-workers can tell you things like which bosses are mean, which co-workers will stab you in the back, and which men are sexual harassers. This gossip will also tell you who has power in the organization. For example, often a personal assistant controls access to the President, so it is important to be kind to them.

More than just providing gossip, friends at work also increase your well-being.

Remember that work is not just about doing your job but getting along with your co-workers. Modern organizations are built around teamwork, but more importantly, people who report that they consider a co-worker their best friend are much more likely to also report that they love their job.

Insights from *Give and Take* by Kurzban and Houser

You not only need friends, though; you also need networks, both inside and outside of work. Adam Grant, a professor of Industrial Psychology at the University of Pennsylvania, talks about the importance of networks in his book, *Give and Take*:

> By developing a strong network, people can gain invaluable access to knowledge, expertise, and influence. Extensive research demonstrates that people with rich networks achieve higher performance ratings, get promoted faster, and earn more money. (2013)

Interacting in networks (or teams) involves giving and taking, and Grant states that there are three different styles of reciprocity: **giving**, **taking** and **matching**. Each of these has a different type of network. A "taker" likes to get more than they give to a network or relationship. A "giver" (admittedly a rare breed in the workplace) prefers to give more than they get, and a "matcher" strives to preserve an equal balance of giving and getting.

Our personality is 50% the result of nature (or evolution, which equals genetics) and 50% the result of nurture (or the interaction of our genetics with our environment). However, where Grant takes these types as a given, Kurzban and Houser used experiments to establish that evolution has created a relatively stable mix of these three reciprocity styles (2005). According to Kurzban and Houser, this is the breakdown:

Table 2.1. Kurzban and Houser Reciprocity Styles

Kurzban Type Name	Percent	Grant Type Name
Cooperators	17%	Givers
Reciprocators	63%	Matchers
Cheaters (Free Riders)	20%	Takers
Not Classified	3%	

I do not think I can stress enough how important Kurzban's and Houser's work is to how we can understand and develop professional networks. For example, if you have to work on a randomly assembled team, you will encounter a mix of **cooperators**, **reciprocators**, and **cheaters**. Grant reports that each of these reciprocity types deal with their networks in different ways:

> Givers give a lot more than they receive. This is a key point: takers and matchers also give in the context of networks, but they tend to give strategically, with an expected personal return that exceeds or equals their contributions. When takers and matchers network, they tend to focus on who can help them in the near future, and this dictates what, where, and how they give. Their actions tend to exploit a common practice in nearly all societies around the world, in which people typically subscribe to a norm of reciprocity: you scratch my back, I'll scratch yours. (2013)

However, Grant reports that even though takers and matchers get ahead, givers end up creating the widest network and become the most successful (as long as they do not end up as doormats for takers). If you are a giver, gossip once again comes in handy; matchers and other givers do not appreciate takers and will share this information widely among their co-workers.

Unfortunately, takers are fakers, and that can make them hard to identify. Everyone talks like they are a good member of the team so be sure to watch closely and remember that being agreeable is not the same as contributing.

Of course, sometimes you cannot avoid working with a taker. To help you understand what strategy you should use, we need to acquaint you with some economic game theory, specifically a strategy called **tit for tat**. This is usually a matcher strategy, as it requires you to match what the other player does. It will maximize your gains if you are dealing with a giver or matcher and minimize your losses if you are dealing with a taker. Thus, it is a max/min strategy.

To understand how this strategy works, we can talk in terms of cooperating with or not cooperating with your teammate. The strategy works like this:

1. In the first round you presume good will and cooperate with your teammate.
2. You see if your teammate reciprocates by cooperating in the first round.
3. If your teammate does not cooperate in the first round, you stop cooperating until the teammate cooperates.
4. Then you return to cooperating.
5. If the teammate again does not cooperate in any round, you then do not cooperate in the next round.

Another way to look at this is that you (assuming you are a giver or matcher) begin by cooperating and then copy your teammate(s)' strategy from the previous round.

Here is how it might look in a series of rounds:

Table 2.2. Tit for Tat Strategy

YOU	YOUR TEAMMATE
Cooperate	Not cooperate
Not cooperate	Not cooperate
Not cooperate	Not cooperate
Not cooperate	Cooperate
Cooperate	Cooperate
Cooperate	Not cooperate
Not cooperate	Cooperate

How does this translate to the real world of work? Well, imagine that a fellow worker comes to you to ask for advice or help with a project. You are a giver or a matcher and you help them. Then, you need help yourself and that person has excuses or does not answer your emails. Obviously, your natural tendency is to not help them the next time they ask. We can also humanize the strategy to make it feel more familiar:

1. **Tit for tat is generous** in that it starts out cooperating in the first round.

2. **Tit for tat has a strong sense of fairness** in that it punishes the teammate by not cooperating in a subsequent round if the teammate does not return favors.

3. **Tit for tat is forgiving** because if the teammate starts to cooperate, you will return to cooperating.

4. **Tit for tat is non-envious** because by cooperating, both of you are gaining and you are not competing and striving to get ahead of your teammate.

Are these not characteristics you want your children to have? There's also a good chance that many of us already use this in our personal interactions.

However, tit for tat is not the only strategy. Grant reminds us that givers are the most successful people in the workplace, since they develop the widest and strongest networks. Citing Martin Nowak's book, *Super Cooperators* Grant says that the best strategy for givers (or wannabe givers) is the **generous tit for tat**. This is because Nowak found that it is more advantageous to alternate between giving and matching in personal interactions As with regular tit for tat, you begin by cooperating, assuming good will on the part of your teammates. If your partner does not cooperate but rather *competes*, you continue to cooperate. Specifically, you want to cooperate once every three complete rounds. In other words, for every three times your teammate *competes*, you compete two of the times in response and cooperate one time in response. Another way to put it is that instead of competing every time the other player competes, you compete only two-thirds of the time.

According to Nowak, "Generous tit for tat can easily wipe out tit for tat and defend itself against being exploited by defectors" (2011). It achieves the desired goal of encouraging givers and punishing takers, but it is not too punitive. It can also be called a "Trust but verify" strategy. According to Grant:

> Generous tit for tat achieves a powerful balance of rewarding giving and discouraging taking, without being overly punitive. It comes with a risk: generous tit for tat encourages most people to act like givers, which opens the door for takers to 'rise up again' by competing when everyone else is cooperating. But in a world where relationships and reputations are visible, it's increasingly difficult for takers to take advantage of givers (2013).

Promotions

Promotions are the way to get salary increases that are above just a **Cost-of-Living raise**. The concept in human resources is that a more complex job deserves a higher salary. The best way to get a promotion is to do an excellent job in your current position. Also, volunteer for extra work if your boss asks. You are proving that you are a team player and an engaged employee and your boss will trust you with increasing responsibilities.

Women at Work

In 2020 women made up 47% of the US labor force. However, analyses of women's compensation and place in the organizational hierarchy reveal ongoing imbalances when compared with their male counterparts. At the highest level, in 2021 only 41 CEOs of the Fortune 500, or 8.1%, were women. The **gender wage gap** is a recognized phenomenon that has been widely studied. In 2019 women were making 82.3 cents for every dollar of men's earnings. Although it has narrowed significantly since 1979, when it was 62.3, the gender wage gap remained relatively stable through the 2010s. This is true when examined across racial/ethnic and occupational categories (highlights of women's earnings in 2020). Among the many causal factors, researchers have identified a motherhood wage penalty that is variously attributed to productivity differences and discrimination (De Linde Leonard, 2020; Gallen, 2018; Correll, 2007).

For women in the early phase of their careers, there are several considerations that may lead to more positive salary and promotional outcomes. According to Adam Grant (2013), women are not as willing as men to advocate for more money during salary negotiations. Understanding this tendency may help to resist the urge to accept the first offer. It is often prudent to step back, take an objective perspective, and get some advice from a trusted colleague before responding to a salary offer.

Early career promotions to management are a second factor that women should pay attention to. In a Wall Street Journal article largely based on the influential study Women in the Workplace, reporter Vanessa Fuhrmans explains that it is "...early in women's careers, not later, when they fall dramatically behind

men in promotions...Though women and men enter the workforce in roughly equal numbers, men outnumber women nearly 2 to 1 when they reach that first step up—the manager jobs that are the bridge to more senior leadership roles." Although companies advance women already in management positions, there is not a similar effort to promote women to that first management position. As Haig Nalbantian, a labor economist at the global human resource consulting firm Mercer explains, companies need to "position women and minorities to succeed in the roles that are likely to lead to higher-level positions" (Fuhrmans, 2019). Senior partner at McKinsey & Co. and contributor to Women in the Workplace, Lareina Yee comments that "[f]ew efforts are likely to remedy the problem as much as tackling the gender imbalance in initial promotions to management" (Fuhrmans, 2019). In early career employment searches, women can choose to seek out companies with a positive record of advancing women. Once employed, they should be proactive in understanding the expectations for promotion into management.

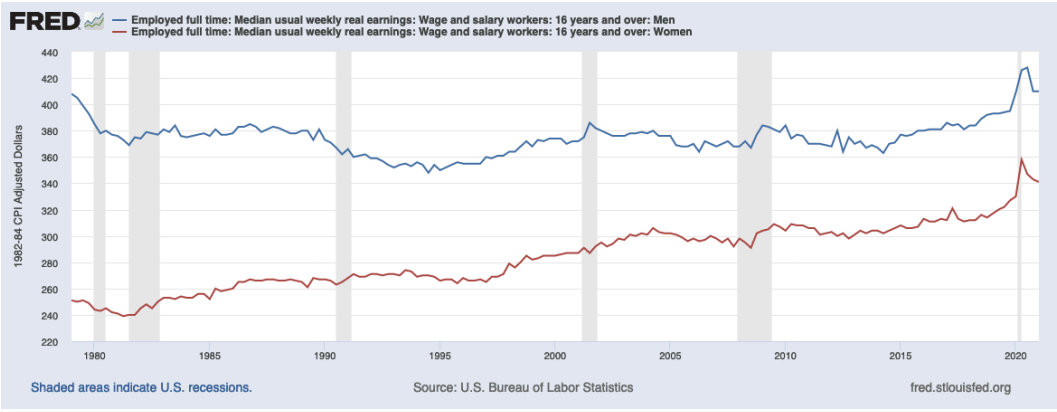


Figure 2.1. *U.S. Bureau of Labor Statistics, Employed full time: Median usual weekly real earnings: Wage and salary workers: 16 years and over: Men and Women [LES1252881900Q and LES1252882800Q], retrieved from FRED, Federal Reserve Bank of St. Louis; September 30, 2021.*

Employment Discrimination

Contemporary employment discrimination law developed mainly out of Title VII of the Civil Rights Act of 1964, which prohibits employment discrimination based on race, religion, national origin, and sex. Subsequent legislation and legal interpretations have extended employment discrimination to include age, disability, pregnancy, and other categories. On June 15, 2020, the Supreme Court ruled that Title VII also extends protection to LGBT employees. The Equal Employment Opportunity Commission (EEOC) is the agency responsible for the enforcement of federal employment discrimination laws. These laws also protect those who report discrimination from retaliation. States have laws prohibiting employment discrimination that are similar to and sometimes more expansive than federal laws (Bennett-Alexander, 2018). These state agencies are referred to as fair employment practice agencies (FEPAs).

Sexual harassment is a form of employment discrimination that can occur in a variety of ways.

- The victim, as well as the harasser, may be a woman or a man.
- The victim may be of the same or opposite sex.
- The harasser may be the victim's supervisor, an agent of the employer, a supervisor in another area, a co-worker or a nonemployee, such as a vendor or customer.
- The victim does not have to be the person harassed but can be anyone affected by the offensive conduct.
- The harasser's conduct must be unwelcome.

If you report sexual harassment, whether to your supervisor or someone in HR, legally they must investigate the harassment and, if found credible, take prompt action to try to stop the behavior.

Ideally, it is best to understand your rights and responsibilities regarding employment discrimination before encountering a problem. Familiarize yourself with your company's policies on discrimination and the procedures of the EEOC and relevant state FEPAs. If you feel you have been the subject of workplace discrimination, the EEOC website is a good place to begin figuring

out the most appropriate way to respond. There you can find the relevant laws, the role of enforcement agencies in interpreting and administering the laws, and how to file charges. It is important to note that, with the exception of violations of the Equal Pay Act (EPA), you can only file a job discrimination lawsuit under federal law after you have filed charges with the EEOC.

Resources

There are a number of resources that will help you identify companies that are committed to diversity and inclusion, as well as resources to consult if you have been the subject of harassment or discrimination in the workplace. Several are listed here.

How to identify companies that value diversity, equity, and inclusion

- How to Tell If a Company Truly Values Diversity and Inclusion (or Is Just All Talk)
- How to Tell If a Company Values Diversity and Inclusion

How to identify bias in a job listing

- 8 Great Job Boards for Diverse Professionals
- Gender Decoder Tool
- How to Identify Gender Bias in a Job Listing
- Top Diversity and Inclusion Job Board Sites

Knowing your rights as an employee

- 13 Things Your Boss Can't Legally Do
- Employees' Practical Guide to Requesting and Negotiating Reasonable Accommodation Under the ADA
- National Labor Relations Board Employee Rights

- U.S. Labor Laws and Issues

What to do if you have been discriminated against

- How to File a Charge of Employment Discrimination
- U.S. Equal Employment Opportunity Commission Guidance by Type of Discrimination
- U.S. Equal Employment Opportunity Commission Guidance on Sexual Harassment

How to recognize and respond to workplace stressors or microaggressions

- Black Women Talk About Workplace Stress and How They Cope
- How To Handle Microaggressions in the Workplace
- Minimizing and addressing microaggressions in the workplace
- Recognizing and Responding to Microaggressions at Work

Well-Being

In 2010, Ben Bernanke gave a commencement address in which he described the "the ultimate purpose of economics":

> [It] is to understand and promote the enhancement of well-being. Economic measurement accordingly must encompass measures of well-being and its determinants...Interestingly, income and wealth do contribute to self-reported happiness, but the relationship is more complex and context-dependent than standard utility theory would suggest. Other important contributors to individuals' life satisfaction are a strong sense of support from belonging to a family or core group and a broader community, a sense of control over one's life, a feeling of confidence or optimism about the future, and an ability to adapt to changing circumstances.... Psychological wellness, the level of education,

physical health and safety, community vitality and the strength of family and social ties, and time spent in leisure activities.

That is a pretty large list of things that determine your **well-being**. You will recognize some from traditional economics, while others are from this new view on economics. We can put them in a list to make them a little clearer:

Determinants of Well-Being

- Gross domestic product per capita
- Personal consumption expenditures
- Household income
- Household wealth
- Changes in the distribution of income, wealth, or consumption
- Degree of upward mobility in material measures of well-being
- Indications of job security and confidence about future employment prospects
- Households' liquidity buffers or other measures of their ability to absorb financial shocks
- A strong sense of support from belonging to a family or core group and a broader community
- A sense of control over one's life
- A feeling of confidence or optimism about the future
- An ability to adapt to changing circumstances
- Psychological wellness
- The level of education
- Physical health and safety
- Community vitality and the strength of family and social ties

- Time spent in leisure activities

Additionally, the Organization of Economic Cooperation and Development (an association composed of developed nations) has created a Better Life Index comprised of elements that increase well-being.

OECD Better Life Index

- Housing
- Income
- Jobs
- Community
- Education
- Environment
- Civic Engagement
- Health
- Life Satisfaction
- Safety
- Work-Life Balance

What makes you happy? (Maslow's Hierarchy of Needs)

People often conflate "happiness" with "life satisfaction." According to Bernanke, researchers define happiness as a transitory emotion that is influenced significantly by your current circumstances, including the weather and even the time of day (2010). On the other hand, they use life satisfaction to refer to a long-term state of contentment and well-being. Psychologist Abraham Maslow captures the conditions that give humans life satisfaction in his **Hierarchy of Needs** (1943). These are usually portrayed as a pyramid (though

Maslow did not initially present it this way) in order to represent Maslow's contention that each level must be achieved before progressing to the next level. For example, if a person does not have their physiological needs met, they will be focused on those before pursuing safety needs, which is the next step on the pyramid. While most of the needs might seem pretty obvious, I want to point out that the self-actualization need can include things like partner acquisition, parenting, pursuing goals, and utilizing and developing talents and abilities.

It should also be noted that Maslow would later revise and expand his Hierarchy of Needs to include:

- Cognitive needs
- Aesthetic needs
- Transcendence

For Maslow, transcendence included the need to help others and to seek spiritual transcendence.

Other researchers have added two significant ideas to Maslow's Hierarchy. The first is that the steps are fluid, and the pursuit of various goals can overlap at different stages in our lives. Second, you can achieve high levels of self-actualization, but if the lower needs have not been met, you will be forever trying to find them. The news is filled with stories of stars with wealth and fame who missed the needs lower on the pyramid and had tragic ends to their lives.

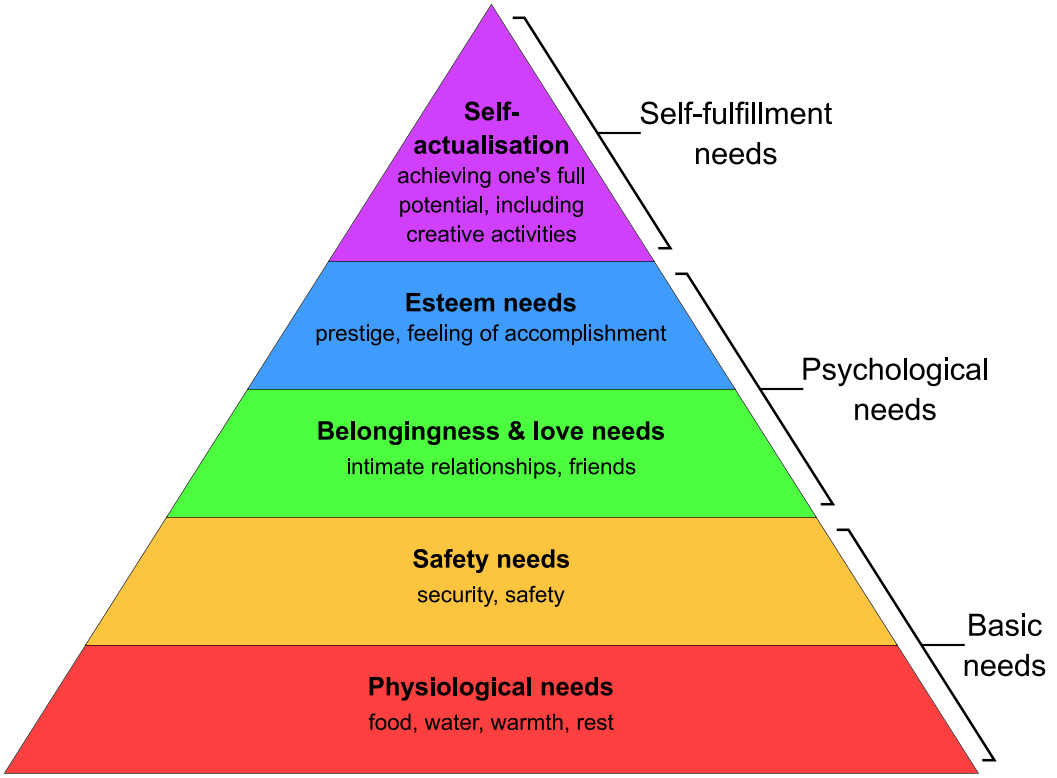


Figure 2.2. *Maslow's Hierarchy of Needs by Androidmarsexpress is used under a CC BY-SA 4.0 License.*

What makes you happy? (Ben Bernanke)

I find it pretty amazing that Ben Bernanke, Chair of the Federal Reserve Bank—the bastion of capitalism—would give a commencement address on the economics of happiness. In fact, Bernanke did just that at the University of South Carolina on May 8, 2010 (Bernanke 2010). This is exactly the kind of advice that you are looking for in this book! Bernanke opened his addressed by saying,

> As you might guess, when thinking about the sources of psychological well-being, economists have tended to focus on the material things of life.... This traditional economist's perspective on happiness is not as narrow and Scrooge-y as you might think at first. There is now a field of study, complete with doctoral dissertations and professorships, called

> 'the economics of happiness.' The idea is that by measuring the self-reported happiness of people around the world, and then correlating those results with economic, social, and personal characteristics and behavior, we can learn directly what factors contribute to happiness (2010).

What gives people life satisfaction is not just material wealth. In fact, although rich people in developed nations self-report that they are somewhat happier than poor people in those nations, people in poor nations report that they are pretty much just as satisfied with their lives as those in rich nations. As a matter of fact, in the United States, real per capita income has almost tripled over the time period 1946 to 1991 but average happiness has not changed at all. This finding is called the **Easterlin Paradox**, named after the researcher who discovered it.

Similarly, Easterlin also found that as countries around the world get richer (economists measure this as Gross Domestic Product per capita) people do not report being happier. And in comparing rich countries to poor countries, Easterlin also found that once you get above a certain amount of income that satisfies basic material needs, people in rich countries do not report being much happier than people in poor countries (Easterlin, 1974). Additional research on the Easterlin Paradox has shown that even though people in rich countries may be more satisfied than people in poor countries, the increase in happiness due to greater wealth is moderate (Bernanke 2010). Do not forget that rich countries have more leisure time, better health care, often less corruption and other benefits. The explanation for the Easterlin Paradox, according to Bernanke, is that **relative wealth** is much more important than **absolute wealth**.

A behavioral economic phenomenon called **hedonic adaptation** is also at work here (Frederick and Lownestein 1999). Humans are adaptable, and, like lottery winners who seem to return to their base level of happiness within six months, adaptation to any additional income causes us to return to our base level of life-satisfaction. Finally, Bernanke relates what the economics of happiness tells us will give us life satisfaction. Here are some of the highlights from his 2010 address:

- "Happy people tend to spend time with friends and family and put emphasis on social and community relationships."

- "Another factor in happiness, perhaps less obvious, is based on the concept of 'flow.' When you are working, studying, or pursuing a hobby, do you sometimes become so engrossed in what you are doing that you totally lose track of time? That feeling is called flow."
- "Another finding is that happy people feel in control of their own lives. A sense of control can be obtained by actively setting goals that are both challenging and achievable."
- "Finally–and this is one of the most intriguing findings–happiness can be promoted by fighting the natural human tendency to become entirely adapted to your circumstances. One interesting practical suggestion is to keep a 'gratitude journal,' in which you routinely list experiences and circumstances for which you are grateful."

You will no doubt see some parallels to Maslow's Hierarchy of Needs. Maslow spent a lot of time studying exceptional people such as Albert Einstein to see what made them feel fulfilled. His Hierarchy of Needs is a prescription for what will make humans happy—not just an academic study in developmental psychology.

What makes you happy? (Authentic Happiness)

When Dr. Martin Seligman was elected President of the American Psychological Association in 1998, he promoted an initiative in psychology to study what makes people happy along with the traditional subject of what makes people sick. This field of study became known as **Positive Psychology**. In his book, *Flourish*, Seligman presents his theory of what makes people happy (2011). It consists of five practices that are memorialized by the pneumonic "PERMA."

Positive Emotions

Cultivate positive emotions. Pursue activities that bring you happiness and life satisfaction. (We've talked about these activities above in the sections on

Maslow and Bernanke.) It also means doing gratitude exercises, such as listing three things you are grateful for each day before you go to sleep.

Engagement

Deep engagement in an activity is known as flow. In his 2011 book, Seligman provides a series of questions so that you can determine if you were in a flow:

- Did time stop for you?
- Were you completely absorbed by the task?
- Did you lose self-consciousness?

According to the principles of Positive Psychology, the way to become engaged in your work is to find a career that uses your signature character strengths (see Chapter 1). You can find your Signature Character Strengths by taking the questionnaire VIA Survey of Character Strengths on the Authentic Happiness website.

Relationships

Specifically, we should focus on *positive* relationships. As Bernanke said, friends and family give us the greatest life satisfaction, and you can practice daily reminders that you are grateful for friends and family. However, it is not just what your friends and family can do to make *you* happy. Maslow's revised hierarchy places transcendence at the top. Transcendence is achieved by activities that focus on helping others reach life satisfaction and on pursuing your spiritual virtues. According to Seligman, positive relationships require both the capacity to love and the capacity to *be* loved.

Meaning

Meaning is belonging to and serving something bigger than yourself.

(Sleigman 2011, p. 17). It can be devotion to your family, to a cause, or a spiritual belief. Meaning has both a subjective motivation (the feeling we get) and an objective motivation (that caring for others is an important virtue). Psychologist Vicktor E. Frankl, in his book, *Man's Search for Meaning*, claims that our quest for meaning in our lives is one of the fundamental human aspirations (2006). According to Frankl, having meaning in our lives is so important that it can make the difference between life and death. During the Holocaust, Frankl was interned in a concentration camp. He reports in his book that among seemingly equally healthy prisoners in the camp, those who had expressed a belief in a meaning to life or belief in a higher power survived while those who did not see any meaning in life disproportionately perished (2006).

Accomplishment

People, according to Seligman, pursue accomplishment, achievement, success and mastery for its own sake (2011). Some only care about winning, measured by the number of defeated opponents or the amount of money in their bank account. Some, on the other hand, pursue accomplishment to feel competent or to achieve their full potential. In Maslow's Hierarchy, this is reflected in the **Need for Esteem** and the **Need for Self-Actualization**.

Hopefully you see by now the common threads between Maslow, Bernanke and Seligman as to what gives us happiness and well-being. Due to hedonic adaptation, we know that it certainly is not about having more money. Instead, the most important factor for achieving well-being is developing positive relationships and spending time with family and friends.

Bad Habits and How to Change Them

A fundamental tenet of economics is that individuals seek rewards. People do actions and seek to acquire goods and services that give them "utility." English jurist, philosopher, and social reformer Jeremy Bentham (1748-1832) defined "utility" as "satisfaction." Bentham was an English jurist, philosopher, and social reformer who invented the philosophy of **Utilitarianism**. According to Bentham, the fundamental axiom of Utilitarianism is that "it is the greatest

happiness of the greatest number that is the measure of right and wrong." More contemporary economists define utility as "well-being." The new field of neuro-economics contends that individuals perform actions and seek to acquire goods and services because these activities give individuals a reward of dopamine in the area of the brain known as the ventral tegmental area (Wargo et al, 2010).

In both mice and in humans, habits form by repetition of a certain activity. We do the activity because the dopamine neurons release dopamine, a neurotransmitter, thereby giving us a reward and encouraging us to repeat the action either at the time or later. As we (or the mouse in the maze) repeat the action, it becomes less and less mediated by the ventral tegmental area and more controlled by the basal ganglia, the most primitive part of the brain. Eventually, the basal ganglia takes over the action, and it is no longer mediated by the dopamine reward system. In essence, this is why it is so hard to change a habit, whether it is good or bad. Once an action becomes a habit, it is more closely related to an instinct in an animal than a conscious choice. So, how do we change or extinguish a bad habit? Cassie Shortsleeve, in *Time Magazine*, reviews the actions that scientists recommend to eliminate a bad habit:

1. Replace a bad habit with a good one. You must keep repeating the good habit, since a scientific study found that it takes an average of 66 days to form a new habit.

2. Reduce your stress levels. A lot of bad habits (smoking, sugar drinks) are used to alleviate stress levels because they give a dopamine feel-good high. Do other things to alleviate stress like meditation or a walk

3. Know the cues that trigger the habitual response, as in having a cigarette after every meal. Try to interrupt the cues.

4. Create for yourself a better reason for quitting the habit. This means creating intrinsic motivation for yourself, such as reminding yourself that you will be healthier without smoking or overeating.

5. Set better goals than just reacting to triggers. If you eat a cookie every time you walk in the kitchen, avoid the kitchen in between meals. Like an alcoholic, you want to throw out the liquor and avoid triggers that will remind you of the habit (2018).

We should note, though, that "addiction" is neurologically different from "habit." All addictive drugs hijack the dopamine system, not the basal ganglia. It is harder to alleviate addiction than it is to break a bad habit. Unfortunately, we do not have the space here to discuss addiction in detail.

Savings is One Key to Well-Being

In the *Atlantic*, Neal Gabler cites an annual survey of the Federal Reserve Bank to "monitor the financial and economic status of American consumers" (2016). One survey question asked respondents how they would pay for an emergency expense of $400. Almost half (47%) of those taking the survey said that either they would cover the expense by borrowing or selling something, or they would not be able to come up with the $400 at all. Many experts believe this is due to the credit card debt that Americans have taken on. According to most recent data from the Survey of Consumer Finances by the U.S. Federal Reserve, the average credit card debt of U.S. households is approximately $5,700. At the same time, people's dependence on credit card debt has been pushed by banks. Last year over two billion credit card solicitations were mailed out by banks and financial agencies.

Chapter 11 talks about savings in great detail, but it's important to know that having emergency savings can significantly add to your personal well-being. Personal finance experts recommend that you have a goal of accumulating six months of expenditures (mortgage, food, etc.) in a secure bank account. In good economic times, 90% of those who are laid off find a new job within six months. Further, regular unemployment compensation typically only lasts 26 weeks and, depending on which state you live in, ranges from $235 (Mississippi) to $650 (Connecticut). This payment will likely not cover the mortgage, the utilities and food for most of us. A six-month nest egg will dramatically reduce our stress while looking for a new job.

3. The Importance of Behavioral Economics

Introduction

Behavioral Economics uses psychology, neuroscience and economics to examine how humans make economic decisions. It includes the process of studying the biases, rules of thumb, inaccurate or incomplete information, propaganda and other influences that interfere with our making optimal decisions. It also presents prescriptions for countering these irrational influences in order to make better decisions as employees, citizens, and family members.

To begin to understand this field, we should look at one of the most pervasive and consequential biases that has affected our entire economy: the oft repeated belief that a company's purpose is to "maximize its profits" and to only look out for the owners' and shareholders' interests. This idea has roots in the writing of economist and Nobel Prize Laureate Milton Friedman. In an article in *The New Times Magazine*, Friedman stated,

> ...there is one and only one social responsibility of business—to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud (1970).

The University of Chicago Department of Economics, where Friedman taught, was (and still is) the center of conservative free market economics in the United States. His general argument was that any employee of a business or corporation is an agent of the owner or its stockholders and has no right to spend their money in any way other than to increase profit. The owners and stockholders can then do anything they want with their profits, including spending it on some "social purposes." Whether because of simple greed or true capitalist philosophy, this became a battle cry of capitalists and was widely quoted and used in corporate mission statements. It also was used in management and finance textbooks as a fundamental guiding principle and

turned up in corporate annual reports as a mission statement to "maximize shareholder value." The problem with Friedman's entire theory is that it is simply *wrong*. Since this is a text about financial literacy, I will not spend a long time discussing the Friedman's errors. However, I will make three points:

1. Corporations and partnerships must apply to a state to receive the permission to incorporate. This is not a *right* but a *privilege*. For example, according to Pennsylvania state laws, the state grants the right to incorporate for the "good of the Commonwealth."

2. Freidman's view was not the majority view when he voiced it. In the mid-twentieth century, firms were an integral part of their communities and the prevailing view was that firms had a responsibility to their shareholders, employees and communities (Wells, 2020).

3. The "free market competition" that Friedman envisioned in his theory *does not exist* in most markets, It is a fiction made up by economists.

Perhaps the most telling repudiation of Friedman's theories is that recently the CEOs of most of the largest corporations stated definitively in what can only be called a manifesto that the purpose of a corporation is not what Freidman said it was, but that corporations do have a social responsibility. The press release for this new manifesto was promulgated by the 181 CEO members of The Business Roundtable on August 20, 2019, which stated,

> Since 1978, Business Roundtable has periodically issued Principles of Corporate Governance. Each version of the document issued since 1997 has endorsed principles of shareholder primacy – that corporations exist principally to serve shareholders. With today's announcement, the new Statement supersedes previous statements and outlines a modern standard for corporate responsibility...we share a fundamental commitment to all of our stakeholders.... Each of our stakeholders is essential. We commit to deliver value to all of them, for the future success of our companies, our communities and our country (2019).

It is my sincere hope that this new philosophy will become best practice in business. However, as of this writing, this pledge is over three years old, and according to the empirical evidence, this has not been the case (Colvin, 2021).

Dennis A. Muilenburg, Chairman, President, and CEO of The Boeing

Company, signed the pledge. A recent Congressional investigation on two Boeing737 MAX airplane crashes (which had been grounded by the Federal Aviation Administration due to safety issues) casts doubt on his commitment. John Cassidy, an economics reporter for *The New Yorker*, summarized some of the reports' key findings:

> It illustrates how Boeing's management prioritized the company's profitability and stock price over everything else, including passenger safety. Perhaps even more alarmingly, the report shows how the F.A.A., which once had a sterling reputation for independence and integrity, acted as a virtual agent for the company it was supposed to be overseeing (Cassidy, 2020).

This is known as a "regulatory capture"—when a company dominates the regulator that is supposed to be overseeing it.

In 2020, KKR Advisors and TCP published a more comprehensive analysis of corporate responsibility, reviewing all 500 companies in the S&P 500 and all 300 companies in the European FTSEurofirst Index. They were able to compile extensive data on 619 of these 800 companies and use a machine learning high-tech lab to analyze millions of data points. The report reached these key conclusions:

1. Business Round Table's ("BRT") Signatories' "Purpose-Washing" Unmasked: Since the pandemic's inception, BRT Signatories did not outperform their S&P 500 or European company counterparts on this test of corporate purpose.

2. Powered by Purpose: Companies with long track records of strong performance outperformed more than expected, while laggards' underperformance became more pronounced, demonstrating how resilient companies were further fortified during this corporate purpose stress test.

3. Speed matters: Proactive, substantive responses to the pandemic and inequality crises had a discernible positive impact. Slow responders underperformed.

4. Global challenges: U.S. and European companies performed roughly the same on this test of corporate purpose.

5. Shareholder capitalism is no longer fit for purpose: TCP highlights the business case for ushering in a new form of stakeholder-aligned capitalism (Cassidy,2020).

There are some positive changes underway in the corporate world.

1. The Pandemic Recession and the resultant labor shortage have increased wages, benefits, and working conditions for workers in the U.S.
2. Shareholder and popular activism has prompted corporations to promote their "green" efforts.

These changes, while welcome, do not seem to be a result of the BRT's new manifesto of the Principles of Corporate Governance. Rather, they seem to be the result of market forces and political pressure.

Decision Biases and Information Literacy

An important area of economics is the topic of making decisions based on imperfect information, or decision making under uncertainty. While **decisions under risk** are defined quite narrowly in economics as decisions where we know each outcome's probability, **decisions under uncertainty** are decisions where we do not know all the outcomes or their probability. When trying to make a decision under uncertainty, typically the first step is to search for more information, as you want to reduce a decision under uncertainty to a decision under risk. Thus information literacy is a critical component of decision making. At the university where I teach, **information literacy** is a required component of every writing intensive course required of all majors.

In this "Post-Truth Era," as some have called it, finding factual information has become extremely complicated. Nowhere is this more evident than in the media, where misinformation and conspiracy theories try to bias our opinions about everything from vaccinations, to mask-wearing, to the last presidential election. This is why information literacy is such a crucial part of decision making. The following graph from Ad Fontes Media gives an excellent analysis of the bias of media in America.

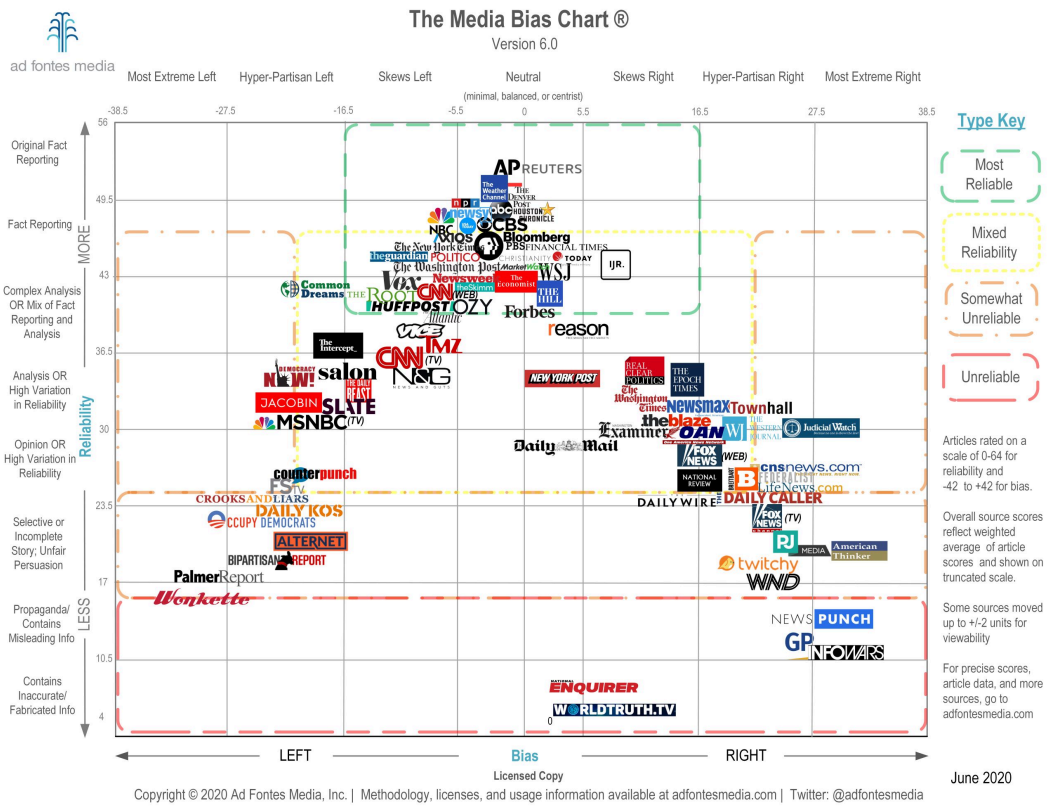


Figure 3.1. *Bias of News Outlets by Ad Fontes Media, Inc. is used with permission of the author.*

This chart is a continually updated version on the Ad Fontes Media website.

For financial literacy, you can read serious mainstream publications like *the Wall Street Journal, the New York Times*, and *the Economist* via library access or student subscriptions.

Traditional Economic Assumptions About People's Behavior

Professor Eugene Fama of the University of Chicago originated the **efficient market hypothesis**. In its simplest form, the hypothesis states that today's current stock prices have factored into them all available information, and that

past price performance has no relationship with the future. This means it is impossible to use technical analysis of past price performance to achieve exceptional returns. The assumptions behind this hypothesis are that investors are rational and that markets are perfectly competitive. However, we often see bubbles and busts in the stock market, a telling criticism of the efficient market hypothesis.

Behavioral economics, on the other hand, studies how people *actually* make financial decisions, as opposed to how they *should* make decisions. It finds that people are often irrational: they have biases that skew their decisions, they use heuristics to make choices, and they are impatient for instant rewards. These tendencies can cause people to make sub-optimal choices.

However, behavioral economics is still a rigorous science. People do not have to be rational in order to develop a model of their behavior; they only have to be *predictable*—that is, *predictably irrational*. The standard economic model of consumer choice has rigid assumptions that behavioral economists believe are either inaccurate or severely limited. Below, I have listed some of these assumptions as well as my thoughts on them.

Assumption: Economic agents are rational.

- While it's true that people sometimes behave rationally, most of the time their actions are motivated unconsciously and emotionally.

Assumption: Economic agents are motivated by expected utility maximization.

- People are often motivated by material rewards, as this assumption states. However, it is important to remember people are motivated by a whole host of non-material rewards as well.

Assumption: An agent's utility is governed by purely selfish concerns, without taking other's utilities into consideration.

- The falsity of this assumption should be evident to you without much explanation. People care very much about others' happiness.

Assumption: Agents are Bayesian probability operators.

- This is accurate. **Bayesian logic** is the opposite of scientific logic. Scientific logic looks at data with no preconceptions, while Bayesian logic holds that we have preconceived notions about most phenomena. Those preconceived notions are tested, and if we get an error message, we revise our preconceived notion.

Assumption: Agents have consistent time preferences according to the Discounted Utility Model (DUM).

- People have a very strong present bias, so future rewards are not anywhere near as salient as present rewards.

Assumption: All income and assets are completely fungible. Fungible means that they are completely substitutable.

- Assets are equivalent to income in that they generate an income dividend. That is, assets times an operator equals income (e.g., at a 10 % return an asset investment paying $1,000 per year would be worth $10,000: $10,000 × 0.10 = $1,000 annual return). However, people use mental accounting. We consider money we earn different from money we get as a gift and money in a savings account different from money in a checking account. We then treat this money differently (Wilkinson, 2008).

Irrational (biases, heuristics, etc.)

Nobel Prize winner Herbert Simon referred to the sometimes irrational cognitive processes that humans use to process information and make decisions as “bounded rationality.” However, current day behavioral economists are more focused on irrationality than bounded rationality. There are plenty of examples of people letting their biases and heuristics wrongly influence their decisions and opinions. For starters we merely need to pay attention to the partisan interpretation of everything each of the Presidential candidates says in the 2020 election cycle. Some other anomalies that violate the assumptions of the standard economic model:

- If you take a weekend trip to New York City and eat at a restaurant you will likely never visit again, why do you leave a tip?
- Why is the average return on stocks so much higher than the average return on bonds?
- Why are people willing to drive across town to save $5 to purchase a $15 calculator but not willing to drive to save $5 on a $125 jacket?
- Why do people forever make resolutions to stop smoking, to join a gym, to go on a diet, but it lasts about three weeks?
- Why are people willing to pay $8 for a hot dog at a sports stadium but not from a street vendor?
- Why do people buy a new TV on credit when they have plenty of cash in their savings accounts to afford the TV?
- When people go to an event and go to purchase a ticket for $30, and find there is, say, $50 missing from their wallet 88% say they will still buy a ticket.
- However, if they already bought the ticket and find the ticket missing from their wallet only 46% said they would buy another ticket (Tversky and Kahneman, 1981).

Homo sapiens have been around for 900,000 years. Over time, evolution has endowed us with deep impulses that guide our decisions. The following are a few examples of these impulses:

1. Humans use heuristics to make decisions, not rational thought.
2. Humans approach and are impatient for expected rewards.
3. Humans avoid expected losses.
4. Humans place more importance on relative income than absolute income.
5. Humans feel an actual loss twice as much as an equivalent gain.
6. Humans hate uncertainty.
7. Humans are a super-cooperative species.

8. Humans have a profound sense of fairness.
9. Humans are willing to punish third-party cheaters.
10. Humans have inertia; they resist change.
11. Humans *act* into a new way of thinking, rather than *think* into a new way of acting.

Peoples' financial decisions are a good example of this kind of irrational behavior. Nowhere is this more evident than in the stock market, especially by investors who are not professionals and even by investors who are professionals. Meir Statman, a finance professor at Santa Clara University, catalogues some of the erroneous beliefs that biased individuals hold about the stock market in a *Wall Street Journal* article (2020). After publishing an earlier article debunking five myths that amateur investors believe, Statman received feedback from amateur investors who still believed they could "beat the market" (that is, they could beat the performance of market indices, such as the Dow Jones Industrial Average, the S&P 500 Index, or the NASDAQ Composite Index). He aggregated these contrarian comments into six main categories, and I have summarized his response to each.

Average is for losers.

By definition, diversified investors earn average returns. If they choose an Index Fund or an Exchange Traded Fund ("ETF") they earn the returns of the market. Some stocks deliver low returns and others deliver high returns; these average out to the market return. Undiversified investors attempt to pick good stocks and shun bad ones, leading to higher than market returns. In reality, though, they only *think* they earn higher returns.

OK, but I know what I am doing.

One reader contended that a person who has run a business will have acquired skills such as reading a financial statement, knowing what makes a company successful, or other types of business acumen that will help them pick good stocks. Statman retorts that playing the stock market game as an amateur is like playing tennis against a top-seeded professional.

Reward requires risk.

Another reader says that to reap higher returns you have to take higher risks, and that this is just the nature of the market. Statman says that in order to reap higher returns with an undiversified portfolio, you need *luck* not *skill*. A diversified portfolio will gain when the market gains. An undiversified portfolio may take a dive even when the market is gaining and decimate your portfolio.

Time itself is a diversification.

Another reader advocates holding stocks for five years or more, implying that the risk of any portfolio declines over time. This is not true, says Statman. Even a diversified portfolio can lose value over time, due to some companies going out of business. But a single stock or a small portfolio can be subject to many things over a longer horizon that can decrease its value. Competition could rise, or perhaps an innovation disrupts its market. Even Tesla, a current high-flying stock, is about to get a deluge of electric vehicle competitors from 2021 to 2025.

Dollar-cost averaging is another form of diversification.

One reader suggested you invest the same amount every month in an S&P 500 mutual fund. This is known as "dollar cost averaging." Statman argues that the only value of dollar cost averaging is reducing your regret should you change your mind over the course of a year. For example, if you invest 10% of your cash on the first of every month, you will still have 100% of your money invested at the end of 10 months. If you invest in a diversified fund, you have the lower risk of a diversified fund. If you invest in an undiversified portfolio, you still bear the higher risk of that undiversified portfolio.

Just pick stocks of good companies.

Is Tesla a better company than General Motors? Maybe, by environmental criteria. On the other hand, is General Motors stock a better buy than Tesla stock? Definitely yes, by any standard fundamental stock market analysis. Tesla

is way overvalued in relation to its earnings; GM is not. Whether a company is "good" is certainly important, but whether or not a stock is a good buy is much more important to investing. That is, if you want to make money on your investment. Statman reports that a study of *Fortune* magazine's "America's Most Admired Companies" found that these companies' stocks had lower returns on average than stocks of spurned companies. Further, there was a correlation between increases in admiration over time and lower returns. (It should be noted, though, that this could be caused by investors bidding up the price when the firms get publicity and therefore reducing the returns).

Biases

Behavioral economics has studied many biases that influence our decisions. The following are some of the more common ones.

Table 3.1. Bias Types

Bias Type	Definition	Example
Anchoring Bias	Cognitive bias that causes us to rely too much on the first piece of information on a topic. Subsequent information is interpreted based on the reference point of our "anchor."	The first price a dealer gives us for a car sets our interpretations of the price of the car. If they lower the price, the price seems more reasonable, regardless of whether the price is too high.
Confirmation Bias	Cognitive bias in which we seek out information and notice it if it confirms an existing point of view. We tend to ignore or reject conflicting information that does not fit with our view.	Picking a specific news or media source can limit what an individual is exposed to. People who have pre-existing party biases may tend to watch only networks that support their party and views, while rejecting or ignoring opposing channels.
Actor-Observer Bias	Bias where we attribute our own actions to external causes or situational factors while attributing others actions to internal causes, such as personality traits or motives.	If you are scheduled to interview someone, but they show up 30 minutes late, you may attribute their lateness to their personality. However, if the roles were switched and you were the one running late, you might not blame yourself but rather attribute it to traffic or other situational factors.
Correlation Causation	A bias where someone inaccurately perceives a cause-and-effect relationship based on an assumed association or correlation between two events.	As ice cream sales increase, crime rates increase. However, ice cream sales do not "cause" crime. Rather, there is another variable likely affecting each, such as the summer heat.
Rhyme as Reason	A cognitive bias where rhyming statements are more easily remembered, repeated, and believed.	O.J. Simpson's lawyer, Johnnie Cochran, used the phrase "If it doesn't fit, you must acquit." Cochran was referencing the gloves that were left at the murder scene. This phrase was considered a vital part of his defense.

Bias Type	Definition	Example
Loss Aversion	Choosing to avoid a loss, even with potential to make an equal or even greater gain.	Investors may hold their stock even if they are taking a loss so they can "at least breakeven" and sell for the price they bought. If they sell below the price they paid, they are experiencing a loss.
Herd Instinct	Tendency for individuals to think and behave like the people around them.	During the first few months of the COVID-19 pandemic, Robinhood and other trading platforms experienced a marked increase in new accounts, primarily new investors with little to no experience.
Information Bias	Using extra information to increase your confidence in a choice, even if the information is irrelevant.	For example, believing that the more information that can be acquired to make a decision, the better, even if that extra information is not related to the decision.
Status Quo Bias	Preferring to keep things the same as they are.	Rejecting new ideas just because they are new.
Halo Effect	Extending positive attributes of a person or brand to the things they promote or the opinions they hold.	For example, any celebrity and athlete endorsement that creates goodwill for a brand.
In-group Bias	Preferring people who are part of your "tribe" and acting in ways that confirm membership in the group.	For example, always trusting the views of your political party and voting accordingly.
Bizarreness Bias	Remembering material more easily if it is unusual or out of the ordinary.	For example, remembering facts about dinosaurs more readily than those about more academic topics.
Google Effect	Not bothering to try to remember information that can be found online.	For example, not caring about historical events because, "I can always look them up!"
Picture Superiority Effect	Learning and recalling concepts more easily when they are presented as a picture rather than as words.	Advertising uses this to great effect. For example products are shown in the midst of very happy people. However, if an ad contained the words, "Beer makes you happy," many people would disagree.

Bias Type	Definition	Example
Humor Effect	Remembering things easier if they are presented in a funny or entertaining way.	Believing that political cartoons are true and unbiased because they are funny.
Peak-end Rule	Judging an experience by its peaks (highs and/or lows) and how it ended.	"All's well that ends well!"

Sources: Coglode Ltd. (2021); Kendra Cherry (2020); The Decision Lab (2022); Shahram Heshmat (2015); Connie Mathers (2020); Gretchen Hendricks (2021); Daniel R. Stalder (2018); Anthony Figueroa (2019); Itamar Shatz (2022); Craig Shrives (2022).

As the field of Behavioral Economics expands, researchers identify more and more biases that humans have. Thus far, researchers have found that humans have 188 cognitive biases.

Nudges in Behavioral Economics

The co-author of *Nudge*, Cass Sunstein, describes **nudges** as, "'Nudges' are "choice-preserving approaches that steer people in a particular direction, but that allow them to go their own way" (Thaler and Sunstein, 2008). They are not mandates but important "gentle pushes" that help people make good decisions. Nudges are very important in motivating people to take action on behaviors that are good for them. As one classic example of a nudge, a company automatically enrolls its employees in a retirement plan but allows them to opt out. In one experiment, this increased employee participation in contributing the maximum amount matched by the company from 40% to over 90% (Thaler and Sunstein, 20028).

Sunstein's ten basic types of nudging are:

1. Default rules (e.g., providing automatic enrollment in programs, including education, health, and savings).

2. Simplification of current requirements (in part to promote take-up of existing programs).

3. Reminders (e.g., emailing or text messaging for overdue bills and coming obligations).

4. Eliciting implementation intentions (e.g., asking ‘‘do you plan to vote?’’).

5. Uses of social norms (e.g., saying ‘‘most people plan to vote,” “most people pay their taxes on time’’ or ‘‘most people are eating healthy these days’’).

6. Increases in ease and convenience (e.g., making low-cost options or healthy foods visible).

7. Disclosure (e.g., sharing the costs associated with energy use), or as in the case of data.gov and the Open Government Partnership.

8. Warnings, graphic or otherwise (e.g., putting warning labels on cigarettes).

9. Precommitment strategies (e.g., having people commit to a certain course of action).

10. Information on the consequences of past choices (e.g., the use of ‘‘smart disclosure’’ in the US or the ‘‘midata project’’ in the UK).

Nudging Yourself

Humans are creatures of habit. When left to our own devices, we will more often than not fall back into our old habits, no matter how good our intentions. Setting up external nudges for ourselves can help us gain new and better habits. For example, you can set up a savings account connected to your checking. Then the checking account can “pay” your savings account a certain amount every month. This builds up your savings, which then can be used as an emergency fund or to invest in the stock market.

Another way you might nudge yourself is to make to-do lists, both a daily list and a separate list for long term projects. These lists should be numbered by priority, but keep in mind that it will only work if you look at them regularly. Usually when we try to consider what task to do next, we will be subject to availability bias. Instead of focusing on the highest priority, we will work on the

first thing that comes to mind. This first thing is often the easiest. Unfortunately, we have to do the hard things in life. Setting an alarm with a snooze function or, even better, two alarms fifteen minutes apart recognizes that we'd all prefer to turn off the alarm and sleep another hour in the morning. It will nudge us to eventually get up around the right time.

4. What is Money?

The Definition of Money

Money is most often defined as "a medium of exchange with no intrinsic value." This essentially means that what people accept as money can be used as money. If you go back in history, you will see that people have used a number of different things as money, some that had intrinsic value (such as gold and silver), and many that had no intrinsic value of their own (such as seashells and cocoa beans). Currently, all countries around the world use money that is known as **fiat money**. From Latin, this term means, "Let it be so." Essentially, this means that each country prints money on paper (or in some cases, plastic), and that currency is not backed by anything of intrinsic value except the full faith and credit of a country's Central Bank.

In the past, money was backed by silver (the silver standard) or gold (the gold standard). However, that came with its own set of problems. It meant that you had to have silver or gold equivalent in value to the amount of total money you had in circulation. This made it difficult to increase the supply of money in your economy, since you had to acquire enough silver or gold to back up the additional money you wanted to circulate. So the Central Banks of the world went off the "metal standard" for their currency. The U.S. abandoned the gold standard in 1933 but allowed holders of dollar currency to convert them to gold at the fixed price of $35 per ounce, an arrangement that was eliminated in 1971. The U.S. abandoned the silver standard in 1935.

So, in a way, all paper money is fake! It is, of course, backed by "the full faith and credit" of the country that issued it, but that's the only thing backing it. That means that unstable countries might end up with currency that cannot be used as payment for oil or food. Even if it is accepted, it is only at a greatly depreciated value. The world's currencies fluctuate relative to each other according to the rules of demand and supply. For example, if you are trying to understand the exchange rates between the U.S. dollar and the Euro, consider how many U.S. dollars it would take to buy one Euro. If a lot of people who own dollars want to buy Euros but not an equal amount of people who own Euros want to buy dollars, the Euro will appreciate relative to the dollar.

The Barter System

Some economies in the past did not use money; instead, they used **the barter system**. It is a simple system. Let's say that I have two extra bushels of corn, and I need some wheat. I will swap you my two bushels of corn for two bushels of wheat.

The problem is that the barter system depends on what is called a *coincidence of wants*. Now let's say that I have three extra pigs, and I ask my neighbor ask to trade them for a cow. However, he does not have any cows he wants to trade, and he does not want any more pigs. That means I have to go searching for someone who wants to trade a cow for my pigs. Money solves this problem, because cows and pigs (and everything that is for sale) can be valued in terms of money. Instead of bartering, I can sell my pigs in the local marketplace and then use that money to buy a cow.

How Money Is Used

Money is used in several ways:

1. It is a *medium of exchange*. A medium of exchange is something that can be traded for goods and services. As we showed above, it solves the problem of the coincidence of wants.

2. It is a *store of value*. Money's function as a store of value allows you to hold on to money and buy something in the future, and the money is still accepted. If you are going to hold onto money, you should, of course, not hide it under your pillow, but put it in a savings account and earn some interest on it. When we save money for our future retirement, it is functioning as a store of value, and we must have confidence in the money still being valuable when we retire.

3. It is a *unit of account*. Money functions as a universal yardstick that expresses the value of goods and services in a single measure. For example, your labor might be valued at $15 per hour and then you can take that money you earn and buy a dozen eggs at $1.98 per dozen.

The Amount of Money in the U.S. (M2)

The **Money Supply** (M2) in 2019 is $14,941,700,000,000. This is a lot of money. According to the St. Louis Federal Reserve Bank, the types of money that are counted in the M2 are:

1. Savings deposits (which include money market deposit accounts)
2. Small-denomination time deposits (less than $100,000)
3. Balances in retail money market mutual funds

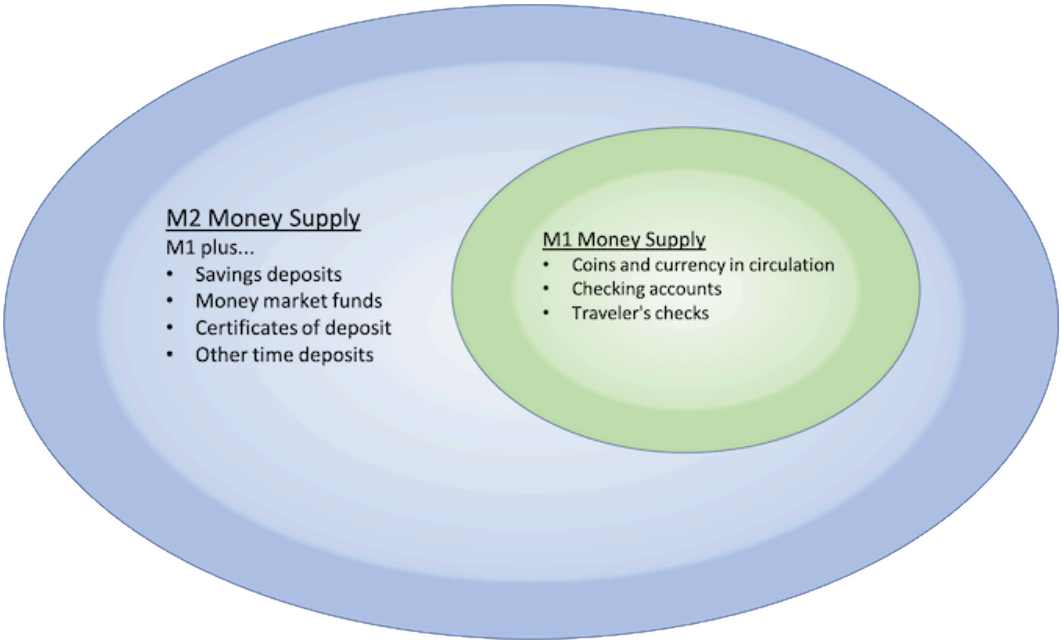


Figure 4.1. *Measuring Money: Currency, M1, and M2 by Steven A. Greenlaw and David Shapiro has been adapted by Fred Rowland and is used under a CC BY-NC 4.0 License.*

Who Owns the Money

Technically, the **monetary base** (coins and paper currency) belongs to the

Central Bank of the country that created it (in our case, The Federal Reserve Bank). If you look at a U.S. dollar, you should see a few important details.

First, at the top of the banknote, it says, “Federal Reserve Note.” A note is an I.O.U. or promissory note that you will repay a loan. In essence, this paper currency is a loan from the Federal Reserve Bank to the holder of the note. It also has the signatures of the Secretary of the Treasury and the Treasurer of the United States. Since a promissory note is a legal document, it must be signed. This I.O.U. is signed. Finally, the bill also states that “This note is legal tender for all debts, public and private.” The currency may be used to pay for goods and services and to satisfy all debt. Of course, when you are paid money for your work, you get to use the money, but the actual currency is on loan from the Federal Reserve Bank.

A lot of people do not realize that not only does the Federal Reserve Bank create money, but the actual **banking system** also creates money. When you deposit your money into a bank, whether it be currency or a paycheck, the bank credits your account electronically. If you deposit $1000, you can claim it back whenever you want. This is called a **demand deposit**. The bank then might lend out the $1,000 to someone else, and now there is $2,000 in the economy’s money supply. If the person deposits that loan of $1,000 in their own bank, that second bank can then lend it out, and now there is $3,000 in the M2. Pretty sneaky, huh? In aggregate terms, of the total 2019 M2, only about 10% is currency. The rest of M2 has been created electronically by the banking system.

The Federal Reserve Bank

The Federal Reserve Bank of the United States is the Central Bank of the United States. Virtually all countries have a **Central Bank**. The main exception to this is the European Union, which created a common currency, the Euro, in 1999. The EU has 27 members and 23 of them currently use the Euro as their official currency. As a result, the EU created the European Central Bank, which functions as the Central Bank for countries using the Euro. The key function of these Central Banks is threefold:

1. It monitors the banks and other financial institutions in the country to make sure they are following its rules and are acting in a financially responsible manner. The Central Bank has great power in this area and can shut down

banks, either on its own or (in the United States) through the Federal Deposit Insurance Corporation, which guarantees all the deposits at U.S. banks.

2. It controls key interest rates, such as rates for bank borrowings and, indirectly through the prime rate, commercial lines of credit for companies. It also indirectly influences longer term rates such as car loans and mortgages.

3. It also controls the money supply.

These activities all together are called **monetary policy**. The Federal Reserve Bank (or "the Fed") is made up of three key entities:

1. *The Federal Reserve Board of Governors*. The seven governors are appointed by the President of the United States and serve for fourteen years each. Their terms are staggered so that one governor's term expires every two years. This arrangement prevents one President from controlling the Fed through their appointments. The Chair of the Federal Reserve Board of Governors is also appointed every four years by the President.

2. *The Federal Reserve Banks*. There are twelve Federal Reserve Banks in the United States and these are effectively local offices of the Fed. The United States is divided into twelve Federal Reserve Districts, with a Federal Reserve Bank monitoring the commercial banks in each district and each Federal Reserve Bank is headed by a President.

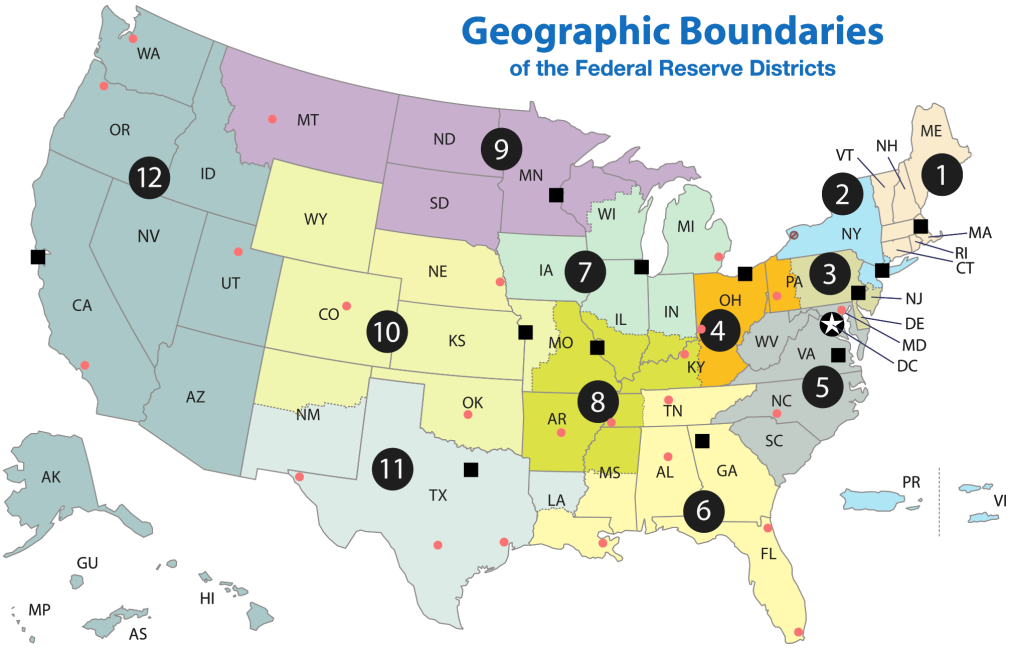


Figure 4.2. *Federal Reserve Districts Map – Banks & Branches by ChrisnHouston is used under a CC BY-SA 3.0 License.*

3. *The Open Market Committee*. The Open Market Committee dictates monetary policy. It has twelve members and is composed of the seven members of the Board of Governors, the President of the New York District Federal Reserve Bank , and four additional Presidents of the District Federal Reserve Banks, each of whom serves on a rotating basis for one year. The Open Market Committee meets every six weeks to decide on monetary policy. In addition to the function and structure of the Fed, we also need to understand the mandate of the Fed. According to the various laws creating and underpinning the Federal Reserve Bank, it has a dual mandate:

    - To maintain low and predictable rates of inflation
    - To maintain maximum levels of employment that are sustainable.

The Fed meets these mandates by controlling the amount of money in the economy. This indirectly influences the amount of goods and services bought in the economy.

The total amount of goods and services made and purchased in any economy

in a specific time period (usually a year) is called the **Gross Domestic Product** (GDP) of an economy. If we look back over the last forty years of the U.S. economy, the empirical evidence tells us that the ratio of the GDP purchased each year to the M2 is pretty constant. Specifically, it is a ratio of approximately 2 to 1.

$$\frac{\text{Nominal GDP}}{\text{M2}} = \frac{\$2}{\$1}$$

The technical term for this ratio is the **Velocity of Circulation**. The relatively constant Velocity of Circulation has three important implications for Monetary Policy. First, this constant 2 to 1 ratio means that every dollar of money in the economy buys two dollars of GDP over the course of a year. Second, it also means that if the Fed wants to influence the growth of GDP, it needs to create $1 of Money for every $2 of GDP it wants to stimulate. Third, the growth rate of M2 needs to be equal to the growth rate of GDP or the lack of money will slow down the growth of GDP. The relatively constant ratio of GDP to M2 is an important assumption of the Quantity Theory of Money, as espoused by the Monetarist economists. **Monetarism is** a school of thought in monetary economics that emphasizes the role of governments in controlling the amount of money in circulation. Monetarist theory asserts that variations in the money supply have major influences on national output in the short run and on price levels over longer periods (Wikipedia).

The standard bearer of Monetarism was Nobel Laureate Milton Friedman of the University of Chicago. Unfortunately, although the ratio of GDP to M2 was fairly constant in the 1960s and 1970s when Friedman was doing his Nobel Prize winning research, it is no longer true (see graph below). This discrepancy now calls into question the validity of Monetarism.

Figure 4.3. *Federal Reserve Bank of St. Louis, Velocity of M2 Money Stock [M2V], retrieved from FRED, Federal Reserve Bank of St. Louis; September 30, 2021.*

Firms need employees to make things and provide services, and we can get pretty specific about how many people will be employed based on additional GDP purchases. In 2018, if we take the total GDP and divide it by the number of employed people, we get this result:

$$\frac{\text{2018 Nominal GDP}}{\text{2018 Employed Workers}} = \text{Output per Worker (2018)}$$

$$\frac{\$20.5 \text{ Trillion}}{155{,}760{,}000 \text{ Workers}} = \$131{,}600 \text{ Output per Worker}$$

Thus we see that for every $131,600 in GDP purchased throughout the course of the year, the economy needs to hire on average one additional worker. This is how the Federal Reserve Bank influences employment.

As for inflation, the Fed influences this by maintaining the growth of M2. Simply put, inflation is caused by too much money trying to buy fewer goods

and services, thus raising prices. This can be expressed in the Inflation Equation from the economic Quantity Theory of Money:

$$\text{Rate of Inflation} = \text{Rate of Growth of Money Supply} - \text{Rate of Growth of Real GDP}$$

Although this does not hold exactly for every year, it is true over the long run (ten years or more), and we see that the actual data support this relationship. An important way to interpret this equation (for our purposes) is that if the money supply is growing more quickly than the supply of goods and services available to purchase, then prices will rise. As we said, this general rise in the prices in an economy is called inflation. Therefore, we see that the Fed can influence employment by increasing the money supply or reduce the rate of inflation by decreasing the money supply. Unfortunately, these dual mandates are sometimes in conflict, and when they are, the Fed will always choose controlling inflation overachieving maximum employment. In the past, the Fed has sometimes put the economy into a recession in order to control inflation.

The Fed is very interested in controlling expectations in the marketplace, and it has been very clear about its targets for maximum employment and low and stable prices. The Fed is trying to achieve the natural rate of unemployment. The determination of this rate is an empirical question, not a theoretical one. The natural rate of unemployment is the rate which if we go below it wages generally rise (wage inflation), and this then causes general inflation in the economy. The Fed used to think the natural rate of inflation was 4.5%, but at the end 2019, the unemployment rate is 3.7% without seeing any significant inflation in the economy.

As to the ideal inflation rate, the Fed set a target of a 2% general rise in prices over the course of a year. We might call this target **Goldilocks inflation**, as the Fed does not want the rate of inflation to be much higher or much lower than this. Higher inflation can feed on itself (through inflation expectations), while lower inflation can cause consumers to hold off their spending. I should

note that the Fed targets core inflation, which is the rise in GDP prices, and it eliminates food and energy prices from the calculation, as they are too volatile.

In order to control the money supply and therefore short term interest rates, the Fed conducts **Open Market Operations**. If unemployment is too high, the Fed buys Treasury Bonds from the banks, thereby increasing their Reserves (the banks' money that has not yet been lent out). This increases the money supply and lowers interest rates, stimulating the economy through the availability of cheaper borrowing rates for all loans. If inflation is too high the Fed sells Treasury Bonds to the banks, thereby decreasing their Reserves. This decreases the money supply and increases interest rates and slows down the economy due to more expensive borrowing rates.

Nominal Money and Real Money

This subtitle might confuse you. What is the difference between nominal and real money? Further, what is the distinction between nominal and real wages? Simply put, **nominal value** is money's face value. If you have a hundred-dollar bill, its nominal value is $100. On the other hand, its **real value** is what it can purchase. Let's say you hold that $100 bill for a year, and in that year, prices of the things you normally buy rise by 10% (as measured by the Consumer Price Index, or CPI). Your $100 bill is now worth 10% less or $90 in real money. This is why high inflation is so pernicious; it erodes the value of your money. High inflation hurts poor people the most, because the things that usually inflate—food and energy—occupy a large portion of their budget. High inflation also hurts retired people on a fixed pension for the same reason. (As a side note, social security payments are increased every year according to the rise in the CPI, but many corporate pensions are not).

Nominal wages are the face value of the wages you receive, and similar to our discussion of real money above, real wages are what your wages can purchase. High inflation erodes the value of your wages, and this has a deep impact on your day-to-day life. Pew Research shows that real wages have been flat for the last 30 years or so, noting that despite the strong labor market, wage growth has lagged expectations. In fact, despite some ups and downs over the past several decades, today's real average wage (that is, the wage after accounting for inflation) has about the same purchasing power it did 40 years

ago. And what wage gains there have been have mostly flowed to the highest-paid tier of workers (2018).

These relatively flat real wages have exacerbated both the income distribution and wealth distribution in the United States. The top 10% of income earners have gained an increasing share of total income, and this has also contributed to the top 10% owning an increasing share of the wealth in the United States.

Finally, it is worth noting that employers consider real wages in their hiring decisions. This is true both in economic theory and in their real-world decisions. An increase in wages above the CPI actually causes a drop in labor demand and vice versa. The fact that real wages have been stagnant for many years is good for employers but bad for workers.

Foreign Exchange Rates

As part of your financial education in a global economy, you should understand **global exchange rates**. When importers bring foreign goods into the United States, they will put them up for sale at U.S. dollar prices. However, the manufacturer in the foreign country wants to be paid in the local currency. As you see below, supply and demand affect the value of one currency in terms of another, and this influences the price of an imported good in the United States.

Here is an example:

Table 4.1. Foreign Exchange Rate Toyota Example

Price of Toyota in Japan	Exchange Rate	Price of Toyota in the U.S.
1,000,000 Yen	100 Yen/ U.S. $	$10,000 U.S.
1,000,000 Yen	90 Yen/ U.S. $	$11,111 U.S.
1,000,000 Yen	110 Yen/ U.S. $	$9,090 U.S.

Think of the exchange rate as the price of the foreign currency. Thus when the U.S. dollar can purchase 100 Yen, the 1,000,000 Yen price translates to 10,000 in U.S. dollars. If the U.S. dollar *depreciates* to 90 Yen/ U.S. dollar, the Toyota costs more in the U.S. If the U.S. dollar *appreciates* to 110 Yen/ U.S. dollar, the Toyota costs less in the U.S.

The bottom line is that a stronger U.S. dollar makes imports into the United

States cheaper and incentivizes U.S. consumers to buy more imports. The contrary is also true: a weaker U.S. dollar makes foreign goods more expensive and discourages imports. Similarly, a weaker U.S. dollar makes U.S. exports cheaper and encourages foreign consumers to buy our goods. U.S. Presidents and Treasury Secretaries always say that they want a strong U.S. dollar, but secretly, they really do not. Overall, a weaker dollar is good for the U.S. economy.

The basic law of supply and demand causes fluctuations in the valuations of currencies relative to one another. Even with these fluctuations, there are a number of reasons someone who holds a foreign currency would want to trade them for U.S. dollars:

- *To buy U.S. Exports*. U.S. companies who are exporting goods and services to a foreign company want to be paid in U.S. dollars, so foreign importers must exchange their currency for U.S. dollars.

- *To invest in U.S. Investments, such as the U.S. Stock Market, the U.S. Bond Market, U.S. Real Estate, or to buy a U.S. company*. Investors from every country in the world invest in the U.S. Stock and Bond Markets. They are considered one of the most reliable investment markets in the world. Since the stocks and bonds in these markets must be paid for in U.S. dollars, anyone buying U.S. stocks or bonds (or U.S. Real Estate or U.S. companies) must exchange their currency for U.S. dollars.

- *Speculation on the volatility in the value of currencies (or "hot money")*. Currency values fluctuate every day relative to each other. Usually, these daily fluctuations are small. However, over a year or longer, there can be significant changes in the relative value of currencies, caused by supply and demand for particular currencies. For example, if an investor expects the U.S. dollar to appreciate 10% over time against the Japanese Yen, they can buy and hold dollars until the they rise against the Yen. Then, after converting the dollars back to Yen, the investor will earn 10% (minus any transaction costs).

For a real world example, the U.S. dollar appreciated 4.3% in 2018 and continued to appreciate in 2019 (measured against a basket of foreign currencies) due to an influx of foreign money into U.S. investments. Foreign stock and bond markets were not doing as well as their U.S. counterparts at the time, so foreign investors had to trade their currency for U.S. dollars in order to invest in American markets. The demand for U.S. dollars caused it to rise and as a

consequence, foreign imports became cheaper, and the U.S. brought in more imports.

It's all pretty complicated, but that's the real world. Since 2019, the U.S. dollar has stopped its appreciation (after a brief jump during the Pandemic Recession), as seen in the graph below:

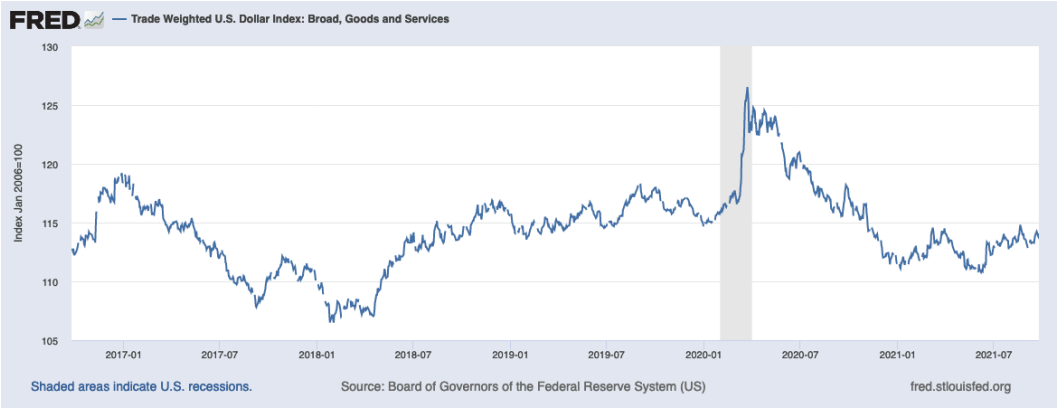


Figure 4.4. *Board of Governors of the Federal Reserve System (US), Trade Weighted U.S. dollar Index: Broad, Goods and Services [DTWEXBGS], retrieved from FRED, Federal Reserve Bank of St. Louis; September 29, 2021.*

The U.S. dollar is also the preferred currency for several Central Banks, and it is the preferred international currency. As a result, the U.S. dollar is involved in over 90% of over $4 trillion dollars' worth of foreign exchange trades every day.

How We Get Addicted to Money

In *The Protestant Work Ethic and the Spirit of Capitalism* , sociologist Max Weber points out that there has been a predisposition to amassing material things since this country's founding (1930). Puritans, the original colonizers were Calvinists, and as such, they believed in predestination. In this tradition, God already knows who is going to end up in heaven or hell; however, for Puritans, this also meant that those destined for heaven would also be blessed with

material prosperity in this life. The Puritans then worked hard to attain material wealth but also led ascetic lifestyles—no drinking, no dancing, and no enjoyment of their wealth. As Weber points out, all of this was so that these forefathers of the American Dream could assure themselves that they were truly one of the chosen.

American materialism still exists in our society's **materialistic value orientation** (MVO), as defined by Kasser and Kanner:

> From our perspective, an MVO involves the belief that it is important to pursue the culturally sanctioned goals of attaining financial success, having nice possessions, having the right image (produced, in large part through consumer goods) and having a high status (defined mostly by the size of one's pocketbook and the scope of one's possessions (2004).

Further, Kasser and Kanner focus on two questions:

1. What causes people to care about and to accept materialistic values and to "buy into" high consumption behavior?

   MVO develops in individuals through two pathways:

   - From personal experiences and environments that deny peoples' basic psychological needs of safety, relatedness and love, and competence and autonomy
   - From exposure to social models that encourage materialistic values – parents who are excessively materialistic or by heavy exposure to the advertisements and influences of our materialistic culture or by schooling (Kasser & Kanner, 2004)

2. What are the personal, social and ecological consequences of an individual's or a society's having a strong MVO?

   According to Kasser and Kanner, personal well-being declines as materialism becomes more centralized in someone's value system. Further, they show that an MVO encourages behaviors that damage interpersonal and community relations and destroy the ecological health of the planet.

Many psychologists, economists, and neuroscientists have presented research that shows how easily money can become addictive (Layard, 2005, Peterson,

2007). The human brain constantly engages in what is called “hedonic adaptation.” When we reach a higher level of income, we initially derive satisfaction from it. However, very soon, we adapt mentally and emotionally to that higher level and need even more money to achieve the same level of happiness. Through the same mechanisms by which we can succumb to drugs, alcohol or gambling, people can become addicted to money.

Current psychological theories characterize money as both a tool (a function of money as what it can be exchanged for) and as a drug (a maladaptive function of money as an interest in the money itself) (Lea and Webley 2006). Essentially, this posits that people not only value money for its instrumentality—that is, how it enables people to achieve goals—but for itself—that is, for the totally false sense of control, security, and power that it gives (Vohs et al. 2006). Conversely, Price et al. (2002) have shown that physical and mental illness after financial strain due to job loss is triggered by reduced feelings of personal control.

Unfortunately, even with enormous amounts of money, the wealthy are no happier than the less wealthy. In fact, they are actually more prone to depression and psychopathology (Kasser & Kanner, 2004, p. 129). Adults who engage in conspicuous consumption are largely trying to compensate for our unique human awareness of mortality and the pursuit of self-worth and meaning that this engenders or, simply put, existential anxiety, or the fear of going out of existence (Kasser & Kanner, 2004, p.128). National and time-series studies attest to the fact that large amounts of wealth have little or no effect on happiness. Real purchasing power has more than doubled in the United States, France, and Japan over the last fifty years, but life satisfaction has not changed at all (Seligman, 2002, p. 153; Layard, 2005).

I believe that people with a MVO are at risk for anxiety, psychological problems, family dysfunctions, health problems, and personal financial problems. The evidence for this is voluminous (Kasser and Kanner 2004). These attitudes cause real damage and are then major contributors to social problems that undermine the fabric of our society. MVO even contributes to world discord, as the exportation of American materialism emphasizes the gulf between the haves and the have-nots around the globe.

Cryptocurrencies

For economists, Bitcoin and other cryptocurrencies are an interesting experiment, but they are not yet ready to be adopted by banks and financial institutions as a way of doing business. The extreme volatility of Bitcoin (see chart below) and other cryptocurrencies make them an extremely poor store of value (one of the main functions of money) though they might be an adequate medium of exchange. Further, if you look at the history of the Bitcoin, you will see that there have been a number of scandals and thefts. Bitcoin's defenders say these problems are just the "growing pains" of a whole new type of currency and system. To this I say, that is fine, but let me know when it is grown up and adopted by (and guaranteed by) major financial institutions in the United States. My advice is to stay away from these cryptocurrencies for now.

The graph below certainly looks enticing. If you had bought one Bitcoin on January 8, 2015, at a price of $288.99, you would have had your investment grow to $19,650 dollars by December 16, 2017, a return of 67 times your original investment, 3,350% per year for each of the two years you held it. But how could you have known that? At the same time, if you had bought one share of Amazon stock on January 1, 2015 at $320, you would have had your investment grow to $3,225 on August 6, 2020, a return of 10 times your original investment, an equivalent to 200% annual return on your investment for each of the five years you held it. The fundamental difference here is that Amazon *makes* something. It provides goods and services to customers, it has a cash flow, and it has revenue and net income on which you can calculate **Return on Investment** (the universal way we value companies and the price of their stocks). Buying Bitcoin is almost like buying collectibles, like an A-Rod rookie baseball card or a pair of original Air Jordans. Will these collectibles increase in value? Maybe yes or maybe no. Do you remember the Beanie Baby collecting craze? Did those increase in value?

Figure 4.5. *Bitcoin Stock Price by Fred Rowland is used under a CC BY-NC 4.0 License. Source: Cointelegraph data (11/22/2020).*

Figure 4.6. *Amazon Stock Price by Fred Rowland is used under a CC BY-NC 4.0 License. Source: Yahoo Finance data (11/30/2020).*

"Risk follows reward" is an immutable law of Wall Street; if you are seeking higher than average returns, you must go after riskier investments. You might have been lucky enough to invest in Bitcoin in 2015, but you might have bought it in 2017, at the height of its speculative run. You also could have bought shares in an S&P mutual fund at the Vanguard Mutual Fund Company, and your return from January 2, 2015 to August 6, 2020, would have been + 63% over five and a half years for an annual return of 11.5%, with much less risk than Bitcoin (and the start-up, Amazon).

Figure 4.7. *S&P 500 by Fred Rowland is used under a CC BY-NC 4.0 License. Source: Yahoo Finance data (12/3/2020).*

A Cashless Society

Unquestionably, we are moving more and more toward a cashless society. In a cashless society (in the U.S.) it's possible only drug dealers and firms paying their employees "under the table" will be using cash. Think about all the transactions you use debit or credit cards for each month. Like me, you might also be paying your bills electronically through your financial institution. And, as I mentioned earlier, only about 10% of M2 is actually currency; its circulation creates the rest of M2 in the worldwide banking system. Debit cards could easily replace this currency.

Hyperinflation In Zimbabwe

As I said before, the Quantity Theory of Money states that the growth rate in the money supply will equal the growth rate in the prices of goods and services in an economy (inflation rate) minus the growth rate in real Gross Domestic Product. Rearranging this equation, we have:

$$\text{Rate of Inflation} = \text{Rate of Growth of Money Supply} - \text{Rate of Growth of Real GDP}$$

This is called the inflation equation. As we said above, although this relation does not hold for every year, it is accurate over the long run, a fact supported by the empirical evidence. To paraphrase the Nobel Prize winning economist, Milton Friedman, inflation is always and everywhere a money supply problem (1970).

As a thought experiment, imagine an economy with a certain (fixed) money supply. You need money to buy goods and services created within that economy (the GDP). Now let's imagine that over time the money supply grows 10% greater (rate of growth = 10%) but the goods and services do not change at all (rate of growth= 0%). Therefore, the prices paid for the fixed amount of goods and services will be bid up by 10% (rate of inflation=10%).

For example, consider Robert Mugabe, the strongman dictator who ruled Zimbabwe for over 30 years. From 2007 to 2010, he created seismic shifts in his country's monetary policy. Since he needed more money to run the government, to pay the military, and to buy imports, he simply ordered the Central Bank of Zimbabwe to print more money. Unfortunately, he printed so much money compared to the supply of goods and services that the rate of inflation in 2008 was over one billion percent (1,000,000,000%). As things became more expensive, the Central Bank had to print currency notes in larger and larger denominations so the residents would not have to carry money around in wheelbarrows to pay for food at the market.

In addition, Mugabe instituted poorly executed land reforms that did not help, but the root cause of the hyperinflation was printing too much money.

In 2009, so many people had lost confidence in the Zimbabwe dollar that the government had to allow the U.S. dollar and other foreign currencies to be used for payments. They also stopped printing the Zimbabwe dollar, which caused the inflation rate to drop precipitously. Even so, in 2010, it still cost 100 Billion Zimbabwe dollars to buy lunch. Eventually, the inflation rate in Zimbabwe was tamed (relatively, at least), and as of June 2019, the official inflation rate was 97.8% annually.

5. Analyzing Your Current Financial Situation

Your Parents' Advice

Some students may have received advice from their parents or other adults ranging from how to ride a bike to which fork to use at a formal dinner. However, many parents are reluctant to talk to their children about financial management. And if you got financial advice, it might be wrong, as so much has changed since they had to make the important financial decisions you are currently facing. Julia Carpenter, in the *Wall Street Journal* article "Your Parents' Financial Advice is (Kind of) Wrong," points out what is right and wrong about your parents' advice:

> The rules have changed...Americans entering the workforce in the decade since the financial crisis face a starkly different landscape than their parents did at the same age. They often have far higher student loan debt. Housing eats up a bigger chunk of each paycheck. And young households have lower incomes and fewer assets than previous generations did at the same ages (2019).

Given these new conditions, Carpenter feels we need new rules. Below, I have listed these rules along with my commentary.

Educational Debt is Not Necessarily Good Debt

In 2018, the average starting salary of a college graduate was about $60,000, while the average salary for a high school graduate was $28,000. On average, students complete their undergraduate degrees in five years; however, at more than a third of U.S. colleges, only half of the students will earn their degree in eight years. Those who do not finish end up with debt but not with the higher income they were hoping for. Further, four in ten college graduates are in jobs which do not require a college degree (New York Federal Reserve Bank, 2018).

If you plan to go to graduate school, remember that if your starting salary after the degree equals the debt incur then it is probably a good investment. You want to be able to pay your living expenses and still have enough left over to pay off your loans in about ten years. If you think about it, "buying" an education after high school is really an investment and you should think about the kind of return you will be getting on that investment.

Do Not Assume You Should Buy a Home

Owning a house is still part of the American Dream, but it might not make financial sense for you. For example, you might work in a city with a hot housing market. You might not be able to afford a down payment, or you could wind up depleting your entire savings. On top of that, if you do not expect to stay in a city for more than three years, you will likely not get back all the transaction costs (fees, title insurance, etc.) of purchasing a house. Do not buy a house just because you think you should.

The Best Place for Financial Growth

You should compare your salary (or potential salary, based on the average for your field) to a city's cost of living. Many people think it would be cool to live in New York City or San Francisco, but the cost of living is so high that your salary has to be proportionate. Otherwise, you can find yourself commuting an hour or more from the only affordable living accommodations in the area. Some cities like Chicago, Philadelphia, Austin, and Portland, although costly, have more affordable housing than San Francisco and good starting salaries. If, for example, you compare the salaries of high-tech workers and the cost of living in San Francisco to those in these cities, you will find you are financially better off living in the city with the lower cost of living. Cities around the U.S. are trying to attract tech companies and, although San Francisco had a higher percentage of high-tech jobs as a proportion of overall jobs, there are good high-tech jobs in the many cities.

As a result of the Pandemic, remote work has increased substantially. The U.S. Census Bureau recently released its annual 2021 American Community Survey a survey of household behavior (September, 2022). According to the Census

Bureau, between 2019 and 2021, the number of people primarily working from home tripled from 5.7% (roughly 9 million people) to 17.9% (27.6 million people).

However, remote work is not evenly distributed around the country. In metropolitan areas, 19% of employees worked from home (with Washington, D.C. at 48% remote workers and Silicon Valley at 35% remote workers as outliers). Outside metro areas, only 9% of employees were working from home in 2021.

The opportunity for remote work is a factor to consider when seeking a position. It has its advantages, including working flexible hours and saving on commuting time. It also has its disadvantages, including the loss of comradery of office work and not being visible to your superior to take advantage of bonding and advice.

Not All the Old Rules Are Dead

Your parents might have followed this old rule: be frugal until you save up enough for the down payment on a house. Unfortunately, with student debt and the higher cost of housing, it does not work to do simple things like pack your own lunch or hold off on a vacation. It's part of the American Dream that couples rent for a while, save up for a house, and then, when they are ready to have children, buy a house in a good school district. If they cannot do this, they might feel a sense of disappointment or failure. However, that should not cause you to throw up your hands and not work on saving for your future. There are still important goals for you to save for. First, although young people tend to live in cities, there are almost always suburbs that are more affordable.

Under the **gravity model of real estate**, the center of gravity is downtown where there are a lot of jobs. Then, unless there are physical constraints such as mountains or a coastline, housing construction proceeds over the years in concentric rings around center city. In general, the closer the housing is to the center, the more expensive it is. Housing that is farther out is then cheaper, but it could entail a longer commute. However, in many cities, young people are creating a new trend of moving into affordable suburban housing, and others have started looking for a job in smaller cities with good salaries and a reasonable cost of living.

Outside of housing, you will need to save for a number of things. You should an emergency fund of, ideally, at least six months' salary in case you lose your job and begin contributing to your retirement as early as possible. If you intend

to have children and expect them to attend college, you should begin putting aside money for their college expenses. Put these savings into an account where the money will compound to a significant amount by the time you need it. Having these savings will reduce your financial anxiety and improve your well-being.

Ten Rules for Financial Freedom

In 2019, Susan Hube wrote for the financial journal *Barron's* saying:

> The true measure of financial success isn't how much money you make—it's how much you keep. That's a function of how well you're able to save money, protect it, and invest it over the long term. Sadly, most Americans are lousy at this(Hube, 2019).

Two-thirds of Americans would have trouble coming up with $1,000 cash (not credit) to pay for an unexpected medical bill or emergency. Even more disturbing, seventy-five percent are not saving enough or investing correctly for their future retirement requirements. While there are a number of external factors that exacerbate this problem—stagnant salaries, expensive healthcare and education and rising housing costs—there is a deeper issue: a lack of financial literacy.

Parents are reluctant to talk to their children about money, and high schools and colleges lack financial literacy courses. Individuals are increasingly left on their own to decide how much to save and where to invest their savings. To help, Hube laid out ten rules for financial freedom that I present here, along with my commentary.

Set goals.

The first step is to set goals: short-term. medium-term, and long-term. For example, a short-term goal could be to save up six-months' salary as an emergency fund. A medium-term goal might be to save up for a down payment on a house. Finally, a long-term goal would be to save for retirement.

The sooner you set your goals, the sooner you will begin trying to achieve

them. Goals motivate us, and when you have your goals to think about, you will likely squirrel away the extra cash.

Know what you have got and what you need.

Always keep this question in mind: "Do I need this thing or do I just want it?" It is hard to resist something you really want, like a new pair of shoes or a new kind of tool. However, you should it is not a good idea to buy something just because it gives you a jolt of pleasure.

For example, my neighbor had a garage sale recently. Since my wife helped organize the sale, we got a preview on what was being sold. I saw three electric guitars, and I really wanted one. Luckily, my wife said, "You already have a guitar. You don't need another one!" I must admit, it was hard to distract myself from that guitar, but the next day, I knew she was right.

Look at your monthly after-tax income (disposable income), and add up all your expenses for the month. If your expenses exceed your income or if you are not saving any money monthly, you have to cut expenses. Finally, if you are buying things that you do not need or do not use (such as a gym membership or a particular streaming service), drop it and bank the money.

Save systematically.

Pay into your savings, the same way you pay your electric bill: monthly and automatically. Assuming you have joined a credit union for your banking needs, (See Chapter 10, Banks and Financial Institutions.) arrange for automatic bill payment and have a specific amount transferred into your savings account every month. Ideally, you will be saving 10% of your disposable income each month. However, this is impossible to do in your first or second job. Start out with 5% of your take-home pay and slowly ramp it up to 10%.

Begin saving early to take advantage of the compounding of interest. In simple terms, this means if you put $1,000 in a savings account, and in year one you earn 10% interest, this means you will have $1,100 at the end of the first year. If you leave the $1,100 in the account and continue to earn 10% interest, you will not only earn interest on the original principle of $1,000 but you will also earn

interest on your year one interest. Thus, at the end of year two, you will have $1,210 in your account.

There are websites such as www.bankrate.com that give you compound interest calculators to estimate the value of your principle over time, but the Rule of Seventy can also calculate your money's growth. Take the number 70 and divide into it the interest you earn. Assuming compounding of interest, the result is the number of years it will take for your money to double. Using our example above, if you are earning 10% per year your money will double in seven years. (A 10% return is not an unrealistic goal. As you will see in Chapter 15, The Vanguard Group has shown that, going back to 1926, a mutual fund containing a very broad portfolio of U.S. stocks (i.e., the stocks in the S&P 500 Index) has earned 10% per year).

Invest in your retirement plan.

If your employer provides a retirement plan, for example, a 401(k), and matches your contribution to it, *always* contribute the maximum your employer will match. If you really think about this, you are earning 100% return on your money; the employer is doubling the money you contribute. You should even give up your lunch or other non-essential expenditures to contribute the maximum.

Employers often have 401(k) plans where they will match your contribution up to 4% of your gross salary. These plans have taken the place of the traditional guaranteed pensions and have shifted the burden of managing each worker's retirement fund from the employer to the worker. However, if you put your retirement contributions in a mutual fund of all stocks with a good manager such as Vanguard, you can earn the 10% annually. The value of a 410(k) plan is that the money you contribute and the money your employer matches are tax-deferred (but not tax-free). That is, you are not taxed on these contributions nor on the annual return (presumably 10% annually) until you withdraw money for your retirement. If your employer does not offer a retirement plan or if you are self-employed, you can create either an Individual Retirement Account (IRA) or a Roth Individual Retirement Account (Roth IRA) and still earn the same returns. As of 2019, you can contribute up to a maximum of $19,000 into a 401(k) and $6,000 or $7,000 into a Roth IRA.

Invest for growth.

Until you are within a couple of years of retirement, you should invest your retirement funds and other extra income for growth, which means investing in stocks. Although stock prices have more volatility than bonds, they return double what bonds do over time. You will need to be able to stomach that volatility in order to get the higher return. In Wall Street terms, a bull market is a market in which prices are going higher, while a bear market is a market in which prices are going lower. This archaic language comes from the fact that a bear hits downward with its paws while a bull gores upward with its horns. See Chapters 14 and 15 for more detail on the joys and risks of investing in the stock market.

Avoid bad debt.

Debt used for investing in something, such as a house, your education, or your car is good debt. Credit cards are bad debt—debt for consumption purposes. If you buy something with a credit card, pay it off at the end of month. Credit cards charge anywhere from 9% to 25% per month, depending on your credit score. If you pay only the minimum each month, you can end up paying double the original amount you borrowed. If you really need to pay for something on a credit card, such as car repairs or a new computer for school or work, use the credit card that charges the lowest interest rate and then use another credit card for your other purchase and pay it off every month.

Do not overpay for anything.

Do not overpay on fees or commissions for investing in stocks and do not overpay on your taxes. I talk about each of these issues in the chapters on investing and on taxes. Financial advisers usually charge 1% of your assets annually to tell you what stocks to buy. None of the actively managed portfolios or mutual funds has consistently exceeded the return on the S&P 500. Index funds or Exchange Traded Funds will hold all the stocks in the S&P 500 or similar

indexes and will charge less than ¼% of your assets annually and still return 10% per year on average. Furthermore, do not overpay on other big purchases, such as televisions and appliances. Shop around.

Protect yourself.

The ideal goal is to build up a fund worth six months' expenses. This is a very difficult goal to accomplish, so when you are young try to save at least one month's rent for starters. Why do all the experts pick six months as the ideal amount in this emergency fund.? This is because it takes about six months to find a new job if you are laid off. You can go on your job search without falling apart emotionally. Also, buy renters insurance (It's very cheap) and, if you own a house, a decent house policy with a reasonably low deductible.

You may have an accident and be unable to work. Many employers pay for a minimum amount of disability insurance that will pay you 60% of your salary if you are disabled long term. If you own a home and have a family, you should consider buying some long-term disability insurance as a supplement to your employer's. It is pretty inexpensive. As to life insurance, do not buy a **whole life policy**. Whole life insurance is a rip-off. If your life is financially complicated with a house and family, buy *term life insurance*. It is much cheaper than whole life insurance.

Keep your investing simple.

As I said above, keep your investments simple. Do not chase fads, such as cryptocurrency or 3D printing companies. Invest in an Index Fund that has the S&P 500 stocks in it, and you will pay low fees and earn *on average* 10% per year. Also, a mutual fund with the S&P 500 stocks in it will have Google, Apple, Facebook, and any other significant stock worth holding, so you can still ride the high-tech wave with your mutual fund.

Seek unbiased advice.

I strongly advise you to go to Vanguard and invest in one of their index funds.

Vanguard is owned by the customers who invest in its mutual funds, so it is essentially a non-profit. There are no stockholders, so they can keep their fees low. Jack Bogle, the founder of Vanguard, invented **Index Funds** (passively managed funds that track a stock market index like the S&P 500) because he saw that actively managed mutual funds were not beating the S&P 500 returns and were charging a fee of 1% of assets.

Finally, do not buy individual stocks from a stockbroker, and do not buy mutual funds that charge you a commission to get into them. You cannot pick the consistent winner stocks and the brokers who charge you a commission to get into a fund often sell you the investment that gains them the highest commission, not the investment that fits your needs.

6. Budgets and Saving

Savings Among Americans

Personal and household savings are important, both for you and for the economy. For you, savings creates a buffer for unexpected expenses and can also be used to finance a down payment on a house or to help pay for college. You can deposit your savings in a financial institution or buy a mutual fund that invests in the stock and bond markets. In other words, your savings becomes an investment; that is, it is money that you put into a financial institution or instrument for which you receive a return in the form of interest or dividends.

$$\text{Savings} = \text{Investment}$$

For the economy as a whole, these savings create economic growth. Firms borrow money (your deposits) from financial institutions or sell shares to your mutual funds and then use that money to expand their businesses. Before we go further, though, we should break down some of these terms. First of all, it's important to understand that **personal savings** is equal to income minus personal outlays (or **consumption**) and taxes:

$$\text{Personal Savings} = \text{Gross Personal Income} - \text{Government Taxes} - \text{Consumption}$$

Then, the **Personal Savings Rate**for any economy is defined as this ratio:

$$\text{Personal Savings Rate} = \frac{\text{Personal Savings}}{\text{Income}}$$

Disposable personal income(DPI), mentioned above, is your take home pay:

$$\text{DPI} = \text{Gross Personal Income} - \text{Government Taxes (Federal, State, Local)}$$

From another perspective, savings can be viewed as the portion of personal income that is used either to provide funds to capital markets or to invest in real assets such as residences.

What happened to the U.S. savings rate in the recent Pandemic Recession is quite unusual, to say the least. As you look at the graph below, you will see that from 2000 to 2020, the Personal Savings Rate averaged about 5% to 7% of Disposable Income. However, as the Pandemic Recession began (in February 2020) the Personal Savings Rate skyrocketed.

- In February 2020, the U.S. Personal Savings Rate was 8.3%.
- In March 2020, the U.S. Personal Savings Rate was 12.8%.
- In April 2020, the U.S. Personal Savings Rate was 33.5%.
- In May 2020, the U.S. Personal Savings Rate was 22.4%.
- In June 2020, the U.S. Personal Savings Rate was 19.0%.

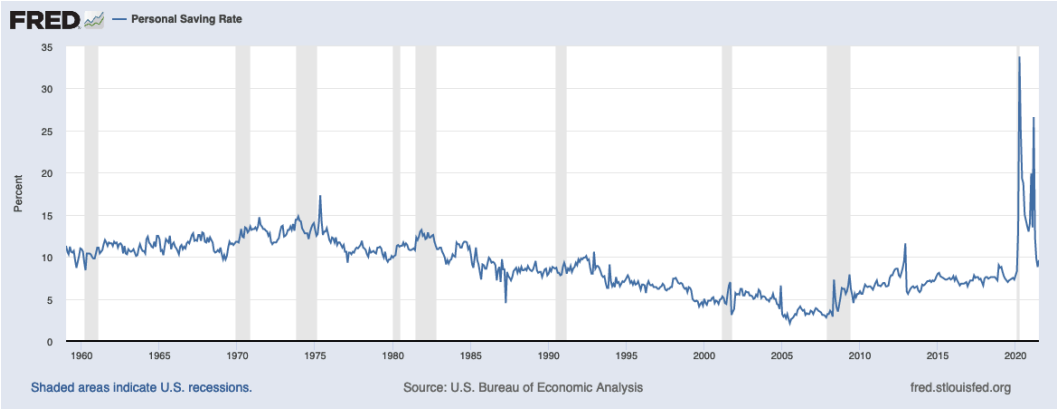


Figure 6.1. *U.S. Bureau of Economic Analysis, Personal Saving Rate [PSAVERT], retrieved from FRED, Federal Reserve Bank of St. Louis; September 30, 2021.*

If you look at the gray bars, which indicate recessions, you can see that the Personal Savings Rate does increase somewhat. This is due to consumer sentiment or, as John Maynard Keynes called it, "animal spirits." During a recession, the sentiment is fear. Even so, the magnitude of the Personal Savings Rate during the Pandemic Recession is unprecedented.

As stated before, the absolute amount of personal savings is the difference between income minus taxes and spending. The graph below shows this difference in absolute dollars from 2014 up to June 2020. From April to July 2020, personal income jumped dramatically from the $600 supplemental unemployment compensation and other relief payments provided by the CARES Act. However, because of fear, consumers decreased their spending. On top of this, in many states, restaurants, bars, hotels and all non-essential retail stores were shuttered in April, curtailing consumer spending and further increasing pessimistic sentiment.

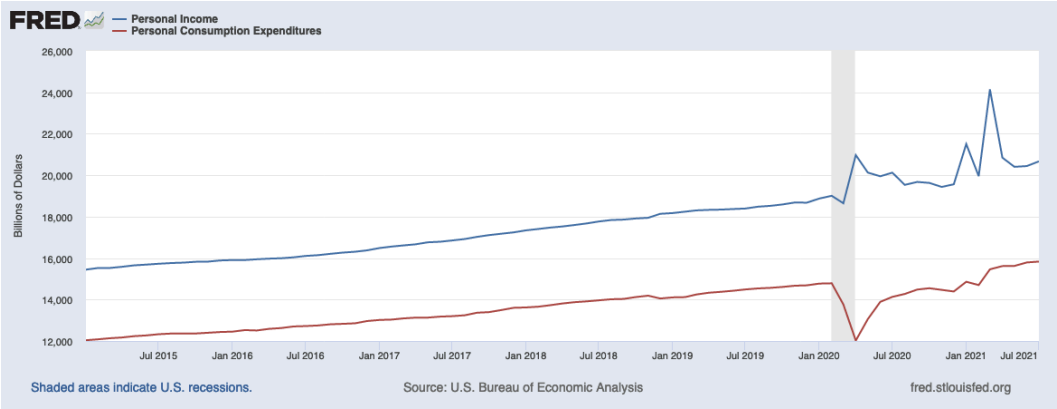


Figure 6.2. *U.S. Bureau of Economic Analysis, Personal Income [PI] and Personal Consumption Expenditures [PCE], retrieved from FRED, Federal Reserve Bank of St. Louis; September 30, 2021.*

As this graph shows, even though personal income increased in 2020, spending still decreased, highlighting just how important consumer sentiment is to the economy. If consumers are worried about the economic future, they will put off their expenditures to whatever extent they can. During the Pandemic Recession, restaurants, bars, vacation venues and services took the biggest hit. In comparison, the 2008 Great Recession saw large durable goods expenditures (appliances, automobiles, clothing) decrease by 8%, but spending on restaurants and services stayed relatively the same. According to a recent Gallup Poll, consumer satisfaction in the U.S. has fallen, and this could curtail future spending. However, it's worth noting that consumer satisfaction is currently not as low as it was during The Great Recession.

Savings Rates in Select Countries

Table 6.1. Household Savings Rates as a Percent of Disposable Income (in %)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019*
Austria	9.1	7.4	9	7.1	10	7.3	6.8	7.8	7.7	7.7
Belgium	10.1	8.8	7.5	4.9	8.3	5.1	4.3	3.9	4.8	5.1
Canada	4.8	3.5	5.2	4.8	3.5	3.6	4.6	3.4	1.4	1.6
Czech Republic	6.8	4.9	6.2	5.6	6.6	6.6	6.8	6.5	6.0	6.7
Denmark	-1	-0.6	-1.2	2.3	-1	-2.9	4.3	4.6	6.6	3.9
Finland	3.3	1.1	0.6	1.3	1.3	-0.4	-0.7	-1.8	-1.2	-0.4
France*	15.9	16.2	14.9	14	14.9	14.2	13.8	13.7	13.8	14.7
Germany	10.9	10.4	9.4	9	9.9	9.5	9.7	9.8	11.0	11.0
Hungary	5.4	5.1	4.8	7.1	5.9	8	6.2	8.1	6.9	6.6
Ireland	7	5.4	5.2	4.9	3.9	3.6	4.2	3.8	5.8	5.8
Italy	5.3	4.3	3.1	3.6	6.3	3.9	3.3	3.2	2.5	4.3
Japan	2.1	2.9	1.3	0.3	2.3	-0.4	0.8	2.6	4.3	4.5
Netherlands	3.4	5	6.5	7.3	6.1	9.9	9.6	10	8.4	7.8
Norway	6.1	7.8	8.3	7.6	5	8.2	10.3	7.3	6.5	6.7
Poland	5.9	3.5	2.6	0	1.5	-0.4	-0.4	1.5	0.3	1.4
Portugal*	10.2	10	9.5	7.8	8.4	5.2	5.3	5	6.5	7.0
Slovakia	5.7	4.8	1.9	0.2	1.1	1.5	3	3	2.6	4.0
Spain	13.1	11	4.4	3.8	3.2	3.5	2.9	1.8	1.5	2.3
Sweden	8.3	10	15.1	15	10.4	16.4	15	16	15.4	17.1
Switzerland	11.3	12.7	17.5	17.5	16	18.9	18.2	18.7	17.3	17.6
United Kingdom*	6.6	6	7.3	8.7	8.5	8.6	9.4	6.7	6.1	6.4
United States	5.1	4.2	7.2	5	5.3	7.4	7.6	6.7	7.7	8.1

Source: Organization for Cooperation and Development ("OECD") European Federation of Building Societies – Annual Report 2019.

**Estimate*

China's Savings Rate

China's economy is the second largest in the world. Its economic growth rates have been extremely high, many years climbing into the double digits. It also has high rates of government, corporate, and household savings. In a working paper from the **International Monetary Fund** (part of the World Bank), Zhang et al. identify three phases that they contend influenced the savings rate of Chinese households.

1. The first phase was in the 1980s, following the introduction of the one-child policy and de-collectivization of agriculture in rural areas. Beginning in 1976, the one-child policy freed disposable income, and since children traditionally took care of their parents in old age, the one child policy also incentivized older Chinese to save more. The savings rate rose from 5 to 20 percent of disposable income (albeit with a temporary dip in the late 1980s, possibly due to a GDP growth slow down).

2. The second stage was in the 1990s, after Deng's southern tour reaffirmed China's policy to reform and open-door policy. In addition, the massive lay-offs resulting from the state-owned enterprises (SOE) reform in the late 1990s also put downward pressure on wage growth. SOE reform took center stage in this period and was accompanied by the transformation of the social safety net and job security, leading to savings rising to 25 percent of disposable income.

3. The third stage came after China entered the World Trade Organization in 2001. Savings rose to 30 percent of disposable income during an export-driven boom. Notably, since 2012, household savings have plateaued and gradually begun to decline (2018).

China's saving rate was also affected by its conversion from a centrally planned economy to a market economy. This resulted in massive layoffs; 27 million people lost their jobs between 1997 and 2002. Along with these reforms, the social safety net was dismantled, and as a result, Chinese people paid an increasingly larger share of their healthcare costs (from 20% in 1978 to 60% in

2002, although it has declined since then). The layoffs and unexpected health care costs further incentivized the Chinese people to save.

The Chinese economy shows us some of the reasons savings rates can fluctuate from country to country, largely in response to demographic and economic changes. Let's now take an overview of the reasons individuals and households save.

Influences on the Rate of Savings

In general, people save for the following reasons:

- Emergency/ unforeseen expenditures (especially unexpected medical expenses)
- Down payment on a house (although often a 5% down payment is enough)
- Down payment on a car (although less and less is required these days)
- Retirement Income
- Education for yourself or your children

The savings rates as a percentage of disposable income vary from country to country (in some places, quite significantly). The dominant influences on these differing savings rates are explained below:

1. The social safety net varies significantly from country to country. Is there a national healthcare system (e.g. Canada)? Are there generous retirement pension plans (e.g. Finland)?
2. Certain countries have a cultural disposition to savings (e.g., France and Germany). This is likely due to the trauma of World War II.
3. A national tragedy or recent disaster can cause an increase in the savings rate. For example, China was occupied by the Japanese in the 1920's and again in World War II. After World War II, a civil war erupted between Mao Tse Tung and Chang Kai Sheck with Mao winning and turning China

Communist in 1948. After the collectivization of all farms, Mao led the Great March, an event that led to the deaths of thirty million people.

Interestingly, Megan McArdle states that some of the reasons people used to save, such as taking a vacation or for holiday gifts are now just put on our credit cards (2018). This means we are buying what we want without having the money for it, which means we have to pay the credit card bill every month. This increases our monthly expenses and conversely decreases our monthly savings.

Global Consequences of a Lack of Savings

Previously, I stated the following:

$$\text{Savings} = \text{Investment}$$

The graph below shows this correlation in the United States from 1970 to 2019. (I did not include 2020 in the graph due to the extraordinary temporary jump in the savings rate during the Pandemic Recession.)

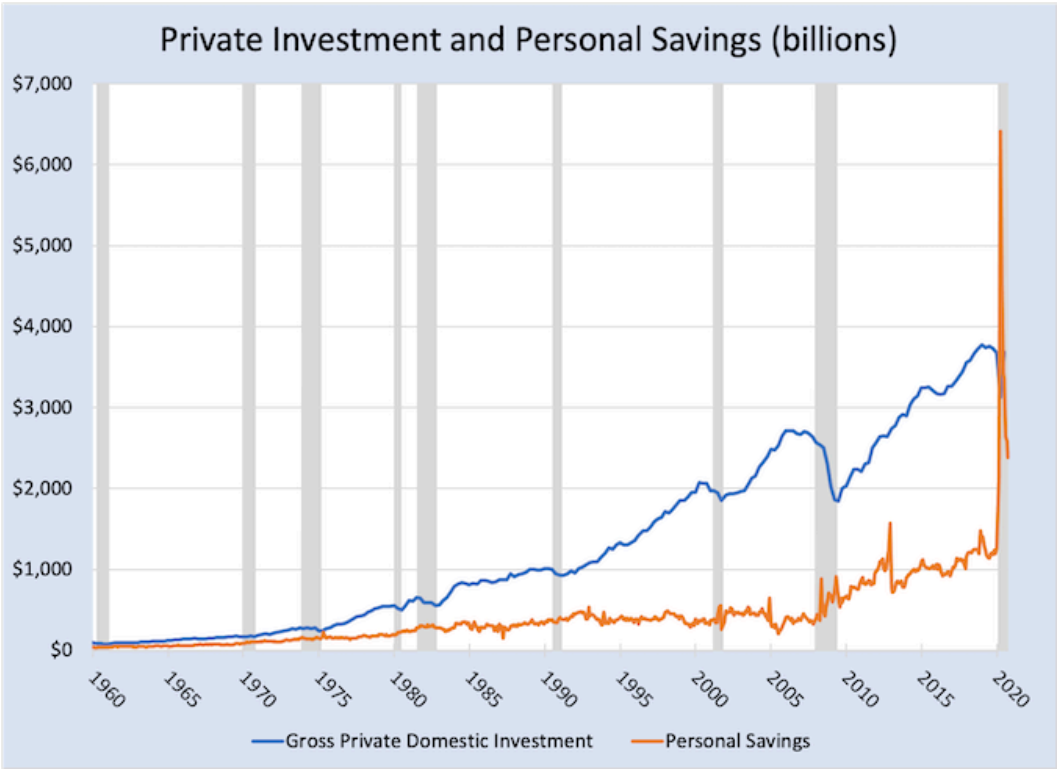


Figure 6.3. *Private Investment and Personal Savings by Fred Rowland is used under a CC BY-NC 4.0 License. Source: Federal Reserve Economic Data (FRED) (12/2020).*

This correlation of investment to savings is also true in the rest of the world:

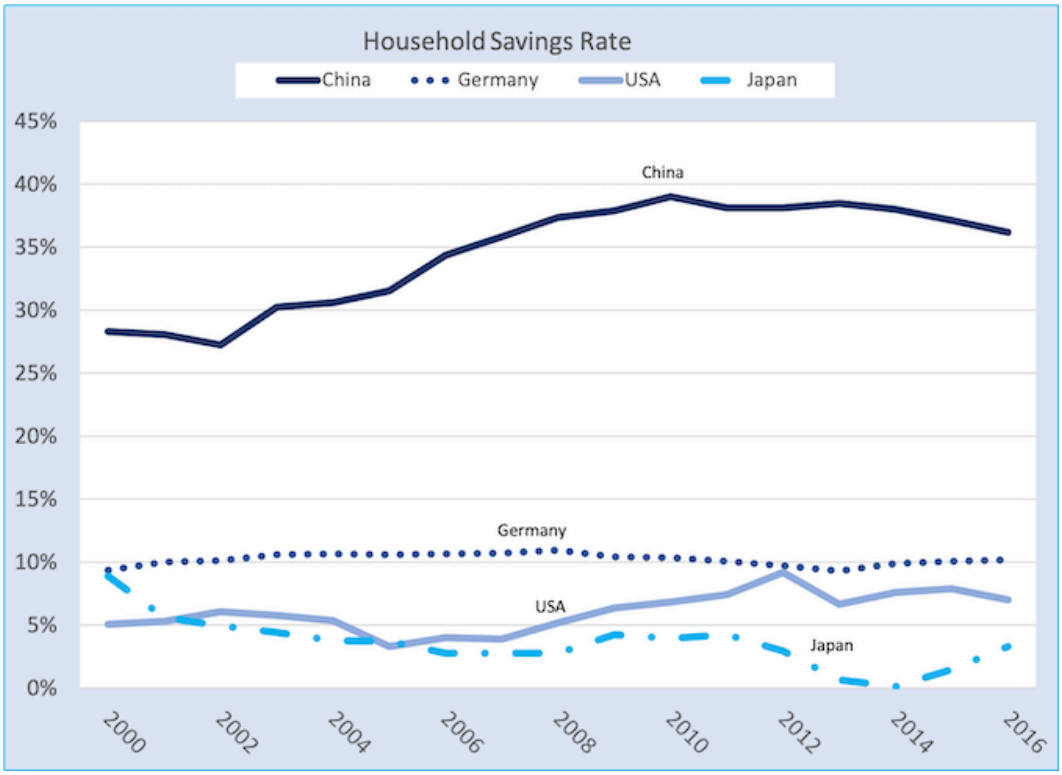


Figure 6.4. *Household Savings Rates as a Percent of Disposable Income (in %) by Fred Rowland is used under a CC BY-NC 4.0 License. Source: OECD iLibrary data (11/24/2020).*

From this, we see that one of the things a country can do to stimulate investment (and economic growth) is to encourage higher rates of savings among its citizens. The consequences of low rates of savings can be seen best in Sub-Saharan African countries. Many citizens in these countries are subsistence farmers and have almost no savings. As a result, there is not a large supply of loanable funds, which are essentially deposits in local banks. Since the supply is low, interest rates are high on loans, which curtails investment. Low ratios of capital equipment to labor results in low productivity of workers. Low productivity of workers results in workers being paid low wages. Low wages mean workers have low or non-existent savings. You can see how this is a vicious circle.

How Much You Should Save

You should begin saving now, even if you can only set aside $100.00 per month. Your goal should be to ramp this up to 10% to 15% of your disposable income, but that is impossible when you are just beginning your career. As we saw in the chart from the OECD above, the savings rate in the United States from 2010 to 2019 ranged from a low of 4.2% of disposable income to a high of 8.1% of disposable income. That gives us average savings rates of:

$$\text{2010 to 2019 (10-year average)} = \ 6.4\% \text{ of disposable income}$$
$$\text{2015 to 2019 (5-year average)} = \ 7.5\% \text{ of disposable income}$$

However, one of the drawbacks of using the average rates is the increasing income inequality in the U.S. Lower income households have a much lower savings rate as a percentage of disposable income than high income households. Therefore, we should look at savings rates for income quintiles or deciles before we decide on a reasonable expectation for a savings rate.

I have my retirement fund at the nonprofit mutual fund company TIAA. The TIAA website contained an article by personal finance journalist Paula Pant, who has been featured on MSN Money, Bankrate, Marketplace Money, AARP Bulletin, and more. Her website, "Afford Anything," draws 30,000 visitors each month. Paula recommends saving 10% to 15% of your disposable income. However, she also recommends the 20/50/30 Rule for personal budgets (Pant, 2020):

- 20% of your disposable income goes to savings
- 50% of your disposable income goes to necessities
- 30% of your disposable incomes goes to discretionary expenditures, such as entertainment

The 20/50/30 rule seems like an impossible goal. Perhaps more realistically, Vanguard, one of the largest mutual fund companies in the world, advises the following:

1. Save at least enough to get the full match offered by your employer retirement plan, if you have one.
2. Work your way up to 12%–15% of your pay, including any employer match.

This goal seems more reasonable, although when you are starting your career, it may be very difficult to save anything. The important thing, however, is to begin the habit of saving something every month. As you see your savings grow, you will appreciate the feeling of security and will want to save even more.

Your Budget

Keep in mind that the purpose of budgeting is to get to savings. You do not need a complicated budget; instead, focus on keeping track of your spending. Then just subtract that from your disposable income to get your cash flow. You can easily track your spending with a simple spreadsheet. For a young person, a budget like the example below is all you should need (until you make your first million, that is).

Table 6.2. Personal Cash Flow Statement

	Budget	Actual	Budget	Actual
Income	**Month #1**	**Month #1**	**Month #2**	**Month #2**
Disposable (after-tax) income				
Interest on Bank Account				
Dividend payments				
Total Cash Income				
Expenditures				
Rent				
Electricity and Water				
Cable and Internet				
Mobile Phone				
Groceries				
Health Insurance				
Clothing				
Car Payment				
Car Expenses				
Entertainment				
Other Expense (Credit Card)				
Total Expenditures				
Net Cash Flow				

Create a budget like the one above to start keeping track of your spending, then track your spending for the month and enter it in the actual column. Next, create a revised budget for month number two based on your actual experience. If you see that your net cash flow is zero or negative, look at the

actual spending for month number one and decide where you can cut back. Entertainment is the easiest place to cut spending.

For a real-world perspective, I asked a student of mine to create the monthly budget below for when he is at college.

Table 6.3. Personal Cash Flow Statement Example

	Budget	Actual	Budget	Actual
Income	**Month #1**	**Month #1**	**Month #2**	**Month #2**
Disposable (after-tax) income	0			
Interest on Bank Account	0			
Dividend payments	0			
Income from Summer Work	1200			
Total Cash Income	1200			
Expenditures				
Rent (loan from last year)	650			
Electricity and Water (loan)	165			
Cable and Internet (loan)	60			
Mobile Phone (parents)	45			
Groceries (loan and personal)	200			
Health Insurance (parents)	500			
Clothing	0			
Car Payment	0			
Car Expenses	0			
Entertainment	75			
Other Expense	50			
Net Cash Flow	0			
Summary of Expenditures				
Total Expenditures	1745			

Parents Expenditures	545			
Loan Expenditures	1075			
Personal Expenditures	125			

Why Budgets Do Not Work (most of the time)

Budgeting is all about savings. Otherwise, you could just spend your paycheck until there is nothing left (and maybe that is exactly what you do), and then what do you do with all the leftover bills? Unfortunately, budgets are much like diets, and neither diets nor budgets work most of the time. Each is complicated, and both take time to add up your calories or expenditures. Neither is any fun at all. Despite all our good intentions, diets and budgets usually go the way of many of our New Year's resolutions; that is, they do not last.

David Bach, co-founder of AE Wealth Management recently told CNBC his key to getting to savings:

> If you want to save more money and build wealth, you do not necessarily have to create a detailed budget that allocates money for categories like clothes, coffee and bars. Instead, simply commit to paying yourself first...Whenever you earn money, set aside a portion for your future self (2019).

In her article "Why a Budget is Like a Diet—Ineffective," Tara Siegal Bernard provides advice from experts (including herself) and concludes that budgeting does not work. Despite this, she still had this to say:

> But there are plenty of mental tricks and strategies that can make your budgeting more sustainable now. In fact, the best strategy is not to think about it as budgeting at all. Instead, set up broad goals and automate all savings and other priorities where you can (201).

How to Use Behavioral Economics to Create a Workable Budget

The way to stay committed to your budget is to establish some external controls on yourself. Behavioral economists call these "nudges." The best way to keep on track is to use your accounts at your **financial institution** to automatically stay on budget. I use the term "financial institution" purposely, because there are certain truths you should know about financial institutions that are not easily evident:

- Commercial banks are not your friends.
- If you have your main checking account at a commercial bank, do not set up automatic bill paying there. You will be stuck! Switch to a credit union first.
- Credit unions are your friends.
- Most online stock trading companies such as Robinhood, TD Ameritrade, E*TRADE, etc. are not your friends.
- Non-profit mutual fund companies, such as Vanguard, and TIAA are your friends.
- Almost all stockbrokers and mutual fund companies currently allow you to trade stocks for free—that is, no stockbroker commissions on stock trades. If you want to trade stocks, I recommend Charles Schwab as the best broker to set up an account with.

With these facts in mind, we can now talk about how to use your financial institution to nudge you to stay on budget.

First, keep your checking and savings account at a credit union, not a commercial bank. Commercial banks such as Wells Fargo, Bank of America, JP Morgan/Chase and Citicorp are in business to make *a profit*. They have to generate enough profit to pay dividends to their shareholders. The upshot of this is that they charge higher interest rates on their loans and pay lower interest rates on their deposits than credit unions.

Commercial banks, savings banks, and credit unions are called **financial intermediaries**. This means they take money in from depositors (to whom they

pay interest) and lend it out to borrowers (who pay the bank interest). In order to cover their overhead (salaries, rent, advertising), financial intermediaries charge higher rates to their borrowers than they pay to their depositors. In addition, commercial banks also borrow money in the short-term money markets (also known as a **Commercial Paper Market**) at a low rate and lend it out to borrowers at a higher rate.

Since the commercial banks must pay interest to their depositors and interest to the Commercial Paper Market lenders, they are essentially borrowing all their money. Additionally, commercial banks must pay dividends to their owners and stockholders, adding to their expenditures. Thus, commercial banks must do the following:

1. Pay interest to their depositors.
2. Pay interest to their lenders in the short-term Commercial Paper market.
3. Cover their overhead (salaries, buildings utilities, advertising, rent).
4. Pay dividends to their owners and stockholders.

In general, commercial banks add a mark-up on the cost of funds between 3% and 4%. That is, if the bank is paying their depositors 1% on their savings accounts (and 1% on the Commercial Paper they borrow, since all short-term interest rates move in synchronization) this is their average cost of funds. On average, they will then charge 4% on their portfolio of loans.

The difference between what a financial institution charges its borrowers and what it pays its depositors (and lenders) is called **the interest rate spread** or **the net interest margin**. Below is the historical data on the interest rate spread at all U.S. Banks.

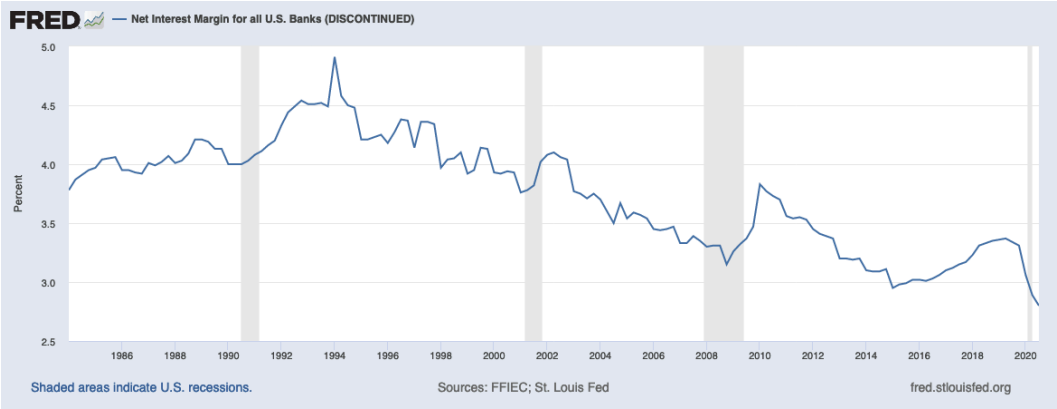


Figure 6.5. *Federal Financial Institutions Examination Council (US) and Federal Reserve Bank of St. Louis, Net Interest Margin for all U.S. Banks (DISCONTINUED) [USNIM], retrieved from FRED, Federal Reserve Bank of St. Louis; September 30, 2021.*

If you look closely, you will see two big spikes in the interest rate spreads, in 1994 and 2010. In these two years, the Federal Reserve Bank reduced the Federal Funds Rate dramatically as part of Monetary Policy to help the economy recover following recessions. Since all short-term interest rates (including deposit interest rates and Commercial Paper rates) move in lockstep with the Fed Funds Rate, this effectively reduces the cost of funds to banks, allowing them to make larger profits.

Credit unions, on the other hand, are all non-profit mutual institutions, entirely owned by their depositors. Therefore, these are the only expenses they have to cover:

1. Pay interest to their depositors.
2. Cover their overhead (salaries, buildings utilities, advertising, rent).

This is why credit unions can pay higher interest rates on saving accounts and charge lower interest rates on all their loans. They just need a slightly lower interest rate spread to cover their expenses. A recent average interest rate spread for credit unions was 3.15%.

Unfortunately, the basic business model for all financial intermediaries is inherently unstable. They are all subject to what is known as **disintermediation**.

Disintermediation occurs when depositors demand their money back, but the bank does not have it. This can occur because financial intermediaries borrow short term and lend long term. Banks and credit unions borrow their money from depositors (or Commercial Paper Markets, in the case of commercial banks). and the depositors can demand its return at any time. However, the financial intermediaries have lent the depositors' money out in loans that are paid back over time—auto loans, mortgages, credit card loans, etc.

When depositors demand more of their money back than the bank has on hand, this is known as a **run on the bank**. During the Great Depression (1929 to 1940) there were several runs on banks, and many banks went bankrupt, while numerous depositors lost their money. As a result, the Federal Deposit Insurance Corporation (FDIC) was created in 1933 by the federal government to insure depositors' money. FDIC currently insures up to $250,000.00 per account in commercial banks against the bank's insolvency. In 1970, in response to the explosive growth of credit union membership, the National Credit Union Share Insurance Fund ("NCUSIF") was created by the federal government to fulfill a parallel function to the FDIC, but for credit unions. The NCUSIF also currently insures up to $250,000.00 per account in credit unions against the credit union's insolvency.

Credit unions were initially set up to benefit employees at the same company, such as the Pentagon Federal Credit Union, the General Motors Employees Credit Union, or the AFL-CIO Credit Union. In the expansion of credit union membership after 1970, many of the credit unions relaxed their membership regulations and now anyone can join almost any credit union. Usually to join a credit union currently, you merely need to deposit a minimum of $5.00 in a savings account. Choose a credit union that has an office convenient to you (although that may not even be necessary, as you can do all your banking with credit unions electronically).

Credit Union Accounts to Facilitate Budgeting

In order to use your credit union to facilitate your budgeting (and savings), you need to set up the following accounts:

1. Checking Account #1 for expenses.

2. Savings Account connected to your checking account.
3. An overdraft Line of Credit connected to Checking Account #1, so if you overdraw your account, the Line of Credit will automatically deposit money into the Checking Account to cover the overdraft. This will save you a lot of overdraft fees.
4. Checking Account #2 for your monthly entertainment.
5. Arrange for Debit Cards for both checking accounts.

This arrangement is analogous to having different envelopes in your drawer with allocations of your cash for expenses, entertainment and savings, but it accomplishes it electronically. Once these accounts and facilities are set up, take the following actions:

1. Have your paycheck electronically deposited to Checking Account #1.
2. Have a certain savings amount automatically transferred from Checking Account #1 to the associated Savings Account.
3. Have a monthly entertainment amount automatically transferred to Checking Account #2. Use this debit card to pay for your monthly entertainment. When the account is depleted, stop spending and wait for your next paycheck.
4. Use the credit union's electronic bill pay for all of your bills. Between this and your debit card, you will have a full accounting of your expenses at the end of each month. Most credit unions will allow you to categorize each payee and will aggregate the payments for each budget category.

For example, say your monthly disposable income is $3,500. Your budget includes $2,900 on monthly expenses, $500 for entertainment, and $100 for savings. To manage this, you would do the following:

1. Have your paycheck deposited directly into Checking Account #1. Most likely you will be paid on the last day of the month.
2. Set up an automatic bill pay to transfer $500 into your Checking Account #2 and $100 into your Savings Account each payday.

3. Use your debit card for Checking Account #1 or automatic bill pay to cover monthly expenses.

4. Use your debit card for Checking Account #2 to pay monthly entertainment expenses. When this account is empty, stop spending until you put more money in the entertainment account.

5. Do not touch your savings account unless you are ready to make a purchase you were saving for, for example, to put a down payment on a car or some other long-term goal.

As I mentioned before, do not set up automatic bill pay at a commercial bank. Studies have shown that 95% of customers who set up automatic bill pay do not leave their financial institution. The customer views it as too much work to set up all the accounts again at another financial institution. Move to a credit union before you set up automatic bill pay.

Establishing Financial Goals

All animals are goal directed: find food, find a burrow, find a mate. The human animal is no exception. Use these innate tendencies to help your budget. The basic necessities of life (rent or mortgage payment, food, transportation) scream at us to be paid every month, so it does not take much to keep them at the forefront of our mind. Getting to savings is the hard part. To do this, we have to set (and write down) financial goals, utilizing one of the key techniques of behavioral economics: making a commitment. You can write your goals down anywhere, but I recommend you write them at the bottom of your budget, ensuring that you will see them regularly.

The priority for your savings account is to keep a stash of money for unforeseen expenses, like car repairs or medical expenses. Try to save six months of your basic expenses, not including entertainment. Six months of basic expenses helps protect against job layoffs, as in normal economic times, 90% of workers find a new job within six months (though this gets skewed during recessions). The goal is to give yourself a safety net in addition to unemployment compensation, because unemployment compensation varies from state to state and pays an average of a little over $300.00 per week for

an average of 26 weeks. Six months of base expenses is an extremely difficult savings goal at the beginning of your career. However, it is a goal you need to work towards. Having this savings will give you great peace of mind.

A second financial goal is to save for future purchases, such as a new car, a down payment on a house, or even just new furniture for your apartment. For example, a house down payment typically equals 5% of the purchase price. Since the median sales price of houses in the United States in 2020 is $320,000.00, a 5% down payment would be $15,000.00. Do not be discouraged, though; in a lot of cases, banks will accept a 3% down payment on a house, especially for a first-time home buyer.

The third thing to save for are what are typically the three big purchases in your life.

- The down payment on a house
- College tuition for your children
- Your retirement

We discuss buying a house and saving for retirement in upcoming chapters, but as to education, we can look at the 2019-2020 average cost of tuition to gain perspective. Among national colleges and universities, the College Board (2022) reported the following average cost of tuition and fees for the 2021–2022 school year:

In 2021-22, the average published (sticker) tuition and fees for full-time students are:

- Public four-year in-state: $10,740
    - $170 higher than in 2020-21 (+1.6% before adjusting for inflation)
- Public four-year out-of-state: $27,560
    - $410 higher than in 2020-21 (+1.5% before adjusting for inflation)
- Public two-year in-district: $3,800
    - $50 higher than in 2020-21 (+1.3% before adjusting for inflation)
- Private nonprofit four-year: $38,070

- $800 higher than in 2020-21 (+2.1% before adjusting for inflation)

Add to this anywhere from $5,000 to $10,000 per year for room and board, and a state resident at a four-year public college could pay up to $85,000.

The good news is that with financial aid, very few students pay the full cost of tuition. However, according to the College Board, the average amount borrowed by 2017-2018 bachelor's degree recipients was $29,000 ($26,900 for public colleges and $32,600 for private colleges).

Reviewing Your Budget

In the beginning, review your budget in the middle and at the end of the first month. Reviewing it in the middle of the month gives you some time to correct your behavior; reviewing at the end will help you revise for the next month. Once you feel that you are comfortably running, compiling your actual expenses and revising can be done once per month.

7. Credit Cards, Auto Loans, and Other Personal Debt

How Much Have Americans Borrowed?

Prior to the Pandemic (and the subsequent recession), household or consumer debt outstanding was at an all-time high.

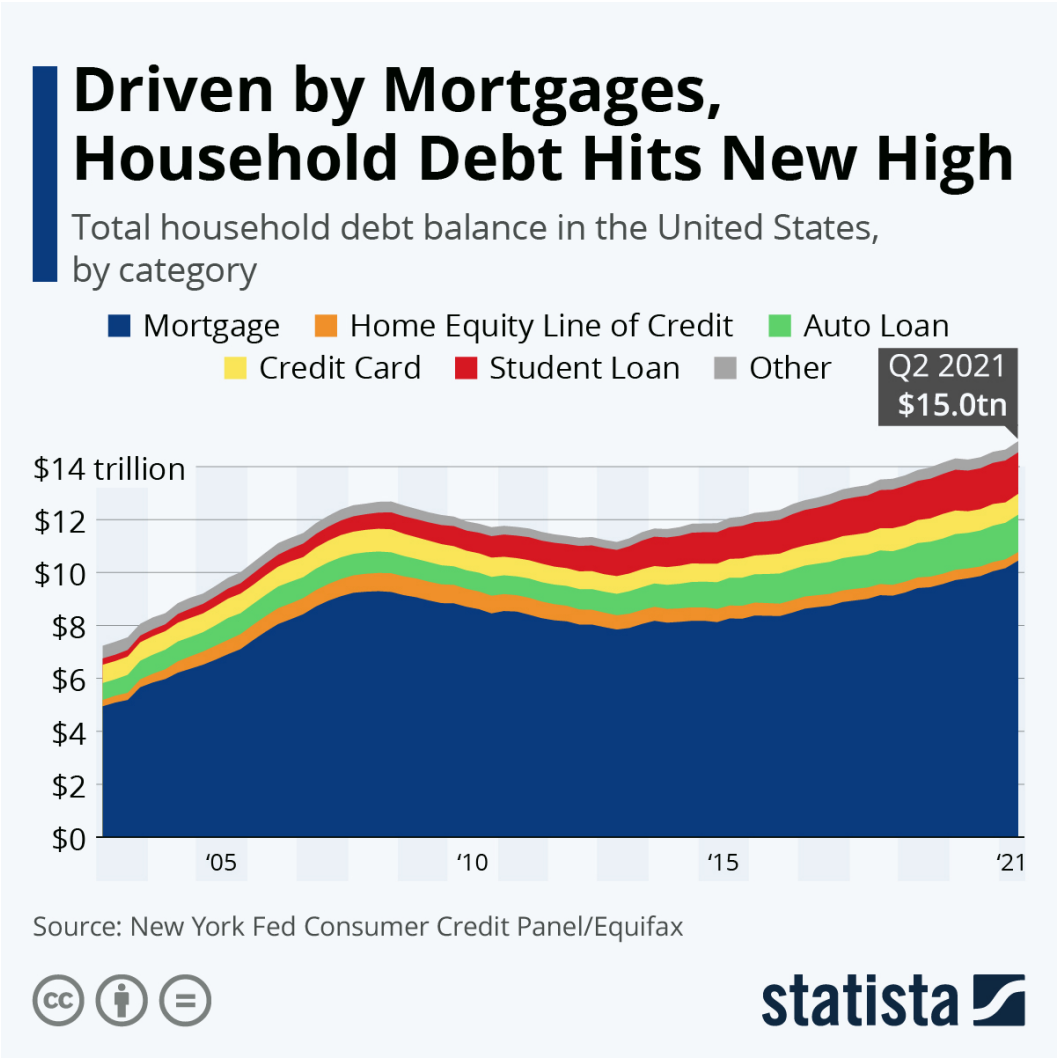


Figure 7.1. *Household Debt Hits New High by Statista is used under a CC BY-ND 3.0 License.*

The total amount of consumer credit outstanding at the end of the first quarter of 2020 was $14.3 trillion. Of this amount, here are the types and amounts of the outstanding loans as of the end of Q1, 2020 (note that the Pandemic Recession began in February 2020, but the President's order to shut down restaurants, hotels, bars, etc. was March 16, 2020).

Household Debt and Credit Developments as of Q1 2020

CATEGORY	QUARTERLY CHANGE * (BILLIONS $)	ANNUAL CHANGE** (BILLIONS $)	TOTAL AS OF Q1 2020 (TRILLIONS $)
MORTGAGE DEBT	(+) $156	(+) $469	$9.71
HOME EQUITY LINE OF CREDIT	(-) $4	(-) $20	$0.39
STUDENT DEBT	(+) $27	(+) $49	$1.54
AUTO DEBT	(+) $15	(+) $66	$1.35
CREDIT CARD DEBT	(-) $34	(+) $45	$0.89
OTHER	(-) $5	(+) $23	$0.43
TOTAL DEBT	(+) $155	(+) $632	$14.30

*Change from Q4 2019 to Q1 2020
** Change from Q1 2019 to Q1 2020

Figure 7.2. *Household Debt and Credit Developments as of Q1 2020 by Federal Reserve Bank of New York has no known copyright restrictions.*

What Determines Interest Rates

As a practical matter, we need to divide interest rates into **short-term interest rates**—those where the principle must be repaid in one year or less—and **long-term interest rates**—those where the principle must be repaid over a period in excess of one year. Some short-term interest rates include credit cards, treasury bonds with maturity of less than one year, business or personal lines of credit, and corporate paper loans. Long-term interest rates include automobile loans, home mortgages, student loans, and home equity lines of credit.

Interest rates, both short- and long-term, are ultimately determined like any good or service; that is, by the laws of demand and supply. The equilibrium interest rate and equilibrium quantity of loans borrowed is determined by the intersection of demand for loans and supply of loans. The graph below calls the

good we are examining **financial capital**. It is often also called the demand and supply of loanable funds or the demand for and supply of loans.

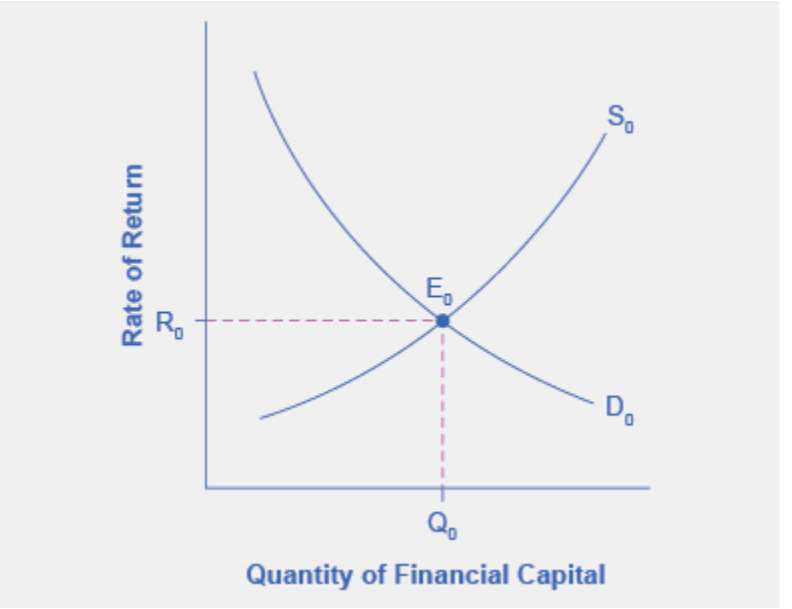


Figure 7.3. *The United States as a Global Borrower Before and After U.S. Debt Uncertainty by Steven A. Greenlaw and David Shapiro is used under a CC BY 4.0 License.*

We can see who creates the demand for loans and the supply of loans by using a simple model known as the **circular flow of the economy**. Households supply labor to firms and receive wages in return. Firms produce goods and services by using labor along with the plants and equipment they own (physical capital), as well as natural resources and raw materials (sometimes called "land"). Firms then sell these goods and services to households (consumption spending). Households spend some of their disposable income and save some of it:

$$\text{Disposable Income} = \text{Consumption} + \text{Savings}$$

Households put their savings into banks or stocks or bonds, therefore:

$$\text{Savings} = \text{Investment}$$

The savings that households deposit in banks are the Supply of Loanable Funds.

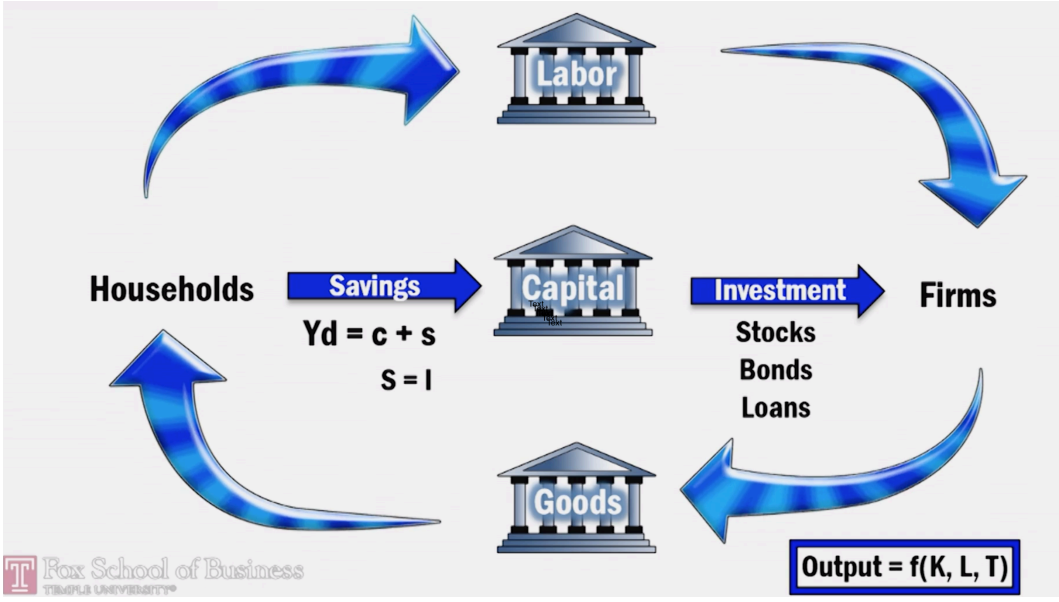


Figure 7.4. *Market for Loanable Funds*

Households supply Loanable Funds to banks through deposits. How much Loanable Funds households supply is determined by the price they will be paid for their savings (the interest rate) and other factors, such as how much income they make. Firms, households and the government demand Loanable Funds. The price of Loanable Funds and other factors, such as the state of the economy,

determine how large the demand is. Banks are the intermediaries, who collect the deposits and lend them out to the borrowers, adding a markup, of course, to cover their overhead and to create a profit for their stockholders.

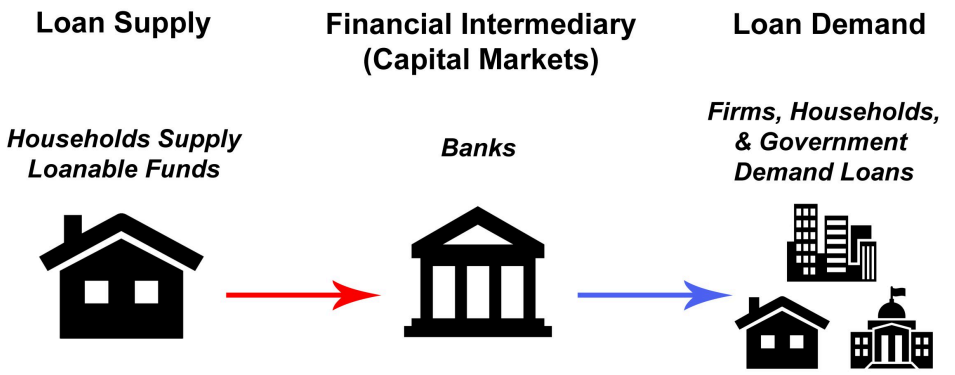


***Figure 7.5**. The Three-Sector Economy Model by North Broad Press adapts Owning a Home, Bank Account, Government Building, and Ciudad (by Ecelan) and is used under a CC BY-SA 4.0 License.*

In general, financial intermediaries are in business to make a profit. While this is not true of credit unions, they still have to pay interest to their depositors, cover their workers' wages, and fund overhead; they just do not have to make money above their expenses to pay to stockholders. In any case, financial intermediaries supply banking services. As a producer of banking services, we can characterize their production function like any other firm:

$$\text{Output} = f\,(\text{K}, \text{L}, \text{T})$$

$$\text{K} = \text{Physical Capital (Plants, Equipment and}$$

$$\text{Raw Materials)}$$
$$\text{L} = \text{Labor (\# of Employees or Annual Hours Worked)}$$
$$\text{T} = \text{Technology (Level of Technology, e.g. handmade or automated)}$$

For any firm, the definition of profit is:

$$\text{Profit} = \text{Total Revenue} - \text{Total Costs}$$

For financial intermediaries, their total revenue is the interest they earn on the loans they make plus some investment returns (usually Treasury Bonds). Their costs are the interest they pay their depositors, interest on Commercial Paper, physical capital expenses, and employee wages. Thus, a financial intermediary defines profit as such:

$$\text{Profit} = \text{Interest Earned on Loans} - \text{Interest Paid on Deposits} - \text{Cost of Plants and Equipment} - \text{Wages Paid to Employees}$$

To cover all its expenses, the financial intermediary must decide what breakeven interest rate it must charge on its loans. In order to understand this, we can think of interest rates as having three components:

1. A Risk Premium
2. Expected Inflation
3. The Time Value of Money

Let's imagine you are going to throw a party for all your friends. You have saved $1,000 and have exactly enough money to buy 20 kegs at $50.00 apiece. A couple weeks before the party, your best friend says his car broke down, and he really needs it for work. It will cost $1,000 to fix it, and he asks you to lend him $1,000.00 and promises to pay you back within one year with interest. Tough call, right? It is your best friend, of course, so you lend him the money for one year. But what interest rate should you charge? Let's examine the components.

First, you are giving up using your $1,000 for the party (Consumption), and you deserve some interest payment. This is known as **the time value of money**. The time value of money over the long term has historically been 2 to 3% (a rate we have seen on long-term loans when there is no inflation).

Second, when you get the $1,000 back, you want to still be able to buy 20 kegs of beer. If the cost of the kegs has inflated, you want the principal amount you lent to still be worth $1,000, so you want the future or **expected inflation rate** to be applied to the principal. Let's say this is 2%.

Finally, there is a **risk premium** on top of all this. Let's say you expect your friend to only pay back 95% of the principal. You want to be made whole, so you charge this risk premium of 5% on top of the other two components. This part of the analogy does not work as well, but in real world banking, if you have $1,000,00 in loans outstanding and historically 5% of the loans default, you have to get that 5% back first before you can start earning on your money. If we add these components all together, you would charge your friend 9% for a one year loan of $1,000.

1. A Risk Premium: 5%
2. Expected Inflation: 2%
3. The Time Value of Money: 2%

Figuring this all out can be mentally exhausting, so financial intermediaries use a shortcut. U.S. Treasury Bonds are considered the safest investment in the world, so the U.S. is charged an interest rate that includes only the time value

of money plus expected inflation. For example, let's say a ten-year U.S. Treasury Bond pays an annual interest of 4%. Since we know the time value of money is 2%, these must be the components of that 4% interest rate:

1. A Risk Premium: 0%
2. Expected Inflation: 2%
3. The Time Value of Money: 2%

As a short cut, financial intermediaries look at the market interest rate on the appropriate term length U.S. Treasury Bond and match it to a loan they are making with the same term length and add a risk premium. Let's look at the current rates for Treasury Bills, Treasury Notes and Treasury Bonds. The maturity of a Treasury obligation is its term; that is, when the principal amount will be paid back in full.

- Treasury Bills mature in one year or less.
- Treasury Notes mature in two to ten years.
- Treasury Bonds mature in longer than ten years.

Daily Treasury Yield Curve Rates (Treasuring Bills and Bonds)

Table 7.1. Daily Treasury Yield Curve Rates

Date	1 Mo	2 Mo	3 Mo	6 Mo	1 Yr	2 Yr
8/7/20	0.08%	0.09%	0.10%	0.12%	0.14%	0.13%
Date	**3 Yr**	**5 Yr**	**7 Yr**	**10 Yr**	**20 Yr**	**30 Yr**
8/7/20	0.14%	0.23%	0.41%	0.57%	1.01%	1.23%

Source: U.S. Treasury

These yields can be graphed into what is known as a **yield curve**. The yield curve will shift as the various rates change so there will be a new yield curve every day. Note that the longer the maturity of the Treasury Notes and Bonds, the higher the interest rate. To put it simply, the longer the maturity, the higher

the expectation of a bigger inflation rate, thus the expected inflation component increases. Note that during the Pandemic Recession, the Federal Reserve Bank reduced short-term interest rates to effectively zero and reduced long-term interest rates to historical lows by buying Treasury Notes. For an example, see below for the historical rates on the bond market bellwether: the Ten-Year Treasury Note. (A bellwether is a leader or a leading indicator of a trend. The lead sheep of a flock has a bell around its neck and is called the bellwether.)

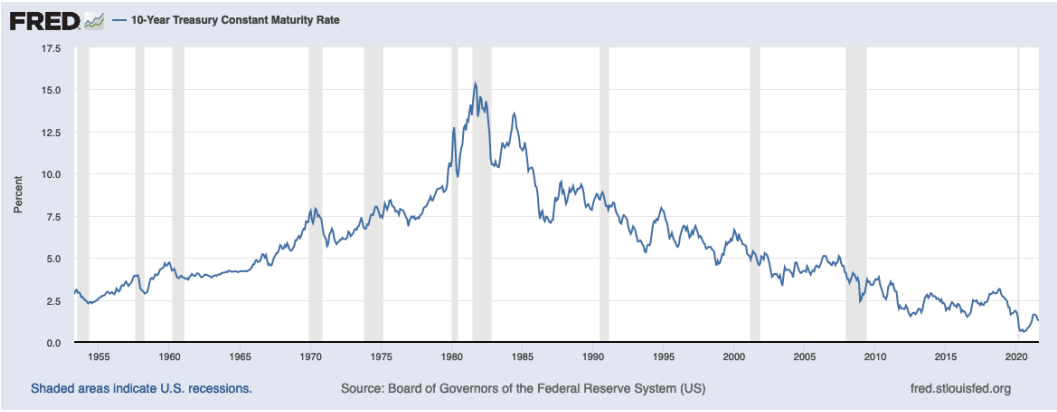


Figure 7.6. *Board of Governors of the Federal Reserve System (US), 10-Year Treasury Constant Maturity Rate [GS10], retrieved from FRED, Federal Reserve Bank of St. Louis; October 1, 2021.*

Looking back at setting interest rates, we can examine auto loans and mortgages to get a better idea of how this works. For an auto loan of 48 months, banks will take the 5-year Treasury Note and add a risk premium. For a 30-year mortgage, banks will take the 10-year Treasury Note and add a risk premium. By subtracting the corresponding Treasury Note rate to the auto loan or mortgage rate, we can calculate the risk premium. For example, this is how these rates looked as of August 7, 2020.

Table 7.2. Auto Loan and Mortgage Rates

Loan	Loan Rate	Treasury Note Rate	Risk Premium
Auto Loan (48 months)	4.27%	5 yr Note = 0.23%	4.04%
Home Mortgage (30 years)	3.08%	10 yr Note = 0.57%	2.51%

The risk premium added to the similar term length U.S. Treasury Bill or Bond often follows the default rate on that type of loan. This is because if, for example, 3% of your automobile loans are not paid back, you have to recover that 3% before you can earn any interest. Here are the historical delinquency rates on various loans (90 days overdue):

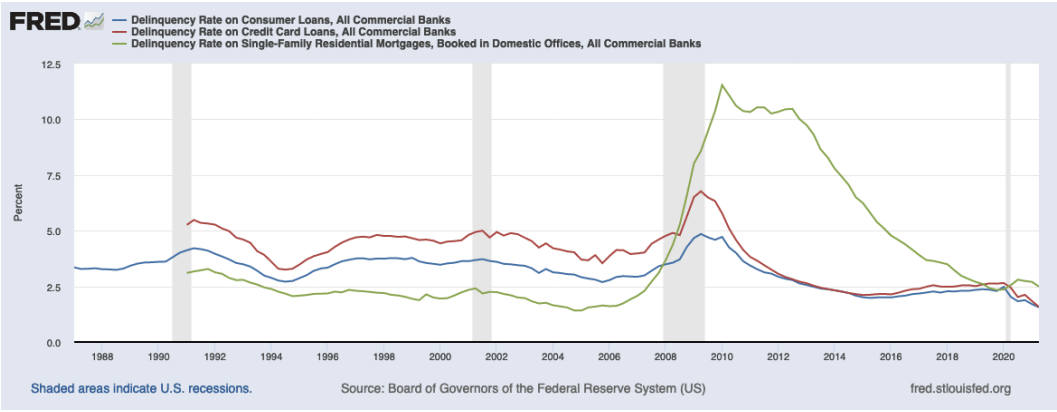


Figure 7.7. *Board of Governors of the Federal Reserve System (US), Delinquency Rate on Consumer Loans, All Commercial Banks [DRCLACBS]; Delinquency Rate on Credit Card Loans, All Commercial Banks [DRCCLACBS]; Delinquency Rate on Single-Family Residential Mortgages, Booked in Domestic Offices, All Commercial Banks [DRSFRMACBS]; retrieved from FRED, Federal Reserve Bank of St. Louis; October 1, 2021.*

Your Credit Score

The **Fair-Isaac credit score (FICO)** is the most popular credit score used by financial institutions and other firms interested in your financial stability. Its scale ranges from 300 to 850, and since most Americans have a score of 700 or above, people with that magic 700 (or higher) are considered prime credit risks. Your FICO score is made up of a weighted mix of your financial transaction history. Here are the weights (and their explanations).

Payment History (35%)

The first thing any lender wants to know is whether you have paid past credit accounts on time. This helps a lender figure out the amount of risk it will take when extending credit. This is the most important factor in a FICO Score. Be sure to keep your accounts in good standing to build a healthy history.

Amounts Owed (30%)

Having credit accounts and owing money on them does not necessarily mean you are a high-risk borrower with a low FICO Score. However, if you are using a lot of your available credit, this may indicate that you are overextended. Banks might interpret this to mean you are at a higher risk of defaulting.

Length Of Credit History (15%)

In general, a longer credit history will increase your FICO Scores. However, even people who have not been using credit for long may have high FICO Scores, depending on how the rest of their credit report looks. Your FICO Score will look at how long your credit accounts have been established, including the age of your oldest account, the age of your newest account, and an average age of all your accounts. It will also factor in how long specific credit accounts have been established and how long it has been since you used certain accounts.

Credit Mix (10%)

FICO Scores will consider your mix of credit cards, retail accounts, installment loans, finance company accounts, and mortgage loans. However, it is not necessary to have one of each.

New Credit (10%)

Research shows that opening several credit accounts in a short amount of time represents a greater risk, especially for people who do not have a long credit history. If you can avoid it, try not to open too many accounts too rapidly.

FICO is the leading credit scoring model. In 2006, the three major credit bureaus—TransUnion, Equifax, and Experian—joined forces to create VantageScore in order to compete with FICO. The VantageScore 3.0 is used mainly by the credit card and auto sectors while the FICO score is used by the mortgage sector. The weights used by VantageScore 3.0 are similar to the weight of your FICO score. Here are a few facts about credit scores:

- Average FICO Score: 706
- Average VantageScore: 685
- Average U.S. Household Credit Card Balance: $8,602
- Average Annual Percentage Rate on Credit Cards: 17%
- Amount of Time Adverse Info Stays on Your Credit Report: 7 years

Source: FICO, Vantage, Federal Reserve Bank, 2019

How to Get and Maintain a Good Credit Score

Your parents and acquaintances likely have a lot of advice on how to get and maintain a good credit score. Some of this advice is correct, but some of it is a myth.

In her 2019 article, "9 Myths About Credit Scores," Demetria Gallegos presents a comprehensive overview of the do's and don'ts of credit scores. Gallegos

points out that with the near universal use of credit scores today by banks, landlords, employers, rental agencies, and others, your credit score represents more than the financial aspects of your life. Your credit score can be the key to a better standard of living. Gallegos debunks the common myths around credit scores; I have listed these below and included my commentary (Galegos (2019).

Myth: Checking My Credit Score Hurts My Credit Score.

There is a difference between a **hard inquiry** and a **soft inquiry**. A hard inquiry is when a bank checks your credit in order to evaluate whether they will extend a loan to you. A soft inquiry is an employer checking your credit as part of a background check on you or a utility company checking your FICO score to set up a new account. Each hard inquiry will drop your FICO score by a few points. Almost all soft inquiries will not. If you are simply checking on your credit score, there will be no loss of points. You can check your credit score for free on a number of websites, like Discover Credit Score, Credit Karma, or Mint.

Discover Credit Score is best in terms of data sharing and solicitation. If you just want to check your credit score, they do not share your info with any other credit card company or commercial enterprise. Credit Karma has the most comprehensive information available, providing a look at all of your outstanding credit and information reported to two of the three credit agencies. It also allows you to dispute a late report or other inaccurate information directly from their website. However, they do sell your info to credit card companies, and you will likely receive credit card solicitations. Mint is owned by the accounting and financial software company, Intuit, and is primarily a free personal budgeting site. You will need to sign up for the personal budget offering before you can enter the site.

Myth: If I Pay My Bills on Time, That is All I Need to Worry About.

All you have to do is look at the credit score components above to realize that paying your bills is not enough on its own. Pay attention to how much credit you have available and how much of your total credit is outstanding. As a rule of thumb, you should only have about 30% of your total credit limit outstanding. Try spreading your purchases among two or more credit cards. Call your credit card companies and ask for your credit limits to be increased. If you have good

credit, the credit card companies will oblige you 80% or more of the time. This will immediately reduce the percentage of your outstanding credit.

Myth: Carrying a Balance on My Credit Card Helps Boost My Credit Score.

Carrying a balance will not help your credit score. In fact, if the balance is above 30%, it will hurt your credit score.) In addition, carrying a balance if you can afford to pay it off just costs you interest payments.

Myth: Closing an Old Credit Card with a High Interest Rate Will Help My Score.

Since the amount of outstanding credit in part determines your credit score, it is best to pay off high interest credit cards and leave them open. Do not cancel them unless they charge you an annual fee. If there is a fee involved, call the credit card company and ask them to substitute a card without a fee and ask to have the same credit card number.

Remember, the length of the credit extended helps your score. FICO ignores the closed account status and continues averaging the age of the closed account with your open accounts. Vantage, however, removes closed accounts (and your payment record) from its calculation, so you lose the value of positive payment on a past account. The best policy is to keep high interest credit cards open and use lower interest credit cards for purchases.

Myth: Opening a New Retail Credit Card Is Good for My Credit Score.

Retailers entice you with 0% interest and other incentives to open new credit cards. When you do, the average age of your credit gets younger, and you lose a few points from the inquiry. In addition, the interest rate from the retailer after the initial period is generally higher than the average interest rate on your other credit cards.

Myth: It Hurts My Credit Score to Comparison Shop for a Mortgage, Auto or Student Loan.

The credit rating models take comparison shopping into account. If the credit rating agencies see multiple hard inquiries around the same time, they will assume you are shopping around. However, there is a time limit on this. VantageScore bundles similar inquiries within 14 days into one hard inquiry. FICO has shopping periods of 14 to 45 days, depending on the type of credit. In any event, a good tip if you are buying a house is to wait till after closing to take on any new credit for furniture or appliances. This will assure the highest credit score as you go into closing.

Myth: The Older My Unpaid Debt, The More It Hurts Me.

Late payments, collections, foreclosures and Chapter 13 bankruptcies remain on your credit report and hurt your credit score for seven years. However, the older the credit problem, the less it affects your credit. So if you have an unfortunate event like a bankruptcy or foreclosure, stay current with any new or existing credit you are not delinquent on. As to collections, credit card companies aggressively pursue delinquent accounts for about two years. After that, they often sell the delinquent debt to collection agencies and take the debt off their books. If a legitimate collection company contacts you, you should try to make a deal to pay only part of the debt. Collection companies usually buy delinquent debt for 20% of its full value, so anything they collect over that is profit. The Consumer Financial Protection Bureau (CFPB) has established rights for you when dealing with collection companies. They cannot threaten or harass you. If they do, contact the CFPB.

If you have gone through a bad financial period, a good way to re-establish credit is to get a secured credit card. With this type of card, you deposit money into your financial institution and spend up to that preset limit. If you pay off the charges each month, your credit score will improve, and in about a year (maybe less), you can likely get a regular credit card again.

Myth: Selecting "Credit" While Using Your Debit Card for a Purchase Is Good for My Credit Score.

There is no effect at all on your credit score if you select "credit" when using a

debit card. However, you should be sure that your financial institution does not charge any fees for debit transactions.

Myth: Credit Reports Are Accurate.

Credit reporting firms make mistakes. An incorrect score could come from something as simple as someone who shares your name being put on your report; it could also be the result of a criminal stealing your identity and taking out credit cards in your name. Experts advise each of us to check our credit reports every four months. The most effective way to do this is to take advantage of the free credit reports to which every consumer is entitled. You are entitled to one free credit report each year from each of the three credit-reporting companies (Trans-Union, Experian, and Equifax).

Order a credit report every four months but order the report from a different one of the three credit-reporting companies each time. That will give you three free reports each year spaced out every four months. You can also monitor your credit through Credit Karma. It is free and alerts you if there is a significant change in your credit score or if there is a hard inquiry.

Pay for Deletion

Finally, if you are seriously delinquent on a credit card, you can try a discussion called **pay for deletion**. Since the financial institution will have to sell the debt for 20% of its face value to a collection company once they write off the debt, the collection specialist at the financial institution (before it gets sold to a collection company) will be willing to make a deal. Offer them 30% or 40% of the outstanding balance with the agreement that he/she will delete the negative reporting from the credit agencies report.

Credit Rating Agencies

The three major credit rating bureaus in the United States are Experian, Equifax, and TransUnion These agencies pay financial institutions to send them

your credit data every month. including credit limits, the amount of utilized credit, and your payment history. The credit agencies use this to calculate your credit score and sell these reports to banks, credit unions, landlords, auto finance companies, and even potential employers. Unfortunately, these credit scores have become the be-all and end-all of your ability to get a loan or a credit card, not to mention the interest rate you will pay for that loan or credit card.

As was stated earlier, a FICO score of 700 or higher is golden. In 2019 67% of Americans had a FICO score of 670 or higher. The majority of Americans have a FICO score of good or better. Banks often see a FICO score of 700 or better as the "sweet spot" for them to extend credit at a reasonable interest rate. This does not mean that you cannot get a credit card or an auto loan if you have a score less than 700, but you will pay a higher interest rate, so it is worth aiming for. Your FICO score will improve if you use only 30% or less or your credit limits, so having more credit cards but not using them improves your score. That means you should get credit cards but do not use them.

The financial institutions used to report on your financial activity to the credit scoring agencies at the end of each month, but now they seem to be reporting weekly or even daily, so check Credit Karma at least every two weeks. It will give you a good sense of how credit scores fluctuate based on your activity. Most importantly, you should immediately report any errors. You can do this for free on the Credit Karma website.

Good and Bad Debt

Certain assets are worth borrowing money for. We can call these investments. Borrowing to go to college, to purchase a house, or to buy an automobile are all investments; these are **good debt**. A house is an investment because it will appreciate in value and will save you rent, while education is an investment because it will lead to a better job and higher income. An automobile is an investment because you will likely need one to commute to your job.

Bad debt is borrowing for consumption. Do not borrow on a credit card unless you can pay it off at the end of the month. You do not really need that 55-inch TV; you can buy it if you have the money to buy it, but do not finance it with a credit card. Of course, if you are unemployed and need to use your credit card to buy food, that is another matter. In that case, the hopeful outcome will be that you will find a new job and the credit card debt will just be temporary.

Credit Cards Are Addictive

The nature and structure of the human brain makes it difficult to not run up credit card debt. Our brain almost automatically compares cost to benefit when we are considering a purchase; however, benefits are evaluated in a different part of the brain than costs. The reward center of the brain, the ventral striatum, activates in response to the item we want. The prospect of getting that item feels good. On the other hand, the insula, the area of the brain that evaluates pain and expected loss, reacts to actually having to pay for the product. Using a credit card to purchase something, whether we need it or not, gives us a sudden rush of instant gratification. However, we do not feel the pain of having to pay for it until the credit card bill arrives.

Credit cards are addictive because they hijack the ventral striatum (part of the dopamine system) which gives us the pleasure of buying something we want. On top of this, at least eight percent of men and women are addicted to shopping, only further triggering the potent addiction mechanism of credit cards.

How to Use Credit Cards Wisely

We all need credit cards. We need them to pay for airplane tickets, hotels, and things we order online. Also, having a large credit limit but using very little of it will increase your FICO Score. However, here is my best advice. Only buy something with a credit card that you can pay off at the end of the month when your credit card bill arrives. It is as simple as that!

Credit Card Providers and the Games They Play

Credit card providers begin their games with enormous marketing efforts. Credit card providers either email or snail mail over two billion new offers for credit cards per year in the United States. Given that there are 159,000,000 individuals employed in the U.S. (and presumably able to pay a credit card bill),

this corresponds to six new credit card offers *each year* for each employed person.

Second, the fees for late payment or exceeding your credit limit are exorbitant, ranging from $30 to $41. According to the Consumer Financial Protection Bureau, credit card companies raked in $12 billion in late fees in 2020, when millions of workers were laid off. Consumers with subprime credit cards and private-label store cards are particularly susceptible, especially in relation to their credit limits. The report also highlights that consumers living in low-income and majority-Black communities are disproportionately impacted by credit card late fees.

Third, the offers of 0% "introductory" interest for a period of time is not really 0% interest. The credit card companies charge you a 3% to 5% "processing fee," which covers their cost of funds, and then the rate jumps to 15% to 25% when the period is up.

Finally, Visa and Mastercard are virtual **duopolies** in their marketplace. A duopoly is a market that has only two competitors in it. These credit cards have the overwhelming majority of market share and their above-normal profits are evidence monopolistic behavior.

Auto Loans and Leases

Taking out a loan to buy an automobile is good debt. If you live in America's suburban sprawl, you typically need a car to travel to work. Purchasing an automobile is a big event in most people's lives, so try to get advice from a parent or friend who has experience in that area. An automobile is, in economist's jargon, a durable good, a good that lasts over three years. The price to consider when purchasing a durable good is the user cost. The user cost of a car is the total monthly (or annual) cost of financing and operating the vehicle. Specifically, these are the costs you need to investigate:

- The annual finance payment
- The annual fuel cost
- The annual maintenance cost
- The annual insurance costs

- The annual replacement costs of tires, etc. (most important when a car is over 3 years old)
- The trade-in value

These costs can vary significantly among various makes and models of cars. The largest component of your user cost is the financing. Interest rates for automobile purchases will vary with the market interest rate and generally track the 5-year U.S. Treasury Bill, plus a risk premium. According to *The Wall Street Journal*, as of August, 2021, the average rate on a 48 month new car loan nationwide was 4.06%. Based on this, we can determine the annual user cost of a $30,000 car:

Table 7.3. Annual User Cost of a $30,000 Car

Annual Finance Costs	$8,148	($679 per month)
Annual Insurance	$1,134	
Annual Fuel Costs	$2,392	(16,000 miles per year at $2,99/ gallon)
First Year Maintenance	$500	(Oil change and tire rotation)
TOTAL	$12,174	

The financing rate varies significantly with market interest rates, and often the auto manufacturer will give lower rates in order to sell specific models. Be sure to ask for a dealer quote on financing your car. You can use an auto loan calculator to figure out your monthly finance costs.

A common saying in the auto industry is that your new car is worth 25% less the minute you drive it off the dealer's lot. In actuality, your car's value decreases around 20% to 30% by the end of the first year. From years two to six, depreciation ranges from 15% to 18% per year, according to recent data from Kelley Blue Book, which tracks new and used-car pricing. As a rule of thumb, in five years, cars lose 60% or more of their initial value. However, this can vary widely among makes and models, so it is worthwhile to investigate to what extent your chosen vehicle keeps its value. Remember that you will never recoup the cost of premium customization you may buy on your new car. Special models, expensive wheels, or deluxe sound systems will not increase the trade-in value of your car. Essentially, this money you are throwing away.

Unfortunately, 2021 was a bad year to buy a new or used vehicle. As we exited the Pandemic Recession, the demand for new automobiles increased while at

the same time there were serious supply shortages of the computer chips that run everything in today's sophisticated cars. In addition, the prices of used cars increased 40% over the year 2020. However, this inflation in auto prices should be temporary, so here are some ways to minimize your user cost when buying a car in years like 2021.

1. Finance your purchase through a credit union. For example, I have seen rates between 1% and 2% on new auto loans at Pentagon Federal Credit Union.
2. Finance your loan over 60 months in order to bring down your monthly payments.
3. Do not load your car up with customizations.
4. Buy a used car with a warranty instead of a new car.

You should first establish a monthly budget, keeping in mind the user costs. Then make a list of the few cars that will fit that budget. Drive the three cars that fit your budget and choose the one your gut tells you that you like the most. That way you will be happy with the purchase.

As an economist, I recommend leasing your car instead of purchasing it. Leasing is just another method of financing your car purchase, with a number of added benefits. Leasing significantly reduces your monthly payment, helping your cash flow. When you purchase a vehicle outright, you pay interest on the amount you borrow. You also have to pay off (or **amortize**) the entire cost of the vehicle over the term of the loan (typically 4 to 7 years). When you lease a vehicle, you pay interest on the amount you borrow, but you only have to amortize the difference between the purchase price and the vehicle's residual value. Here is an example of a purchase vs. lease monthly payment:

Purchase

- Price: $32,000
- Loan: $30,000
- Interest rate: 4%

- Term: 48 months
- Monthly Payment: $677.00

Lease

- Price: $32,000
- Loan: $30,000
- Interest rate: 4%
- Term: 36 months (almost all leases are for 36 or 39 months)
- Monthly Payment: $535.00

When you purchase a car, you must pay sales tax up front. Not all states have sales taxes, but in Pennsylvania, for example, where the sales tax is 6%, this would be $1,920. For a lease, you only pay sales tax on the lease payment every month. You can purchase the car or truck at the end of the lease for the residual value, or you can just turn the vehicle in and lease another new vehicle.

What to Do if You Fall Behind

Communicate with your lender if you are having any difficulty in making your vehicle payment, whether you are purchasing or leasing. Often, there are programs to assist you. For example, during the pandemic, Citibank allowed auto loan customers to skip up to three payments. You may also get a cheaper rate. The important thing is to call your lender the first time you are going to miss a payment, before you go into **default**. Default happens when you are 90 days delinquent on a loan payment. Here is the delinquency rate of credit card debt compared to other types of debt. Note that student loans have the highest delinquency rate of all types of debt.

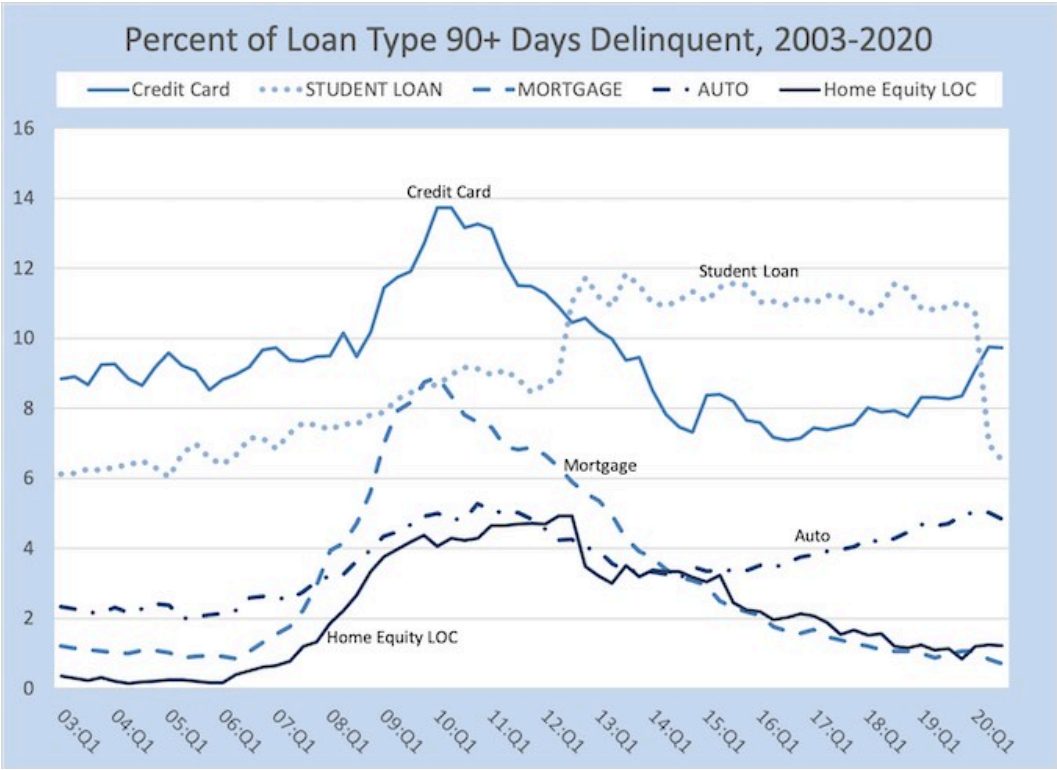


***Figure 7.8**. Percent of Balance 90+ Days Delinquent by Loan Type by Fred Rowland is used under a CC BY-NC 4.0 License. Source: Federal Reserve Bank of New York (11/2020).*

Personal Loans

It is always a good idea to establish a line of credit, a type of personal loan, with your lenders. Establish a line of credit that covers you if you overdraw the checking account. This way you will avoid any overdraft fees. Revisit this line of credit at least once per year. If your payments have been on time, ask to increase the line of credit. Of course, do not borrow money unless you really need to, but it is good to have a line of credit available for emergencies. Also, your FICO score is based in part on your credit limit and how much of that limit you are using. By increasing your line of credit but not using it, you can improve your FICO score.

Personal loans without collateral to secure them will have a higher interest rate associated with them. However, personal loans are much cheaper than borrowing on your credit card, which is another reason that a line of credit is valuable.

Pay off the Debt With the Highest Interest First

Benjamin Franklin said, “A penny saved is a penny earned.” This is also true of debt. While you might try your best to avoid it, you still can end up with credit card or personal loan debt. Your personal debt will most likely have an interest rate of 9% or above. This is **unsecured debt**: debt with no asset like a car or house that can be repossessed. **Secured debt**, like an auto loan, mortgage, or student loan, will have an interest rate under 9%. Be sure to cover your monthly payments so you can maintain your credit rating, but if you have some money left over, make payments on your credit cards and personal loans first.

Identity Theft

There are plenty of criminals out there trying to steal your identity and use it to commit fraud. The internet has made it both much easier to do so and much harder to catch these criminals. Given this serious risk, here are some of the things you should not do:

- Never give out your internet password. Not even your internet provider will ask for it.
- Never give out your social security number. Even your bank or credit union will only ask for the last four digits to use for account access.
- Never give out personal information to someone calling you. If it is someone you do not know, ask for a phone number and say you will call them back.

If you have been the victim of identity theft, the Federal Trade Commission says this is what you should do:

1. Call the companies where you know fraud occurred and speak with their fraud department.
2. Place a fraud alert and get your credit reports. Place a free, one-year fraud alert by contacting one of the three credit bureaus.
3. Report identity theft to the FTC.

After this, you will need to try to recover from the identity theft.

1. Close any new accounts opened with your stolen identity.
2. Call your accounts and get them to remove any bogus charges.
3. Call the credit bureaus and correct your reports.
4. Consider a freeze on all your accounts and credit cards. Open new ones.
5. Check your credit reports each month.

The Last Resort: Bankruptcy

If you cannot get accommodation or your debt is just too high to work out from under, the last resort is bankruptcy. Keep in mind, however, that it will not discharge your student debt. Ask someone you know to be informed for a good bankruptcy attorney or look up legal aid. Do not think that bankruptcy is a stigma. Plenty of people have declared bankruptcy, recovered and become successful.

8. Student Loans

Student Loans Are Good Debt

The current amount of outstanding student loans is approximately $1.7 trillion; meanwhile, the total outstanding credit card debt stands at $922 billion. As you can see below, student debt has risen continuously over the past decade and a half, continuing a trend over the previous four decades.

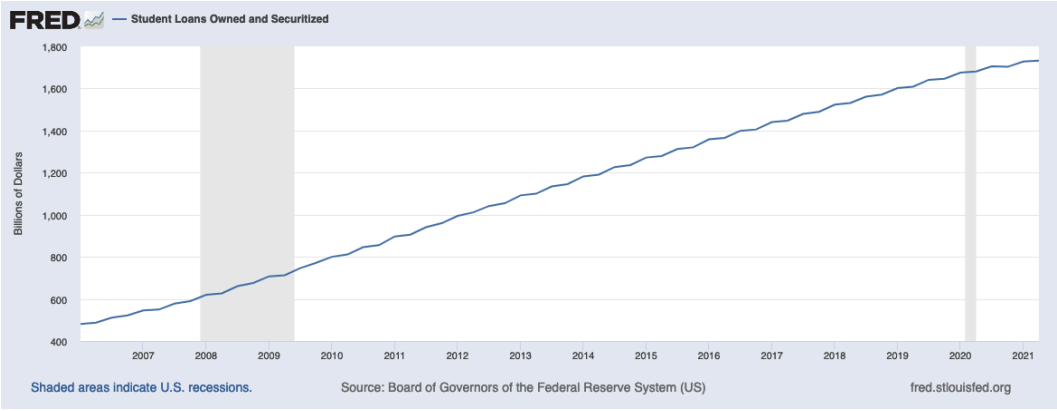


Figure 8.1. *Board of Governors of the Federal Reserve System (US), Student Loans Owned and Securitized [SLOAS], retrieved from FRED, Federal Reserve Bank of St. Louis; September 30, 2021.*

Borrowing money for a college education is an investment. In 2020, the average annual salary of a high school graduate in the United States was $37,000 while the average annual salary of a college graduate was $61,000. Those with a college degree will earn at least 60% more money for over their lifetime. In addition, a college degree is more likely to lead to career advancement. Considering a cost/benefit analysis of college degrees, we can calculate a return on investment (ROI) for a college degree. In 2019, the College Board reported that a moderate college budget for a four-year in-state public college averaged

$26,590 while a moderate budget at a private college averaged $53,980. Thus, the return on investment would look like this:

$$\text{Annual Average Public College Budget:}$$
$$\$26,590 \times 4 = \$106{,}360 \text{ total investment}$$

$$\text{Additional Income over H.S. Diploma:}$$
$$\$61,000 - \$37,000 = \$24{,}000 \text{ per year}$$

$$\text{ROI} = \frac{\text{Annual Income Difference}}{\text{Total Investment}}$$

$$\text{ROI} = \frac{\$24,000}{\$106,360} = 23\% \text{ annual ROI}$$

The ROI for a private college can be calculated the same way:

$$\text{Annual Average Private College Budget:}$$
$$\$63,980 \times 4 = \$215{,}920 \text{ total investment}$$

$$\text{Additional Income over H.S. Diploma:}$$
$$\$61,000 - \$37,000 = \$24{,}000 \text{ per year}$$

$$\text{ROI} = \frac{\text{Annual Income Difference}}{\text{Total Investment}}$$

$$\text{ROI} = \frac{\$24,000}{\$215,920} = 11\% \text{ annual ROI}$$

In comparison, the stock market has an average annual return of 10%. This also does not include any cost of living increases or other raises. However, this assumes that you graduate from college, as the higher salaries above are for college *graduates*.

Student debt has been driven higher by the relentless cost of a college education, having grown 145% since 1971:

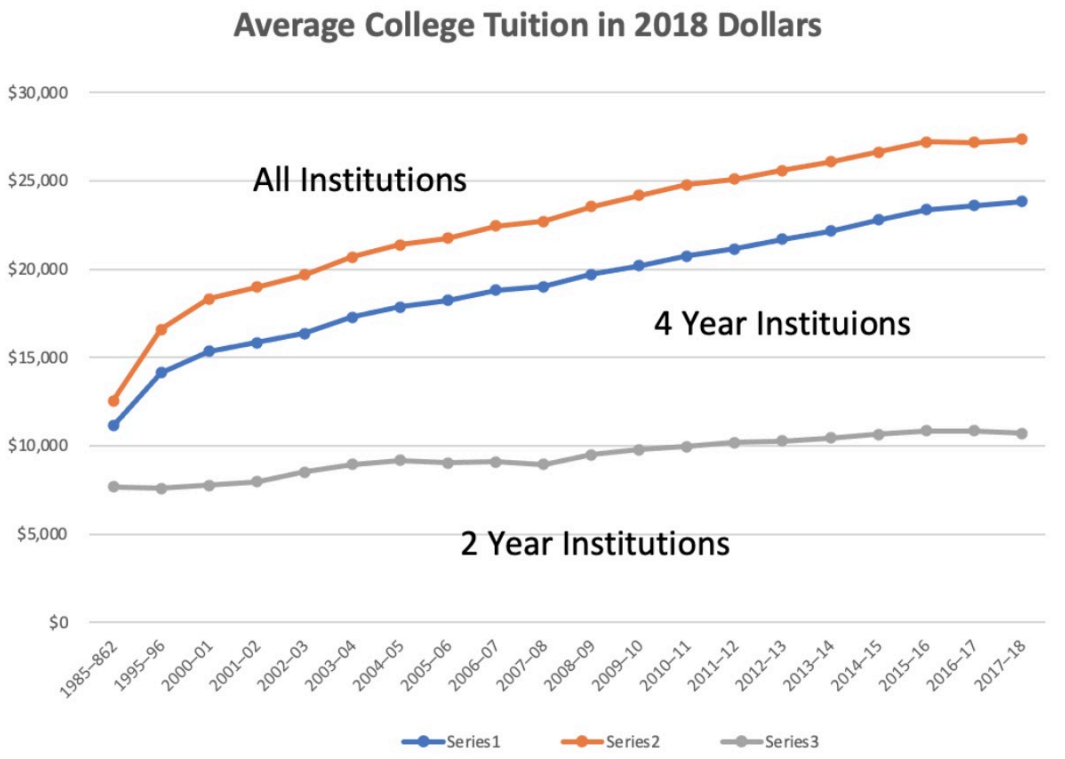


Figure 8.2. *Average College Tuition.*

Student Debt Abuse by Educational Organizations

For-profit colleges (like University of Phoenix, Corinthian Colleges, and Strayer University) and for-profit training schools (like ITT Technical Institute and Education Management Corporation) are some of the biggest culprits of student debt abuse. These organizations accounted for about 40% of all student loan defaults while only representing about 11% of all loans. According to a 2014 report by The Institute for College Access and Success, a student is three times as likely to default at a for-profit school than at a 4-year public or non-profit college; further, they are almost four times as likely to default than at a community college (see reports on ticas.org). One-third of college students drop out entirely. More than half of the students enrolled in college take more than 6 years to graduate.

For-profit colleges have abysmal graduation rates. Sixty-seven percent of students at not-for-profits have graduated after six years, while the same is true for only 23% of students at for-profit schools. Dropouts are then saddled with student debt but still stuck at the same salary level as before going to college. Because these schools are motivated by profit, they admit less qualified students and offer less support. Beginning in the 1980's, government student loans led to a massive expansion of for-profit educational institutions. However, the Obama administration cracked down on for-profit schools with the worst graduation rates, denying them the ability to qualify for federal student loans. As a result, their revenue declined precipitously. For example, the University of Phoenix revenue declined 70%, and Corinthian College declared bankruptcy.

The Rules of Student Debt

The government will pay the interest on federal loans if you qualify based on income while you are in school. When you stop going to school, you must start paying back the loan. There are four types of student loans from the U.S. Department of Education:

- **Direct Subsidized Loans** are loans made to eligible undergraduate students who demonstrate financial need to help cover the costs of higher education at a college or career school. (Maximum loan is $12,500 per year of schooling)
- **Direct Unsubsidized Loans** are loans made to eligible undergraduate, graduate, and professional students, but eligibility is not based on financial need. (Maximum loan is $12,500 per year of schooling)
- **Direct PLUS Loans** are loans made to graduate or professional students and parents of dependent undergraduate students to help pay for education expenses not covered by other financial aid. Eligibility is not based on financial need, but a credit check is required. Borrowers who have an adverse credit history must meet additional requirements to qualify. (Maximum loan is $20,500 per year of schooling)
- **Direct Consolidation Loans** allow you to combine all eligible federal student loans into a single loan with a single servicer.

Below, you can find interest rates for each type of loan. All interest rates shown are fixed rates that will not change for the life of the loan. More information on government-sponsored student loans can be found at studentaid.gov.

Table 8.1. Interest Rates for Each Type of Loan

Undergraduate Borrowers	Graduate or Professional Borrowers	Parents and Graduate or Professional Students
2.75%	4.30%	5.30%
Direct Subsidized Loans and Direct Unsubsidized Loans	Direct Unsubsidized Loans	Direct PLUS Loans

Paying Back Student Debt

While you are in school, the interest on your loan must either be paid, covered by the government (if you qualify), or accrue on the loan. Leaving school is defined as dropping to less than a half-time class load. After you leave, you get a six-month grace period before you must begin paying back the loan. There are a number of payment plans you can qualify for. See the Department of Education's website.

Government versus Private Lenders for Student Debt?

Government loans are always better for student debt. They have lower interest rates and more flexibility than student loans from financial institutions.

Defaulting on Student Debt

If you do not have the ability to make your loan payments, you must contact your loan servicer. The Department of Education uses for-profit companies to

service student loans. These companies collect the payments and keep records for the Department of Education. Since their job is to take payments, they are not very forgiving. Bear in mind that they are for-profit companies, and they want to keep their lucrative contracts.

Below, you can see the rate of defaults on student loans is increasing. It is now about 12%, which leads me to believe that there is a serious problem with the student loan program.

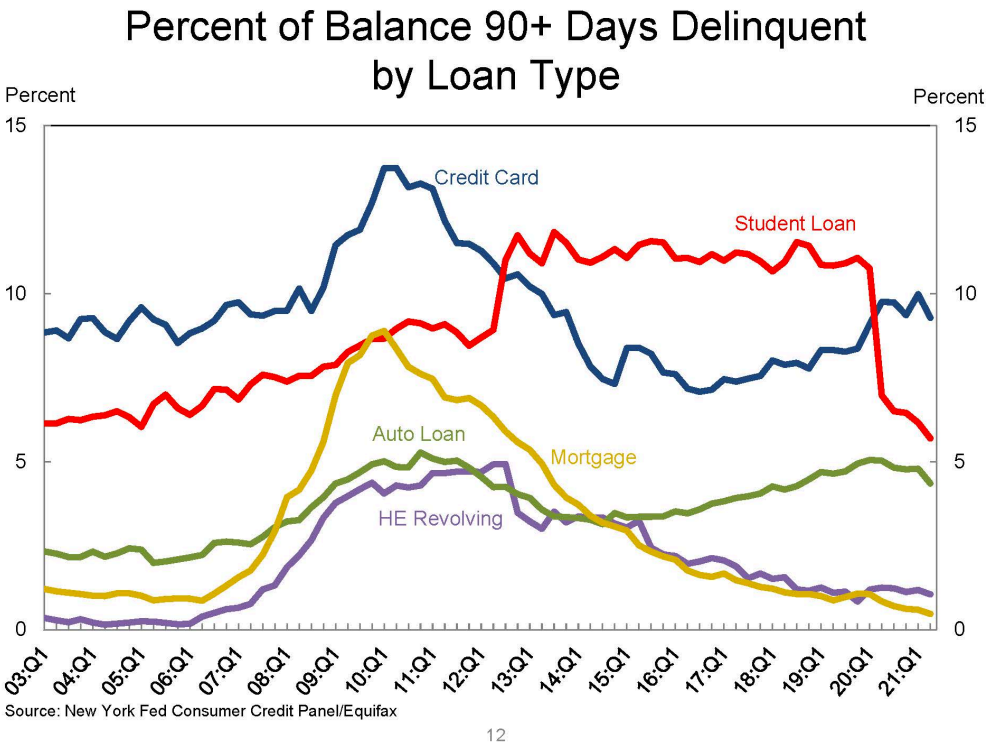


Figure 8.3. *Percent of Balance 90+ Days Deliquent by Loan Type by Federal Reserve Bank of New York has no known copyright restrictions.*

If you default, most creditors must first sue you in court and get a money judgment to start garnishing your wages. Federal student loans, however, get special status and does not have to get a court judgment before attempting to garnish your wages. It also depends on the local state laws. In Pennsylvania,

for example, creditors cannot garnish your wages. Moreover, the interest keeps growing, adding to the total loan amount.

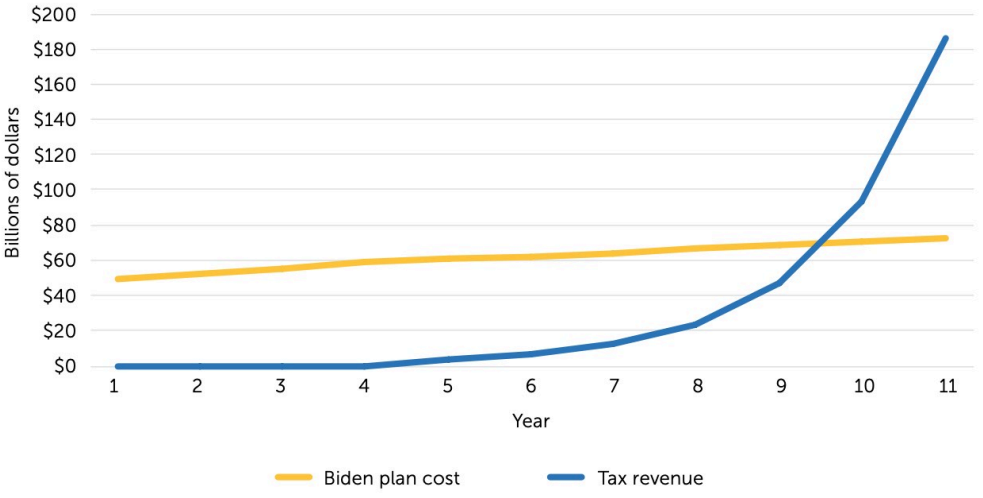
Federal law allows the loan holder to garnish up to 15% of your disposable pay. You will get a 30-day notice that explains the U.S. Department of Education's intention to garnish your wages. This will include an explanation of the nature and amount of your debt, your opportunity to inspect and copy records, your right to object to garnishment, and your option to avoid garnishment by voluntary repayment.

If you are struggling to make payments, you need to talk to the servicer. There are programs that could help.

Problems With Student Debt

Remember that student debt is not forgiven in personal bankruptcy, whether you have a government or private loan. When Congress enabled student loans, they put in the provision that they would not be discharged in bankruptcy, and bank lobbyists got them to add private loans to this exception. A 2018 *Philadelphia Inquirer* article notes that some students can leave school burdened by "crushing debt." Since this debt is considered when applying for other loans, outstanding student loans have substantially depressed homeownership and new business formation according to the *Inquirer*. Most experts blame the skyrocketing cost of college education for this explosion of student debt. College education costs have increased 400% over the last 30 years. In addition, public universities have seen their state support decline by double digits.

Figure 1. Additional annual tax revenue associated with higher educational attainment would exceed the annual costs of Biden's tuition-free plan within 10 years of the initial implementation year.



Source: Georgetown University Center on Education and the Workforce analysis of data from the National Center for Education Statistics, Digest of Education Statistics tables 306.10 and 306.20, 2019; the Integrated Postsecondary Education Data System, 2016–17; and the US Census Bureau and Bureau of Labor Statistics, Current Population Survey, 2019.

Figure 8.4. *Biden Tuition Free College Plan by Georgetown University Center on Education and the Workforce is used under a CC BY-NC 4.0 License.*

Debt Forgiveness for the Helping Professions

The federal government established the Public Student Loan Forgiveness program in 2017 for students who would end up working in helping professions (teaching, healthcare, etc.). There were two main requirements:

1. The borrower works in a public service profession
2. The borrower has made loan payments for ten years

Public Student Loan Forgiveness can be great for those who plan to or already work in any public sector. However, many people do not qualify. According to the Department of Education, only 96 people received loan forgiveness in 2017, the year the first round of applicants became eligible. As of September, 2019, 1,216 people have received loan forgiveness under the program. This is a

huge improvement from the original 96. However, 100,835 applications were still rejected.

How Much Debt Should I Take On?

According to the Association of Public and Land Grant Universities,the average debtof a student who borrowswhen they graduate from a four-year public college is $25,921, or $6,480 for per year. Among all public university graduates, including those who did not borrow, the average debt at graduation is $16,300. According to the College Board, the average cumulative student debt balance in 2017 was $26,900 for graduates of public four-year schools and $32,600 for graduates of private nonprofit four-year schools. If you end up with debt around the average, you should be able to handle the payments. It is the people who begin college and do not finish that have serious problems with their student debts.

What Majors Are Worth Taking on Student Debt

When you are deciding what you want to major in, keep in mind the kind of salary you will potentially earn, as well as the demand for employees in your field. Dozens of websites can give you this data so you can make an informed decision, such as the Federal Reserve Bank of New York. The Department of Labor also has extensive employment projections of what fields will be in demand over the next ten years. You should choose a field you will enjoy working in; however, it is worth taking a close look at the employment potential and salary in your chosen field, before deciding.

9. Understanding the Time Value of Money

The Miracle of Compound Interest

No one who understands the miracle of compound interest better than Warren Buffett, a multi-billionaire and Chair of Berkshire Hathaway, best known as the Sage of Omaha. [Nebraska] and Chair of Berkshire Hathaway. An article in The Wall Street Journal by Jason Zweig (8/28/20) details Buffett's thinking about time and the value of money. Patience and endurance are the "investing superpowers" that helped him achieve his $82 billion of personal wealth:

> From the earliest age, Mr. Buffett has understood that building wealth depends not only on how much your money grows, but also on how long it grows. Around the age of 10, he read a book about how to make $1,000 and intuitively grasped the importance of time. In five years, $1,000 earning 10% would be worth more than $1,600; 10 years of 10% growth would turn it into nearly $2,600; in 25 years, it would amount to more than $10,800; in 50 years, it would compound to almost $117,400 (2020).

Because we will be discussing the time value of money, we will inevitably be discussing math in this chapter. However, it is not advanced math, so you should find it easy to understand.

The Time Value of Money

Receiving a payment today is better than receiving one a year from now, in part because the general rate of inflation (e.g., two percent) makes the money worth less next year due to decreased purchasing power (that is, two percent less). It is also better if you are going to save or invest that money, putting it into a savings account at 3% interest (for example) means that in a year you will have

an additional earning of 3% on top of the original amount. We can illustrate it in this equation:

$$\mathrm{P}_{year2} = \mathrm{P}_{year1} \times 1.03$$

P_{year1} is the principal amount you received at the beginning of year one, and P_{year2} is the principal amount you will have at the beginning of year two, including the interest you earned. However, interest or dividends money in savings or an investment is **compounded**. That is, if you leave the interest or dividends you earned over year one in savings for year two, you will again receive 3% interest on the principal plus 3% interest on the interest you already earned in year one. We can represent this mathematically as follows:

$$\text{If } \mathrm{P}_{year2} = \mathrm{P}_{year1} \times 1.03$$

$$\text{Then } \mathrm{P}_{year3} = [\mathrm{P}_{year2} \times 1.03] \times 1.03$$

$$\text{Substituting, we have}$$

$$\mathrm{P}_{year3} = [\mathrm{P}_{year1} \times 1.03] \times 1.03$$

Let's say that you put $1,000 in a savings account at 3% interest and leave it to compound. Below, you can see the amounts you will have at the beginning of each year:

$$\text{Beginning of year 1: } \$1{,}000.00$$

$$\text{Beginning of year 2: } \$1{,}030.00 [\$1{,}000.00 \times 1.03]$$

$$\text{Beginning of year 3: } \$1{,}060.90 [\$1{,}030.00 \times 1.03]$$

$$\text{Beginning of year 4: } \$1{,}092.72 [\$1{,}060.90 \times 1.03]$$

The compounding of the interest may not seem like a lot here, but it makes a huge difference when you are saving for retirement. For another example, let's say you start working at 21 and retire at 68, spending 47 years in the labor force. As we will discuss in more detail later, one investment in a mutual fund with a widely diversified portfolio saw a return of an average of 10.1% per year for ninety-four years. If you were to invest $1,000 in this diversified portfolio and did not touch it for 47 years, you would have a retirement nest egg that looked like this:

Original Amount: $1,000.00 at beginning of year 1
Interest Rate: 10.1% compounded
Time Period: 47 years
Amount at end of 47 years: $92,045.80

Furthermore, you will most likely deposit more into your retirement account each year, rather than just $1,000 once at the beginning of your career. If you invested $1,000 per year each year in this diversified stock portfolio, at the end of your career your nest egg would look like this:

Principal Amount: $1,000.00 each year invested at the beginning of each

year
Interest Rate: 10.1% compounded
Time Period: 47 years
Amount at end of 47 years: $1,084,535.20

Most of the time, if you work for a good employer, they will sponsor a 401(k) retirement plan and match your contributions. The most common plan is that you contribute 3% of your salary, and your employer matches. Let's say that together you contribute $4,000 per year for 47 years and put it all in a diversified stock portfolio. In that case, here is your retirement nest egg:

Principal Amount: $4,000.00 each year invested at the beginning of each year
Interest Rate: 10.1% compounded
Time Period: 47 years
Amount at end of 47 years: $4,338,140.81

This is also tax free until you retire and withdraw money to live on.

Intertemporal Consumption and Savings

Saving and borrowing allow **intertemporal consumption**. Basically, you move your consumption from one time period to another. If you do not spend all your income in year one, your savings can increase your consumption in later years. On the other hand, if you spend more than your income in year one (by using credit cards or taking out a personal loan), you must consume less than your income in subsequent years to pay back your debt. As the prime example of this, saving money for retirement each year means you are consuming less currently in order to have money for retirement. However, you are also earning interest or dividends that will allow you to consume even more than the original amount when you reach retirement.

Dr. Franco Modigliani, Nobel Prize winner in economics, explains our consumption and saving decisions over a lifetime with the **life cycle hypothesis**.

Until college graduation, when we have student loans, we are **dissaving**; that is, we are consuming more than our income and financing it with student loans. After we begin our career, we consume less than we earn because we are saving for retirement. Finally, when we retire, we are once again dissaving by spending the retirement savings we have built up.

The Future Value of Dollars Received Today

The mathematical formula for the amount of principal at the end of *n* periods is:

$$A = P(1 + \frac{r}{n})^{nt}$$

$P = \text{Principal amount}$
$r = \text{annual nominal interest rate (written as decimal)}$
$n = \text{number of times the interest is compounded per year}$
$t = \text{number of years}$

However, you do not need to work out the future dollar value by hand. The internet offers lots of calculators that will do this for you.

The Present Value of Dollars Received in the Future

The present value of future dollars is called the **Net Present Value** (NPV), and it involves the economic principle of **Opportunity Cost**. The opportunity cost is the next best use for your money instead of your current purchase, or it can be the next best use of your time instead of what you are using it for now. For example, the opportunity cost of paying college tuition could be giving up on buying a new car. The opportunity cost of going to class could be getting a few more hours of sleep. The opportunity cost of not having a specific amount of money this year instead of next year is the interest or dividend you earn through investment.

This concept is important in business because the principal way a business can value an investment is the stream of income the investment throws off, discounted to the present. This is called **Net Present Value of Discounted Cash Flow**.

What interest rate (or **discount rate**) should you use to discount future streams of income? As a student, your opportunity cost would most likely be the 2% interest you would earn in a savings account. For business, the discount rate used is most often 8% or 10% per year because this is the return they would get by investing in their business if they had it now instead of later.

If a company buys an investment that generates $100,000 per year for ten years. The discounted cash flow or net present value of this cash flow stream is

Amount Per Year: $100,000.00
Discount Rate: 8%
Time Period: 10 years
Discounted Cash Flow: $724,688.78

The mathematical formula for Net Present value is:

$$\mathrm{NPV} = \sum_{t=1}^{n} \frac{\mathrm{R}_t}{(1+i)^t}$$

R_t = Net cash inflow during a single period t

i = Discount rate or return that could be earned in alternative investments

t = Number of time periods

Note that we are dividing the cash flow or income from each period by 1 plus the discount rate, so this is reducing the cash flow by the discount rate. There are many online calculators that you can use to calculate the Net Present Value of future cash flows.

The Present Value or Future Value of an Annuity

An **annuity** is simply a stream of money paid periodically. It could be interest from a savings account or dividends from a stock investment. The present or future value of an annuity can be calculated using the present or future value calculators presented above.

10. Banks and Financial Institutions

Different Types of Financial Institutions

Financial innovation describes the changes in the types of institutions or services offered in the financial marketplace. Here are some financial innovations that have occurred recently:

- The expansion of insurance companies into banking (e.g., Travelers Insurance merged with Citibank to form Citicorp)
- The expansion of automated teller machines
- The invention of online payment systems (e.g., Paypal, Apple Pay, etc.)
- The expansion of investment banks into commercial banking (e.g., Goldman Sachs now offers checking accounts and other services.)
- The creation of completely online banks (e.g., SoFi) and completely online insurance companies (e.g., bestow.com)

As we discussed before, depository institutions are known as financial intermediaries. They accept deposits on which they pay interest and make loans on which they charge higher interest, making a profit on the difference. The loans they make include credit cards, mortgage loans, personal loans, and business loans. All are set at different interest rates.

The difference between the average aggregate rate financial intermediaries pay on their total deposits and the average aggregate rate they charge on their total portfolio of loans is called the **net interest margin**. This must be enough to pay for the overhead plus make a profit for their stockholders. The net interest margin can vary, so here is a snapshot going all the way back to the 1980's:

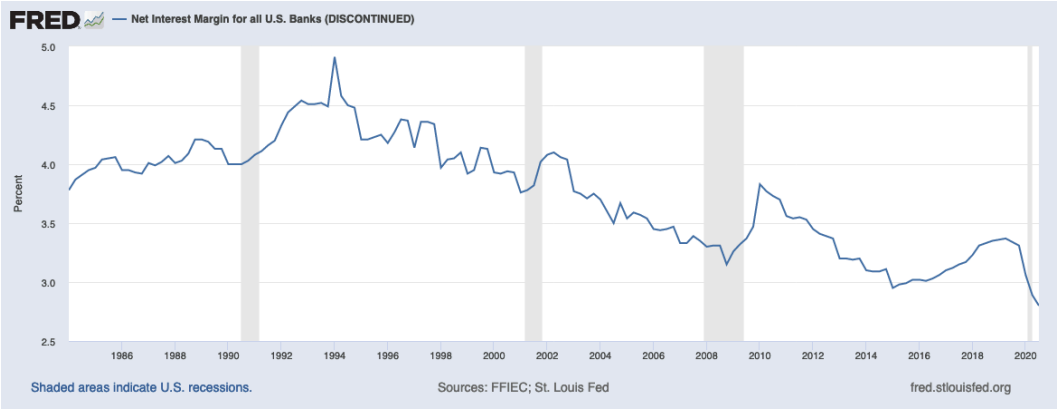


***Figure 10.1**. Federal Financial Institutions Examination Council (US) and Federal Reserve Bank of St. Louis, Net Interest Margin for all U.S. Banks (DISCONTINUED) [USNIM], retrieved from FRED, Federal Reserve Bank of St. Louis; September 30, 2021.*

Note that there is a lower limit to the net interest margin, and this gives us an insight into the business banking model. If the net interest margin for a bank gets significantly below 3%, the bank will likely be unable to meet its overhead costs, putting it into serious financial trouble. Similarly, according to the National Credit Union Administration, the net interest margin on credit unions have also been running about 3% for the last decade.

The **prime rate**, or the rate that banks give to their most creditworthy customers, is always exactly 3% above the Federal Funds Rate. Of course, most commercial bank customers do not get the prime rate on their loans, but it is the benchmark against which commercial loans are priced. Most customers pay 1% to 2% above prime on their short-term loans.

Commercial Banks

Commercial banks accept deposits into checking and savings accounts. They use these deposits to make business, personal, and auto loans, as well as issue credit cards and mortgages. These banks also borrow money in the Commercial Paper Market and lend this out at higher rates. Commercial paper is short term loans, secured by promissory notes (essentially I.O.Us), with terms typically 30

to 180 days. There is a huge market for borrowing via commercial paper from banks. The current outstanding amount of commercial paper in the U.S. is about $1.1 trillion. With an average term length of 30 days, banks must reborrow the money every 30 days.

Commercial banks receive a charter from the Federal Reserve Bank that gives them permission to operate. However, they must follow the rules of the Fed and remain solvent. The Fed audits commercial banks regularly and can revoke a charter if a bank is insolvent or engages in prohibited behavior. All deposits in commercial banks are insured by the Federal Deposit Insurance Corporation (FDIC) up to $250,000 per account. The FDIC is a government sponsored insurance company that charges premiums to commercial banks. If a bank becomes insolvent, the FDIC will usually sweep in on a Friday after close of business, seize the bank, fire the officers, and immediately call the customers to let them know their deposits are insured and therefore safe. Usually, the FDIC will then sell the assets to a solvent bank.

Savings Institutions

Savings institutions or savings banks accept deposits and provide personal and auto loans, as well as issue credit cards and mortgages. They tend to focus less on commercial loans than commercial banks. As with commercial banks, deposits are insured by the FDIC up to $250,000 per account.

Prior to 1980, savings institutions were legally limited to only offering checking and savings accounts, and their lending was restricted to mortgages. Following World War II, they paid 3% on deposits and lent mortgages at 6%. Then in 1979, Paul Volker, chair of the Federal Reserve Bank, raised short-term interest rates to 17% to control excessively high inflation. This rate stayed high for years, going up to 19% in 1980 and 1981. This caused disintermediation at the savings institutions, causing them to raise the rate to 8% on savings accounts in order to stay competitive. However, most of their money was already lent out at 6% for thirty-year mortgages. This was a recipe for bankruptcy.

The U.S. Government had to bail out the industry, costing taxpayers about $100 billion (though this now seems like a bargain compared to the massive bailout during The Great Recession). In 1980, there were more than 4,500 savings institutions insured through federal or state government programs. As of December 2017, FDIC data reveals that only 752 remained.

Credit Unions

Credit unions are non-profit institutions, and as a depositor, you are a part owner. Like a commercial bank, credit unions offer checking and savings accounts and certificates of deposit. They also offer auto and personal loans, and they issue credit cards and mortgages. Instead of the FDIC, your deposits are insured up to $250,000 per account by a similar organization, the National Credit Union Administration (NCUA). The NCUA is also responsible for issuing charters to credit unions.

As mentioned before, credit unions tend to have lower fees and better interest rates on savings accounts and loans since they do not have to generate profits. Most people use their local credit union for car purchases because the rate is normally lower than what is offered by dealers and commercial banks. Credit unions are also an excellent place to apply for a mortgage. Despite all of this, it is worth noting that commercial banks' mobile apps and online technology tend to be more advanced.

According to the NCUA, as of 2019, there were 5,335 federally insured credit unions with 117.3 million members. At the same time, there were 5,177 commercial banks and savings institutions. So, the number credit unions and the number of commercial banks in the U.S. are approximately equal. Almost half of all U.S. adults are members of a credit union.

Finance Companies

Finance companies are non-depository financial institutions that provide personal loans and financing, as well as issue credit cards. These companies lend to individuals who have trouble borrowing from sources such as banks and credit unions, thus they charge higher interest rates and are often ruthless in foreclosing on a defaulted loan. Because of this, you should avoid finance companies.

Securities Firms

Securities firms, such as Goldman Sachs, do Wall Street work. They sell new issues of stocks and bonds for companies that want to raise money. They also advise companies on mergers and acquisitions. For this work, they earn millions of dollars in fees.

Securities firms also provide stock brokerage services to individuals. In order to buy and sell stocks, you must hold a membership on the stock exchanges, so individuals need to go through brokers. Since there is so much competition for customers, securities firms have reduced the cost for trading stocks to zero, leading to an explosion of amateur stock pickers. We will discuss investing at length in a later chapter.

Insurance Companies

Traditionally, insurance companies have sold automobile, homeowners, and health insurance, as well as annuities. However, about a decade ago, insurance companies entered personal wealth management, charging fees typically equal to 1% of the assets under management. Many insurance companies like Lincoln Financial and Prudential have aggressively sought this business since it is risk free and quite lucrative. We will discuss insurance in more depth in a later chapter.

Investment Companies

Investment companies, such as Vanguard and Fidelity Wealth Management, invest other peoples' money in mutual funds. We will discuss this more later, but Vanguard's invention of low cost mutual index funds has brought fees down dramatically. Historically, investment advisors charged fees of 1% of the value of your assets to manage your investments. Now, the average mutual fund fee at Vanguard (and others) is one-tenth of 1%.

Financial Conglomerates

Many financial institutions combine some or all services listed above. For example, Citicorp was created by the merger of Travelers Insurance Company and Citibank, so its activities include almost all of the above. Also, Goldman Sachs, a securities firm, is now entering retail banking.

Payday Lenders

Avoid payday lenders at all costs. Their main function is to advance money to people waiting for a paycheck. The fees they charge are exorbitant, and they usually prey on low-income people.

Banks Are Not Your Friends

Banks have shareholders and are motivated by profit. They run advertisements that implicitly say they will be your best friend and help you achieve your financial goals. However, this is just not true. Their interested in maximizing their profits, and this can come in conflict with your goals. Banks charge higher fees, pay lower interest on savings deposits, and charge higher interest rates on loans. Also, one of the biggest sources of income for banks is what they term in their financial statements as **non-interest income**. This income includes a number of charges, like ATM fees, overdraft fees, and late fees. ATM fees, for example, average $2.97 per transaction in the U.S. On top of that, if you go to an ATM not operated by your bank, you can be charged an additional fee, averaging $1.72 nationally.

Typically, overdraft fees are $35 or higher. In 2017, commercial banks charged $34 billion in overdraft fees. These fees came from only 9% of their customers, almost exclusively low-income. Additionally, if the overdraft is not corrected right away, the bank will continue to charge fees until the account balance runs down to zero; they will then will close the account. Since the bank is already earning profits from interest they charge on loans, the overdraft fees are pure profit.

Many commercial banks sell their mortgages to Fannie Mae and Freddie Mac, so they must conform exactly to the rules of these institutions. Your mortgage could end up being owned by anybody. A credit union might be a better choice. They will keep all or most of their mortgages, so they are more flexible on their requirements. If you do not have perfect credit, a credit union is more likely to give you a mortgage than a commercial bank.

Financial Services Offered by Banks and Credit Unions

Checking Accounts

Financial intermediaries all offer checking accounts. They typically do not pay interest on checking accounts, but some commercial banks charge a fee if the account does not hold a minimum amount of money or has no activity. Some commercial banks charge you $2.00 or more if you request a paper account summary each month. Commercial banks might also offer fee-free checking accounts for students, but as soon as you graduate, they put the standard fee structure in place. As a rule, credit unions do not charge you fees on checking accounts.

Ideally, you only need to keep money in your checking account to pay bills. Any extra money should be in a savings account. Arrange a "sweep" of your checking account at a certain time each month. A "sweep" is a banking term that means your financial institution will transfer any excess money from your checking account into your savings account, where it will earn interest.

Some securities firms, like Charles Schwab and Goldman Sachs, also offer checking accounts. These firms are insured by the FDIC for up to $250,000 per account. They often will pay interest on checking because they will invest your balance in money market funds. They both are insured by the FDIC up to $250,000 per account. The idea is to have one-stop shopping for banking and stock or mutual fund investing.

Saving Accounts

Savings accounts are where you should transfer any money that you do not need to cover daily expenses. Savings accounts pay interest, but the interest paid is very close to the federal funds rate. The federal funds rate is now 0% to .25%, so savings accounts pay about .5%. This is better than nothing. When you join a credit union, you automatically get a checking and a savings account. I have explained above how to use these to create a budgeting vehicle to nudge you to save each month.

Credit Cards

All financial intermediaries offer credit cards. They will be lending you their own funds but will contract with VISA or Mastercard to do the billing and collecting. I have an entire chapter on credit cards, so I refer you to that. However, allow me to repeat the cardinal rule for credit cards: only use credit for a purchase if you can pay it off completely at the end of each month.

Safety Deposit Boxes

Commercial banks and credit unions offer safety deposit boxes for rent at their branches. These offer security for important papers like auto titles and house deeds and valuable jewelry. They are completely confidential.

ATMs

Commercial banks and credit unions have automated teller machines at their branches for cash withdrawals. You need to be aware of what fees these charge. Commercial banks will charge a fee for withdrawing cash, but credit unions usually do not. In addition, if you withdraw money at an ATM at a convenience store, you will pay an additional fee on top of the bank's fee. This could add up to $4.00 or more to withdraw cash. However, certain retailers like grocery stores will allow you to withdraw cash without fees.

Cashier's Checks

Certain legal transactions, such as your payments at closing on a house, require a **cashier's check**, also called a "bank check." A cashier's check is a guarantee to the receiver of the check that your account will have money to cash it. When you ask the financial intermediary to issue a cashier's check for a certain amount (assuming you have the money in your account), the intermediary will put a hold on the corresponding amount and issue a check under the bank's name.

Why Banks Want You to Sign Up for Electronic Bill Payment

About a decade ago, there was a huge push by commercial banks for all their customers to sign up for electronic bill pay. A study done by the Banking Trade Association found that if a customer signed up for electronic bill pay, it was so difficult to change all the data that 95% never left the bank. Thus, the bank could continue to charge higher fees and the customers would not leave. If you are currently at a commercial bank, do *not* sign up for electronic bill paying. Switch to a credit union right away. If or when you are at a credit union, it is a very good idea to sign up for electronic bill pay, since it is so convenient.

Who Regulates Banks and Credit Unions

The Federal Reserve Banks supervise and regulate commercial banks, and the FDIC insures their deposits. In certain states, old laws say that a Comptroller of the Currency regulates banks, but with all banks being insured by the FDIC, the same regulatory rules apply. The NCUA regulates and insures credit unions, ensuring that all credit unions have to abide by the same rules.

How Interest Rates on Deposits and Loans Are

Determined

The federal funds rate is the rate that banks regulated by the Federal Reserve charge each other for overnight loans. The federal funds rate is set by the Fed as its principal tool of Monetary Policy, and it becomes the "wholesale cost of money" for commercial banks. In 2020, due to the Pandemic Recession, the Federal Reserve reduced the funds rate to 0-.25%. This essentially means that commercial banks can borrow in the short-term money markets at 0% to .25%. It therefore causes savings rates offered by the commercial banks to be about the same. Commercial banks then will pay their depositors the same interest that other banks will charge them to borrow money.

Supply and Demand of Funds

The familiar law of supply and demand also applies to money and credit. If there is a lot of demand for money or credit relative to supply, interest rates rise and vice versa. However, the Federal Reserve Bank creates all the money, and it is their job to maintain moderate interest rates so economic actors can easily borrow money and keep the economy moving. In times of recessions or **credit liquidity squeezes** (not enough money supply to satisfy demand), the Fed injects money into the banking system to bring down interest rates. As I said above, in 2020, the Fed injected enough money to essentially bring interest rates down to 0%.

Bank Runs and Financial Crises

In economics, **moral hazard** can exist when a party to a contract can take risks without having to suffer consequences. It can also be characterized as cleaning up another's mistakes so they do not have to live with the negative consequences of their actions and so will make the same mistake over and over. As a perfect example, in the Great Recession, every major bank in the U.S. (with the exception of J.P Morgan) became insolvent. The Federal Reserve Bank bailed them all out. Since that bailout, the major banks know that they are "too

big to fail," so they will continue to take big risks in the future. This is a prime example of moral hazard.

In the Great Depression, thousands of banks went bankrupt, and people lost their deposits. There were runs on the banks, but the money was gone. That is the reason the FDIC was established, to stop runs on the banks. It guarantees deposits up to $250,000 per account. Unfortunately, financial crises are cyclical and with the Fed bailouts essentially encouraging moral hazard, bank failures will be cyclical also. When there is a financial crisis, a higher number of borrowers default on loans, banks become insolvent, and the FDIC or the NCUA has to take them over and make the depositors whole.

11. Buying a Home

Reasons to Rent or Own a Home

Owning a home has always been the American Dream. In fact, the rate of American home ownership has always been greater than in most European countries. Historically, the homeownership rate in the U.S. has ranged from 63% to 65%, going back to 1970. It rose to 69% just before the Great Recession, but then in 2015, as homes were foreclosed, it dropped all the way back down to 63%. Still, it remains a dream of most people to own their own home.

There are two main factors to consider when trying to decide whether to buy or rent: how long you will be in a location and what your current financial situation is. You need to own a house at least three years to recover your transaction costs, and you should consider whether you can afford the down payment and the monthly mortgage costs. Also, be sure to check if you would be eligible for tax benefits. You can deduct the annual interest of your mortgage plus local real estate taxes. Generally, young people rent while in college, then rent in a downtown area after they get their first job, and then buy a home after they become a couple (especially if they have children). People under 25 tend to rent, as they are not yet locationally stable and because the mortgage interest tax deduction does not help them much. Between the ages of 25 to 55, people tend to buy. At any age, however, low-income people tend to rent due to economic barriers.

You Are Buying a Location, Not Just a Physical Structure

When buying a home, you are buying into a school district, a government, and a neighborhood. Depending on the district, school quality (and associated taxes) can vary significantly and can be a major expense in owning a home. The government in your city or township may or not be interested in actively maintaining the infrastructure of the municipality, which can have an effect on

road conditions and municipal taxes. Finally, you want a friendly neighborhood, and if you buy a house when you have children, you want other children for your kids to play with. When you have narrowed down your property choices, it pays to knock on a few doors to introduce yourself and ask about the neighborhood.

When either renting or owning, you consume **housing services**. This is easy to understand with renting but might be a little harder to grasp when it comes to owning. A house is a **durable good**, or a good that lasts more than three years. A house provides you with housing services that you then pay for. The correct price for a durable good is not its purchase price but what is called its annual **user cost**: your annual out of pocket expenses. For a home, the user cost includes:

- Mortgage payments
- Real estate and other taxes
- Home insurance
- Utilities (electricity, gas or oil, water, sewage)
- Trash collection
- Home and yard maintenance

This probably sounds like it would be more expensive than if you were renting, but really, it is not. Your landlord incurred these same expenses to own the property, and your rent has these expenses taken into account; instead of paying various municipalities, people and companies, you paid your landlord.

Calculate What You Can Afford

There are constraints established by financial institutions on the size of a mortgage you are allowed to take out. The size of the mortgage, of course, will dictate the price of the house you can afford. The **Consumer Financial Protection Bureau** is a government agency whose job it is to make sure that financial institutions treat consumers fairly. According to the CFPB, your debt payments can be no more than 43% of your gross income:

> The 43 percent debt-to-income ratio is important because, in most cases, that is the highest ratio a borrower can have and still get a Qualified Mortgage. Evidence from studies of mortgage loans suggest that borrowers with a higher debt-to-income ratio are more likely to run into trouble making monthly payments.

Here is what makes a **qualified mortgage**:

> A Qualified Mortgage is a loan a borrower should be able to repay. Beginning on January 10, 2014, lenders making virtually any residential mortgage loan will have to assess a borrower's ability to repay the loan. A Qualified Mortgage is presumed to meet this requirement. A Qualified Mortgage is a loan that avoids risky features and meets other requirements general, the borrower also must have a total monthly debt-to-income ratio including mortgage payments of 43% or less.

Your debt-to-income ratio is all your monthly debt payments divided by your gross monthly income. This ratio is one way that lenders measure your ability to manage your monthly loan payments. For example, let's say your monthly debt payments look like this:

- $1500 for your mortgage
- $100 for an auto loan
- $400 for the rest of your debts

This means your monthly debt payments total $2,000. If your gross monthly income is $6,000, then your debt-to-income ratio is 33 percent ($2,000 is 33% of $6,000). Remember that your student loans must be included in this calculation, so student loans can be a drag on buying your first home.

These regulations are the direct result of the housing and mortgage crisis that lead to the Great Recession. Immediately prior to the housing bust, mortgage companies were committing vast fraud in the initiation and documentation of mortgages and then selling these mortgages to investors. Investors then lost their money in these fraudulent mortgages, and many people lost their houses because they could not make the mortgage payments.

But where did the magic number 43% come from? As I will detail below, the government sponsored (and now government owned) companies, Fannie Mae and Freddie Mac either own or guarantee about 60% of the residential

mortgages in the United States. From an analysis of the mortgages they hold (including defaulted mortgages), Fannie Mae and Freddie Mac have determined that 43% is a safe ratio for a household.

Difficulties of First-Time Home Buyers

The biggest difficulty for first-time home buyers is saving up the down payment. As we said above, you can usually put only 10% down on a house and often only 5% down. For the 2019 median house price in the U.S., a 10% down payment would be $23,000. Saving this amount is difficult, so you might do what many young people do: go to your relatives for help. Remember, though, that you cannot borrow the down payment, but anyone can give you a gift of some or all of the cost.

The second biggest difficulty for first-time home buyers is getting a mortgage. As I mentioned earlier, in order to get a qualified mortgage your debt payments to gross income ratio cannot be more than 43%. This includes auto loan, credit card, and student loan payments. Recently, student loans have surpassed the $1.5 trillion mark and exceeded the amount of credit card debt owed by all the households in America ($970 billion in 2018). The amount of student debt that young people have is negatively affecting the economy, slowing down consumer spending and home purchases. There has been talk in Washington, D.C. about figuring out a way to alleviate this debt, but no effective action has been taken yet.

Another difficulty for first-time buyers is that no one is really building a lot of starter homes' for first-time buyers. This is like a vicious cycle. Many first-time buyers cannot qualify for homes at today's prices, so builders are not building as many, so the choices for those first-time buyers who do qualify are limited.

Finally, after a big rush to the cities, the price of housing in hip neighborhoods is getting too expensive, leading millennials to flock to the suburbs. In a 2019 article in the *The Wall Street Journal* entitled "American Suburbs Swell Again as a New Generation Escapes the City" Valerie Bauerlein discusses this phenomenon:

> Millennials, the generation now ages 23 to 38, are no longer as rooted as they were after the economic downturn. Many are belatedly getting

married and heading to the suburbs, just as their parents and grandparents did.

Millennials are trying to find small towns that give the feel of a community, instead of a big sprawling suburb with big houses. This means a longer commute to work but better schools and environment for the whole family.

House as Nest or House as Investment

No doubt you have been told that a house is a great investment, and this is generally true. For most people nearing retirement, their work retirement fund and their home equity are the only assets they have to depend on. However, I will point out that a house is both a **nest** and an **investment**. As a nest, you consume housing services from the physical structure you own. You therefore want to be conservative in the type of mortgage you select, and I recommend a simple 30-year fixed rate mortgage. As an investment, a house is an asset that pays you a return either in a dividend or in the appreciation of its value. More than that, owning a house also offers some income tax relief.

Rate of Return on Houses as Investments

Prior to The Great Recession, houses were a great investment. From 1964 to 2009, the average growth rate of housing prices was 5.4% (Freddie Mac). In order to fully understand the rate of return on home ownership, we need to analyze how **leverage** (that is, borrowing part of your investment capital) impacts your investment. Let's say you buy a home at $230,000, the median national (Zillow, 2019). You then put down 20% of this, or $46,000. The return must be calculated on your actual cash investment of $46,000 and not the total house price. If the house goes up in value by 10%, it is now worth $253,000 for an increase of $23,000. If you had not taken out a mortgage but paid all cash for the home, your return on investment would have been 10%. However, since you only invested $46,000 cash into the home, your return on investment is: $23,000/$46,000 = 50%. Note, however, that I did not take into account the

transaction costs of buying and selling the home and all the costs while owning it.

Finding a Real Estate Agent

Just like finding a contractor to work on your home, finding a good real estate agent requires research. Since the seller pays the commission to the realtors, it costs you nothing to hire your own real estate agent. Here are some tips for finding a good agent.

First, since housing is a local market, you want to find an agent that has a lot of local experience. A local agent will know the home prices in the market and, through their contacts with other agents, know about homes that will be coming on the market soon. This latter information is valuable in a hot real estate market.

Second, it is best to get a referral from friends or acquaintances. A good agent will be loyal and focused on your needs, not just looking to make a commission. A good agent will also know competent home inspection services and mortgage and title insurance companies to help with your purchase.

Finally, you should sit down and interview the referred agent. Ask what they know about the school districts and municipalities in the areas in which you are interested. Ask them to show you recent comparable sales in those areas and ask them what they think you will need to pay. Talk to them about pre-qualifying for a mortgage so you know if you can afford the houses in that area. You need to spend some time talking to the agent about the school districts and the types of houses you like. A good agent will be patient with you to make sure you get a house you can afford and love.

Home Prices

The price of housing, like almost everything else, is determined by supply and demand. The more buyers and the fewer sellers in a local market, the faster housing prices rise. Conversely, more sellers and fewer buyers, the slower housing prices rise. Prior to the Great Recession, however, people actually

believed that housing prices never went down. Sadly, that was not to be the case.

The American Association of Realtors' general rule is that if there is a six months' supply of houses, the market is in equilibrium; that is, housing prices neither move up or down. However, if there is less than a six months' supply, house prices tend to rise, and vice versa.

The first thing your real estate agent will do before they meet with you is to look up **comparables**. Comparables are houses that were sold or are for sale in your neighborhood or in the neighborhood you are considering. In order to be comparable, it should have approximately the same square feet as your house or the house you can afford, have the same number of bedrooms and bathrooms, and share other traits in common.

Zillow and Redfin are two good sources for house prices. They can give you fairly accurate estimates of average home prices in the area you are considering. When you look at prices, only look at **sales prices**, not the **listing price**. Only a sold house will give you the correct price that a willing seller and a willing buyer will agree upon.

The Down Payment and Private Mortgage Insurance

Conventional wisdom says that you need 20% as a down payment on a house. However, home buyers can usually put 5% or even 3.5% down if they arrange a U.S. Federal Housing Administration (FHA) loan on a 30-year fixed-rate home mortgage. Note that 3.5% FHA down payments are usually capped at $417,000 for home mortgage loans, although there are exceptions to that rule depending on location. Many bank loans also often approve loans up to $417,000 with 5% down. If the loan is larger than that, lenders will usually ask for another 5% down.

Regular 30-Year Fixed Mortgage

Traditional mortgages, like a 30-year fixed rate mortgage, usually require at least a 5% down payment. For example, if you are buying a home for $200,000, you will need $10,000 to secure a home loan.

FHA Mortgage

For a government-backed mortgage like a FHA, the minimum down payment is 3.5%. For a home that costs $200,000, you will need to save $7,000 to get a loan.

VA Loans

A U.S. Veteran's Affairs (VA) loan offers military members and veterans home loans with zero money down approvals. The U.S. Department of Agriculture (USDA) also has a zero-down loan guarantee program for specific rural areas.

In 2016, the average home down payment was 11% according to the National Association of Realtors. Home buyers age 35 and under on average put down 8% in the same time period. When you are figuring out how much to save for a down payment, know that, while you are not allowed to borrow the money for the down payment, it's perfectly acceptable to use any cash gifts from friends, family, or business partners. Setting aside any workplace bonuses or financial windfalls (like an inheritance) can also curb the impact of having to save. Many young people (including myself) got help with the down payment on their first house by their parents, grandparents, or other relatives; there is no need to be prideful about it. Accept with gratitude any help you get, and be sure to send them a thank you letter.

If you take out a traditional mortgage and do not make a 20% down payment, your financial institution will likely make you purchase **Private Mortgage Insurance (PMI)**. PMI is arranged by the lender and provided by private insurance companies to insure the financial institution against loss of money if they foreclose on your house and sell it. A buyer usually would be required to put down 20%, and the financial institution would put a mortgage of 80% of the purchase price. If the buyer defaults, and the lender forecloses on the home, the lender only has to sell the house for 80% of what you paid for it to be made whole on its mortgage. The 20% down payment gives the lender a cushion to recover its loan, even if home values have declined since the borrower bought the house.

If the buyer puts down less than 20%, this means that the lender's **Loan-to-**

Value ratio (the percent of the purchase price the lender finances) is higher than 80%. This increases the risk that the financial institution will not recover its loan if the buyer defaults. PMI essentially insures the recovery of the difference between a 5% down payment and a 20% down payment. Let's say you buy a home for $300,000. Whereas people used to put down 20% ($60,000.00), you only put down 5% ($15,000.00). The lender is now financing 95% of the purchase price ($ 285,000.00). In order to cover the increased loan exposure, the lender will arrange for PMI and make you pay for this insurance. It costs somewhere between 0.5% and 1% of the total outstanding mortgage. For the example above, a 0.5% premium of the PMI on a mortgage of $285,000 would cost you $1,425.00 per year, or an additional monthly payment of $119.00.

You should buy a home as soon as you have at least a 5% down payment and go ahead and pay the PMI premium. It is hard enough to save money for a down payment (or ask your parents for the down payment) when you are beginning your career. In addition to that, the Consumer Financial Protection Bureau states that when the amount outstanding on your mortgage becomes 78% or less of the value of your home, then by law, your lender must cancel the PMI (and you stop paying the premium). In practice, you can often get your lender to remove the PMI when your mortgage is 80% or less of the home's value. In both cases, you want to alert your lender of the Loan-to-Value and ask that the PMI be cancelled. The lender will likely not do it automatically.

Qualifying to remove the PMI happens reasonably quick because your home value will appreciate at least 3% per year. Your lender will not pay attention to the home values in your area so will not volunteer to remove your PMI. You have to ask your lender to do it. Stay informed about the property values of comparable homes in your neighborhood. The bank may ask you to pay for another appraisal ($300 to $500) but it is worth the money to save the PMI premium each month.

Where to Get a Mortgage

Many financial institutions say they can arrange a home mortgage for you, including commercial banks (e.g., Wells Fargo, Bank of America) and mortgage brokers (e.g., Rocket Mortgage and Ditech.com). Some will charge higher fees than others. However, the best place to get a mortgage is a credit union. As we discussed earlier, a credit union is essentially a non-profit entity, as it is owned

by its members and, unlike a commercial bank, does not need to make a profit to pass on to stockholders. Therefore, a credit union will charge a lower interest rate and fewer fees than either a mortgage broker or a commercial bank.

If you are not currently a member of a credit union, you can easily join one. State laws differ slightly on credit unions, but you can now join almost any credit union by opening a checking and savings account and depositing $5.00. Go visit the credit union office that is most convenient to you and open an account. You can then apply for a mortgage. Credit unions are in the business of lending money, so if your credit history is good, they will be happy to work with you.

Pre-Qualifying for a Mortgage

If you are ready to buy a house, it is important to pre-qualify for a mortgage. You do this by going to your financial institution and submitting all the paperwork they require before you make an offer on a house. You can do this while you are still house hunting. The lender will give you a letter saying you qualify for a mortgage of a certain amount, addressed either to you or to your real estate agent. A lender can easily determine the maximum mortgage that you qualify for. As we said before, your total monthly debt payments plus the mortgage payment cannot exceed 43% of your gross monthly income. If your credit score is acceptable, the lender will give you a letter testifying to the maximum mortgage you qualify for.

A credit score of 700 or above is ideal. A credit score from 600 to 700 may affect the interest rate you will be charged on the mortgage and may affect the maximum amount you can borrow. However, this usually will still allow you to get a mortgage close to the 43% maximum mortgage guideline. A credit score under 600 will be a problem in securing a mortgage but not impossible. If you have a credit score under 600, you should first try your credit union or an online mortgage broker like Rocket Mortgage or Ditech.com.

Pre-qualifying for a mortgage is an important competitive edge in winning a bid on a house, especially if several people are interested in the same house as you. The sales contract that you will sign will have a **contingency clause** which states that your offer is dependent on securing a mortgage. If you already have a letter from your lender saying they have pre-approved you for a mortgage, then the seller can feel comfortable that you will be able to close the deal.

It is common practice to get pre-approved for a mortgage now, so if you do

not, you will be at a competitive disadvantage. This is especially true when there is a **seller's market** (more demand for than supply of houses) as opposed to a **buyer's market**.

Types of Mortgages

There are many different flavors of mortgages in the marketplace. These are the three most common:

- A fixed rate 30-year mortgage
- A fixed rate 15-year mortgage
- A three-year adjustable rate mortgage

The **thirty-year-fixed rate mortgage** is by far the most common type, and I recommend this for your principal residence. In this case, be conservative. Take out a conventional or FHA fixed-rate thirty year mortgage loan when you buy your house. A thirty-year fixed rate mortgage has a consistent monthly payment. This gives you a specific amount you need to budget each month. Also, the longer the term of the loan, the lower the amount of principle that must be paid back (or **amortized**) every month; that means a smaller monthly payment. As with any loan, the interest you pay is on the outstanding principle. But if the outstanding principal changes every month (along with the interest) as you pay down the loan, how do you end up with a consistent monthly payment? Simply put, the paydown of the principle of the loan changes every month. Here is a typical relationship of interest to principal each month in a thirty-year fixed rate constant payment mortgage:

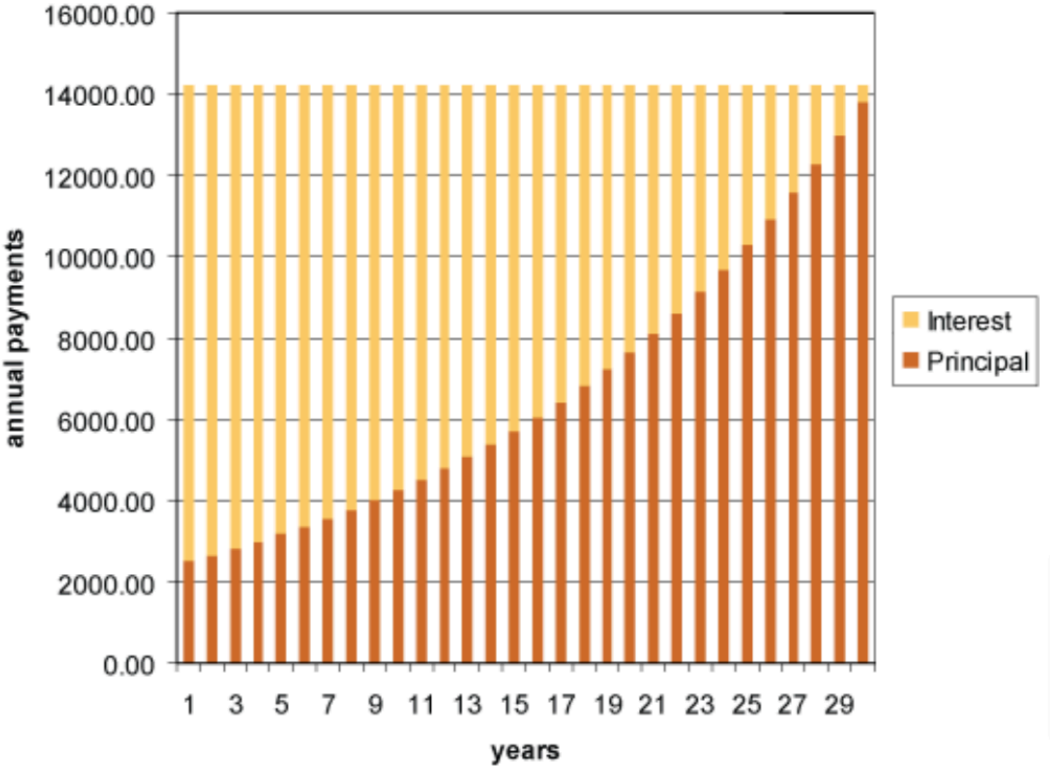


Figure 11.1. *Amortization of a $200,000 loan for 30 years at 5.9% by The Federal Reserve Board is in the public domain.*

A **fifteen-year fixed rate mortgage** is similar to a thirty-year fixed rate mortgage, but you repay the principle over fifteen years instead of thirty. The only major advantage of a fifteen-year loan is that you pay off the principal sooner, which, in addition to being satisfying, saves a lot of interest. However, the monthly payment is larger. Below, you can see an example of how much interest you can save. The loan amount in each case is $200,000, and the interest payments are shown in orange on the chart.

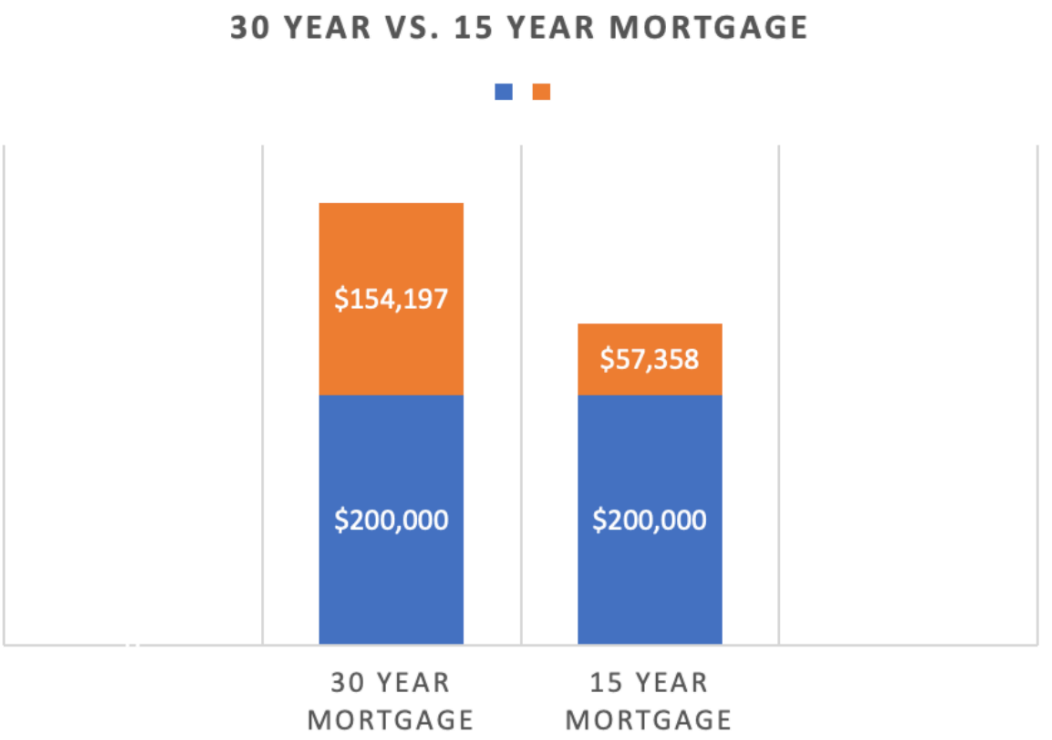


Figure 11.2 *Mortgage Total Cost 15 year v. 30 year*

Now let's compare payments between a thirty-year and a fifteen-year fixed rate mortgage. Here is a 95% Loan-to-Value loan for a thirty-year and a fifteen-year fixed rate mortgage on the median home price in the United States:

- Median home price: $227,000
- Down payment (5%): $11,350
- Closing costs (2%-3%): $4,900
- Mortgage amount: $222,450

For a $222,450 mortgage, here is what your monthly payment would be:

$$\text{Monthly mortgage payment for 30-year loan at } 6\% =$$
$$\$1,292 + \text{PMI } (0.5\% = \$185/\text{mo}) = \$1,477$$
$$\text{Monthly mortgage payment for 15-year loan at } 6\% =$$
$$\$1,819 + \text{PMI } (0.5\% = \$185/\text{mo}) = \$2,004$$

Since rates and home prices vary, you can use an online calculator to calculate a mortgage. Generally, younger people buying their first or second house cannot afford the higher payment on a fifteen-year mortgage, so they choose the thirty-year instead. My advice is to go with the thirty-year mortgage with the lower monthly payment. This will help your cash flow.

A **three-year adjustable rate mortgage (ARM)** has an interest rate that is adjusted upward (or downward) based on a certain designated financial index after three years or to a predetermined rate. The principal payment is usually based on a thirty-year amortization. The advantage of this loan is that the interest rate is lower at the beginning. For example, on September 17, 2019, the rate on a five-year ARM ranged from 3.00% to 3.25% while the rate on a thirty-year fixed rate mortgage was 3.97%. However, when the interest rate is adjusted the payment often is higher, and this can create a cash flow problem for the borrower.

There are many different types of adjustable-rate mortgages, but they all have common elements. For example, if the mortgage is a five-year ARM, it will be tied to some index of interest rates, such as the five-year U.S. Treasury Note. Then, after the first five years, the interest rate will be changed once a year in accordance with any changes in the five-year Treasury Note. This also means that the monthly payment will change (up or down) as the interest rate of the index changes. The lender will also specify how much above the index interest rate your mortgage interest rate will be. This is called the **margin** or **mark up**. As an individual, you cannot borrow money at the same rate as the U.S. government, as you represent a higher risk for the lender. The higher risk is reflected in the higher rate. If we look at the rates in the previous paragraph, we see that the five-year ARM mortgage has a margin or risk premium of 1.4%

over the five-year U.S. Treasury Note (3.00% 5yr ARM – 1.6% 5yr Treasury = 1.4% risk premium).

The likelihood is that once the first five years is over, the rate will increase and, as a result, your monthly payment will increase. The assumption here is that five years from now your salary will have increased, and you can afford a higher monthly payment. However, the ARM interest rate will have what is known as **caps** on it. Caps are limits on how much the ARM interest can rise in any one year or over the life of the loan. Here is a hypothetical example:

- 5-year Adjustable Rate Mortgage: 5.25% will not adjust more than +/- 0.5% in first 5 years then adjusts to market rate at the time
- Constant monthly payment: $1,190
- Principle amortization based on 30-year amortization: 30-year amortization
- Rate for five years: 5.25%

After five years, the rate will adjust every year on the anniversary of the loan to a rate that is 2.00% above the rate of the five-year U.S. Treasury Note.

- Annual cap: Upon adjustment, the rate will not go up (or down) more than 0.25% each year it is adjusted or go up more than 1% total for the life of the loan.

With an adjustable rate mortgage, you may end up doing a partial amortization or a negative amortization of your principal. Partial amortization or zero amortization in a mortgage will occur if you take out an interest-only mortgage. If you are paying only the interest on the loan, it reduces the monthly payment. However, the downside is that the principal does not decrease and must be paid off if you sell the house or refinance the loan. If you are paying only the interest on your home mortgage plus a little bit of the principal (in order to reduce the monthly payment) the amount of the loan paid off will not decrease as rapidly as it will with a thirty-year or fifteen-year home loan.

If you take out an adjustable rate mortgage, you may also end up with negative amortization of the principal of your home loan. A negative amortization loan is one in which you are not even paying the market interest on your home loan. Any interest above the market interest is added to the balance of unpaid principal. Negative amortizations can be offered with certain

types of mortgage products. Although negative amortization can help provide more flexibility to borrowers by reducing the monthly payment, it can also increase their exposure to interest rate risk and actually increases the amount they owe.

Fannie Mae and Freddie Mac

Fannie Mae, or **FNMA**, is shorthand for the Federal National Mortgage Association. **Freddie Mac**, or **FHLMC**, refers to the Federal Home Loan Mortgage Corporation. The main difference between Fannie and Freddie comes down to who they buy mortgages from. Fannie Mae mostly buys mortgage loans from commercial banks, while Freddie Mac mostly buys them from smaller banks that are often called **thrift banks**.

Fannie Mae and Freddie Mac were created by Congress to perform an important role in the nation's housing finance system: to provide liquidity, stability, and affordability to the mortgage market. They provide **liquidity** (ready access to funds on reasonable terms) to the thousands of banks, savings and loans, and mortgage companies that make loans to finance housing.

It may not seem like it, but the banking business model, especially in mortgage lending, is a very unstable business model. Banks borrow **short** (that is, borrow money from depositors or from 90-day Commercial Paper lenders) and lend it **long** through multi-year credit cards, one year lines of credit, three year auto loans and, in the case of the mortgage market, three to thirty year mortgages. Depositors can demand their money back at any time, and the 90-day Commercial Paper loans must be renewed every 90 days. If a large portion of the depositors demanded their money back at once or if the banks were not able to roll over the Commercial Paper, the bank would be illiquid and would likely have to close. Fannie Mae and Freddie Mac buy the three-to-thirty-year mortgages and give the banks a profit for originating them. The banks get their money back and can lend it out again.

As to affordability, Fannie Mae and Freddie Mac bundle the mortgages and attach a guarantee to the bonds they buy. Since the market considers this a "quasi-guarantee" by the U.S. government, the interest rate that FNMA and FHLMC must pay on these bonds approaches the low interests on U.S. Treasury bonds. This translates to low interest rates on mortgages that qualify for

purchase by these two institutions. They are very powerful in the mortgage market, owning or having guaranteed over 60% of all U.S. mortgages.

Fannie Mae and Freddie Mac buy mortgages from lenders and either hold these mortgages in their portfolios or package the loans into **mortgage-backed securities (MBS)** that may be sold. Lenders use the cash raised by selling mortgages to the enterprises to engage in further lending. The enterprises' purchases help ensure that individuals and families that buy homes and investors that purchase apartment buildings and other multifamily dwellings have a continuous, stable supply of mortgage money. These institutions also set the rates and the conditions for the mortgages they will buy (called **prime mortgages**). Fannie Mae and Freddie Mac also help stabilize mortgage markets and protect housing during extraordinary periods of stress in the broader financial system.

Fannie Mae was first chartered by the U.S. government in 1938 and was a company whose stock was sold to the public, and Freddie Mac was chartered by Congress in 1970 as a private company, whose stock was also sold to the public. During the Great Recession, both Fannie Mae and Freddie Mac went bankrupt and were taken over by the U.S. Treasury Department. They are still in what is called **conservatorship** and pay their profits to the U.S. Treasury.

The Home Mortgage Crisis of 2006 to 2009 and the Great Recession

The following graph shows median home prices in the U.S. before, during, and after the mortgage crisis of 2006 to 200 (Case/Shiller, 2009). **The Case/Shiller Index** is one of the most respected indices of home prices. Note that home prices for the 10 largest U.S. cities (**the Composite 10**) and the 20 largest U.S. cities (**the Composite 20**) along with the National Index began dropping in early 2006 and continued to drop until sometime in the year 2009.

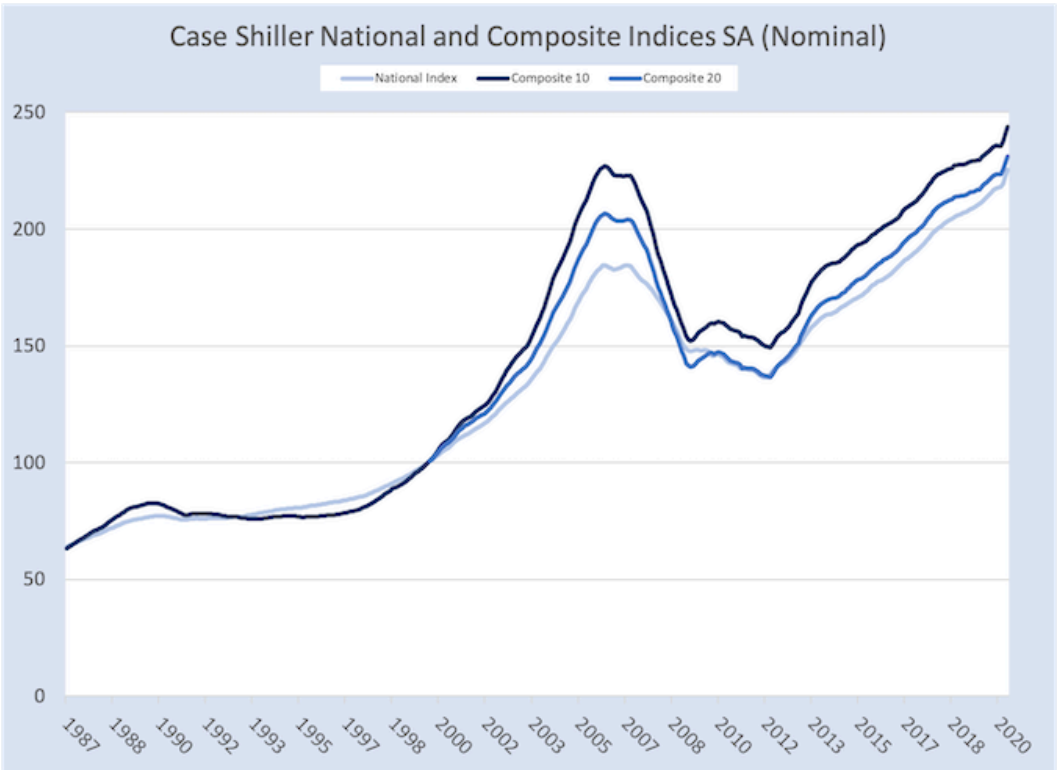


Figure 11.3. *Case Shiller Index by Fred Rowland is used under a CC BY-NC 4.0 License. Source: Federal Reserve Economic Data [FRED] (12/2020).*

As Akerloff and Shiller (both Nobel Prize laureates in Economics) contend in their book, *Animal Spirits*, most recessions begin with a financial crisis (2009). The Great Recession was no exception. Fannie Mae and Freddie Mac were not owned by the government but instead private organizations that offered stock to the public. Fannie Mae and Freddie Mac were very profitable and became the envy of the Wall Street banks. In fact, as of now, they own or guarantee 60% of the mortgages in the United States!

They became so profitable by purchasing mortgages from banks and mortgage brokers (called the **originators**) and assembling them into bonds they then sold. Fannie Mae's and Freddie Mac' guarantees were seen by investors as being equivalent to an implicit guarantee by the U.S. government. Therefore, Fannie Mae and Freddie Mac were able to pay very low interest rates on the bonds, allowing them to make large profits on the difference between

the interest rates they were receiving on the mortgages they purchased and the low rates they were borrowing their money at by selling bonds.

Wall Street banks wanted to get in on the action. The problem was that even the biggest banks could not match the implicit government guarantee that backed the Fannie Mae and Freddie Mac bonds. Instead, they came up with the idea of paying for default insurance on the bonds they wanted to issue to buy mortgages. The banks went to AIG, the largest insurance company in the world, and convinced them to issue default insurance. With this AIG guarantee, the banks were able to get the highest credit rating on their bonds and to borrow money almost as cheaply as Fannie Mae and Freddie Mac.

Like all screwy schemes, things went well (and profitably) for a while (from 2000 to 2003), but then the banks got greedy. As they started to run out of very credit-worthy mortgages to buy (the prime mortgages), the Wall Street banks bought less credit-worthy mortgages (known as **subprime mortgages**). These subprime mortgages were structured in a dizzying array of new types of loans or even loans where the income and assets of the home buyer were self-reported and not verified (called **liar loans**). These subprime mortgages were all bundled into bonds with some prime mortgages and the AIG guarantee the bonds the highest credit rating.

In 2006, subprime mortgage holders began to default—not just a few, but millions. This caused a total halt to the bond market for Wall Street banks. According to the **Generally Accepted Accounting Practices rules (GAAP)**, if there is no market for an asset you own, you must write its value down to zero in your financial statements. The Wall Street banks had to write down the mortgage-backed bonds they held to zero, and as a result every major bank in the United States became insolvent (except for J.P. Morgan, who did not participate as much in this bond party). They all had to be bailed out in 2008 by the Federal Reserve Bank.

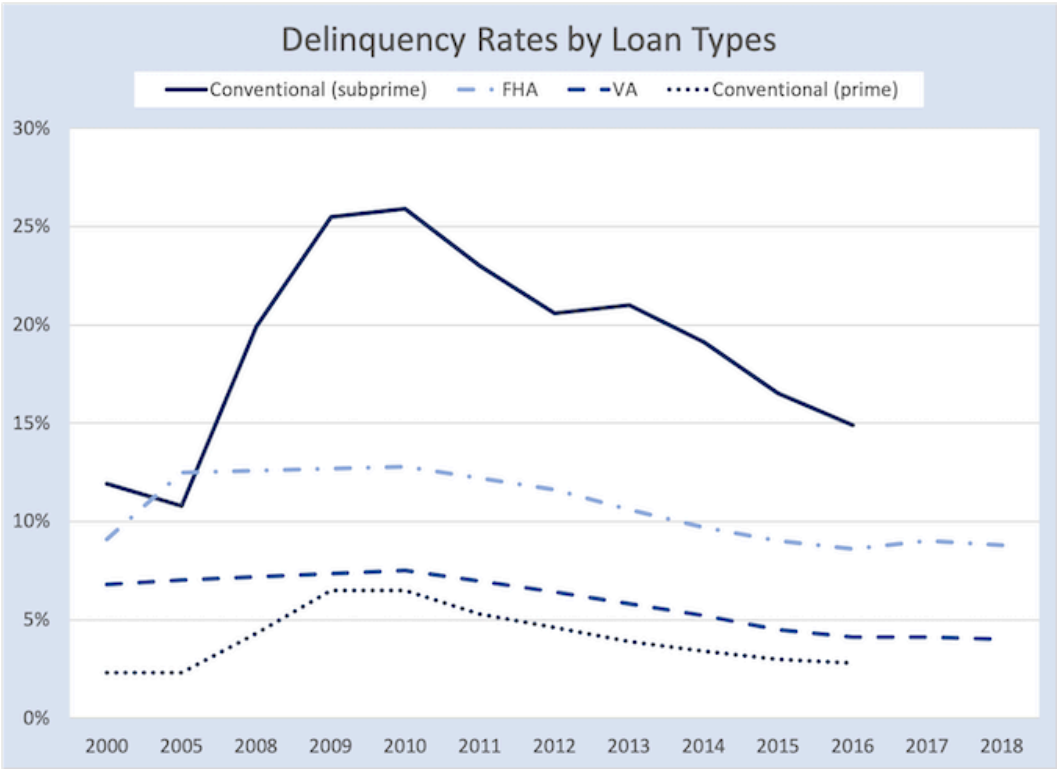


Figure 11.4. *Delinquency Rates by Loan Types by Fred Rowland is used under a CC BY-NC 4.0 License. Source: Statistical Abstract of the United States data (2020).*

The dominoes began to fall. The availability of cheap and easy money to buy houses had caused a spike in housing prices from 2000 to 2005. The mortgage defaults and the resulting disappearance of this easy money then caused housing prices to drop precipitously. Millions had bought homes at elevated prices and borrowed mortgages on those elevated prices. When home prices fell, the value of their homes was less than the mortgage amount they owed on their home (called **being underwater**). Ultimately, three million people lost their homes to foreclosure in 2008, and it is estimated that as many as ten million people lost their homes to foreclosure in the Great Recession. The financial crisis and the ensuing drop in home prices and foreclosures were one of the major causes, if not *the* major cause, of the Great Recession. Eight and a half million people lost their jobs in this recession. The value of stocks in the U.S. stock market dropped 38% to 40% during the recession.

Since then, housing prices have recovered in the United States (and internationally). Even further, some cities can be classified as unaffordable for middle class people. Here is data on the most unaffordable cities, when we compare home prices to income:

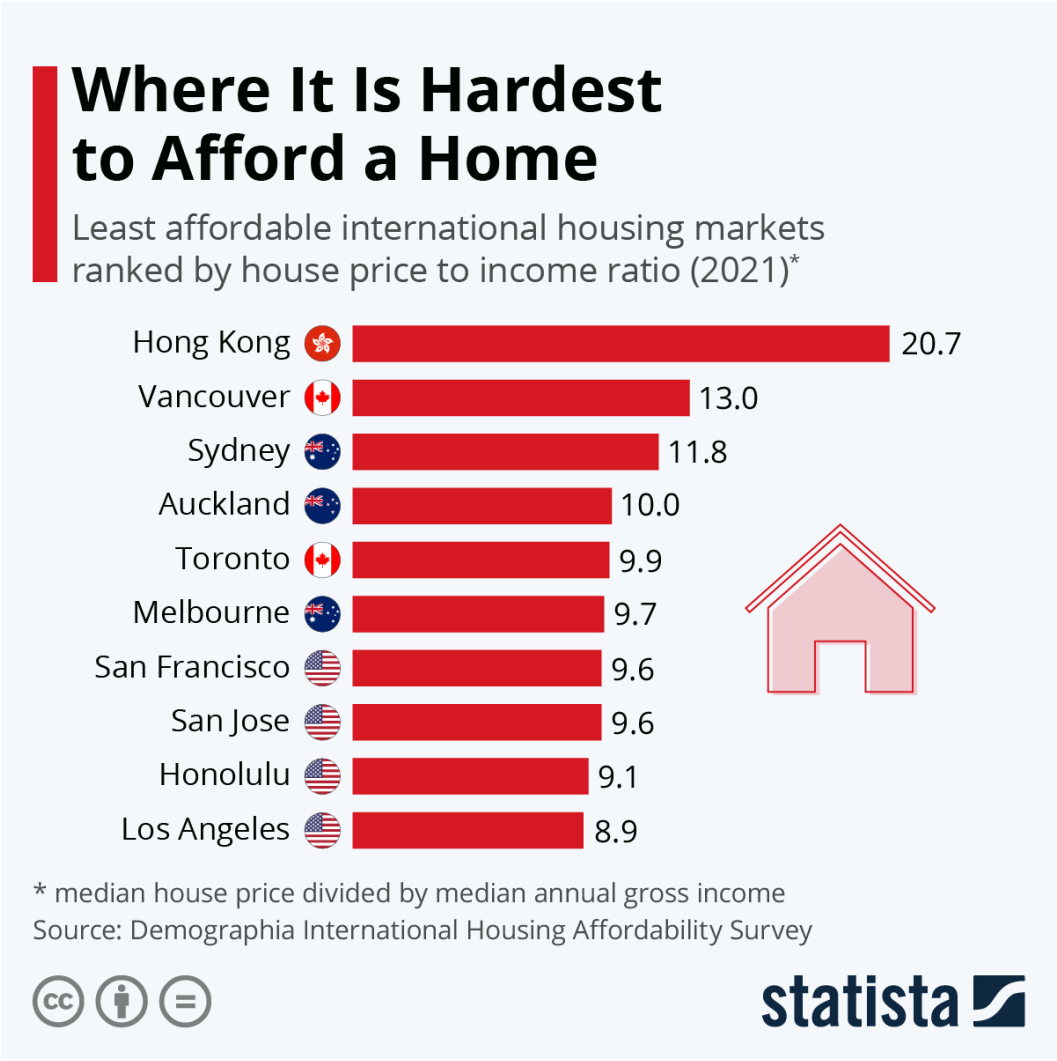


Figure 11.5. *Where it is Hardest to Afford a Home by Statista is used under a CC BY-ND 3.0 License.*

Transaction Costs of Purchasing a Home

Here is an estimate of the closing costs on a 95% Loan-to-Value loan and a thirty-year fixed rate mortgage on the median home price in the United States:

- Median home price: $227,000
- Down payment (5%): $11,350
- Closing costs (2%-3%): $4,900
- Mortgage amount: $222,450

The closing costs will be quite substantial, and these will likely include the following:

Table 11.1. Closing Costs

Item	Comments	Estimated Cost
Mortgage Points	1% of Mortgage	$2,200
Origination Fee		$700
Appraisal Fee		$300
Application Fee		$200
Attorney Fee (Deed Preparation)		$500
Inspection Fee (Termites or Radon)		$300
Title Insurance		$500
Other Fees		$200
TOTAL		$4,900

You may also be asked to pay for some other items at closing:

- Reimbursement of Oil: If your purchased home has oil heat, you will likely be asked to reimburse the seller for oil left in the oil tank.
- Prepayment of Insurance: The bank giving you the mortgage may ask you

to pay at settlement the first six months of homeowners insurance, so they know, at least initially, that the home is insured.

- Reimbursement of Real Estate Taxes: If the seller has already paid all the real estate taxes for the year and there are, e.g., six months left in the tax year, you will have to reimburse the seller for six months of real estate taxes.
- State Transfer Tax: Some states have real estate transfer taxes, which are charged on home sales. As an example, the state of Pennsylvania has a 2% transfer tax on all home sales. One percent of this is paid by the buyer and 1% is paid by the seller.

You are entitled to a full good faith estimate of the closing costs at least a few days prior to closing on the house and closing on the mortgage. If you do not get one, ask for it.

How to Calculate the Monthly Payment

Start with the approximate sales prices of recently sold houses in the neighborhood. Next, figure out what amount of money you have for the down payment. This will most likely need to be a 5% down payment. If you do not have 5%, often you can put only 3% down. Next, realize your closing costs will be 2 % to 3% of the purchase price (depending on any real estate transfer tax in your state). Then calculate the mortgage you will need by taking the home price and deducting the 5% down payment and adding the closing costs. Finally, use a mortgage calculator online.

Tax Consequences of Home Ownership

There are significant income tax benefits to owning a home. The Internal Revenue Code allows you to deduct all interest you pay on your mortgage from your personal income. The tax savings you receive will be in line with the rate of federal income taxes you pay on your income. For example, if you pay a tax rate of 20% in income taxes, you will save 20% of the annual interest you pay on

your mortgage. Let's say the total interest you pay annually on your mortgage is $9,600, and your average tax rate is 20%. That means you will save $9,600 X 0.20 = $1,920. Also, you do not have to wait until you file your taxes to get a refund of that money. You can adjust the IRS Form W-4 with your employer at any time. You will add additional deductions on the W-4 so that less income tax is withheld every pay period. This improves your cash flow and helps with the monthly mortgage payment. The ability to deduct the interest on your mortgage payments is a significant subsidy for American homeowners. This tax savings does not exist in many other countries.

Annual Costs of Home Ownership

If you purchase a brand new house, you will likely not have any major maintenance expenses for a couple years. However, for previously owned homes, the annual average for repairs and maintenance (painting, driveway resealing, etc.) is estimated to be from 2% to 4% of the value of the home per year, depending on how old the home is. Zillow estimates homeowners can spend over $9,000 a year on average.

Common Mistakes in Taking Out a Mortgage

The biggest mistake people make in buying a home is to buy a more expensive house than they can afford. This, of course, means that they will take out a bigger mortgage than they can afford. The mortgage payment on the house is the gauge of how expensive a house you can qualify for. A qualified loan is one where the total debt payments-to-total income ratio is no more than 43%. However, just because you qualify for a certain loan size does not mean you should buy the most expensive house you can. There are maintenance expenses on the house and other expenses you need to consider. Seriously review your household budget and include the mortgage payment and expenses. Then decide what monthly mortgage payment you are comfortable with. Do not forget to consider the tax savings on the mortgage interest in your budget.

When to Refinance

Historically, common wisdom said that you should refinance if you can reduce your mortgage interest rate by 2%. However, many people refinance if they can lower their interest rate by 1%. You should definitely refinance an adjustable rate mortgage to a fixed rate thirty-year or fifteen-year mortgage to protect yourself against interest rate increases. Essentially, the decision to refinance should be based on a cost/benefit analysis. What will it cost you to refinance, and how much will you save per month? Calculate how many months it will take you to get back the fees you paid to refinance from the savings. Bankrate.com has a refinancing calculator to show you how much you can save and how long it will take you to get your fees back. The fees to refinance are similar to the fees to take out the original mortgage:

- Origination fee
- Appraisal fee
- Application fee
- Attorney fee (deed preparation)
- Inspection fee (termites or radon)
- Title insurance
- Other fees (PMI insurance)

These could total up to 2% of the new financed amount. Always ask the bank early on what the fees for refinancing add up to. This will enable you to do an informed cost/benefit analysis.

Table 11.2. Refinancing Example

	Example	Your numbers
1. Your current monthly mortgage payment	$1,199	
2. Subtract your new monthly payment	– $1,073	
3. This equals your monthly savings	$126	
4. Subtract your tax rate from 1 (e.g. 1 – 0.28 = 0.72)	0.72	
5. Multiply your monthly savings (#3) by your after-tax rate (#4)	126 x 0.72	
6. This equals your after-tax savings	$91	
7. Total of your new loans' fees and closing costs	$2,500	
8. Divide total costs by your monthly after-tax savings (from #6)	$2,500 / 91	
9. This is the number of months it will take you to recover your financing costs	27 months	

12. Insurance: What Do You Need?

Life's Problems Will Happen to You

Sorry to tell you, but life is hard. You will have difficulties, and there will be accidents and events that affect your property or your health. To put it another way, life inherently contains **risk**. You and your family are at risk that you may be in an automobile accident. You and your family are at risk that one or several of you may become ill and require a hospital stay. You and your family are at risk that a tree may fall on your house. Of course, not all these risks have the same probability of occurring, and not all of these risks will incur the same amount of financial loss.

The Concept of Insuring Against Risk

Insurance companies take on your risk for a fee, known as a **premium**. By buying insurance, you are protecting your wealth and income against unexpected events that can take away your wealth or income. There are many types of insurance you can buy to protect yourself, your family, and your property:

- Automobile insurance
- Homeowner's insurance
- Health insurance
- Disability insurance
- Life insurance

There are also specialty insurance companies for special risks, such as insuring

professional football or basketball players against a career-ending injury. Then there are also a few insurance programs administered by federal and state governments that people often forget:

- Social Security insurance
- Medicare insurance
- Unemployment insurance (federal and state)

Insurance companies have experience with the costs of fire, accidents, and casualties, so they price their premiums on anticipated claims against the insurance policies they sell. As a consumer, you should do a cost/benefit analysis. Always get at least three quotes for your insurance, and if you have been with a company for a few years, you should get quotes to make sure you are being charged a competitive premium.

However, there is one rule that you should always follow. If a potential casualty loss is so large that it will really hurt you financially, you must insure against it. For example, if your house burns down, even though this is an unlikely event, you should insure against the loss because of its financial consequences.

The Business Model of Insurance Companies

Commercial insurance companies are in the business of making a profit. They sell policies to customers and charge an annual premium for the protection. An insurance policy is a legally binding contract, and it obligates the company to pay for any of the claims that are covered in the policy. For example, when you buy automobile insurance, you agree to pay the annual premium, and the insurance company agrees to pay for damages from an accident.

Insurance companies have teams of actuaries who estimate the probable amount of claims in each category of things they insure, based on historical averages. The insurance company charges enough premiums to pay for the claims, while still having a profit left over to pay dividends to their shareholders. In most years, if fate behaves, claims replicate their historical averages. However, when unexpected events happen, such as Hurricane Katrina or the West Coast Wildfires, insurance companies lose money.

Since claims occur over the course of a year, insurance companies invest the

premiums they collect in short term investments (e.g., in the case of auto or homeowners' policies) or in long term investments (e.g., in the case of whole life insurance). This gives them another source of profit for their shareholders.

There are insurance companies that are **mutual insurance companies**. These are analogous to credit unions in the banking sector. In mutual companies, the policyholders are the owners of the company. That means that while a mutual company must cover all their claims, they do not have to generate a profit for their shareholders. If they have extra cash left over at the end of the year, they can send refund checks to their policyholders or reduce premiums the next year. Mutual insurance companies are very competitive in their rates.

When you are new to the insurance market, it is a good idea to use an insurance broker who can advise you on the ins and outs of the market. The broker is paid a commission by the insurance company (normally in the range of 8% of the premium) to place your insurance with them. Once you become confident, try companies that sell by phone or over the internet. This usually saves money because they do not pay commissions to brokers. Make sure you get at least three quotes. Here are some legitimate companies that sell by phone or internet:

- GEICO
- Liberty Mutual
- Progressive
- USAA (for veterans of families of veterans)

I personally switched a number of years ago from a commercial insurance company to Liberty Mutual for both auto and homeowners' insurance and my premium went down by about 25%.

Health Insurance

Health insurance can be expensive compared to auto or homeowners' insurance. In 2020, the average national cost for health insurance was $5,500 annually for an individual and $13,800 for a family per year. However, costs vary among plans. There is a wide selection of plans and programs for health

insurance, such as opting for a Health Maintenance Organization or agreeing to only use the doctors approved by the insurance company. In addition, most companies offer health insurance to their employees, and by joining a group insurance plan of mostly healthy people, premiums are reduced. Further, companies that provide health insurance for their employees usually pay for a good portion of the premium.

As an historical note, the United States is the only developed country (other than China) that does not have a national insurance program. The expansion of private health insurance in the U.S. goes back to World War II. Six million men and women were sent to fight in Europe and the Pacific. Thus, the military-industrial complex on the home front had a shortage of workers just as it was producing war material at full speed. One consequence, of course, was the recruitment of women to staff the manufacturing lines. Another consequence was the competition for employees. Companies were not allowed to give raises during the war in order to avoid inflation; in order to compete for employees, companies started giving benefits, like health insurance. From after the war until today, pharmaceutical companies, hospitals, doctors, and insurance companies have lobbied against the U.S. having a national health insurance plan. They are afraid (and rightly so) that a government insurance program will use its buying power to control their fees.

The most common types of health insurance programs are **fee for service** and **managed care** plans. Both cover doctors' visits, hospital outpatient services, medical procedures, and hospitalization. Fee for service (sometimes called **Personal Choice**) allows you to choose your own doctors and specialists. Your doctor submits a bill to the insurance company and is paid all or part of their fee. If the insurance company thinks the fee from your doctor is higher than the prevailing rate in that area, the insurance company will only pay the prevailing rate, and you must pay the rest, a drawback of the fee for service policy.

Managed care plans require the policyholder to go to a specific group of doctors and hospitals identified by the insurance company. They are called **in network** doctors and hospitals. The value of this program is that the doctors recommended will not charge you above the fees agreed with your insurer, and you will not be billed for any difference. **Health maintenance organizations (HMO)** are insurers that usually establish a set annual fee per patient with doctors. You must go first to the primary care doctor, which you choose from their list. Any referral for further treatment by a specialist must first be approved by your primary care physician. The HMO is paying the primary care physician to keep you well and is controlling any unnecessary trips to specialists. The

premiums for fee for service are higher than the managed care policies, which are higher than the HMO policies. Your choice of plan affects your premium payment.

Being part of a health insurance group (such as your employer-sponsored health insurance program) significantly reduces the total premiums. Of course, your employer decides how much of the health insurance premiums they are willing to subsidize. If you are self-employed or between jobs without health insurance, there are often ad hoc groups in your area that sponsor group programs. For example, you can join the local Chamber of Commerce that sponsors a plan that is cheaper than buying as an individual.

Finally, federal law states that an insurance company cannot refuse you coverage due to a pre-existing condition, as part of the Affordable Care Act (ACA) legislation. If you lose your healthcare because you lose your job, you should at least buy a low premium policy in case of an unexpected hospitalization. Hospital stays are expensive, and you should at least protect yourself against those expenses. If you are out of work, you should be able to enroll in a very reasonably priced ACA policy. There are also government subsidies for those with low income. You would likely qualify for this if you are single, and your only source of income is unemployment compensation.

The Main Reason People Go Bankrupt

A 2019 Harvard study found that 66.5% of all bankruptcies were tied to medical issues, due to high costs of care and time out of work. This includes an estimated 530,000 families. This study also shows that 78% of bankruptcy filers had some form of health insurance but not enough to cover their medical costs (CNBC). Even if you are young and healthy, you should at least have health insurance for what are called **catastrophic illnesses**. This includes things like accidents that put you in the hospital, cancer, and COVID-19. Because you are young and healthy, the probability of these events is low, so the premium is low.

Recent support for **Medicare for all** stems not just from the plight of uninsured people but also from middle class people who have catastrophic illnesses that are not covered by insurance. With this model, the government can achieve substantial savings by negotiating fees and costs.

Affordable Care Act

The **Affordable Care Act (ACA)** was passed in 2010, in the second year of President Obama's first term. The Republicans immediately took to calling it Obamacare and have been trying to repeal it as unconstitutional ever since it was passed. A Republican court case even made it to the U.S. Supreme Court, which upheld the constitutionality of the ACA by a five to four vote. Republicans continue to challenge the ACA, so expect it to continue to be in the news. The ACA has three main goals:

1. Reduce the price of health insurance in order to make it available to the millions of people. The government subsidizes the cost of health insurance for households whose incomes are 100% to 400% of the federal poverty level.

2. Expand Medicaid. Medicaid is free health insurance for households whose incomes are substantially below the federal poverty level. States are responsible for administering Medicaid, and many states with Republican governors or legislatures refused to accept this expanded federal aid.

3. Find and support medical care delivery systems that lower the cost of providing healthcare.

The ACA has been successful by any measure. In 2020, 23 million people are covered by the ACA. In addition, 31 states accepted the expanded Medicaid program. In 2020, a total of 73 million people are now insured under Medicaid or under the Children's Health Insurance Program (CHIP). In addition, children are now able to remain on their parents' healthcare policy until they turn 26, and no insurance company can refuse healthcare coverage because of a pre-existing condition.

Another benefit of the ACA is that it modernized the health insurance search, establishing an online marketplace for health insurance. When you access the marketplace, you will be asked some relevant questions and receive an estimate of the subsidy you may qualify for. After this, you will have access to the private insurance companies offered through the marketplace. All participating companies must offer at least these ten essential benefits in their plans:

1. Ambulatory patient services (outpatient care)

2. Emergency services
3. Hospitalization (like surgery and overnight stays)
4. Pregnancy, maternity, and newborn care (both before and after birth)
5. Mental health and substance use disorder services, including behavioral health treatment (this includes counseling and psychotherapy)
6. Prescription drugs
7. Rehabilitative and habilitative services and devices (services and devices to help people with injuries, disabilities, or chronic conditions gain or recover mental and physical skills)
8. Laboratory services
9. Preventive and wellness services and chronic disease management
10. Pediatric services, including oral and vision care (but adult dental and vision coverage are not essential health benefits)

In addition to these, birth control coverage and breastfeeding coverage must also be offered.

Finally, health insurance plans on the marketplace can offer additional coverage for services like dental and vision care, but these plans will cost you more. As I said before, if you lose your healthcare coverage due to any reason, you should at least buy a minimum policy that will cover an unexpected illness. Look at the ACA Marketplace for these options.

Disability Insurance

Disability insurance provides income if you cannot work due to an illness or accident. **Short-term disability** typically covers you for 13 to 26 weeks and will pay 40% to 70% of your salary during that period. It costs about 1% to 3% of your salary and may be paid for by your employer as a benefit. The premium depends on your age and occupation. **Long-term disability** insurance also costs about 1% to 3% of your salary, and these policies will begin payment after the period of short-term disability payments. Depending on the policy you

select, the long-term disability payments can cover 20 years, 30 years or until retirement.

The Social Security system also pays disability payments under the **SSDI program**, and, if you qualify, you can collect this in addition to your private insurance. These SSDI payments range from $800 to $1,800 per month, depending on your earnings history, providing only a minimal safety net; it will not replace your income. Buy long-term disability insurance; it is not that expensive if you are part of an employer sponsored plan, and it protects you and your family.

Auto Insurance

All fifty states require auto insurance if you own a car. This is mostly to protect other drivers if you are at fault. However, you should also get a provision against uninsured drivers. This will protect you if someone without insurance hits you, causing damage to your car or injuring you. This is a common provision in auto policies. The national average of car insurance in the U.S. is $1,400. This will vary if you have an expensive car, have just gotten your license, or have a bad driving record. Below are some potential types of coverage you can have.

Coverage A: Liability Coverage

If an accident is your fault, by law you must pay for the damages. This includes both property damage and bodily injury to another. Some states have **no-fault property damage laws**, eliminating the need for lawyers, thereby reducing costs. In this scenario, your insurance company fixes your car, and my insurance company fixes my car. However, no-fault does not apply to bodily injury.

Coverage B: Medical Payments Coverage

If you are at fault, your insurance company pays any medical bills for the other person. This is the law.

Coverage C: Uninsured or Underinsured Motorist Coverage

If the other driver is at fault and has no insurance, you are covered by your policy. This is a good provision to have.

Coverage D: Collision and Comprehensive Coverage

Collision covers damages to your car if you are at fault in an accident. Comprehensive covers all other damages or loss to your car, such as theft, vandalism, floods, hail damage and other unhappy events.

The **deductible** is the amount you pay out of the total of each claim. You can choose the deductible, but it normally ranges from $250 to $1,000. The higher the deductible, the lower the premium, because you will not bother your insurance company every time your car gets a dent or scratch. Many insurance companies also offer a discount for safe drivers. Note that each state has a different minimum insurance coverage required.

Renter's Insurance

If you are a renter, almost every lease has a provision that says if an event happens that damages your property, the landlord will not pay for it. If someone breaks into your apartment and steals your laptop, the landlord has nothing to do with that and will not reimburse you. This is why you should buy **renter's insurance**. Renter's insurance is inexpensive, with an average price at about $15 per month in 2020. It covers fire, damage and theft.

You should also ask for liability to be included in the policy. This will protect you if a visitor gets injured in your apartment or if your dog bites the neighbor. Also, it is helpful to keep photos of your important property. Take pictures of your new laptop, your television, and expensive jewelry (include receipts if possible). This will help you establish your claim to the insurance company if you have a loss.

Homeowner's Insurance

For many, their most valuable asset is their home, thus it is important to protect it with **homeowner's insurance**. Homeowner's insurance should protect your home against fire and wind damage, theft, falling trees, and personal liability. Standard forms of homeowners insurance policies are numbered from HO-1 to HO-8. These are structured with different degrees of coverage and the premiums are different for each package.

- HO-1: The most basic and limited type of policy for single-family homes, HO-1s are all but nonexistent nowadays.
- HO-2: A more commonly used policy and a slight upgrade from the HO-1.
- HO-3: The most common type of homeowners insurance policy with broader coverage than the HO-2.
- HO-4: A policy type that is specifically for renters.
- HO-5: The most comprehensive form of homeowners insurance and the second most common policy type for single-family dwellings.
- HO-6: A type of coverage designed for condo owners.
- HO-7: The type of policy you get if you own a mobile or manufactured home.
- HO-8: A special type of homeowners insurance for homes that do not meet insurer standards for other policy forms.

The insurance policy will generally be a **cash value policy**; if the house is destroyed, you will be paid the current value of the house. Since ground does not burn, what the company is insuring is the structures on the property. You should try to get a **replacement value policy** which will increase the value of the house according to inflation and pay the cost to replace it. Your policy will also specify the replacement of other structures on the property such as a detached garage or swimming pool. In addition, the policy will cover personal property in the house such as furniture, computers, televisions, jewelry and clothing if there is fire, theft, or vandalism. There is usually a set limit on the cash amount covered under this. If you have especially valuable items in the house, such as jewelry, paintings, or antique rugs, you should catalog them specifically in the

policy or buy a separate valuable items policy. The insurance company may ask you to present an appraisal to establish their value.

Liability is also an important part of the homeowners policy. If someone is hurt on your property, you are covered up to a certain amount. However, you are *not* covered if you are breaking the law. For example, if you allow your teenager to have a party at your house with underage drinking and someone gets hurt, you will be in deep trouble, and your insurance company will not cover your liability.

The national average annual premium for homeowners' insurance is $2,300. However, this is for the average home price of $300,000 and with a $1,000 deductible. Your premium will vary according to several factors, including:

- The value of your house
- The deductible you choose
- Whether your area is subject to earthquakes or wildfires
- Whether there is a fire hydrant nearby

Ask your real estate agent for a recommendation for an insurance broker. After you are comfortable with homeowner's policies, you can get quotes from the direct to customer insurance companies. The Insurance Institute recommends these ways to lower the cost of your insurance premiums:

1. Shop around.
2. Before you buy a car, compare insurance costs.
3. Ask for higher deductibles.
4. Reduce coverage on older cars.
5. Buy your homeowners and auto coverage from the same insurer.
6. Maintain a good credit record.
7. Take advantage of low mileage discounts.
8. Ask about group insurance.
9. Ask about other discounts, such as for safe drivers or if you install smoke alarms in your house.

Flood Insurance

If your home is in a location prone to flooding, you will need to buy flood insurance. Your homeowner's policy does *not* cover flood damage. The Federal Emergency Management Administration (FEMA) offers flood insurance, with an average annual cost of $700. This is a good investment, since one inch of water in your house can cause about $25,000 in damage. FEMA has detailed maps online of frequent and moderate flood zones to help you determine if your property is at risk. Your mortgage lender may insist you buy flood insurance if you are in a flood zone, but you should whether they insist or not.

Life Insurance

Whole life insurance is like having a savings account that you are forced to put money in each year. Its main function is to protect your family with a lump sum payment if you die prematurely. However, as long as you pay the premiums, the whole life also accumulates savings (building up a cash value) that you can withdraw at the end of the term. If you purchase a 20- or 30-year whole life policy for $400,000 face value, at the end of 30 years, even if you have not died, you can withdraw the $400,000. However, a whole life policy is not a good investment from an economic point of view. The insurance company takes your premiums and invests them, at 7% or 8% annual return. They offer you a guaranteed return on the policy of anywhere between 1.5% to 3% annual return and keep the difference. This is simply not a good deal for you.

Instead, you should purchase a **term life policy**. This does not build up cash value; rather, it is similar to auto and homeowner's insurance in that you are paying for coverage only against the event of your premature death. Because you are not building up cash value, term life insurance is inexpensive. The premium, of course, depends on your age and health, but the average national cost of a term life policy for a healthy 30-year-old male is $26 per month for a $500,000 policy. The policy premiums will likely increase every year, so be sure to shop around.

A 2020 report by McKinsey and Company showed that life insurance companies have suffered from a decade of declining profitability and growth. One major reason is that customers (and financial advisors) question the value

of whole life insurance. McKinsey recommends several changes to revive insurance companies, including a more personal connection to customers and invention of new products, such as whole life policies that can be converted to long term nursing home care policies. We will have to wait and see.

Umbrella Personal Liability Policy

As your wealth increases, you have an economic incentive to protect it. The least expensive way to do this is by purchasing an **umbrella personal liability policy**. You likely will be carrying personal liability coverage of about $250,000 total on your auto policy and on your homeowner's policy, but it is expensive to increase the limits on these policies. Instead, you can buy a $1,000,000 umbrella policy for about $200 per year. It will pay any excess claims above the limit of $250,000 paid by your auto or homeowner's policy.

13. Investing Fundamentals

The Nature of Investing

Generally speaking, an **investment** is something you put time or money into and get a return from. For example, we talk about investing in a personal relationship. We also talk about investing in the stock market. For this chapter, we will use the financial definition of investing: a financial asset you contribute money to and from which you receive an interest payment, a dividend, or an increase in the market value over time (or all three). You use money from your savings to invest:

$$\text{Income (paycheck)} - \text{Taxes} = \text{Disposable Income (take home pay)}$$

With your Disposable Income, you can either spend it or save it:

$$\text{Disposable Income} = \text{Consumption} + \text{Savings}$$

Unless you hide your cash in the ground, you will take your savings and invest it somewhere you will get a return.

$$\text{Savings} = \text{Investment}$$

Keeping these equations in mind, it is hopefully apparent that the more disposable income you save, the more you are able to invest. But where to invest?

Risk and Reward

On Wall Street, the standard saying is "risk follows returns." By choosing a lower risk investment (such as U.S. Treasury Bonds), you will receive a lower return. Treasury Bonds are considered the safest investment possible because the U.S. has always paid those bonds back (except for debts from the Revolutionary and Civil Wars, but that's another story). Almost all long-term interest rates are influenced by the rate on the U.S. Treasury Bonds, which are considered a "risk-free" return.

In terms of risk, the three traditional investment instruments are stocks, bonds, and cash. We can analyze each in terms of risks and rewards. On Wall Street, risk is measured by **beta** (the Greek letter β), which measures the **volatility** or deviation from the average historical return of an investment.

Stock prices are negatively correlated with recessions. Below, you can see a chart showing the prices and volatility of the general stock market. The grey bars are recessions, so it is easy to see their impact on the stock market. The S&P 500 is a general index of the overall stock market. It was created and is maintained by the financial company Standard and Poors, which is a major credit rating company. The index consists of the prices of 500 stocks out of the 3,700 public companies listed on American stock exchanges, and the composition of these 500 selected companies reflects the composition of the entire market.

Figure 13.1. *S&P 500 Daily Closes and Recessions by Fred Rowland is used under a CC BY-NC 4.0 License. Source: Yahoo Finance data (12/3/2020).*

Adding bonds tends to lower both risk and potential return. The following chart shows the maximum gains and losses on various portfolios consisting of all stocks (on the left) through a series of mixed stocks and bonds to a portfolio consisting of all bonds (on the right). As you can see the maximum gains and losses are greatest with an all stock portfolio.

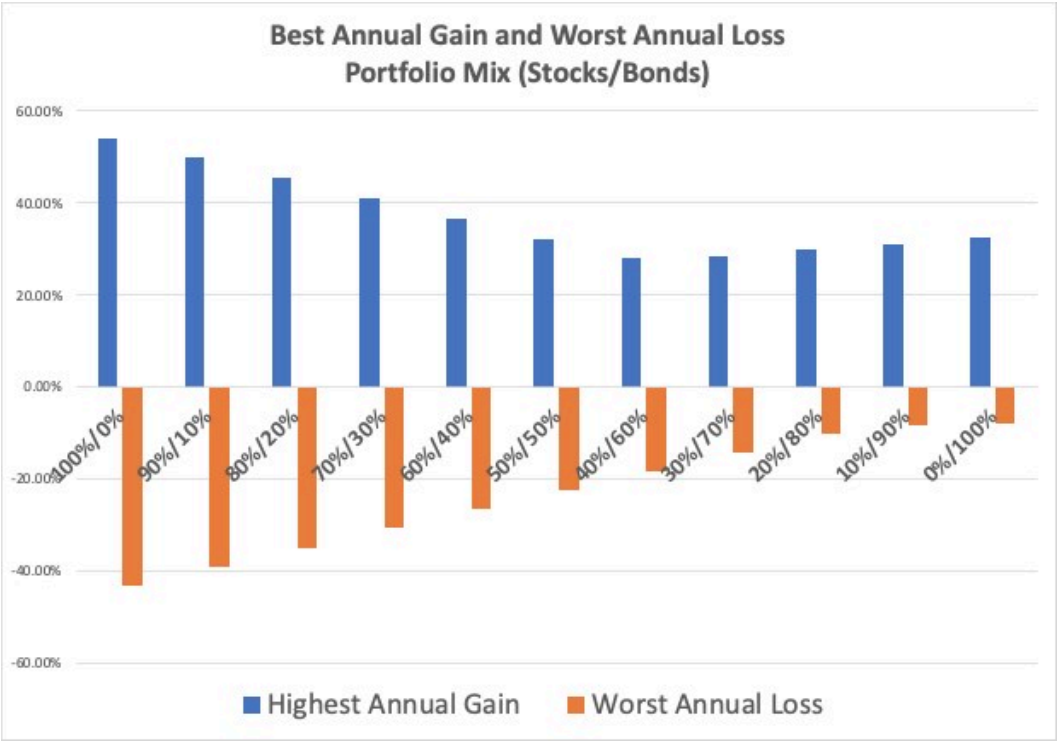


Figure 13.2. *Best Annual Gain and Worst Annual Lost by Fred Rowland is used under a CC BY-NC 4.0 License. Source: Vanguard data.*

Finally, some investment advisors suggest you should hold up to 10% cash in your portfolio, either for emergencies or to take advantage of bargains that may arise in the market. This should *not* be kept in a checking account but in a money market fund. The current annual return on money market funds is 1.7% (Vanguard Prime Money Market Fund).

How Return on Investment is Calculated

Inflation can have a large impact on your investment, so it is important to understand how that works. Let's say you have cash and save it by hiding it in your mattress. Your money gets less valuable every day by exactly the rate of inflation because money is something we need to buy goods and services. If

you hide your savings in a mattress and the rate of inflation is 2%, your money is depreciating in value by 2% per year. The same thing happens to money you keep in a checking account that pays no interest. Your money is depreciating at a rate of 2% per year. Even further, the money you receive as a dividend or interest on your investment is also depreciating at the annual rate of inflation. The real quest, then, is to find an investment that gives a return greater than the rate of inflation.

In order to be able to compare the return on all sorts of different investments, like buying stocks or buying a Picasso, we use the same measure to calculate returns. The return on an investment comes from two areas: dividends or interest paid and the price appreciation. For example, you may put your savings in stocks and get a dividend of 2% per year plus the stock price may have increased by 8% over the course of a year. Thus, your total return for that year would be 2% + 8% = 10%. Alternatively, those investors who buy gold or a Picasso do not get any interest or dividends but receive returns from the price appreciation of their asset over time. If you bought gold today at $1,600.00 per ounce and after a year its price was $1,700.00 per ounce, your annual return would be:

$$\$1,700.00 - \$1,600.00 = \frac{\$100.00}{\$1,600.00} = 6.25\%$$

The general calculation of a **return on investment (ROI)** is the appreciation in the price (value) of the investment (asset) over a year plus any dividends or interest earned during that year, compared to the original cost of the investment (asset). The calculation is thus:

$$\frac{\text{Price end of year 1 - Price beginning of year 1}}{\text{Price beginning of year 1}}$$

This calculation will yield a decimal which is then expressed as a percent annual return. The general formula is expressed as a backward-looking calculation:

$$\text{ROI} = \frac{\text{P}_{\text{year t}} - \text{P}_{\text{year t-1}}}{\text{P}_{\text{year t-1}}}$$

$$\text{ROI} = \frac{(\text{P}_{\text{year t}} - \text{P}_{\text{year t-1}}) + \text{D}_{\text{year t-1}}}{\text{P}_{\text{year t-1}}}$$

Now, here's an example. Let's say you purchase 100 shares of Apple stock at $5.00 per share. At the end of one year, it is now selling on the stock market for $6.00 per share. In addition, you receive a dividend of $1.00 from Apple during the year. Your return could be expressed like this:

$$\text{ROI} = \frac{(\$6.00 - \$5.00) + \$1.00}{\$5.00}$$

$$= \frac{\$2.00}{\$5.00} = 0.40 \text{ or } 40\% \text{ ROI}$$

If your investment is held for multiple years, you would use the total price appreciation of the asset plus add up all the dividends and calculate your total return. You would then divide the total return by the number of years you held

the asset to get the average annual return. This annual return allows investors to compare the annual returns for all sorts of investments that are dissimilar, such as paintings, antique automobiles, collectibles, and stocks and bonds.

However, there is one more complication to consider: taxes on your profits from investments. The profits you make from the price appreciation of an asset is called a **capital gain**, and it is taxed when you sell the asset to realize the gain. Taxation of the capital gain is different if you own the asset for less than one year (a **short-term capital gain**) or own it for more than one year (a **long-term capital gain**). A short-term capital gain is just added to your regular income on your tax return and taxed at your regular income tax rate. On the other hand, if you sell the asset after owning it for more than one year, you will be taxed at the long-term capital gains rate. If your total taxable income is $39,375 or below, a single person will pay 0% capital gains tax. If their income is $39,376 to $434,550, they will pay a 15% capital gains tax. Above that level, the rate jumps to 20%. The tax rates (or **brackets**) are somewhat different for married people. Tax laws give an incentive to hold investments over one year.

Historical Returns on Various Investments

Vanguard Mutual Funds, a not-for-profit, has created historical returns of various portfolios that are made up of different mixes of stocks and bonds going all the way back to 1926. Below are the returns of those different allocations.

Income

An **income-oriented investor** seeks current income with minimal risk to principal and is comfortable with only modest long-term growth of principal. They have a short-to mid-range investment time horizon.

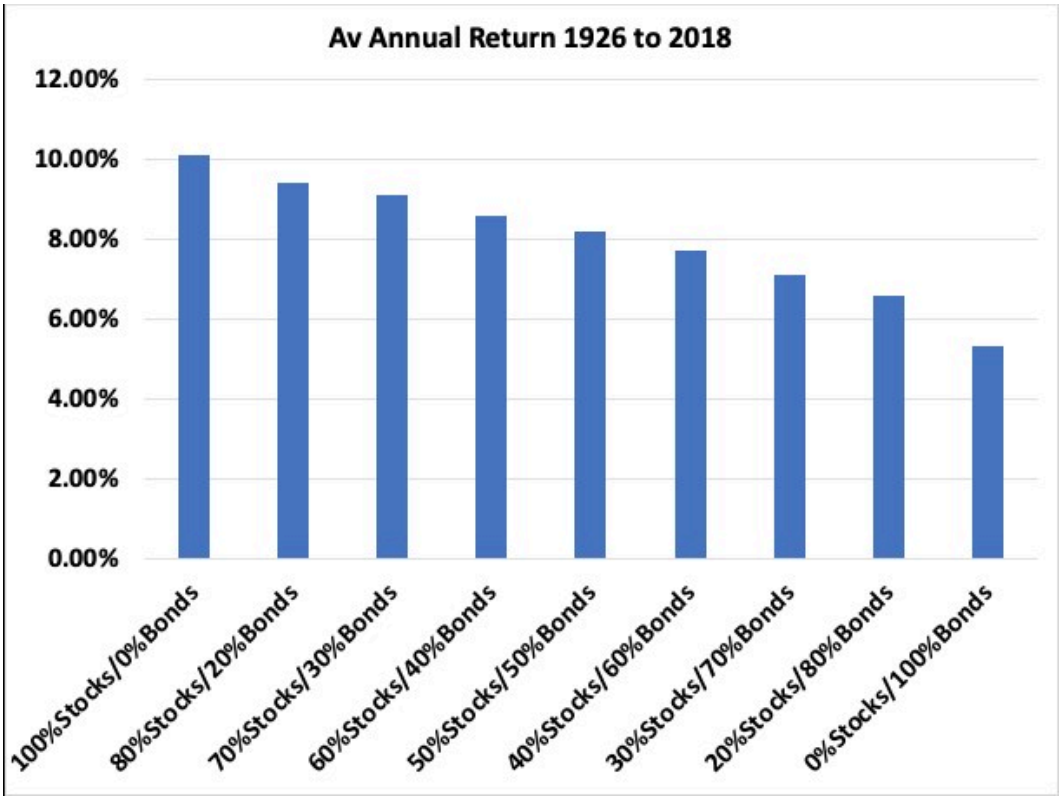


Figure 13.3. *AV Annual Return 1926 to 2018 by Fred Rowland is used under a CC BY-NC 4.0 License.*

Balanced

A **balanced-oriented investor** seeks to reduce potential volatility by including income-generating investments in their portfolio and accepting moderate growth of principal and is willing to tolerate short-term price fluctuations. They have a mid- to long-range investment time horizon.

$$\frac{40\% \text{ stocks}}{60\% \text{ bonds}}$$

Growth

A **growth-oriented investor** seeks to maximize the long-term potential for growth of principal and is willing to tolerate potentially large short-term price fluctuations. They have a long-term investment time horizon. Generating current income is not a primary goal.

$$\frac{80\% \text{ stocks}}{20\% \text{ bonds}}$$

We can actually trace the historical returns on stocks and bonds going all the way back to 1870. The historical returns do not, of course, guarantee that the same returns will happen in the future, but most of the stock market investors are wise, and wise investors demand certain minimum returns in order to take the risk on investments.

In their 2019 study of investment returns, The Rate of Return on Everything, 1870–2015, Òscar Jordà, Katharina Knoll, Dmitry Kuvshinov, Moritz Schularick, and Alan M Taylor calculated returns on stocks, bonds, and housing in 16 developed nations going all the way back to 1870. As Thomas Picketty notes in his book *Capital in the Twenty-First Century*, housing is important in all developed nations, since it represents approximately one-half of the wealth in a typical economy (2021). Here is a graph of the real rates of return in the world:

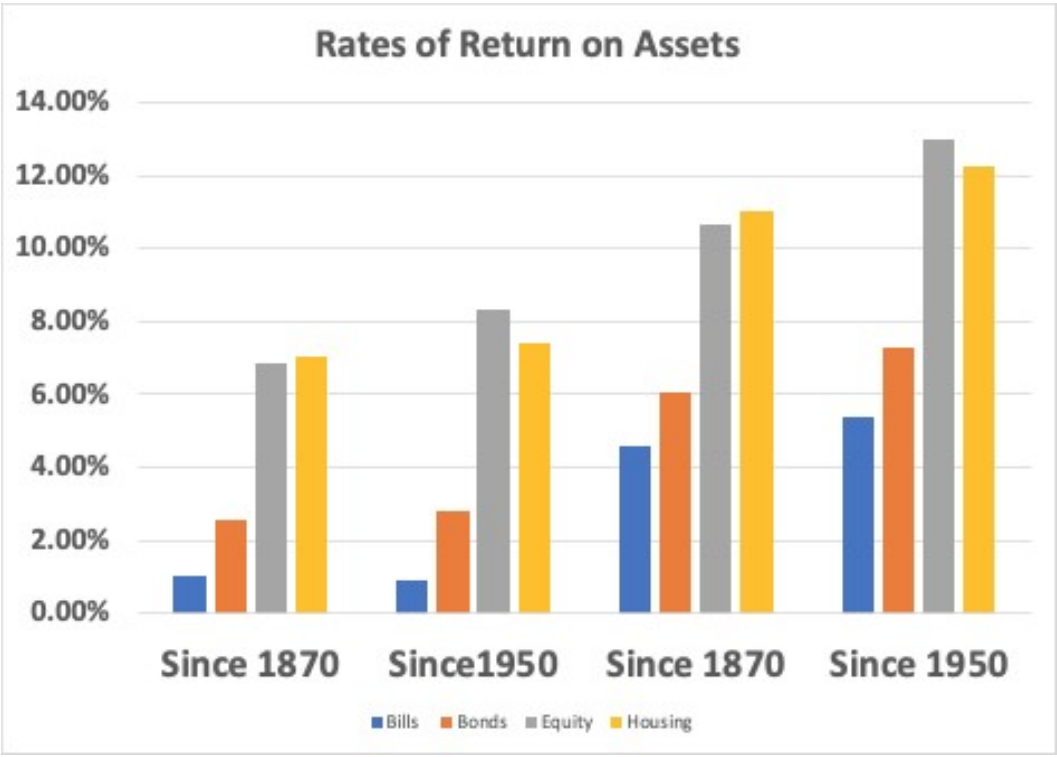


Figure 13.4. *Rate of Returns on Assets. Source: Jorda data (2019).*

The Portfolio Theory of Investing

Asset allocation is spreading out your investment in various financial assets to maximize your profit while minimizing your risk. However, as I stated before, in order to achieve a higher return, you must take a higher risk. A low risk portfolio would be invested in all bonds, and from 1926 to 2018 achieved an average annual return of 5.3% with low volatility. A moderately high risk portfolio would be invested in all stocks, and from 1926 to 2018 achieved an average annual return of 10.1% with much higher volatility.

Professional stock pickers are merely making educated guesses as to which stocks will appreciate the most over the next year. This is because no one can accurately predict the future. Wall Street is myopic in their focus on short-term returns. In contrast, Warren Buffet, Chair of Berkshire Hathaway, has always focused on long-term profits.

Even with all their computer models and data dumps, not a single active

stock picker has consistently beaten the overall rise or fall of the market, as measured by the stock market indexes of the Dow Jones Industrial Average, the S&P 500, or the Nasdaq. Therefore, the only way to achieve consistent average returns is to invest in a broadly diversified portfolio of investments. As mentioned before, a portfolio of 100% stocks has achieved a 10.1% average return over the 90+ years from 1926 to 2018.

As a small investor, you will not have enough money to diversify by buying stocks yourself. Experts say you should have a minimum of 20 diverse stocks in a portfolio. Instead, you should invest in a mutual fund that contains all S&P 500 stocks. Almost every mutual fund company has a fund that is exactly that. Currently, you do not need to invest in bonds due to their lower returns. However, when you get within five years of retirement, you will need to rethink that strategy.

Finally, in your portfolio allocation, you do not need to invest in a global stock portfolio. This strategy was popular over fifteen years ago because when the U.S. was in a recession, Europe was *not* in a recession. This is no longer true. Globalization has connected world economies, and now European and U.S. Economies are procyclical. Another reason you do *not* need to invest in a global stock portfolio is that a portfolio of European stocks have consistently underperformed the S&P 500 by about 1% annually. Europe does not have the high-flying tech stocks like Apple or Google that are included in an S&P 500 mutual fund. In any case, most of the largest European companies like Nestle, BMW, or Mercedes are also listed on the U.S. stock exchanges.

Investing in Money Markets

Money market mutual funds are alternatives to savings accounts or certificates of deposit in banks or credit unions. Their annual returns are higher than bank and credit union savings accounts, but your funds do not have the government guarantee of the FDIC or CUIC. Money market mutual funds invest your money in bonds, and these returns fluctuate with the market. Vanguard Mutual Funds reports that the ten-year average annual return on its money market fund was .42%. Unless you want to park your money and not really invest it, you do not need to put your investment dollars in a money market fund.

Investing in Bonds

You can find quotes on bond yields and prices in The Wall Street Journal or on FIRNA's Market Data Center. A bond is basically an I.O.U. or promissory note. A government or a company issues bonds in order to borrow money directly from investors. This is cheaper than borrowing from a bank because the bank adds overhead and profit to its loans. A bond is a promise to pay interest to the investor every year and then to pay back the investor at the end of a specified time period. A bond's time period is also known as its **length, term,** or **maturity**. For example, the U.S. Government issues Treasury Bonds in order to finance the ongoing annual deficit. Currently, a newly issued 10-year Treasury Bond would likely have the following characteristics:

- Face Value Amount or Par: $1,000
- Coupon or Yield: 0.7%
- Maturity or Term: 10 years

This means that the owner of the bond will receive interest payments every year of $7.00 until maturity and will receive the $1,000 back at the end of the ten years. The interest payment is calculated as $1,000 X 0.007 = $7.00.

The current 0.7% yield of the 10-year Treasury Bond is extremely low and was manipulated by the Federal Reserve Bank in the last two recessions. The Fed purchased trillions of dollars' worth of Treasury Bonds and, due to supply and demand, brought down long-term interest rates. Even though the investor may have purchased the Treasury Bond when it was first issued, they do not have to hold the bond for the next ten years. They can sell the bond in the secondary market. On average last year, $600 billions' worth of Treasury Bonds were bought and sold every day in secondary bond markets. The U.S. government is constantly issuing new Treasury Bonds to finance the fiscal deficit and to refinance existing Treasury Bonds as they mature and must be repaid. The total amount of outstanding U.S. Treasury Bonds is the National Debt and is currently about $18 trillion. According to the Brookings Institute, as of April, 2020 of the $18 trillion outstanding U.S. Treasury Bonds:

- $3.5 trillion were held by U.S. households, companies, and governments

- $3 trillion by asset managers
- $2.5 trillion by the Federal Reserve
- $2 trillion by banks and insurance companies
- Nearly $7 trillion (40%) were held overseas, mostly by foreign central banks

When bonds are sold in the secondary market, the price at which the investor buys them may not be the Face Value of Par (typically $1,000). That is because the price adjusts to reflect the current interest rates in the marketplace. For example, in the table below, you see that although the coupon remains constant at the same annual payment as when the bond was first issued, the marketplace bids up or down the price to achieve the desired yield:

Table 13.1. Bond Prices and Yields Fixed Dollar Amount Example

Bond Price	Coupon	Yield
$1,000	$100/ year	$100/ $1,000 = 10.0%
$900	$100/ year	$100/ $900 = 11.1%
$1,100	$100/ year	$100/ $1,100 = 9.1%

You may have read in *The Wall Street Journal* that bond prices and bond yields move in opposite directions. This is because the coupon is fixed at the issuance date of the bond and when the price goes up, the yield goes down and vice versa.

The above example used a fixed dollar amount for the interest paid annually on the bond. However, the coupon is an actual interest rate that will be paid annually, and the yield fluctuates the same way as in the table above:

Table 13.2. Bond Prices and Yields Coupon Example

Bond Price	Coupon	Yield
$1,000	10% ($100/ year)	$100/ $1,000 = 10.0%
$900	10% ($100/ year)	$100/ $900 = 11.1%
$1,100	10% ($100/ year)	$100/ $1,100 = 9.1%

The U.S. Treasury issues Treasury Bonds of many different maturities for their different borrowing needs (e.g. tax anticipation, long term deficits, etc.). The daily yields of these treasuries are depicted in a **yield curve**. The yield curve is published every day in *The Wall Street Journal*.

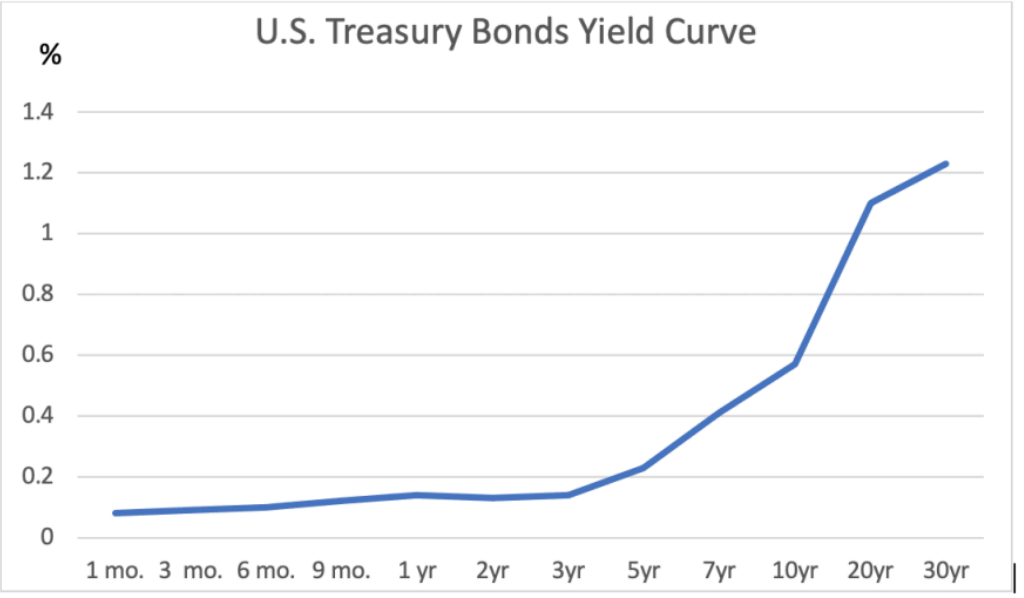


Figure 13.5. *U.S. Treasury Bonds Yield Curve. Source: U.S. Department of the Treasury data.*

The graph above shows that the historical yields of 10-year U.S. Treasury Bonds have been significantly higher in the past.

Because inflation is a component of nominal interest rates, we can use the 10-year Treasury to see how the market anticipates the rate of inflation in the future. In 1997, The Treasury Department began to issue what are called Treasuries with Inflation Protection (TIP) in response to investor demand. In addition to the coupon yield, the Treasury protects the TIP owners by increasing the principle of the bond after the end of the year, based on inflation. The Consumer Price Index is used as a gauge for inflation, thus guaranteeing that

the purchasing power of the bond-holder's original investment will not decrease.

Nominal interest rates on regular 10-year Treasuries have both a time-value of money component (the real interest rate) and an inflation component. 10-year TIPs contain only the real interest rate. Therefore, using the difference between the yield on the regular 10-year Treasury Bond and the 10-year TIP, we can accurately gauge expected inflation. Below, I have added a graph showing the two different yields. For current quotes, visit The U.S. Department of the Treasury.

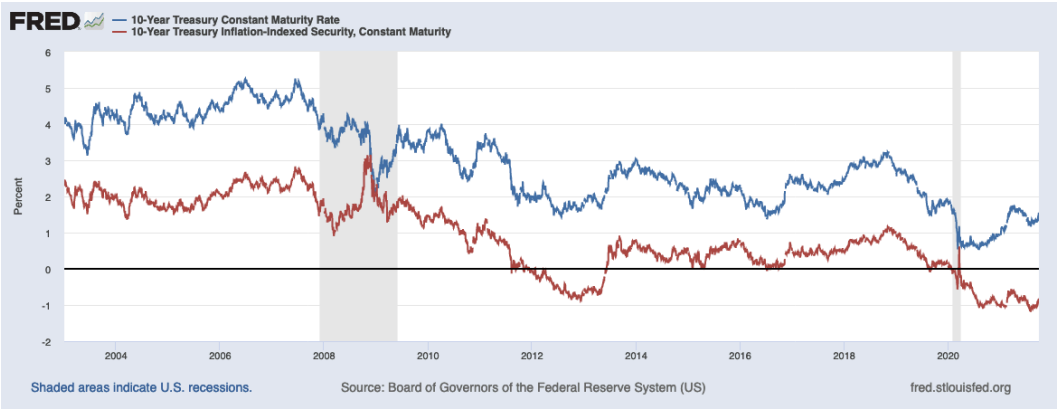


Figure 13.6. *Board of Governors of the Federal Reserve System (US), 10-Year Treasury Constant Maturity Rate [DGS10] and 10-Year Treasury Inflation-Indexed Security, Constant Maturity [DFII10], retrieved from FRED, Federal Reserve Bank of St. Louis; October 1, 2021.*

There are other types of bonds besides U.S. Treasuries. Bonds are classified according to the type of issuer:

- Treasury Bonds
- Corporate Bonds
- Municipal Bonds
- Federal Agency Bonds

- State Agency Bonds

Corporate Bonds

If a company is solid and financially secure, bonds they issue will have a lot of demand. Citibank, Amazon, General Motors, and all other large public companies issue bonds, because the yield they pay is much cheaper than borrowing from a bank. The yields on 10-year top rated corporate bonds (rated AAA) has been, on average, 1.3% above the 10-year Treasury bonds. You can see the difference between 10-year Treasury Bonds and 10-year AAA Corporate Bonds in the graph below. The higher yield is due to the fact that corporate debt is not as safe as U.S. Treasury Bonds.

Companies that are less financially strong also issue bonds but must offer higher interest rates to entice investors. Even some very risky ventures can offer bonds but may have to offer yields of 10% or more. Bonds with a yield of 10% or more are called **junk bonds**. For example, Donald Trump offered junk bonds to refinance his casinos in Atlantic City at a 14% interest rate. The casinos went bankrupt, and the bondholders lost 50% of their money and ended up taking over ownership of the casinos.

Municipal Bonds

Cities and townships can issue bonds to borrow for projects they want to undertake, such as a new sewer treatment plant or a new school. However, in all states except Hawaii, cities, townships, and states cannot borrow money to finance operating deficits the way the federal government does. They must have balanced budgets every year.

Investors in municipal bonds get a break from the IRS; interest on municipal bonds is tax free (federally, but often not on state income tax). Bond issuers can then pay a lower interest rate. For example, if the municipality anticipated paying 8% on their bonds, and the average federal income tax rate is 25%, the tax-free yield that is equivalent would be .08 X .75 or 6%. This is an approximation, of course, because the final yield is determined in the municipal

bond market and depends on current interest rates and the credit worthiness of the issuer.

Federal Agency Bonds

There are many federal agencies that also issue bonds. This could be to build highways (Federal Highway Administration) or to provide mortgages to residential housing buyers (Freddie Mac and Fannie Mae). Most of these Federal Agency Bonds have a U.S. Government guarantee behind them. The yields are low and comparable to U.S. Treasuries. Because of the federal guarantee, investors have a big appetite for these types of bonds. During the past two recessions, the Fed bought trillions of dollars of Fannie Mae's and Freddie Mac's bonds, and now the rates on home mortgages (around 3% for a thirty-year mortgage) are the lowest they have ever been.

State Agency Bonds

States have to build highways, regional sewage treatment plants, and other projects. In addition, states often guarantee the bonds of their public universities, so the colleges can borrow at a much lower rate. Interest on some state bonds is exempt from state and federal taxes. When buying state bonds, ask if a particular bond issue is exempt from federal and/or state income taxes.

Bond Ratings

Standard and Poor's and Moody's are financial services companies that provide **risk ratings** on bonds. The risk is whether the bond issuer will default on either the interest payment, on repaying the principle, or both. These ratings range from AAA to DDD for Standard and Poor's and from AAA to C for Moody's. New bond issues almost always will ask one of these agencies to provide a rating. Bonds with a rating of BBB- (on the Standard & Poor's) or Baa3 (on Moody's) or better are considered **investment-grade**. Bonds with

lower ratings are considered **speculative** and often referred to as high-yield or junk bonds.

Investing in Stocks

> **Quick tip**: Yahoo Finance is a good place to get price quotes on stocks and their historical price charts.

Most students who have taken my financial literacy courses have wanted to learn as quickly as possible how to become a millionaire (or preferably a billionaire) by investing in stocks and bonds. If this is your goal, lucky for you, as I can show you how to do it. However, you need to know how to evaluate stocks and bonds, and it takes time. To whet your appetite, in the next chapter, I show you how to become a millionaire by investing wisely in the stock market early in your career and then being patient. First, however, you need to understand how to evaluate stock prices.

The most used tool for assessing stock prices (that is, whether the market is overvaluing or undervaluing a stock) is the **Price/Earnings Ratio (P/E Ratio)**. This is the simplest formulation of this ratio:

$$\text{P/E Ratio} = \frac{\text{Current price of a share of stock}}{\text{Last year's earnings per share}}$$

Last year's earnings per share means the total net income of the company divided by the outstanding number of shares. For example, the closing price of

one share of stock you are looking at is $20.00 per share, and the earnings (or net profit) per share is $2.00. The P/E Ratio would look like this:

$$\text{P/E Ratio} = \frac{\text{Price per share}}{\text{Earnings per share}}$$

$$\text{P/E Ratio} = \frac{\$20.00}{\$2.00} = 10 \text{ or } 10/1$$

That means you are paying $10.00 for every $1.00 in earnings, or to put it another way, you are receiving $1.00 return for every $10.00 you invest. Your ROI could then be calculated like this:

$$\text{ROI} = \frac{\$1.00}{\$10.00} = 10\% \text{ annual return}$$

To see if a P/E Ratio of 10 is a good, we need to look at the historical averages of the stock market's P/E Ratios. I have summarized a few similar historical P/E Ratios below:

Table 13.3. P/E Ratios of S&P 500 Stocks

P/E Ration	Source	Dates	P/E Average
One Year Trailing P/E	Robert Shiller	1872 to 2015	15.5
CAPE 10 Year P/E	Robert Shiller	1818 to 2013	16.5
One Year P/E Estimate	FactSet	2000 to 2019	15.2

To calculate what returns these P/E averages would give, plug the known numbers into the formula and solve for the unknown price. Then you can calculate the annual return. To simplify, we can assume that the earnings are $1 per share.

$$\text{One year trailing P/E: } 15.5$$

$$\text{P/E Ratio} = \frac{\text{Current price of a share of stock}}{\text{Last year's earnings per share}}$$

$$15.5 = \frac{\text{Current price}}{\$1 \text{ earnings per share}}$$

$$\text{Current price} = 15.5$$

If we paid $15.50 for one share of this company's stock to own $1 per share of net earnings, our ROI would be:

$$\text{ROI} = \frac{\$1 \text{ earnings per share}}{\$15.50 \text{ per share price}} = 6.5\%$$

In order to reconcile this with numbers we saw above, we need to add to use this formula:

$$\text{Total return} = \text{Price appreciation of stock} + \text{Dividend}$$

The price appreciation of stock is a direct function of the annual growth in earnings per share, and the average annual dividend paid on the S&P 500 stocks is approximately 2%. However, P/E Ratios are volatile. Below is a chart of what is known as the trailing P/E Ratio of S&P 500 stocks from 1929 to 2019. The **trailing P/E Ratio** is an historical P/E Ratio; that is, it is calculated as such:

$$\text{Trailing P/E Ratio} = \frac{\text{End of year price of a share of stock}}{\text{Last year's earnings per share}}$$

Note the volatility of the historical P/E ratio. It certainly gives us pause to think

that we could predict the value next year with this tool, even though we have already discussed previously that the average of the trailing P/E Ratio from 1872 to 2015 is 15.5. Nevertheless, this data gives us the base for expected P/E ratios in the future. However, there are serious theoretical and practical flaws in projecting this historical P/E Ratio into the future, even on the average.

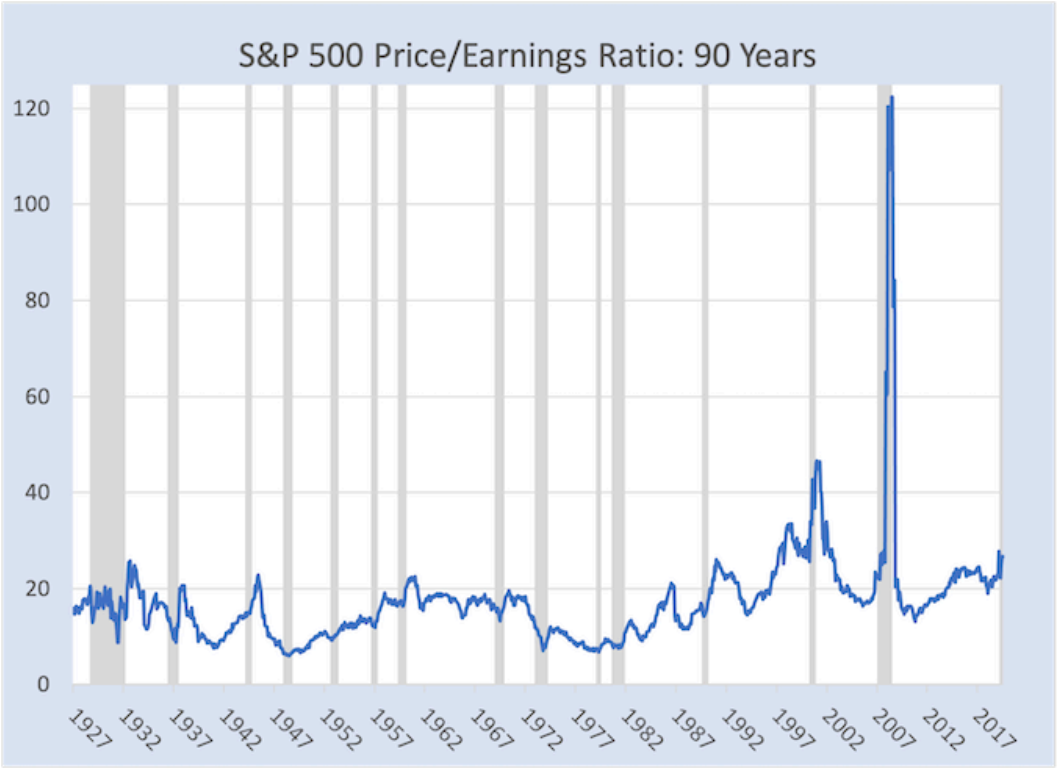


Figure 13.7. *S&P 500 PE Ration – 90 Year Historical Chart by Fred Rowland is used under a CC BY-NC 4.0 License. Source: multpl data (12/2020).*

One year trailing P/E estimate: 15.2

Calculating the ROI for the average of the One Year P/E Estimate, we get the following:

$$\text{ROI} = \frac{\$1 \text{ earnings per share}}{\$15.20 \text{ per share price}} = 6.6\%$$

Using the trailing P/E Ratio as a principle forecasting tool is flawed, due largely in part to the real world. Investors do not buy a stock for its past earnings but for its expected earnings and dividends. Simply, buying stock today does not entitle you to past earnings or dividends, but you will receive a proportionate share of future net earnings and dividends. Given an historical P/E Ratio of 15.5, investors are looking to buy a share of stock at a P/E Ratio of 15.5, but the earnings that are used to calculate the P/E Ratio are expected earnings based on the following year's earnings. This P/E ratio is usually called the **P/E Estimate** and is calculated as follows:

$$\text{P/E Estimate} = \frac{\text{Current price of a share of stock}}{\text{Estimated next year's earnings per share}}$$

Real world investors price stocks this way, causing a lot of the trailing P/E ratio's volatility. Let's say investors estimate that next year's earnings will be $1 per share. If they want to buy a share at the average P/E Ratio of 15.5, they would pay $15.50 for each one. Now, let us say that they paid $15.50 for each share and were wrong about their estimate of next year's earnings. The trailing P/E Ratio would be quite different from a P/E Ratio of 15.5. If the investor overestimated

next year's earnings and the earnings per share were $.50, the trailing P/E Ratio would look like this:

$$\text{Trailing P/E Ratio} = \frac{\text{Price paid for a share of stock}}{\text{Actual year's earnings per share}}$$

$$\frac{\$15.50}{\$0.50} = 31$$

If, on the other hand, the investor *under*estimated next year's earnings and earnings per share were $2.00 instead of $1, the trailing P/E Ratio would be this:

$$\text{Trailing P/E Ratio} = \frac{\text{Price paid for a share of stock}}{\text{Actual year's earnings per share}}$$

$$\frac{\$15.50}{\$2.00} = 7.75$$

Estimated P/E Ratios can vary significantly across industries. Let's say professional investors were able to accurately predict the one-year future earnings per share of the S&P 500 and that they were looking for a 6.5% return. The one-year P/E Estimate would be constant at approximately 16.5 times earnings. The high volatility of the one-year P/E Estimate simply attests to the fact that it is impossible to accurately predict future earnings.

$$\text{CAPE 10 year P/E: } 16.5$$

The calculation of the ROI for the CAPE 10-year Price/Earnings Ratio is:

$$\text{ROI} = \frac{\$1 \text{ earnings per share}}{\$16.50 \text{ per share price}} = 6.1\%$$

The **Cyclically Adjusted 10-year Price Earnings Ratio (CAPE Ratio)** is based on the average inflation-adjusted earnings from the previous 10 years. Nobel Laureate Robert J. Shiller created this ratio with economist John Campbell and detailed this in his book, *Irrational Exuberance* (2000). Shiller uses an inflation adjusted (or **real earnings**) 10-year average is to smooth out the cyclical volatility of corporate earnings over periods of the business cycle. Divide today's closing stock price by the 10-year real earnings per share and you have the CAPE 10-year P/E Ratio.

$$\text{CAPE 10-year P/E ratio} = \frac{\text{Current price of a share of stock}}{\text{10-year average real earnings per share}}$$

Below is a graph of the CAPE 10-year P/E Ratio compared to long-term

interest rates. Note that even though the average CAPE 10-year P/E Ratio is 16.5 for the period 1818 to 2013, it is still quite volatile a measure of the value of stocks.

Figure 13.8. *P/E Ratio compared to long term interest rates by Fred Rowland is used under a CC BY-NC 4.0 License. Source: multpl data (12/2020).*

The Current One Year P/E Estimate

Note that on all the graphs above, the values of all three P/E Ratios are significantly above their long-term averages. This is also true as of January 2020:

Table 13.4. P/E Ratios

P/Ratio	Source	Dates	P/E Average	P/E Ratio Jan. 31, 2020
One Year Trailing P/E	Robert Shiller	1872 to 2015	15.5	26.1
CAPE 10 Year P/E	Robert Shiller	1818 to 2013	16.5	30.9
One Year P/E Estimate	FactSet	2000 to 2019	15.2	19.1

What does this mean? Well, first of all, let's see why the P/E Ratio I recommend to watch (the P/E Estimate) is so high. According to John Butters of FactSet, one year prior (January 18, 2019), the forward 12-month P/E ratio was 15.5. Over the following 12 months (January 18, 2019 to January 17, 2020), the price of the S&P 500 increased by 24.7%, while the forward 12-month Earnings Per Share estimate increased by 3.8%. Thus, the increase in P has been the main driver of the increase in the P/E ratio:

$$\text{One year P/E estimate} = \frac{\text{Current price of a share of stock (increased by 24.7\%)}}{\text{Estimated next year's earnings per share (increased by 3.8\%)}}$$

This means that prices of the S&P 500 stocks are overvalued which usually leads to a correction through a drop in S&P 500 share prices. We will have to watch the stock market to see if that is true.

In a recent New York Times article, Robert Shiller notes that his CAPE 10-year P/E reached 33 in January 2018 and was 31 at the time of publication (2020). He further pointed out that it has only been as high or higher at two other times, 1929 and 1999. In 1929, the high CAPE 10-year P/E immediately preceded the Stock Market Crash, during which the stock market lost 85% of its value. Likewise, in 1999, the high CAPE 10-year P/E ratio preceded another Bear Market;

stocks lost 50% of their value. According to Shiller, some pundits blame exceptionally low interest rates for the stock market highs. However, states that low interest rates do not correlate well with the CAPE 10-year P/E Ratio. The opposite is also true; high interest rates do not correlate well with subsequent market crashes.

Shiller attributes the current Bull Market to what John Maynard Keynes describes as Animal Spirits. According to Shiller, he has seen a proliferation of narratives since 1960 of "going with your gut" as opposed to "using your brain" to make decisions. This attitude includes people like President Trump ("I have a gut and my gut tells me more sometimes than anybody else's brain can tell me.") and inexperienced entrepreneurs in Silicon Valley. It fuels the mania in the market. This is not the method of investing that Shiller advocates: "We have a stock market today that is less sensible and less orderly than usual, because of the disconnect between dreams and expertise (2009)."

However, no matter the outcome of the S&P 500 share prices, no one can accurately predict the timing of the market over the long term. For those investing in the market over the long haul, especially those who are putting regular amounts each month in their retirement plan, the best strategy is to stay the course. As we saw above, over the long term, the S&P 500 has returned on average 10% per year.

The S&P 500 includes five hundred companies, but six of them play an outsized role. These are:

- Meta (Facebook)
- Amazon
- Apple
- Netflix
- Alphabet (Google)
- Microsoft

David J. Lynch discussed this in a recent Washington Post article:

> ...with a combined market value exceeding $7 trillion, these six companies account for more than one-quarter of the entire S&P 500. That explains how so few companies can lift an index of 500 stocks. Since

> the S&P 500 is weighted by each stock's value, or market capitalization, gains by these larger companies have a greater effect than gains by an equal number of less valuable companies (2020).

These six companies led the S&P 500 Index from a drop of 35% during the pandemic to a return to near its all-time high on February 12, 2020. It took about six weeks to fall into a **Bear Market** (defined as a drop of 20% or more from a previous high), and this was the fastest drop in history. The S&P 500 Index then climbed back in 126 days to where it was before the Pandemic Recession. This is likewise the fastest recovery from a bear market in history, according to *The Wall Street Journal*.

Bubbles and Busts in the Stock Market

As much as the professional stock traders would like us to think that they are rational analyzers of expected future cash flows and P/E ratios, there is still a great deal of speculation, gambling, and herd behavior in the stock markets. For example, take a look at the activity of Tesla's stock just since the beginning of the year 2020:

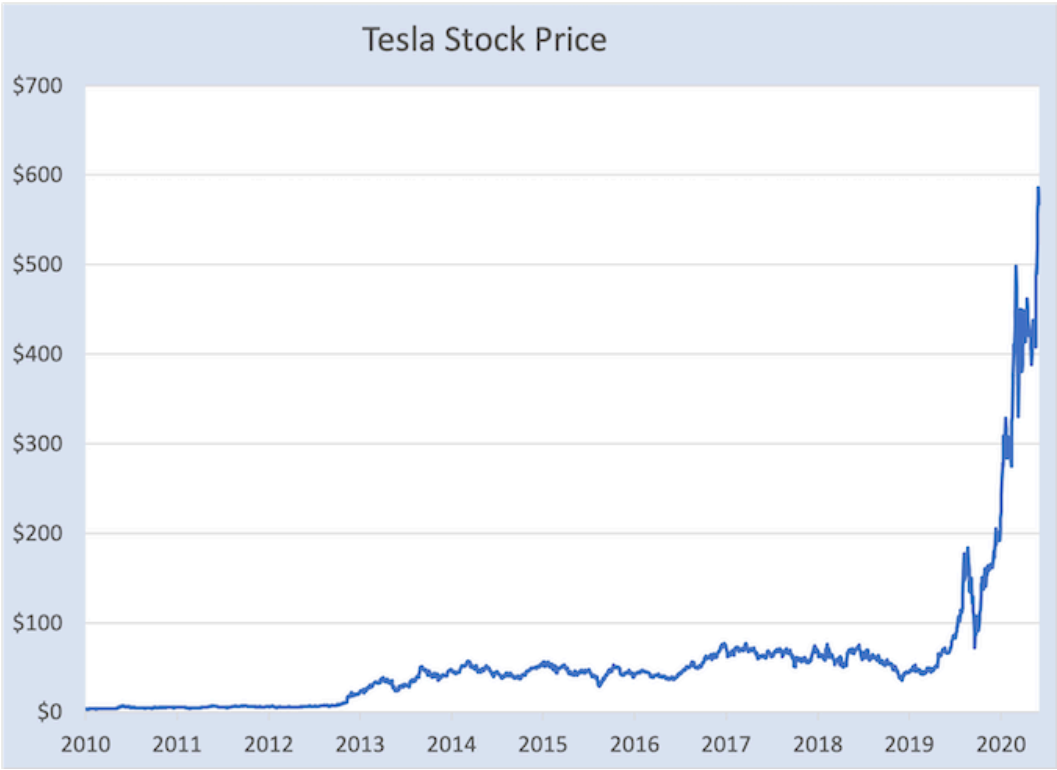


Figure 13.9. *Tesla's Stock Price by Fred Rowland is used under a CC BY-NC 4.0 License. Source: Yahoo Finance data (11/30/2020).*

There is no rational reason for the stock to rise almost 250% in 2020. Tesla had been announcing good news about vehicle deliveries, but there was no reason to expect earnings per share to increase 250% anytime in the near future. Tesla stock is clearly in a **bubble**. Tesla, of course, is just one of many instances of speculation and gambling in the stock market. Bitcoin went from under $1 per coin in December 2016 to almost $20,000 per coin in December 2017, an increase of 2,372%. It then dropped to under $5,000 per coin and now trades around $9,500 per coin.

Qualcomm was a chip maker for smart phones, and its stock jumped from $5 per share to over $90 per share in just the one year (a 2,619% increase) because investors saw it as the only major supplier of chips. When competition entered and the dot.com bust happened, Qualcomm dropped to a price in the mid-teens. Fortunately, it stayed viable and over the next 20 years, the company has

grown, and the stock is now approaching $90 again. We are not going to spend a long time on bubbles, so for classic analysis of historical bubbles and busts, read *Manias, Panics, and Crashes: A History of Financial Crises*, Seventh Edition, by Robert Z. Aliber and Charles P. Kindleberger.

Investing in Commodities

I recently was with a good friend of mine who is a retired finance professor. Prior to teaching at Temple University, he had a career as a stock trader at a big investment house. While we were talking, he was constantly looking at his cell phone. After a while, I asked him what was so interesting on his phone. He told me now that he was retired, he was trading commodities. Wow, I said, have you made any money? Not yet, he replied.

Commodities are generally unprocessed goods used to make other things. They do not have a dividend as stocks and bonds do, so the only return is its increase (or decrease) in value. Here are some examples:

- Grains (wheat, corn, soybeans)
- Metals (gold, silver, copper)
- Meat (beef, pork bellies)
- Oil
- Natural gas
- Foreign currencies

Commodities prices are determined by the interaction of supply and demand in the marketplace, and they are often subject to large price swings. Droughts increase the prices of grains and meats. The fracking of oil and natural gas in the U.S. caused a dramatic drop in the world price of oil and gas.

Gold is somewhat special in that its only practical use is for jewelry, but it is seen as a store of value in good and bad times. Investors turn to it for safety when the stock market drops (especially during recessions). Likewise, when bond returns decline, safe asset investors turn to buying more gold, increasing its price. When inflation accelerates, the price of gold tends to rise, because it

takes more dollars to buy an ounce of gold. Gold's price gyrates; when there are wars, natural disasters or recessions, it increases in value and vice versa. However, it does not evidence huge returns over time. For example, during the Great Recession, stocks dropped 30% but gold only rose 5%. When stocks roared back over the next couple of years, gold did not rise much at all. However, the performance of gold in the Pandemic Recession has been extraordinary. It has increased 25% since the beginning of 2020. I believe we can attribute this to the amount of fear and uncertainty caused by the Pandemic, since the price of gold always reacts to fear. See the graph below for the price of gold since 1970. The big spikes are in recession years.

Figure 13.10. *Gold Price by Fred Rowland is used under a CC BY-NC 4.0 License.*
Source: Yahoo Finance data (11/30/2020).

Because of their volatility, commodities are a risky investment, and you should

consider them like betting on a roulette wheel at a casino. Many factors outside of your control affect the price of commodities.

Investing in Art

The stories most of us hear about art investments come in headlines about the eye-popping prices of fine art at auction houses. In 2015, the most expensive Picasso ever sold, "Les Femmes d'Alger (Version 'O')" went for $179 million at Christie's Auction House.

In 2019, a "lost" Leonardo da Vinci was sold to the Prince of Saudi Arabia for $450 million, although experts disagreed about its provenance.

Despite these prices, the ROIs are quite mundane. In the 2015 article, "Does it Pay to Invest in Art? A Selection-Corrected Returns Perspective," a group of finance professors from top universities examined the returns on 32,928 paintings sold repeatedly at art auction houses from 1960 to 2013. They found returns (adjusted for selection bias) to be 6.3% annually. They conclude that art is just not a good investment compared to stocks and other assets. They also computed returns on other assets and compared them to the investment returns for fine art, or what we might call **investment art**. For most of us, we will almost assuredly not even get what we paid for a piece of art when we sell it. When we buy art, we are paying the retail price which is typically double what the gallery paid for it. If we are going to sell it to a gallery, we will receive a wholesale price from the gallery. If we sell it on eBay, it depends on the fads of the day. So, if you want to buy art to hang on your wall, buy something because you love it, not because you expect to make money from it.

Day Trading

Many brokerages now advertise to individual investors to get them started in trading stocks online. These include not just places like TD Ameritrade, E-Trade, and Robinhood, but also major mutual funds such as Fidelity Investments. Due to competition, online trading now has zero trading fees, and the ease of trading online is incredible. Several online stock brokerages are criticized

because they make stock trading feel like a video game and give customers access to large credit lines to trade with.

With these options, can we as individual investors do better than the actively managed mutual funds by picking our own stocks? The answer is a resounding no! Mark Hulbert in his *Wall Street Journal* article, "When Day Traders Do Well, It's Probably Just Luck," says:

> There's little doubt that day trading has mushroomed in popularity in recent months, or that some day traders have produced extraordinary profits. According to statisticians, however, there's also little doubt that most of these day traders' good performance is due to luck. They essentially would have just as good a chance of success going to the casino (2020).

Investing in Stock Options

An **option** is a right to buy or sell a specific amount of stock at a specific price of a specific company (or group of companies). Options always have a set time period in which they may be exercised.

In his *Wall Street Journal* article, "More Investors Play the Stock-Options Lottery", Randall Smith reports that due to individual investors jumping into the market, stock market volume has more than doubled since the year 2000. However, the volume of stock options trading has grown to more than six times what it was in 2000 (2020). According to the Options Clearing Corporation, the average daily trading in options on stocks was about 21,000,000. On September 13, 2020, the *Wall Street Journal* reported that options trading on shares was 120% of the buying and selling of stock shares. These options are mainly on high-tech companies that are flying high right now, directly as a result of COVID-19 and the switch to online shopping. Further, the *Wall Street Journal* reported that share values optioned by small investors was $500 billion.

There are two main types of options: **Call Options** and **Put Options**. A Call Option gives you the right to buy shares of a stock. A Put Option gives you the right to sell shares of a stock. If you decide to invest in options and are convinced that the price of a certain stock will go up, you will buy a Call Option. The way you make money is to wait until the stock price goes up and then exercise the right to buy at the lower price. Alternatively, the price of the option will rise as

the price of the stock rises, so you do not have to even exercise the option to reap your profits. You can just sell the option on the market at a higher price. If you are convinced that the price of a certain stock will go down, you will buy a Put Option. The price of the Put Option will rise when (and if) the price of the stock drops, and you can reap your profits just by selling the option in the market.

Let's look at an example of a Call Option. On January 1, you purchase 100 Call Options to purchase Apple stock at $250 per share to expire on March 31. The price of the options is $2 each.

$$100 \text{ call options at } \$2.00 = \$200.00 \text{ cost}$$

If Apple stock rises to $255.00 the options price will typically rise by the same amount.

$$\begin{aligned} 100 \text{ call options price} &= \$7.00 \text{ per call option} \\ &= \$700.00 \text{ in value} \end{aligned}$$

You sell the options on the market, and your profit and return are thus:

$$\text{Profit} = \$700.00 - \$200.00 = \$500.00$$

$$\text{Return} = \frac{\$500.00}{\$200.00} = 250\%$$

The value in buying options rather than Apple stock is that your returns are multiplied. If you bought 100 shares of Apple stock at $250, and its price rose to $255, your profit and return can be expressed like this:

$$\text{Profit} =$$
$$(\$255 \times 100 = \$25,500.00) - (\$250 \times 100 = \$25,000.00)$$
$$= \$500.00$$

$$\text{Return} = \frac{\$500.00}{\$25,000.00} = 2\%$$

Looks great, huh?

The problem is that your timing could be off. If Apple does not rise in price by March 31 (or drops in value by March 31), your Call Options will expire as worthless, and you will lose your $200. The $2.00 per option that you paid is called the **time premium** or premium, and it **decays** or decreases the closer you get to the expiration date. This means that the option that you paid $2.00 for is worth $0 on the expiration date if the stock price has not risen above your exercise price.

For every buyer of a Call Option, there must be someone willing to sell a Call Option. There will be some sophisticated investors on the other side of your Call

Option betting that Apple stock will not go up (or will decline) in price by the end of March 31. According to Smith's *Wall Street Journal* article, online brokers such as TD Ameritrade and E*Trade are aggressively promoting options trading to small investors. It is much more profitable to them to sell options as opposed to stocks. My advice for the individual investor is to stay away from options. Think about it this way: if about two thirds of individual investors lose money in options, you would do better to place your money on red or black on the roulette wheel at your local casino. On that bet, your odds are 50/50, and you double your money if you win.

Buying Your Company's Stock

Sometimes, if you work for a large public company, you are given the opportunity to buy your company's stock. If you believe your company is doing well and will do well in the future then you should buy some of their stock. This could be an especially good deal if the company sells it to employees at a discount or helps finance the purchase for you out of a payroll deduction. However, the general rules of portfolio investing apply here. Do not put more than 5% or 10% of your investment in your company's stock. The rest of your savings should be in an S&P 500 Mutual fund.

Perhaps a cautionary tale that is relevant here is the Enron employee pension fund. Enron was an energy company headquartered in Houston, Texas. In the late 1990s it almost single-handedly deregulated energy markets through lobbying and reaped huge profits by buying and selling electricity and natural gas. However, it was fraudulently hiding losses that it was making in other diversified investments, and when that was discovered by the *Wall Street Journal*, its stock tanked. It declared bankruptcy in December 2001. Enron had encouraged its employees to invest their entire pension fund in Enron stock. Consequently, when Enron went bankrupt, not only did all the employees lose their jobs, but they also lost all their pension funds.

Investing in Real Estate

The most accurate way to look at the returns on real estate is to look at the

publicly traded Real Estate Investment Trusts (REITs). There are two general classifications of REITs: Equity and Mortgage. **Equity REITs** buy properties and manage them for profits. **Mortgage REITs** lend money to investors who buy real estate. According to the National Association of Real Estate Investment Trusts, the average annual returns on REITs during the period 1972 to 2019 are as follows:

- All REITs: 11.78% annually
- Equity REITs: 13.2% annually
- Mortgage REITs: 9.4% annually

Obviously, if you want to invest in a REIT, it makes more sense to invest in an Equity REIT, due to the higher historical average return. However, if you want to become a sophisticated REIT investor, you should realize that almost all Equity REITs invest in only a single sector of the real estate market, e.g. office buildings or apartment buildings. Investors, especially institutional investors, want to be able to tailor their exposure or spread their exposure to specific segments of the real estate market; they can do this by buying into a REIT that only invests in shopping centers, for example.

As a beginning investor, you will not have enough money to buy a properly diversified portfolio of REITs along with a properly diversified portfolio of stocks. You will be able to diversify safely by investing in a mutual fund that holds all of the S&P 500 stocks, including a good number of real estate stocks. Diversity is the key to reducing risk.

The Biggest Investment Mistakes

Meir Statman, in his *Wall Street Journal* article, "The Mental Mistakes That Active Investors Make", has a good catalogue of the biggest mistakes that active amateur investors make (2020). According to Statman, the biggest mistake of all is believing that you can **beat the market** (achieve annual returns in excess of the appropriate market index). Here are just some of the indices that are used as benchmarks of how your stock picks performed:

Table 13.5. Indices

Index	Types of Assets Measured
S&P 500	U.S. Stocks – 500 large representative stocks
Barclays Aggregate Bond Index	U.S. Bond Prices
Dow Jones Industrial Average	U.S. Stocks – 30 largest U.S. industrial companies
Russell 2000 Index	U.S. Stocks – 2,000 small capitalization companies
MSCI EAFE Index	International Stocks of developed countries
MSCI EE	International Stocks of emerging markets

There are also appropriate indices that track a mixture of stocks and bonds. When you invest in a mutual fund, its quarterly and annual reports should inform you of the appropriate index to measure its performance against.

The only reason to invest in individual stocks or a specified portfolio of stocks is if they will beat the market. Broker fees or fees for an actively managed portfolio of stocks will be significantly larger than those for a passively managed mutual fund that invests in, say, all S&P 500 stocks. Therefore, if your fund cannot beat the S&P 500 fund, you should put your money in the S&P 500 fund and save the fees.

Statman goes on to say that for amateur investors, the best bet is low-cost index funds. Statman then asks, if amateur investors cannot beat the market, even when they invest in an actively managed mutual fund, why do so many try? He blames it on our minds. The mental shortcuts we use to make decisions, according to Statman, turn into mental errors. Below are some common errors.

Framing

According to Statman, amateur investors think of stock trading as a skill that improves with practice, like surgery, carpentry, or driving. However, this is not the case, because the amateur investor has millions of other professional traders working against them. Whereas a rising stock market can be a win/win for every investor, it would be better to frame an individual stock trade as a war. For everyone buying a stock, there is someone selling the stock. What does the

seller know that the buyer does not? Also, the returns that amateur investors achieve in their trading should not be compared to zero, which is often what they do. The returns should be compared to the appropriate benchmark index, which for stock portfolios is most likely the S&P 500 Index.

Overconfidence

When asked, 80% of people think they are above average in intelligence and good looks. Of course, this is a statistical impossibility. One cause of overconfidence by amateur stock traders is that they see stock trading as a skill akin to plumbing or carpentry, instead of something more competitive, like tennis. Playing against Rafael Nadal would soon erode your confidence.

Faulty Benchmark or Anchor

If we were looking to sell our house, we would look at the prices of recently sold houses in our immediate neighborhood in order to set our asking price. Amateur investors often do the same with stocks; that is, they hold the belief that the 52-week high and low of a stock define its range of trading and buy the stock at or near its low and often sell a stock at or near its 52-week high. Unfortunately, according to Statman, this strategy fails to beat the market.

Flip of a Coin

Even if an amateur investor invests in only mutual funds, some move their money regularly to the fund that beat the market last year. This is a losing strategy. As I will detail later, research has shown that out of 3,000 mutual funds to invest in, no one beat the S&P 500 more than two years in a row. While there are some mutual funds that beat the market, it is not consistently the same fund doing so. Picking the fund that will actually perform better than the S&P 500 next year is no better than the flip of a coin.

The Availability Heuristic

The amateur investor makes decisions on the information currently available

to them. This information is limited. Often, the information that is available are newspaper articles about a high-flying stock or mutual fund. There is a high correlation between news coverage of a particular stock and trading in that same stock. There are plenty of stocks we do not hear about and plenty of information we do not know. Even worse, a stock's price per share is a function of next year's expected earnings. How accurately can an amateur investor predict next year's earnings?

The Thrill of the Hunt

Fidelity Investments, one of the largest mutual funds, found in a survey that 54% of amateur investors enjoy the thrill of the hunt. Further, 53% enjoy learning new investment skills, and more than one half enjoy sharing trading news with family and friends. It's for fun and profit.

Generally, I almost always hear about the wins but not the losses of friends who talk to me about their amateur trading. As is typical in situations of incomplete information, this used to give me the feeling that I was less than competent when a stock I bought was a loser. Having since become much more aware of the actual statistics involved, I do not feel so bad anymore when I lose, and I do not feel superior when I make a winning bet on a stock. However, given the lack of information of amateur investors, they are better off at the roulette wheel.

How to Learn From Investment Mistakes

If you make an investment mistake, learn from it instead of just beating yourself up. Everyone makes investment mistakes. You can recover. Behavioral economics tells us that many amateur investors hold onto stocks that have declined, hoping they will rise again to at least break even. The reason for this is **loss aversion**. When you sell the stock, you have to admit your mistake and feel the loss. A diversified portfolio like an S&P 500 Mutual fund, will surely rise again with the market, but more than likely this will not happen for a start-up or a small company. A diversified portfolio will sooner or later deliver average returns, but a single stock could go bankrupt. If a stock is significantly down,

and the company has fundamental financial issues, dump it and move to a better (diversified) portfolio.

14. Investing in Mutual Funds

Mutual Funds

When you buy a mutual fund, you are pooling your money along with other investors. You put money into a mutual fund by buying units or shares of the fund. As more people invest, the fund issues new units or shares. The investments in a mutual fund are managed by a portfolio manager. All mutual funds have a stated goal for the assets they invest in and a philosophy for how they will invest. According to Statista, there were approximately 7,900 mutual funds in 2019, and they managed over $21 trillion (2020). There are many mutual fund management companies, and each company offers many different types of mutual funds; trying to make an informed choice can make you dizzy. There are four broad categories of mutual funds: those that invest in stocks (**equity funds**), bonds (**fixed-income funds**), short-term debt (**money market funds**) or both stocks and bonds (**balanced or hybrid funds**). There are also many mutual funds that invest in specific sectors, such as technology, real estate, gold, or the bank sector.

The Advantage of a Mutual Fund

The overwhelming advantage of a mutual fund is **diversification**. The benefits of diversification include the following:

- It minimizes the risk of loss to your overall portfolio. (Risk is defined by the standard deviation of the returns of your portfolio).
- It exposes you to more opportunities for return.
- It safeguards you against adverse market cycles.
- It reduces volatility in your portfolio.

In *A Random Walk Down Wall Street*, author Burton Malkiel, explains these benefits:

> By the time the portfolio contains close to 20 [similarly weighted] and well-diversified issues, the total risk (standard deviation of returns) of the portfolio is reduced by 70 percent. Further increase in the number of holdings does not produce any significant further risk reduction (2019).

Other investment advisors agree, saying that 20 to 30 stocks is good diversification. However, here's the rub: one share of Amazon on August 19, 2020, cost $3,284, and one share of Google on the same day costs $1,561. Meanwhile, Facebook costs $271 per share, and Netflix costs $486 per share. (Along with Apple, these are known as the "FAANG" stocks). For us mere mortals who are not billionaires, how can we diversify into 20 or more stocks? The answer is, of course, a mutual fund.

Warren Buffet, Chairman and CEO of Berkshire Hathaway, once said, "Ninety-eight percent or more of people who invest should extensively diversify and not trade. Specifically, these investors should buy a very low-cost index fund." By buying into an S&P 500 Mutual fund, you can own shares of all the stocks in the S&P 500 Index. You can also buy into diversified fund that owns a mix of 70% stocks and 30% bonds.

Before we discuss what mutual fund you should buy, let's explore whether you should choose an **actively managed fund** or an **index fund**. John Bogle, the founder of Vanguard Mutual Funds, became convinced from his research that not a single actively managed mutual fund consistently beat the market. That is, none had a better return than the index that was used to **benchmark** them. Benchmarks are indices of various stock market and stock market sector prices that can be compared on a day to day or annual basis. Below are the most watched stock markets indices.

The Dow Jones Industrial Average (DJIA)

This is not actually an index but the daily sum of the 30 largest U.S. companies' current stock prices of. Almost all of them are household names, like McDonald's, Facebook, ExxonMobil, and Proctor and Gamble. The stocks are weighted in the sum according to their relative prices. For example, a $200 per share stock is weighted four times as much as a $50 per share stock.

The Standard and Poor 500 Index (S&P 500)

Standard and Poor is a credit rating company that created this stock index in 1957. It is composed of 500 of the largest U.S. publicly listed companies. It further disaggregates the U.S. economy into eleven sectors, and it then selectively chooses stocks from each of these sectors to match the total market capitalization of all the public stocks in those sectors. In the chart below, you see these eleven sectors and their weights.

1. Information Technology: 24.4%
2. Health Care: 14%
3. Financials: 12.2%
4. Communication Services: 10.7%
5. Consumer Discretionary: 9.9%
6. Industrials: 8.9%
7. Consumer Staples: 7.2%
8. Energy: 3.6%
9. Utilities: 3.5%
10. Real Estate: 3.1%
11. Materials: 2.5%

The NASDAQ Composite (NASDAQ Index)

The National Association of Securities Dealers Automated Quotation Index has over 2,500 stocks in its index, all stocks, both domestic and international that are listed on the NASDAQ stock exchange. The NASDAQ stock exchange began operations on February 8, 1971 as the first electronic stock market. The NASDAQ Composite Index is made up of 40% tech stocks, so it is a heavy tech index compared to public stocks overall (which are only 20% tech stocks).

Let's look at some examples of benchmarks. If the actively managed mutual fund had a broad range of hundreds of stocks in it, its annual returns would be measured against the S&P 500 Index, tracking the performance of the overall stock. If the actively managed mutual fund had a broad range of international stocks, its annual returns would be measured against a stock index of international stocks, such as **the MSCI Europe, Australasia, Far East Index(EAFE),** which is a broad index that represents the performance of foreign

developed-market stocks. This Index was created by Morgan Stanley Capital International (MSCI) to track foreign developed markets. Many of the largest mutual fund companies, such as Fidelity Investments and Charles Schwab Company have created mutual funds that mimic this index.

Unfortunately, the number of actively managed funds that beat their benchmarks is well below 50%. In *Barrons*, Daren Fonda reported on this:

> Fund managers gave investors yet another reason to avoid their products last year: Well below 50% of actively managed mutual funds beat their benchmark in 2019—and it would have taken a stroke of luck to pick a winner. Just 29% of active U.S. stock fund managers beat their benchmark after fees in 2019. That declined from 37% of funds beating their benchmarks in 2018, the average success rate over the past 15 years (2020).

In November 2019, *Barrons* gave a similar report card to actively managed funds:

> Fund flows continue to favor index funds over actively managed funds...We found that 22% of active funds (182 out of 840 with 10-year records) beat the S&P 500 Index's 13.35% annualized return for the last decade through Nov. 21. The vast majority of them were growth funds (Coumarianos).

Further, Wallick et al. summarize the research on whether investors can rely on past performance to predict future performance for a mutual fund:

> It has long been stated that past performance is not indicative of future results, but many investors are still tempted to select mutual funds by recent performance. Philips (2012) confirms that past performance is no more reliable than a coin flip in identifying active managers who will outperform in the future. Not only is past performance an unreliable predictor, but according to significant research, most other quantitative measures of fund attributes or performance (such as fund size, star ratings, active share, etc.) are equally undependable when used to identify future outperformers (2013).

The other issue to note here is the cost of actively managed funds. Wallick et al. report that the average annual fees of actively managed funds are 0.87%

while the average annual fees of index funds is 0.17% (2013). *Nerdwallet* reported almost the same fee structure averages for 2020. Vanguard states:

> However, the traditional value proposition for many advisors has been primarily based on their investment acumen and their prospects for delivering better returns than those of the markets. No matter how skilled the advisor, the path to better investment results may not lie with the ability to pick investments or strategies. Historically, active management has failed to deliver on its promise of outperformance over longer investment horizons. (Bennihoff and Kinniry, 2018).

Can we as individual investors predict the funds that will best the indices each year? For the *Wall Street Journal*, Mark Halbert, a financial analyst who audits and reports on the advice of investment newsletters, says the answer is a resounding no; rather, it is more dependent on luck than skill (2020). Halbert reports that similar studies by a number of prominent researchers come to remarkably similar conclusions. Bradford Cornell, a retired finance professor at UCLA, measures the role of luck by comparing the greater dispersion of short-term versus long-term returns of mutual funds. Halbert applied Cornell's algorithm to analyze several hundred investment newsletters, many of which are popular with day traders:

> When applying Prof. Cornell's formula to this data, 92% of the differences in newsletters' annual returns is due to luck. When he [Cornell] applied the same formula to a sample of large-cap U.S. equity mutual funds, he reached the almost-identical conclusion (2020).

Further, according to Halbert, Michael Mauboussin, a managing director at Counterpoint Global, a division of Morgan Stanley Investment Management, analyzed how quickly a top-ranked manager falls back to the middle of the pack. Mauboussin's rationale is that the faster this happens, the more luck is playing a role.

Halbert applied Mauboussin's algorithm to forty years of investment returns from the advice given by investment newsletters (1980 to 2020). He tracked newsletters whose returns put them in the top 10% of all newsletter returns in a given year. Halbert states that if skill were involved, the newsletter's return should be in the top 10% again in the following year. Unfortunately, on average, the top performing newsletters for one year ended up on average at the 51st percentile performance mark the next year. This is only slightly better than

chance. Finally, the Dow Jones Indices (owned by the company that owns the *Wall Street Journal*) found that only 3.84% of U.S. equity funds that were in the top half of performers in 2015 (above 50% of all funds) were still in the top half of performers in 2019. (Halbert, 2020)

So, this is the bottom line: even the experts cannot beat the indices on a regular basis. It is impossible to guess who will be the lucky few who do beat them in any particular year. The best path to riches is to invest your money in a diversified index mutual fund with a non-profit mutual fund company like Vanguard or TIAA, reaping annual average returns of 9% to 10%.

For-Profit Mutual Funds

In the United States, there were 7,900 mutual funds in 2019, managing assets worth approximately $21 trillion U.S. dollars. The three largest mutual fund companies are BlackRock, Vanguard, and Charles Schwab. As of the third quarter of 2019, Blackrock had approximately $7 trillion in assets under management. As of the third quarter of 2019, the Vanguard Group manages approximately $5.6 trillion under management, while Charles Schwab managed $3.7 trillion in assets as of the second quarter of 2019. Almost all mutual fund companies are for profit, but there are a number of mutual fund companies that are nonprofits, and these are worth considering.

Nonprofit Mutual Funds

Vanguard

Vanguard was started by John Bogle, who had a cult following similar to Warren Buffett's. Bogle's research showed that no actively managed mutual funds beat their benchmark for more than two years in a row but were still charging 1% or more per year to manage the mutual funds. Because of this, Bogle invented Index Funds that had all the same stocks as the benchmarks; therefore, he did not need to actively manage them. Vanguard has 17,600 employees worldwide and offers 170 mutual funds and 80 Exchange Traded

Funds (ETFs). There is a fund to meet every investor's interest and risk tolerance. The good thing about Vanguard is that their average mutual fund fee is 0.10%. The industry average mutual fund fee is 0.63%. The owners (that is, the customers) of the Vanguard Funds own the company. The low fees at Vanguard are possible because the fees only have to cover the salaries of the Vanguard employees plus the overhead of the buildings, utilities, and other operating costs. Vanguard does not have to generate any profit over and above its expense to run the funds.

TIAA

The **Teachers Insurance and Annuities Association (TIAA)** and its sister organization, **College Retirement Equities Fund (CREF)** both offer insurance, annuities, and mutual funds to individuals. TIAA used to be identified as TIAA-Cref but in the past few years has shortened its acronym to TIAA. It has 17,500 employees and manages approximately $1 trillion in accounts. Although TIAA started out as an insurance company and retirement fund manager for teachers, anyone can now use its services. Similar to Vanguard, TIAA offers over 100 mutual funds. However, reviews from some investment websites claim that TIAA's mutual fund management fees are somewhat higher than Vanguard's.

Load vs. No-Load and Open End Funds vs. Closed End Funds

Load vs. no-load and **open vs. closed end funds** are technical terms in the mutual fund industry. No load mutual funds sell directly to investors. These are the types of funds you want. Load mutual funds charge a commission when you purchase them and are usually sold through stockbrokers. Do not buy load mutual funds. All or almost all mutual funds from the top mutual fund companies (BlackRock, Vanguard, Charles Schwab, TIAA) are no-load funds.

Open-end funds are the ones you want. Open end funds sell shares directly to investors, and the funds will redeem the shares (that is, buy back the shares)

when the customer wants to sell them. All or almost all of the top mutual fund companies' mutual funds are open end funds.

Closed end funds sell shares to investors at the creation of the funds but do not redeem them when the customer wants to sell them. The closed end funds are listed on stock exchanges, and any buying and selling takes place on the stock exchange. A fund manager actively manages the closed end fund but, as I said, does not redeem the shares. Closed end mutual funds have been in existence for almost one hundred years. ETFs are relatively new but will have many advantages over closed end mutual funds. Therefore, you would do better with an ETF than a closed end fund.

Exchange Traded Funds (ETFs)

An **Exchange Traded Fund (ETF)** is a collection of tens, hundreds, or sometimes thousands of stocks or bonds in a single fund. ETFs are traded on major stock exchanges, like the New York Stock Exchange and Nasdaq. Of course, you will buy and sell them through a brokerage account at your mutual fund company. Although ETFs and mutual funds share many similarities, there are a couple of distinguishing characteristics that may make ETFs more attractive to some investors, including lower investment minimums when you first start investing and real-time pricing every time you buy and sell.

Mutual funds themselves are not traded on any stock market. The mutual fund owns stocks that are traded on the stock market(s) and the value of the mutual fund is calculated at the end of each day based on the closing price of the mutual fund's stocks. This is similar to owning a stock portfolio and calculating at the end of each day what your stocks are worth based on its closing prices. ETFs are listed stocks themselves, and the ETF owns a portfolio of stocks just like a mutual fund. However, the ETF price in the market fluctuates just like a listed stock, depending on the buying (demand) and selling (supply) of that ETF. For example, Vanguard offers 80 ETFs with various portfolios of stocks and bonds and levels of risk.

Types of Mutual Funds

Bond Mutual Funds

Bond mutual funds invest their money in bonds. Bonds are basically IOUs and can be issued by governments, states, local municipalities, and corporations. Instead of these entities borrowing money from the bank, it is considerably cheaper to go directly to the investors themselves. I talked about bonds in the previous chapter, and we saw that the average annual return on bonds for 94 years was 5.3%. Bond mutual funds tend to specialize in specific types of bonds, and these include the following:

- International Government Bond Funds
- U.S. Treasury Bond Funds
- Mortgage Bond Funds
- Corporate Bond Funds
- Municipal Bond Funds
- International Bond Funds
- Index Bond Funds

Stock Mutual Funds

Stock mutual funds invest their money in stocks (also called **equities**). There are many types of stock mutual funds. Some of the more popular ones are below:

- Growth Funds
- Capital Appreciation Funds
- Small-Capitalization Funds

- Mid-Capitalization Funds
- Large-Capitalization Funds
- Equity Income Funds
- Balance Growth and Income Funds
- Sector Funds
- International Stock Funds
- Index Funds
- Socially Responsible Stock Funds

Real Estate Mutual Funds

Real estate mutual funds invest the money in real estate stocks. The funds also tend to be specialized, so there are real estate stock mutual funds that invest exclusively in things like these examples:

- Large Shopping Mall Stocks
- Industrial Building Stocks
- Office Building Stocks
- Apartment Building Stocks

Mixed Mutual Funds

Traditional, conservative investment advisors will tell you that you should have a mix of 70% stocks and 30% bonds in your portfolio. This is because stocks rise in price when the economy is in an expansion, and bonds rise in price when the economy is in a recession. There are plenty of mutual funds that offer a mix of stocks and bonds in various proportions, according to your risk tolerance. These

usually have "**Balanced Fund**" in their name to signify that they have a mix of stocks and bonds.

Hedge Funds

Many people have heard that hedge funds have been a great investment for well-connected and wealthy people and institutions. A recent article in the *Wall Street Journal* that while this may have been the case from 1990 to 2009, hedge funds have seriously underperformed the S&P 500 since 2010 (Chung, 2019):

Table 14.1. Percent Return Above/ Below S&P 500

	Average 1990 to 2009	**Average 2010 to 2019**
Hedge Funds	Outperform S&P 500 by 5.2% annually	Underperform S&P 500 by 8.9%

Source: HFR, Inc. and WSJ

A **hedge fund** is a mutual fund that by its mission and charter can invest in any multitude of assets. It can buy and hold stocks and bonds, but it can also **sell short** stocks and bonds; that is, it can make a bet that stocks or bonds will drop in price. Some hedge funds invest in commodities like gas and oil or corn and wheat. Some use people to pick the assets, but increasingly more and more are using computers to analyze tons of data to find assets to invest in.

The underperformance of the hedge funds hurts investors further by the exorbitant fees they charge. Normal mutual funds charge their investors 1% or less of assets annually. Hedge funds typically charge their clients 2% of assets annually plus keep 20% of the profits they make each year (called **2 and 20**). Critics say this fee structure means that hedge funds are a vehicle to "transfer all the fund money from the pockets of the investors to the pockets of the fund managers." Indeed, there have been a lot of billionaires minted out of hedge fund managers. So what happened to hedge funds?

1. **Quants and Index Funds**: the increase in trading by computers and passive investing funds (like Index Funds and ETFs) have distorted the way stocks move. Currently, only about 15% of stocks traded are traded by humans.

The quants' computers can spot small mis-pricings in stocks and take advantage of them.

2. **Competition**: there were just 530 hedge funds in 1990, and they managed $39 billion. Now there are 8,200 hedge funds managing $3.2 trillion of investors' money.

3. **Stock Correlations**: in recent years, stocks moved in correlation when financial news hit the market (such as a Federal Reserve Bank action), and this means less mis-pricing of individual stocks for hedge funds to take advantage of.

4. **Low Interest Rates**: low interest rates keep shaky companies alive that would have died in higher interest rate environments. These are the companies that hedge funds sell short.

There seems to be no advantage to owning hedge funds now, so do not do it, even if you could.

Domestic and International Stock Funds

In the last chapter, I mentioned that a portfolio of international stocks appears to consistently show an annual return of about 1% less than a portfolio of U.S. stocks. This means that there seems to be no advantage to diversifying internationally, especially in European stocks. You may, however, be enamored of emerging economies like the **BRICS countries**:

- Brazil
- Russia
- India
- China
- South Africa

There are mutual funds that invest just in stocks of those countries. I would not,

however, put all of my investment in that one basket. Ten percent or twenty percent of your cash seems reasonable.

But why does a U.S. domestic firm mutual fund outperform a European portfolio of stocks? First, Europe (and the BRICS nations) do not have the innovative, high-flying tech companies that we do. The top tech companies are often referred to as the **FAANGs**: Facebook, Apple, Amazon, Netflix, and Google (now called Alphabet). Some investment gurus put Microsoft in this exclusive club (the **FAANGMs**) and some do not. Those who do not say that the recent growth of Microsoft's stock has not been as meteoric as the FAANG stocks.

Twenty years ago it was a better idea to diversify with European stocks, as at the time the economies of the U.S. and Europe were **countercyclical**. That is, when the U.S. was in a recession, Europe was not; European companies were doing well when U.S. companies were slumping. This is no longer true. Globalization is so widespread that the U.S. and European economies are now **procyclical**.

Finally, most of the largest European companies are listed on both a European stock exchange and the New York or NASDAQ stock exchange. If you buy a widely diversified stock mutual fund like an S&P 500 Index Fund, you will still get stock of the largest European companies in the fund.

Diversification Advice

My advice is that, when you are investing (especially for retirement), put all your money into an S&P 500 Index Fund. (Of course, having said that, I am also going to make the case in the next section for investing in an ESG Fund.) In the last chapter, I showed you that this will return you an average annual return of 10.1% per year. That return from 1926 to 2018 included both the bear and the bull markets. Of course, you must have the patience to endure recessions and not panic and sell stocks when it enters a bear market. This panic is the hallmark mistake of amateur investors.

However, recessions are a short run phenomenon. We have had 12 recessions (and expansions) since the end of World War II, including the current Pandemic Recession. The average length of these recessions has been 11 months. As long as you are not within five years of retirement, you have the time to ride out the recession and achieve your 10.1% annual return. One more note, if you want to be risky and try your own luck at the stock markets, do not invest any more than

ten percent of your current cash/stocks in the market. If you make a big mistake, you can recover from a ten percent loss.

Social Investing Funds (ESG Funds)

What is loosely called **Social Investing** is the wave of the future. You should strongly consider investing in them instead of an S&P 500 mutual fund. Companies that pollute, do not treat their stakeholders fairly, or engage in unethical behavior will not survive for long. The public and investors are demanding more and more that firms engage in ESG behavior. An **ESG Fund** is essentially an S&P 500 mutual fund that filters out any company that is not

- Environmentally Responsible
- Socially Responsible
- Governance Responsible

There are a number of different interpretations that mutual funds use to claim that their ESG funds fulfill the above responsibilities. Therefore, you need to read about what the fund means by this to assure yourself that it is a true ESG fund. However, here's what these terms *should* mean, although this is not a complete list:

Environmentally Responsible

This should mean that the firms in the portfolio, minimize greenhouse gas emissions, minimize air and water pollution, manage energy appropriately, and create recyclable packaging for their products.

Socially Responsible

This should mean that the firms in the portfolio respect human rights, exercise fair labor practices, promote diversity in hiring and promotion, insist on

fair labor standards in its supply chain, engage in good community relations, and treat their customers fairly.

Governance Responsible

This should mean that the firms in the portfolio engage in good safety and health practices for its workers, are transparent and honest in their financial reporting, have fair and equal compensation practices, are ethical in their business practices, source their materials from fair trade suppliers, and do not engage in anti-competitive behavior.

Table 14.2. Examples of Authentic ESG Funds

Fund Name	Investment Type	# Stocks or Bonds
Global ESG Select Stock Fund (VEIGX)	Mutual Fund	50
ESG U.S. Stock ETF (ESGV)	ETF	1,500 (Indexed)
ESG International Stock ETF (VSGX)	ETF	3,000 to 4,000 (Indexed)
FTSE Social Index Fund (VFTAX)	Mutual Fund	500 (Indexed)
ESG U.S. Corporate Bond ETF (VCEB)	ETF	200 to 300 (Indexed)

ESGs excludes companies that do the following:

- Produce alcohol, tobacco, gambling, and adult entertainment
- Produce civilian, controversial, and conventional weapons
- Produce nuclear power
- Do not meet certain diversity criteria
- Have violations of labor rights, human rights, anti-corruption, and environmental standards defined by UN Global Compact Principles
- Own proved or probable reserves in fossil fuels such as coal, oil, or gas*

*This excludes any company that FTSE determines has a primary business activity in the exploration and drilling for, as well as producing, refining, and supplying, oil and gas products; the supply of equipment and services to oil fields and offshore platforms; the operations of pipelines carrying oil, gas, or other forms of fuel; integrated oil and gas companies that provide a combination of services listed in above, including the refining and marketing of oil and gas products; or the exploration for or mining of coal.

Here are a few examples of BlackRock's ESG Funds.

BlackRock Advantage ESG International Equity Fund

Invests at least 80% of its assets in equity securities or other financial instruments that are components of, or have market capitalizations similar to, the securities included in the MSCI EAFE® Index.

BlackRock Advantage ESG U.S. Equity Fund (BIRIX)

Invests in a portfolio of equity securities of companies with positive aggregate societal impact outcomes, as determined by BlackRock.

BlackRock Advantage ESG Emerging Markets Equity Fund (BLZIX)

Invests at least 80% of its assets in equity securities or other financial instruments that are components of, or have market capitalizations similar to, the securities included in the MSCI Emerging Markets® Index.

BlackRock ESG Aware Moderate Allocation Index

The BlackRock ESG Aware Moderate Allocation Index is designed to measure the performance of a portfolio composed of equity and fixed income iShares ESG ETFs intended to represent a moderate risk profile strategy with a 60% allocation to fixed income and 40% allocation to equities.

BlackRock ESG Aware Growth Allocation Index

The BlackRock ESG Aware Growth Allocation Index is designed to measure the performance of a portfolio composed of equity and fixed income iShares ESG ETFs intended to represent a growth risk profile with a 60% allocation to equities and 40% allocation to fixed income.

BlackRock ESG Aware Conservative Allocation Index

The BlackRock ESG Aware Conservative Allocation Index is designed to measure the performance of a portfolio composed of equity and fixed income iShares® ESG ETFs intended to represent a conservative risk profile with a 70% allocation to fixed income and 30% allocation to equities.

Buy a Vanguard ESG Fund because the fees are generally lower than BlackRock funds. Research also shows that adding international stocks to a portfolio does not increase returns, nor does adding a greater number of stocks increase the return. My advice is to invest in the FTSE Social Index Fund (VFTAX), a U.S. stock fund that has 500 stocks in it, like the S&P 500 Index Mutual Fund but with an ESG filter.

The United Nations has 17 Sustainable Development Goals that can work as a framework for your investments. Every large American company (and every large company in the world) is now a global company, so the goals of the U.N. have relevance here. You can evaluate how your ESG fund meets each of these goals.

Non-Fossil Fuel Funds

Since you are investing for the long term and not day-trading on the volatility of the stock market, you should avoid investing in companies whose business is in fossil fuels. Over the next twenty years (and maybe sooner), these companies will perform very poorly. A number of coal mining companies are declaring bankruptcy right now as electricity generating plants switch to natural gas, which is cheaper and pollutes less. Every automobile manufacturing company is adding electric vehicles to their lineups in anticipation of national and state

standards mandating cleaner vehicles. Finally, clean energy is becoming cheaper and competitive with fossil fuels. On top of this, the principal way to reduce greenhouse gasses is to eliminate fossil fuel burning.

Divestment Movements

The fossil fuel divestment movement began with student protests calling for their university endowments to divest from any company involved with fossil fuels. The movement was quite effective over time as university endowments pulled out of fossil fuels. In addition, the divestment movement has expanded to demand that mutual fund managers pull out of fossil fuel companies and that endowments and mutual funds invest in clean energy. A 2013 study by HSBC bank found that between 40% and 60% of the market value of BP, Royal Dutch Shell and other European fossil fuel companies could be wiped out because of **stranded assets** caused by carbon emission regulation.

The reaction of energy companies has been mixed in response. For example, BP announced they will be pivoting from fossil fuel exploration to become a clean energy company. ExxonMobil, on the other hand, has announced it will continue exploring fossil fuel and has committed to a massive new investment program in fossil fuel exploration (Matthews, 2020).

15. Saving for Retirement

Goals for Retirement

There are two cardinal rules to remember about saving for retirement:

1. The money you put in a retirement fund is tax-free, so it reduces your tax burden. You only pay taxes on it when you withdraw it at retirement (although you can also withdraw it early for certain hardships).

2. The earlier you contribute to your retirement plan, even if it is a small amount, the richer you will be at retirement due to the magic of compound interest.

Your retirement goals may be slightly different from mine but probably not too much. Personally, I would like to be completely out of debt and maintain approximately the lifestyle I have now. Unfortunately, Social Security, as wonderful a program as it is, will not accomplish that. As I will explain a little later, Social Security is just a safety net that will not support you in the style to which you are accustomed. Social Security benefits are much more modest than many people realize; the average Social Security retirement benefit in June 2019 was about $1,470 a month, or about $17,640 a year. If you retire at the full retirement age (which is now 67) the maximum you can receive in monthly Social Security Benefits is $3,011, if you have earned a good salary and paid in your 6.25% Social Security Tax each month (as a payroll deduction). This is only $36,132 per year, and it is subject to income tax deductions. You can earn a bit more if you delay receiving SS benefits until the age of 70, but generally, the economics are better to start receiving them at 67, even if you are still working.

In a recent survey, close to 50% of people 18 years and older report that they have no retirement savings—a national tragedy! We have to assume this means retirement savings other than Social Security, because if you are working, the 6.25% Social Security Payroll Tax is deducted from your payroll by your employer and sent to the IRS.

A good goal for retirement is to have enough income to match 70% of your pre-retirement disposable income. You will likely have your mortgage paid off

and will not have any work-related expenses such as transportation, so 70% is a reasonable goal to achieve. I have read some recent articles that say 60% of pre-retirement income is adequate based on lower expenses. However, I am not ready to advocate that. In any case, these instruments can help you save up to 70% of your pre-retirement income:

- Social Security Payments
- Personal Savings
- 401(k)s or 403(b)s
- Individual Retirement Accounts (“IRAs”)
- Roth Individual Retirement Accounts (“Roth IRAs”)
- Annuities

Social Security Payments

The Social Security Act, part of FDR’s New Deal, was passed August 14, 1935 in the midst of the Great Depression. It was founded as an insurance program administered by the government that would act as a safety net for retirees. Every pay period, an employee pays 6.2% of their earnings for Social Security and 1.45% for Medicare taxes. Workers pay the 6.2% Social Security tax on annual earnings up to $137,700. Meanwhile, the employer pays the same rate per paycheck, adding up to a combined 12.4% Social Security tax and 2.9% Medicare tax. You can collect your full Social Security benefits at age 67, and they are not taxed if you are over 67. You can also delay receiving your benefits until age 70 and receive higher benefits at that time. However, it generally does not make economic sense to defer your benefits. Once you become 67 and start collecting your benefits, you can continue to work, and it will not affect your benefits. You can also begin collecting at 62 with reduced benefits and further benefit reductions if you earn a certain amount of work income. Social Security is an insurance program that you and your employer paid for; it is not welfare.

The maximum monthly Social Security benefit that an individual can receive per month in 2020 is $3,790 for someone who files at age 70. For someone at full retirement age, the maximum amount is $3,011, and for

someone aged 62, the maximum amount is $2,265. The benefit is calculated on your average wages, your salary, and the number of years you worked. The formula assumes 35 years of working life. However, the average Social Security Benefit in the U.S. for 2020 is $1,503.00. Even though it is increased every year according to the Consumer Price Index and not taxed if you are 67 or older, this is only $18,036.00 per year. As I said, Social Security is only a safety net. You will need your retirement plan and other savings to have a comfortable retirement.

401(k)s and 403(b)s

Many Baby Boomers (born in the years immediately following World War II) are now collecting **defined benefit pensions**. Defined benefit pensions will pay you a fixed pension benefit every month based on how much you earned and how many years you worked at the company. Often, this was 60% to 80% of your last salary before retirement. Companies had to put cash for these benefits in trust. However, if these investments lost money, the company had to come up with the payments to the retirees. There were also numerous underfunded pension funds that defrauded employees. Today, very few organizations have defined benefit pensions for their employees. Only 16% of the Fortune 500 public companies still have defined benefit pension plans. The other major organizations that still having defined benefit pension plans are the military, and federal, state, and local governments.

For most organizations with retirement plans today, they offer their employees what are known as **defined contribution retirement plans**. Defined contribution (DC) retirement plans are the centerpiece of the private-sector retirement system in the United States. According to a recent report from Vanguard, more than 100 million Americans are covered by DC plan accounts, with assets now in excess of $8.8 trillion. The vast majority are 401(k) plans. A 401(k) plan is a defined contribution plan set up by firms for their employees. Typically, the employee contributes an amount each month and the employer matches some or all of the employee's contribution. A typical arrangement is for the employee to contribute up to 6% of their gross salary and the employer to match $.50 for each dollar the employee contributes. Vanguard also reports these statistics on the millions of retirement accounts they manage:

- 71% of Vanguard managed plans contribute $0.50 for each dollar the employee contributes up to 6% of salary.
- 22% of Vanguard managed plans contribute $1.00 for each dollar the employee contributes up to 3% of salary and $0.50 for each dollar the employee contributes for the next 3% of salary.
- 6% of plans cap their contribution at $2,000.

The huge advantage of a 401(k) is that both your contribution and the employer's contribution is tax free. The money is typically managed by a bank or mutual fund; all income from your investments is tax free. You are only taxed on the money you take out every year upon retirement. (Of course, you must begin taking distributions no earlier than at 59 ½ years and no later than 72. The IRS gets its taxes eventually). In 2020, an employee can contribute up to $19,500 to a 401(k) tax free, no matter how much their employer matches.

Non-profit organizations can set up defined contribution plans called 403(b)s. The rules and regulations are almost identical to those of 401(k)s. The most important rule for you as an employee who is eligible for a 401(k) plan is to *always* contribute the amount matched by the employer. The employer's match is free money and it is tax-deferred until you retire.

Individual Retirement Accounts (IRAs) and Roth IRAs

Whether or not you have a 401(k) or a 403(b) retirement plan, you can also set up an **IRA** and contribute money to it. The limit on annual contributions to an IRA in 2020 is $6,000. If you make less than $63,000 per year as an individual, you receive a tax deduction for your contribution. As with a 401(k), you pay no taxes on the IRA or its investment returns until you retire.

A **Roth IRA** is an alternative to the traditional IRA. The money you put into a Roth IRA is taxed as regular income when you contribute it. Actually, since it probably comes from your paycheck, you already paid taxes on it. However, the investment returns are not taxed and the withdrawals (after age 59) are not taxed (unlike withdrawals from 401(k)s and 403(b)s. The logic behind setting up a Roth IRA instead of a regular IRA has to do with your perception of where tax

rates will be in the future. If you think income tax rates years from now will be more than income tax rates now, then you would set up a Roth IRA. Finally, Roth IRAs are not allowed for people whose income is above certain limits.

Do not let all of this taxation rate talk confuse you. The fact remains that the IRS will tax you now or tax you later. For the 401(k) and 403(b), you are not taxed on the money now but are taxed on it when you withdraw it. For Roth IRAs you are taxed on the money now but not when you withdraw it.

Finally, there are certain IRS rules on required withdrawals at age 70 or 72 from 401(k)s. 403(b)s, and IRAs. This assures that the IRS gets their share if you have not yet paid taxes on it. You should get the advice of your tax accountant on IRAs. However, generally for a young person a regular IRA makes better financial sense than a Roth IRA.

Annuities

An annuity is a retirement vehicle that is a contract with an insurance company or financial institution that provides annual payments for a specified number of years or until your death. Annuities are *not* substitutes for retirement plans. First, the money you contribute to buy the annuity is not tax deductible. Secondly, even though you are not taxed on the investment income from the annuity until you withdraw it, this does not compare favorably with 401(k)s, 403(b)s, IRAs or Roth IRAs. Next, the financial institution that manages your annuity usually charges high fees. Finally, the average return on an annuity is 3.27%, well below a retirement plan invested in the stock market, so it is best to discuss your retirement options with your accountant.

Companies to Handle Your 401(k)s or IRAs

There are many good companies to manage your money. However, if you are in an employer-sponsored 401(k) or 403(b) plan, your employer will have two or more companies already selected from which you can choose. There are for-profit mutual fund companies that manage funds for investors and manage retirement accounts for companies and their employees The largest U.S. for-

profit mutual fund companies are BlackRock, Charles Schwab Company, and Fidelity Investments.

There are also nonprofits that manage funds for investors and manage retirement accounts for companies and their employees. The largest nonprofit mutual funds in the U.S. are Vanguard and TIAA. I recommend that you use Vanguard. Currently, Vanguard manages $5.6 trillion in assets and is a very low-cost mutual fund, due to the fact that they are a non-profit. Vanguard's average mutual fund expense ratio is 0.10%, whereas the industry average is 0.63%. Their philosophy is based on research that shows no mutual fund has beaten the stock market index averages for more than two years in a row, and it is impossible to guess which will be the one to beat the S&P 500 each year. Jack Bogle, Vanguard's founder, began offering index funds to customers and charging fees way below industry average. Vanguard has since expanded into many other mutual funds in various sectors. For more, look back to the previous chapters on investing.

Each year, Vanguard reports data on all their investors in How America Saves. The report notes that in 2019, the average account balance in Vanguard Retirement Accounts was $106,478. In 2019, 73% of retirement funds were allocated to stocks and the rest to bonds, cash, and other funds. There is no need to look at all the tables of asset allocation by age, but I think the contrast between the asset allocation of 25- and 65-year-olds is interesting:

Table 15.1. Asset Allocation by Age

Age	Stocks	Bonds	Cash	Other
25 to 35	87%	2%	1%	10%
65+	48%	10%	17%	28%

But which mutual fund should you invest your retirement fund in? The traditional, conservative money manager would advise you invest in a mutual fund that is composed of either 60% stocks and 40% bonds or 70% stocks and 30% bonds. Stock prices rise in economic expansions and bond prices tend to fall, while stock prices fall in recessions and bond prices tend to rise. Thus, whatever the economic conditions, your portfolio can achieve some balanced stability. Here are the returns on these conservative portfolios as reported by Vanguard at the end of 2019:

Table 15.2. Rates of Return on Defined Contribution Plans

	60/40 Balanced*	70/30 Balanced*	S&P 500	FTSE Global All Cap Except US
1 year	20.8%	22.8%	31.5%	21.7%
3 years	10.0%	10.9%	15.3%	9.8%
5 years	7.6%	8.3%	11.7%	6.1%

Source: Vanguard

I do not recommend either a **60/40 portfolio** or a **70/30 portfolio** for your retirement funds. I explain this in more detail in the chapters on investing. However, for a simple reason, look at the returns of the benchmark S&P 500 above compared to the 60/40 and 70/30 balanced funds. My recommendation is to invest your retirement funds in an S&P 500 mutual fund. This fund has all the S&P 500 stocks in it and will achieve the in S&P 500 Index increases. According to historical records, the average annual return since its inception in 1926 through 2018 is approximately 10%-11%.

I also do not agree with the conventional wisdom that you should decrease the share of stocks and increase the share of bonds in your portfolio as you get closer to actual retirement. The traditional advisor will say that your share of bonds should be related to your age. For example, when you are young, invest your retirement fund in a 60/40 mutual fund. When you turn 50, change your allocation to 50/50. At 60, change your allocation to 40/60.

Several mutual fund companies even offer what are known as **Target Date Funds**, which automatically increase over time the share of bonds versus stocks in an individual's retirement fund once they pass the age of 50. The traditional advice makes no sense to me, given that the average return on the S&P 500 over the historical record (10%) is double the average return on bonds (5%). I am not the only advisor who feels this way.

In my opinion, you should keep all your retirement savings in an S&P mutual fund, until you are two years from retirement. Then each year make sure you move two years of your estimated expenses in retirement to a bond fund and continue to have two years in a bond fund every year of retirement. That way you will continue to achieve double the returns in retirement while protecting yourself from having to sell stocks in a down market to pay for retirement expenses.

Rolling Over Your Retirement Funds

Your 401(k)s, 403(b)s, and IRAs are portable; you can take them when you leave an employer. The funds you contribute always belong to you; however, the employer's contribution often has some vesting period (often three years) until the employer's funds belong to you. You can leave the funds in your current mutual fund manager or transfer them to the mutual fund manager at your new employer. Just make sure you have the funds transferred from manager to manager and not sent to you. The mutual fund managers are quite familiar with how to accomplish this.

Imagining Your Retirement

I know it seems quite early to think about what you will be doing in retirement, but it is certainly important to spend a little time doing so. Karl Marx said, "Man is a worker"; we want to do stuff. It is important to develop hobbies or volunteer work you will like to do in retirement. It will keep you physically and mentally active, and more importantly, it will put you in contact with other people. Loneliness will shorten your life. An active and interpersonal retirement will help you live a long and happy life.

16. Fiscal Policy and Monetary Policy-Government Intervention in Your Life

The Business Cycle and Recessions

The **business cycle** is the term we give for the expansion and contraction of an economy. This is measured through **Gross Domestic Product (GDP)**. GDP is the output and sale of goods and services in any economy measured over a period of time (usually one year). Traditionally, GDP is aggregated into four broad categories, as measured by the Bureau of Economic Analysis of the U.S. Commerce Department. These categories are represented in the following equation:

$$GDP = C + I + G + (X - M)$$

GDP = Gross Domestic Product
C = Consumption Spending
I = Gross Private Domestic Investment in Plants and Equipment and New Housing Purchases
G = Government Expenditure on Goods and Services and Gross Investment (national, state, and local governments)
$(X-M)$ = All Exports - All Imports

(sometimes called Net Exports)

The largest component of GDP is **Consumption Expenditure**. How comfortable consumers are opening their wallets every month has an outsized effect on the GDP and the business cycle. Here is the relative value of the components of GDP for 2020 (estimated, as of June 2020) in current dollars:

C	+ $14.58 trillion	(68%)
I	+ $3.63 trillion	(17%)
G	+ $3.85 trillion	(18%)
(X-M)	– $0.53 trillion	(-2.5%)
GDP	= $21.54 trillion	(100%)

The business cycle can be visualized as a graph of the value of GDP over time. Its fluctuations from its trend line are the expansions and recessions of the economy. I show a close-up of the period from 2000 to 2016 so you can see more clearly the fluctuations in actual GDP from the trend line. The graph also includes the last two recessions, March 2001 to November 2001, and December 2007 to June 2009.

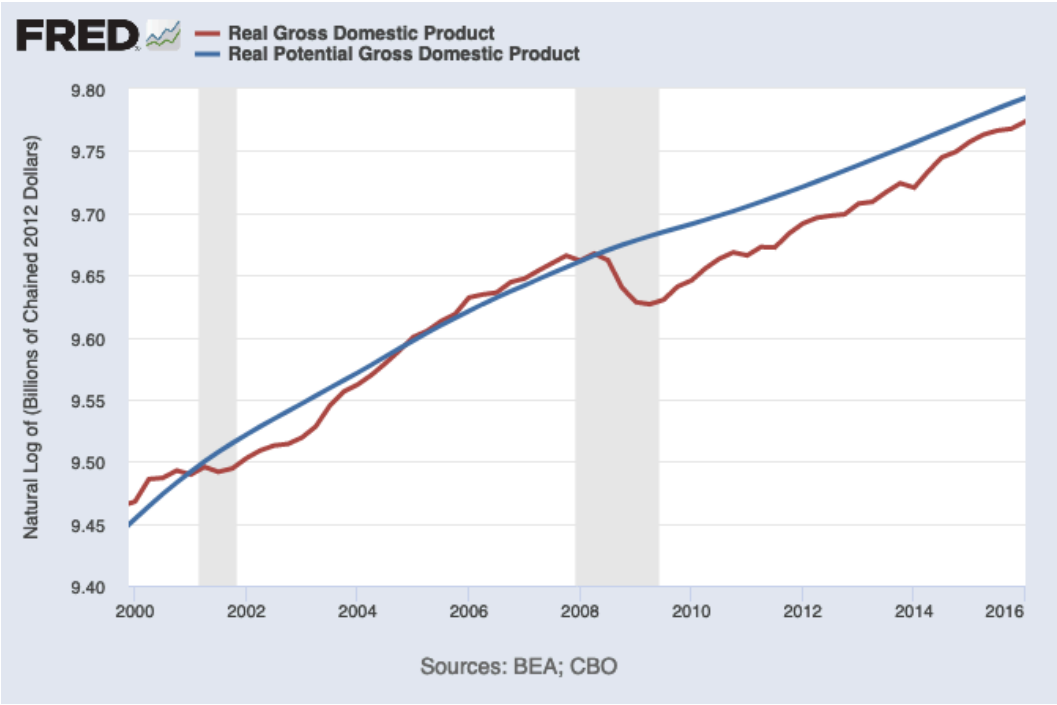


Figure 16.1. *U.S. Bureau of Economic Analysis, Real Gross Domestic Product [GDPC1], retrieved from FRED, Federal Reserve Bank of St. Louis; October 1, 2021.*

The blue is the trend line of GDP growing and the red is the actual real GDP. The deviation in the actual from the trend is the business cycle. The gray bars show the time of official recessions. Note that GDP is below the trend during recessions, meaning GDP has decreased. **Recessions** have both a popular definition and an official definition. The popular definition is a drop in economic activity (a drop in GDP) for two successive calendar quarters (six months). On the other hand, the National Bureau of Economic Research (NBER), a group of academic economists from around the U.S., is the official arbiter of when we are in a recession and when a recession is over. The NBER defines a recession as follows:

> A recession is a significant decline in economic activity spread across the economy, normally visible in production, employment, and other indicators. A recession begins when the economy reaches a peak of economic activity and ends when the economy reaches its trough. Between trough and peak, the economy is in an expansion.

The terms **peak** and **trough** are an analogy to a wave on the ocean:

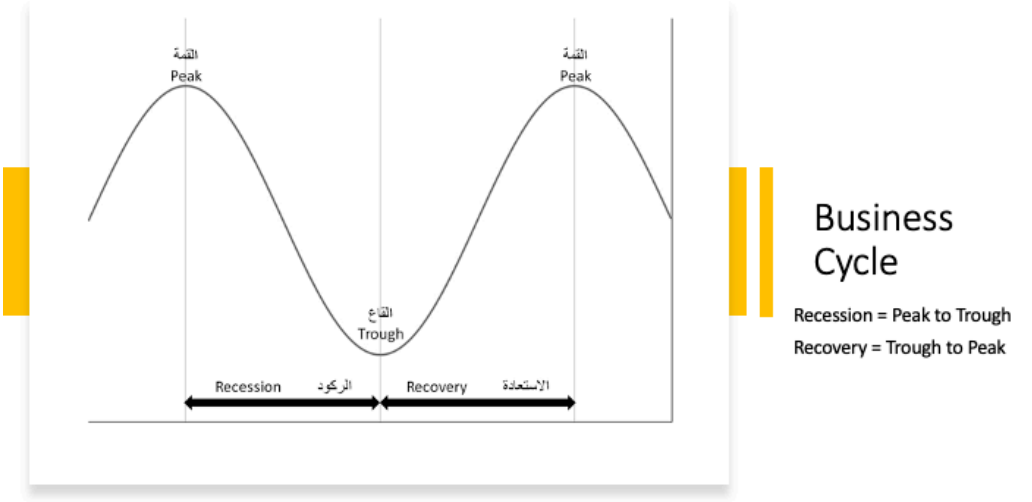


Figure 16.2. *Business Cycle by Azitony has been modified by Fred Rowland and is used under a CC BY-SA 3.0 License.*

There have been several business cycles in the economic history of the United States. Here is a graph of GDP and recessions (in gray bars):

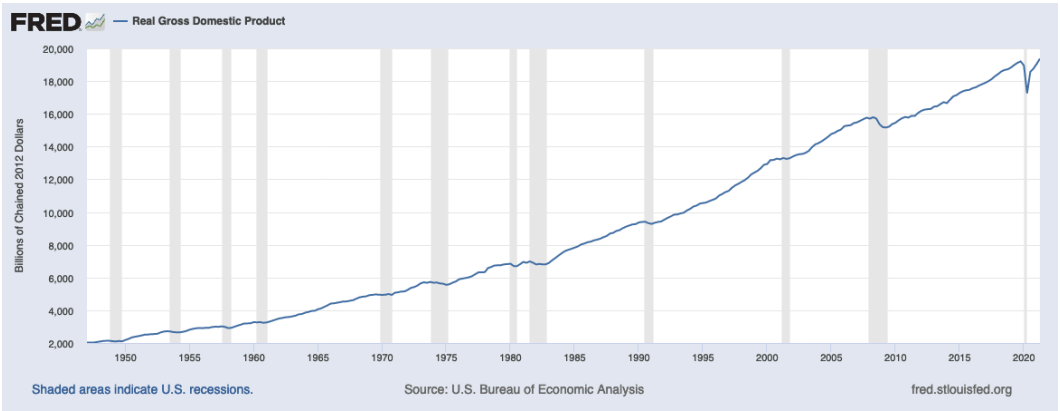


Figure 16.3. *U.S. Bureau of Economic Analysis, Real Gross Domestic Product [GDPC1], retrieved from FRED, Federal Reserve Bank of St. Louis; October 1, 2021.*

The graph covers 1940 to 2020, so the drops in GDP during recessions may look small. However, note that in the Great Recession, GDP dropped 4.1% and 8,500,000 employees lost their jobs. One the last line in the chart above, it states that since the end of WWII there have been 12 business cycles (recessions and expansions) including the Pandemic Recession. On average, recessions have lasted on average 11.1 months, while economic expansions have lasted on average 64.5 months (a little over five years).

Does this mean that we can predict recessions? If that were possible, we could all become millionaires. As you will see from the graph below, the stock market (the S&P 500 Index) drops 6 months to one year before a recession and begins trending upward again 6 months or less prior to the end of the recession. That means if we could predict a recession, we could predict the stock market.

Figure 16.4. *S&P 500 1955-2020 by Fred Rowland is used under a CC BY-NC 4.0 License. Source: Yahoo Finance, 12/3/2020.*

Unfortunately, the time between recessions and, to a lesser extent, the length of recessions is too variable to be able to accurately predict them. At an economic conference, I was able to ask Robert Hall, Chair of the National Bureau of Economic Research Committee on Business Cycles and professor at Stanford University, whether anyone can predict recessions. Dr. Hall said no one can predict recessions accurately. There are several characteristics of the business cycle that may not be immediately apparent from the graphs and charts above but are important to understand. Dr. Daron Acemoglu of MIT states these:

- *Many aggregate macroeconomic variables move together in the business cycle*. In the NBER's definition of a recession, they lay out the most important economic variables they use to determine the business cycle: "...real GDP, real income, employment, industrial production, and wholesale-retail sales" (NBER.org).

- *It is very hard, if not impossible, to predict the turning points in the business cycle*. As I mentioned earlier, Dr. Hall said it is impossible to predict recessions. It is equally impossible to predict the turning point of a recession, when the economic expansion begins.

- *There is a persistence to the rate of economic growth*. If the economy is growing in one quarter, it will likely grow in the next quarter as well. Contrariwise, if the economy is in a recession in one quarter, it is likely to decline again in the following quarter (Acemoglu, Laibson, & List, 2018).

There are strong psychological reasons for the persistence of the rate of economic growth. Economists today call them **expectations** of the future by consumers and firms. John Maynard Keynes, the father of modern economics, called these expectations animal spirits. We now call them **consumer sentiment** and **business expectations**. The fact remains that humans tend to think the near future will be a replication of the current time period and so act accordingly (this is an important tenet of Behavioral Economics.) Further, there are important economic reasons for the persistence of the rate of economic growth, mainly the **circular flow** of the economy:

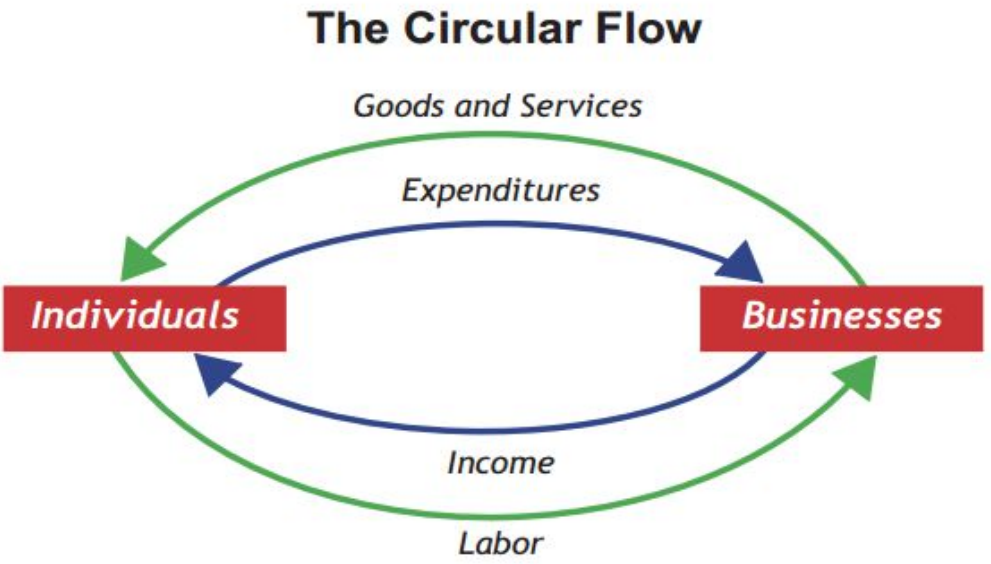


Figure 16.5. *The Circular Flow by Bureau of Economic Analysis (BEA), U.S. Department of Commerce, October 2014 is in the public domain.*

In this simple model, there are two agents: individuals (or **households**) and businesses (or firms). Individuals sell their labor to businesses and receive income (**wages**) in return. Businesses use this labor along with factories, equipment, and raw materials (**physical capital**) to make goods and services. Businesses sell the goods and services to individuals who use the income they received for selling their labor to pay the businesses for the goods and services that the individuals buy (**expenditures**).

The circular flow of an economy contributes to the persistence of the trend of economic growth (or decline). Recessions most often begin when consumers slow down their spending on goods and services. Historically, this has been caused by a financial crisis of some sort that causes consumers to run up their debts too high. Consumers slow down their spending. The sales of businesses decline due to the decreased spending, usually first as a decline in **consumer durables** (Consumer durables are items that last three years or more, such as automobiles and appliances). With the decline in sales, the businesses decrease making goods and services.

Consumers buying fewer goods and services means that businesses do not need as many workers as they currently have. Because a recession is a short-term phenomenon, firms do not sell their factories and equipment; they just lay off workers. These layoffs mean a decrease in aggregate income for consumers overall, and this decreases aggregate expenditure on goods and services, leading to further layoffs. The initial drop in consumer expenditures in goods and services usually leads to further drops in consumer expenditures due to layoffs, making the recession worse. The circular flow also helps explain the persistence of economic growth. Increased purchases of goods and services by consumers results in businesses expanding production and hiring more workers. Then the increased aggregate income of consumers results in more purchases of goods and services and the hiring of more workers to make those goods and services. During these economic fluctuations, the hiring and firing of workers do not happen instantaneously, but they can happen pretty quickly and historically have always moved together. Another way of saying this is that there are lags in the co-movement of these two variables.

The Pandemic Recession was an exception to the historical start of a recession (financial crisis or excessive consumer debt) because the government-mandated COVID-19 lockdown resulted in massive layoffs of workers, especially in the hospitality industry. As you will see in the chapter on the Pandemic Recession, the U.S. government enacted a huge fiscal and monetary policy stimulus in order to counter the economic effects of the lockdown. Despite that, consumers hoarded their money, the result of consumer sentiment.

This is another example of the persistence of the rate of economic growth. When the economy is going up, it continues going up. When it is going down, it tends to continue going down. Of course, the government can do a lot of things to keep the economy rolling and a lot of things to help bring the economy out of a persistent recession.

Government Tax Policy

The government taxes us for two main reasons. The first is to run the functions of the government and provide the services, such as national security, regulation, commerce, and more. The second reason to tax us is for income redistribution through welfare payments, unemployment compensation, and

aid to lower income people in the country. These payments are called **transfer payments**.

The government not only collects payroll taxes, it also collects corporate, social security, unemployment and other types of taxes. These are deductions from our GDP, and as such, the amount of taxes and the percent of GDP taxed influences the amount of consumer spending, corporate investment, and other aspects of the economy. This can be expressed simply:

$$\text{Gross Domestic Product} = \text{Gross National Income}$$

This is true theoretically, but with a few minor adjustments, it is also true in the real world. Everything we make, we sell. The income from those sales goes to someone in the United States as income. So taxing GDP is taxing our national income, and the more the government takes, the less there is for consumers and corporations to spend. I am sad to say, though, that "the only certain things in life are death and taxes," so taxes are here to stay. The U.S. government budget for fiscal year 2020 is below. (The government's fiscal year 2020 runs from October 1, 2019, to September 30, 2020.) The numbers are in billions; for example, the total revenue for 2019, listed as 3,463, is $3 trillion and $463 billion.

Table 16.1. U.S. Government Budget for Fiscal Year 2020

Revenues (Billions)	**2019 Actual**	**2020**	**2020 As % of 2020 GDP**
Individual income taxes	1,718	1,791	
Payroll taxes	1,243	1,302	
Corporate income taxes	230	234	
Other	271	305	
Total	**3,463**	**3,632**	**16.4%**
On-budget	2,548	2,672	
Off-budget	914	960	
Outlays (Billions)			
Mandatory	2,734	2,910	
Discretionary	1,338	1,413	
Net interest	375	383	
Total	**4,447**	**4,706**	**21.3%**
On-budget	3,540	3,748	
Off-budget	907	958	
Deficit (-) or Surplus (Billions)	**-984**	**-1,073**	**-4.9%**
On-budget	-992	-1,075	
Off-budget	8	2	
Debt Held by the Public (Billions)	16,801	17,835	80.7%
Memorandum:			
Gross Domestic Product	21,220	22,111	100%

Source: Congressional Budget Office, March, 2020.

Since budget numbers are changing every year and inflation is affecting our incomes and the cost of goods and services to the government, we should look at historical data so that we can evaluate whether these numbers are above or below average. Revenues and Outlays as percentages of GDP are a good benchmark. We can see those numbers in the chart below.

Table 16.2. Revenues, Outlays, Deficits (or Surpluses) and Debt Held by the Public, as a Percentage of GDP

Year	Revenues	Outlays	Deficits/ Surpluses	Debt Held by the Public
2007	18.0	19.1	-2.4	35.2
2008	17.1	20.2	-4.4	39.4
2009	14.6	24.4	-10.7	52.3
2010	14.6	23.3	-9.2	52.3
2011	15.0	23.4	-8.9	60.8
2012	15.3	22.0	-7.1	70.3
2013	16.7	20.8	-4.3	72.2
2014	17.4	20.2	-3.0	73.7
2015	18.0	20.4	-2.6	72.5
2016	17.6	20.8	-3.3	76.4
2017	17.2	20.6	-3.7	76.0
2018	16.4	20.2	-3.9	77.4
2019	16.3	21.0	-4.7	0.0

The government's revenue as a percent of GDP (the first column in the chart above) can be considered as the average tax rate. This is because GDP is equal to Gross National Income (GNI). That is, for everything made in the United States (the GDP), the money goes to someone or some corporation in the United States. According to the table above, when the revenue of the U.S. Government as a percentage of GDP decreases (often through tax cuts) and the Outlays as a percentage of GDP do not decrease (that is, no spending cuts), you get big annual deficits.

In theory, the government budget is similar to your household budget. If you spend more than you earn, you have to borrow from your credit cards to make up the difference. If a government spends more than they take in through taxes, it must issue more Treasury Bonds to finance that deficit, and, by definition, the national debt increases.

The problem with increasing your credit card debt or a government increasing its national debt is that you each have to pay it back. You or the government must make paying down the debt a priority over spending on anything else, or your credit rating goes down. More debt decreases your ability

to buy goods and services. There is a crucial difference, though; you cannot easily increase your income if you have higher debt and want to maintain your former level of spending. On the other hand, governments can raise taxes to maintain their level of spending.

Government Spending

The government's revenues come principally from individual income taxes and payroll taxes (Social Security and Medicare tax deductions). The spending (**outlays**) goes to pay for (in order of size) making transfer payments, maintaining the military, and running the government. Here is a graph of the revenues and outlays of the U.S. Federal Government for 2019:

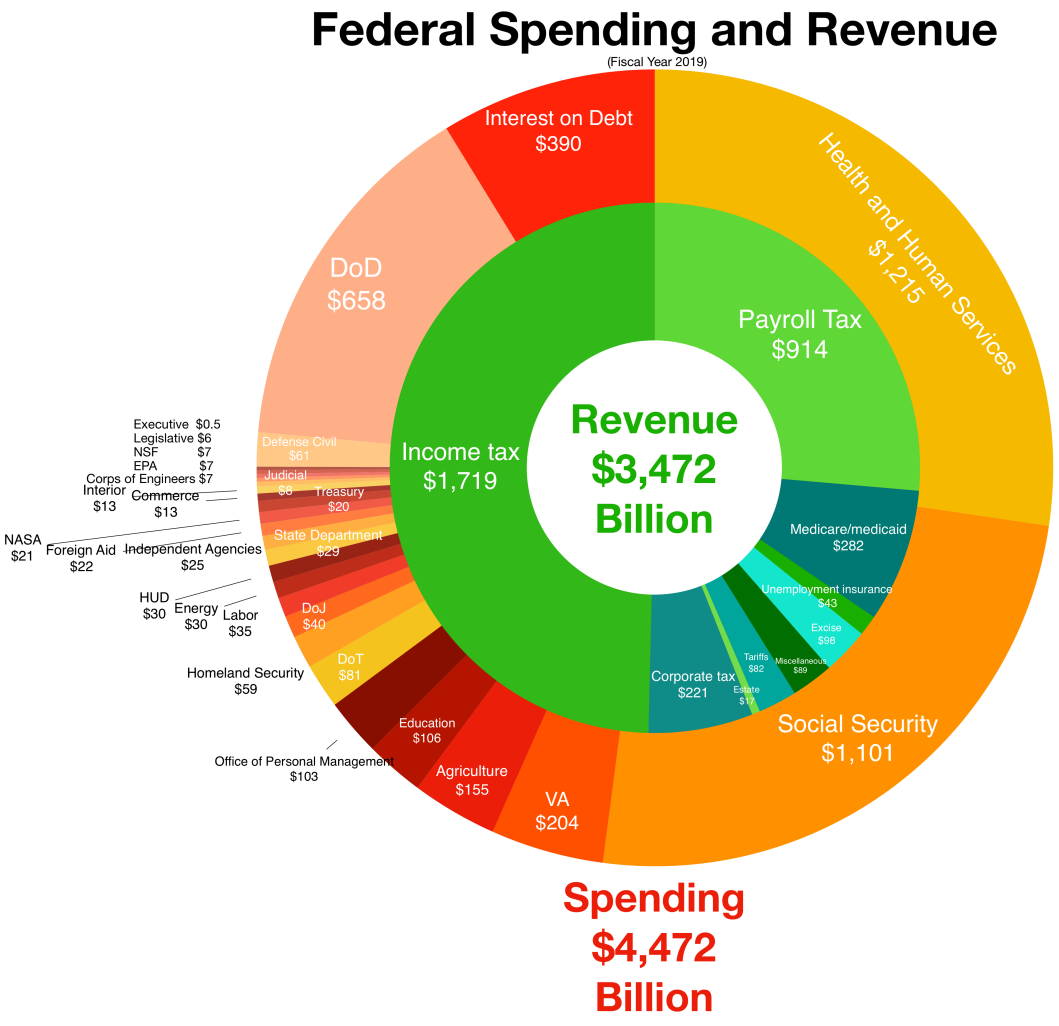


Figure 16.6. *Federal Spending and Revenue is in the public domain.*

Similar to your household budget, if the government spends more than it collects in revenue, it has to borrow money to finance the deficit. In the case of the U.S., it does this by issuing more Treasury Bonds. Since the definition of the national debt is the amount of Treasury Bonds outstanding, financing the annual deficit each year with additional Treasury Bonds increases the national debt.

The graph below shows the revenues and outlays of the U.S. Government through the year 2017. The red part of each year's bar graph represents the

annual deficit. Because of the scale of the graph the red section may not look large, but in the later years, the deficit is $1 trillion. In 2019, the federal budget deficit was $984 billion. Moreover, due to the $3 trillion CARES Act, the federal budget deficit in 2020 is projected to be way over $2 trillion. Here is the history of Federal revenue and spending through 2017:

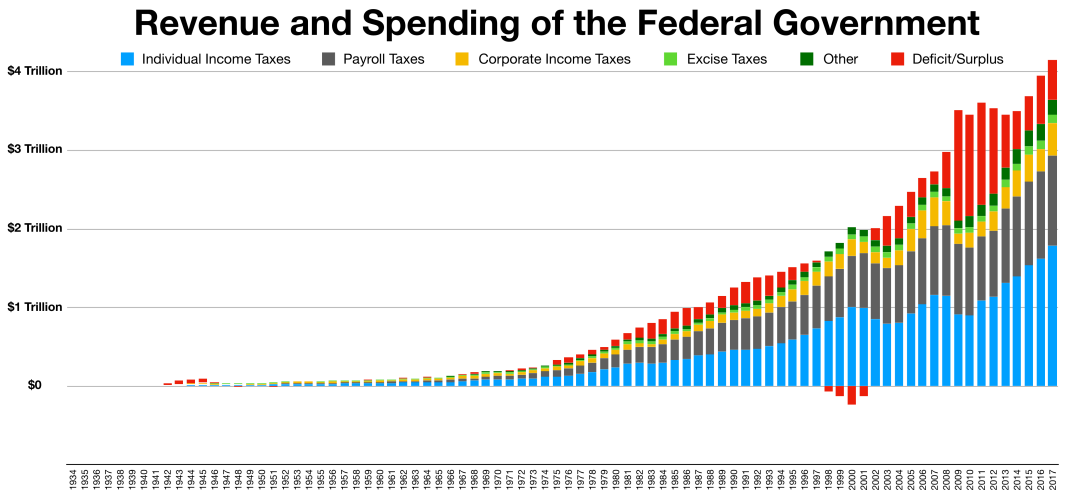


Figure 16.7. *Revenue and Spending of the Federal Government by Wikideas1 is used under a CC BY-SA 4.0 License.*

In July 2020, the Congressional Budget Office (CBO) projected the federal revenue and spending through 2030. The difference between the two is the **annual deficit**, and this deficit must be financed by issuing additional Treasury Bonds. Note that the CBO projections show trillions of dollars in deficits each year that must be borrowed.

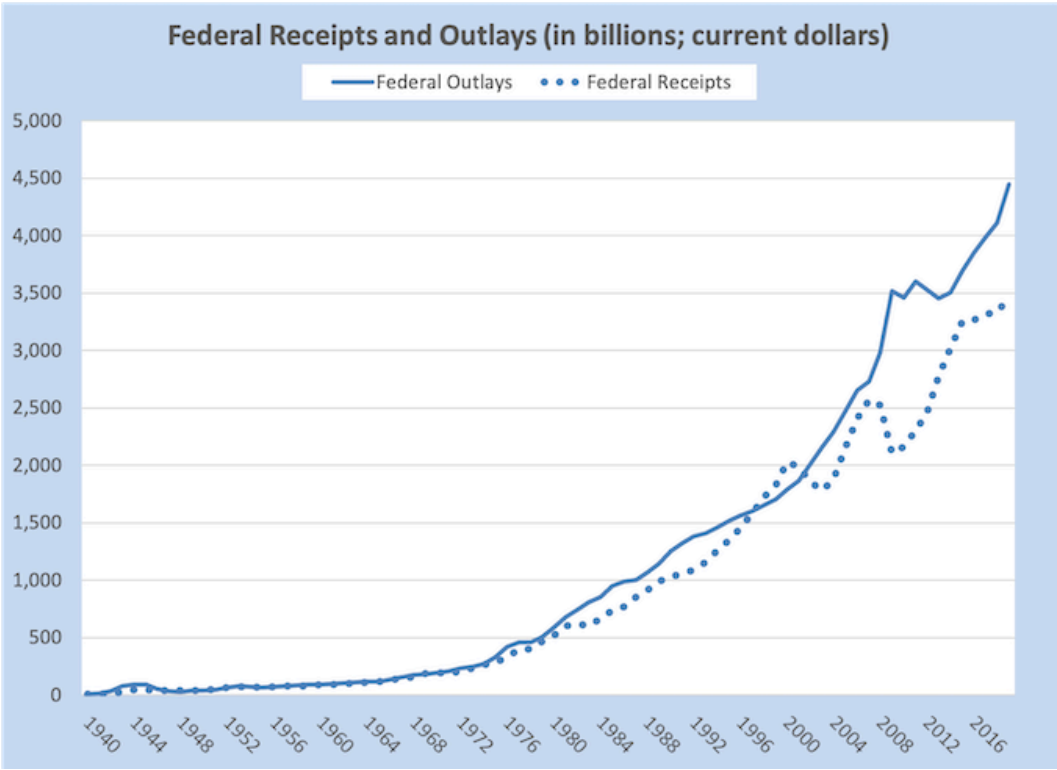


Figure 16.8. *Federal Receipts and Outlays by Fred Rowland is used under a CC BY-NC 4.0 License. Source: Office of Management and Budget data (12/2020).*

Every time the government runs a deficit, the Treasury Department must issue more Treasury Bonds to finance it. Since the National Debt of any country is defined by the outstanding amount of Treasury Bonds, the National Debt increases. Note that the government generally highlights only the Treasury Bonds held by the public and not those held by the Federal Reserve Bank or by the Social Security Administration. As of the end of 2019, the U.S. National Debt was $23.2 trillion and is continuing to balloon. The graph below shows Total U.S. Debt Held by the Public.

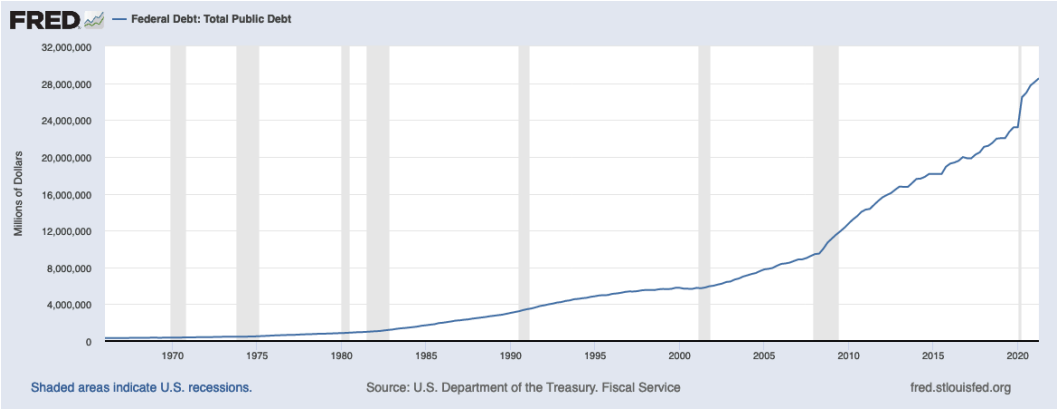


Figure 16.9. *U.S. Department of the Treasury. Fiscal Service, Federal Debt: Total Public Debt [GFDEBTN], retrieved from FRED, Federal Reserve Bank of St. Louis; October 1, 2021.*

Additionally, the Treasury Department continues to borrow heavily to pay for the economic stimulus programs created by the $2.2 trillion CARES Act, enacted in March 2020, as counter-cyclical fiscal policy to alleviate the Pandemic Recession. Since there was also Pandemic Fiscal Policy legislation immediately prior to the CARES Act, Congress has committed to approximately $3.6 trillion in additional discretionary fiscal spending in 2020. The graph below shows the monthly borrowings of the U.S. Treasury to finance its Fiscal Deficit from the year 2010 to August 2021.

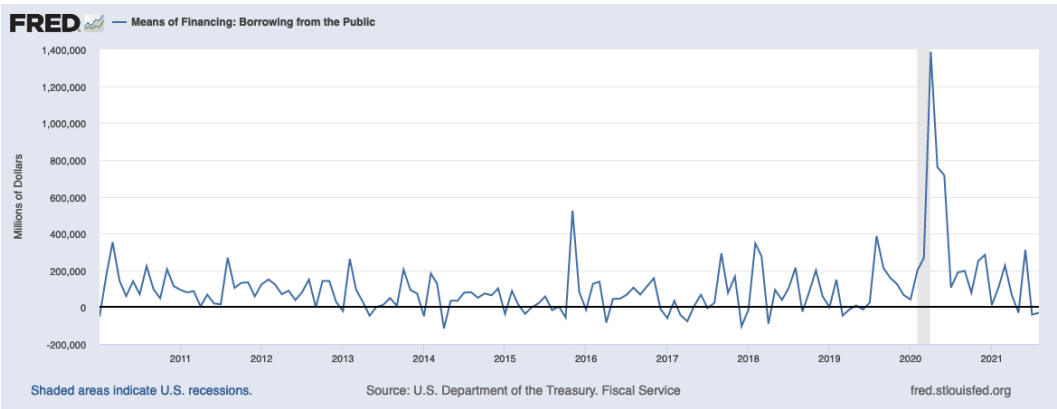


Figure 16.10. *U.S. Department of the Treasury. Fiscal Service, Means of Financing: Borrowing from the Public [MTSMFBP133FMS], retrieved from FRED, Federal Reserve Bank of St. Louis; October 1, 2021.*

The Treasury Department announced in August 2020 that it planned to borrow a total of $4.5 trillion in fiscal year 2020 to finance the deficit for that year. As reported by the Peter G. Peterson Foundation, through mid 2022, the various fiscal stimulus plans in both the Trump administration (2017 to 2020) and the Biden administration (2021 to present) cost the U.S. government (and U.S. taxpayers) $5.3 trillion.

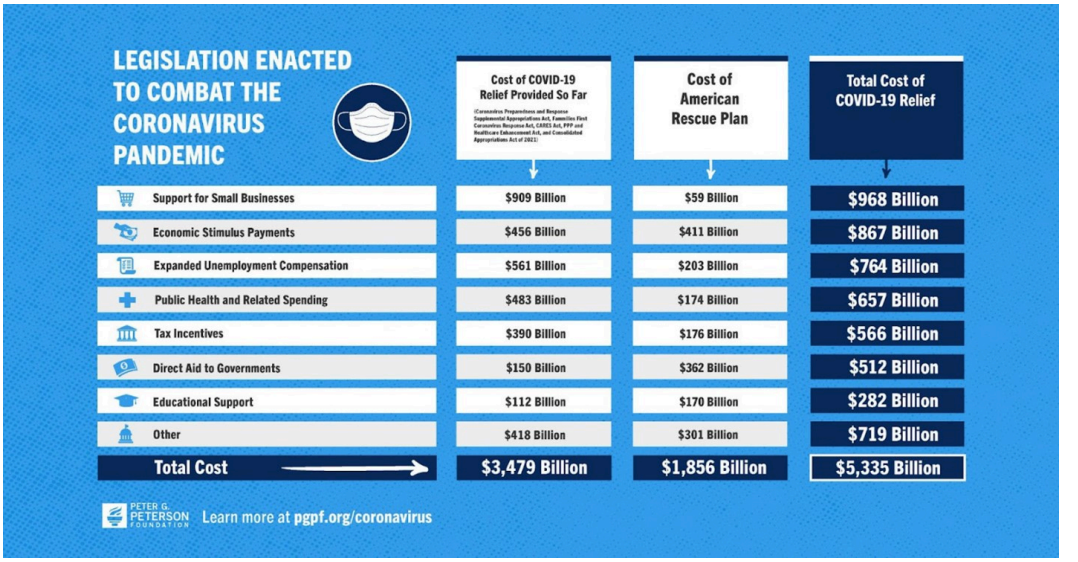


Figure 16.11. *Legislation Enacted to Combat the Coronavirus Pandemic by Peter G. Peterson Foundation has no known copyright restrictions.*

The 2022 U.S. GDP is approximately $25 trillion in current dollars, and therefore this stimulus was over 25% of GDP, a historically unprecedented amount.

The stimulus has ballooned U.S. national debt to $31trillion, or 124% of GDP, also a historically unprecedented amount. The national debt has grown every year, under both Republican and Democratic administrations.

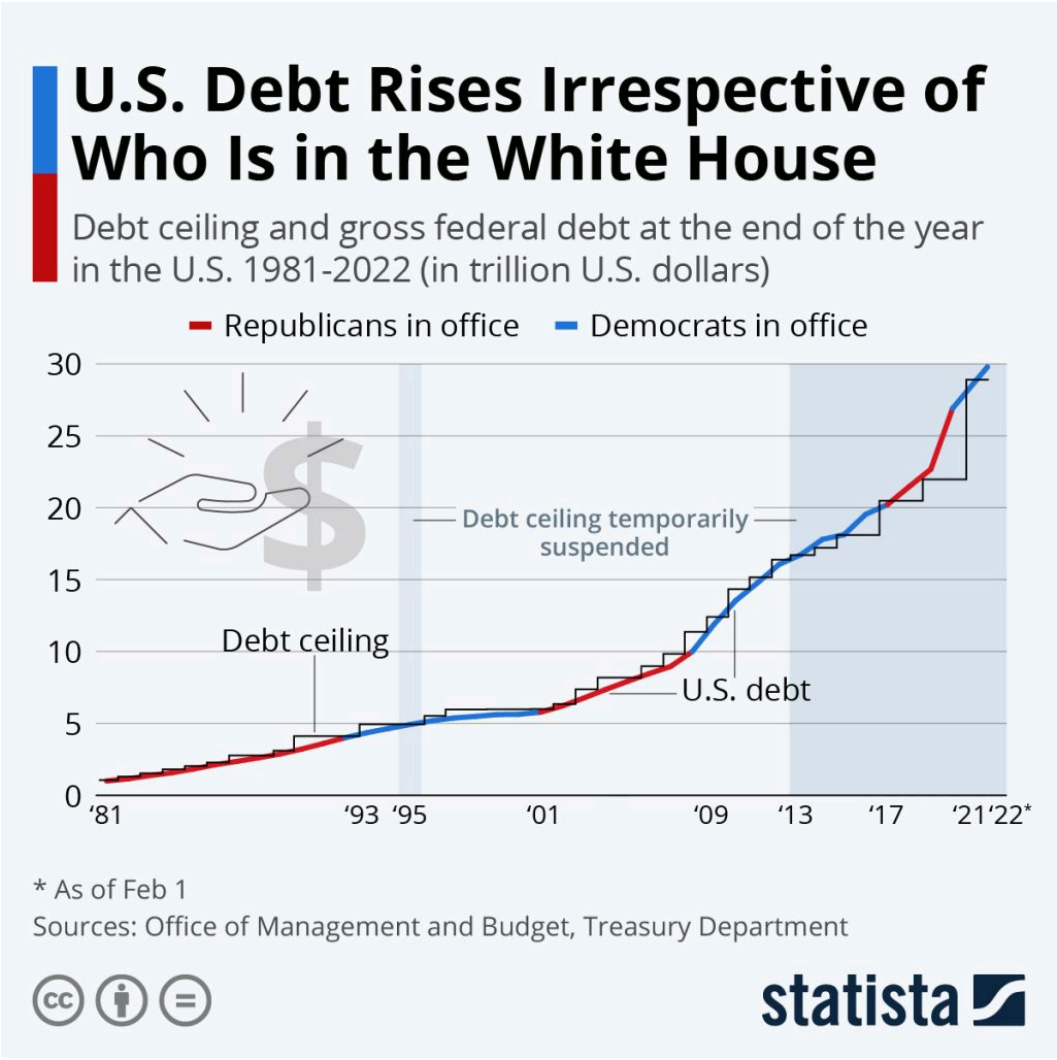


Figure 16.12. *U.S. Debt Rises Irrespective of Who is in the White House by Statista is used under a CC BY-ND 3.0 License.*

Government Recession Counteractions

Congress and the President have power over taxation and government spending. To understand the influence that they can have on increasing GDP in a recession, we need only to look again at our definition:

$$GDP = C + I + G + (X - M)$$

GDP = Gross Domestic Product
C = Consumption Spending
I = Gross Private Domestic Investment in Plants and Equipment and New Housing Purchases
G = Government Expenditure on Goods and Services and Gross Investment (national, state, and local governments)
(X-M) = All Exports - All Imports (sometimes called Net Exports)

If any of the components of GDP increase, then by the definition, GDP will increase. When we are in a recession, the government can increase GDP by several actions involving taxation and spending:

Taxation

1. Congress and the President can decrease the rate of income taxes, thereby giving consumers more disposable income. Since consumers on average spend 95% of their disposable income, they will spend most of it on goods and services, thereby increasing GDP. This creates increased consumption, but it is a much slower way to get money into consumer hands compared to a stimulus check.

2. Congress can give consumers a **tax rebate**; that is, they give a tax refund to everyone or to a large number of people. For example, during the Pandemic Recession, Congress sent a tax rebate of $1,200 to everyone who made less

than $75,000. Again, the expectation is that consumers will spend most of the rebate. This gets money into consumer hands quickly. However, during the Bush era, most people used their $1800 stimulus check to pay down credit card bills. This does not stimulate the economy.

3. Congress can increase unemployment compensation by increasing the amount paid or lengthening the time that laid-off workers can collect unemployment. Regular unemployment compensation only lasts 26 weeks, and since it is administered by the states, the weekly amount paid varies widely from $235 per week in Mississippi to $649 per week in Connecticut. During the Great Recession, Congress extended unemployment compensation to 99 weeks and funded it with federal money. They also authorized a massive increase in the Food Stamp Program (called SNAP) which was often used by the SNAP administrators to replace unemployment compensation after a worker used up their 99 weeks of unemployment payments. In the CARES Act, Congress added a $600 per week payment to everyone collecting unemployment compensation that expired on July 31, 2020. The CARES Act also added unemployment benefits to the self-employed and gig workers, who are not eligible for state unemployment compensation. This gets money to the unemployed so they do not get desperate. It also helps maintain consumption to previous levels. However, many conservatives believe that the total unemployment compensation for a lot of individuals is more than they earned when working, so it creates a disincentive to going back to work. That might make it difficult to open up the economy again.

4. Congress can enact a payroll tax cut for individuals. Individual workers have deducted 6.25% of their pay for Social Security insurance and 1.5% of their pay for Medicare/Medicaid Insurance. These are called **payroll taxes** as opposed to income taxes. President Obama reduced payroll taxes for individuals during the Great Recession in order to give more disposable income to consumers. President Trump advocated for a payroll tax cut, but it was rejected by both Republicans and Democrats. This puts more money in consumers' hands which hopefully they will spend. However, it is not as quick as a $1200 tax rebate check, and critics say that a payroll tax cut helps the employed but not the unemployed (of whom there were 20 million).

5. Congress can authorize expansion of other transfer payments such as food

stamps and welfare payments to help struggling people who are out of work. This gets money to struggling people.

Spending

1. Congress can allocate extra money for construction projects, such as roads and bridges. This increases employment almost immediately and brings more money into the economy, particularly into the hands of construction workers, whose wages are about 55% of construction projects. For example, $105 billion of the $787 billion stimulus package that the Obama administration passed in 2009 was allocated to "shovel ready" construction projects by state and local governments, including roads, bridges, rail projects, and internet infrastructure. Government spending increases the GDP on a dollar-for-dollar basis, unlike sending stimulus checks to households (who spend 95% and save 5%). It also creates a multiplier effect, as the construction workers spend their wages from the jobs. However, a lot of economists say this program was not successful for two reasons: several of the "shovel ready" projects had long delays and, as economist Robert Hall of Stanford noted, governments that had "shovel ready" projects had already arranged funding for them so the stimulus did not increase the number of projects significantly; it merely replaced the financing for existing projects.

2. Congress can authorize aid to state and local governments. The G in the GDP equation includes all spending by federal, state, and local governments, so increased spending by states or local municipalities will increase G which then increases GDP. States and local government revenue can decline dramatically during lengthy or deep recessions, threatening layoffs of police, firefighters, and teachers. Sending aid to states and local municipalities can at the least avoid these layoffs and, depending on the amount authorized, help stimulate the economy. For example, the Obama era stimulus package had $144 billion allocated to state and local aid. The Congressional Budget Office estimated this aid either saved or created approximately three million jobs. This local aid saves and creates jobs. However, it can be difficult to wean the state and local governments off the federal aid.

3. The Federal Government can just hire people. The IRS has faced massive budget cuts over the last twenty years. President Trump has ordered large budget cuts at the State Department. There are likely dozens of federal agencies that could use more help. This creates jobs, which is what government stimulus is all about. For conservatives, though, this is seen as expanding the role of "Big Government."

4. The Federal Government can go to war. I dislike bringing up this federal policy alternative, but for the longest time, the perceived wisdom was that war is good for the economy. It sent men and women overseas, thereby decreasing unemployment, and it involved huge government expenditures on arms and personnel. For example, in 1940, President Franklin Delano Roosevelt hired 16 million soldiers to serve in the army during World War II, which was 30 % of a total labor force of 53 million (U.S. Census, 1940). The unemployment rate in the Great Depression (1929-1939) was 25% of the labor force, so WWII created full employment. A number of historians and economists (including me) opine that FDR willingly embroiled the U.S. in WWII in order to end The Great Depression. This theory may be hard to prove but the actions of FDR were certainly more than coincidental in 1940. While it is true that war was viewed as good for the economy in the past, ever since the end of the Vietnam War, the majority of economists now conclude the opposite. Consider the fact that three million U.S. soldiers served in Vietnam, but only 13,000 served in Afghanistan and only 5,000 in Iraq; that is not enough to affect the unemployment rate. In addition, the Afghanistan and Iraq wars cost over $3 trillion, money that could have been better used for domestic policy purposes.

The Federal Reserve Bank

The Federal Reserve Bank of the United States is the bankers' bank. It issues charters for banks to operate and regulates all the commercial banks in the country. If a bank in the United States does not follow the Fed's rules or if it ends up insolvent, the Federal Reserve will seize the bank and have the FDIC liquidate it. The Federal Reserve Bank also creates the money we use in this country and is responsible for conducting **Monetary Policy**. Monetary Policy is the active use of setting or influencing interest rates and increasing or

decreasing the Money Supply to steer the U.S. economy. In implementing its Monetary Policy, the Fed has two objectives:

1. To achieve full employment in the U.S. Economy
2. To keep inflation under control (the target rate of the Fed is 2% annual inflation – defined as a 2% annual increase in the rate of price increases in Personal Consumption Expenditures not including Food or Energy)

Theoretically, the Federal Reserve Bank can create unlimited amounts of money, but in normal times, the Fed increases money enough to support the growth of GDP because everyone needs money to buy goods and services. For example, a trillion dollars of money buys two trillion dollars of GDP in the course of a year, if you expect the GDP to grow by 10% this year, the Fed needs to facilitate that growth by creating 10% more money and injecting it into the economy. This relationship between GDP and the Money Supply is central to the **Quantity Theory of Money**. The Quantity Theory of Money states that the growth rate of Gross Domestic Product (nominal GDP) and growth rate of the Money Supply are equal:

$$\text{Growth Rate of Nominal GDP} = \text{Growth Rate of Money Supply (A)}$$

This is supported in the long run by empirical evidence. Moreover, we can use this equation to create other equations. Since we can separate the growth rate of nominal GDP into the growth rate of real GDP plus the growth rate of prices over time (inflation), we can write this as:

$$\text{Growth Rate of Nominal GDP} = \text{Growth Rate of Real GDP} + \text{Rate of Inflation (B)}$$

We can then substitute equation (B) above into equation (A) and get:

$$\text{Growth Rate of Money Supply} = \text{Growth Rate of Real GDP} + \text{Rate of Inflation (C)}$$

Rearranging (C) gives us the **Inflation Equation**:

$$\text{Rate of Inflation} = \text{Growth Rate of Money Supply (M2) - Growth Rate of Real GDP (D)}$$

Equation (D) tells us about an important constraint on the Fed's ability to create unlimited amounts of money. If the Fed allows the Money Supply to grow faster than the growth rate of real GDP, prices will rise; that is, we will have inflation. The Inflation Equation prompted Nobel Prize winning economist Milton Friedman to state, "Inflation is always and everywhere a monetary phenomenon."

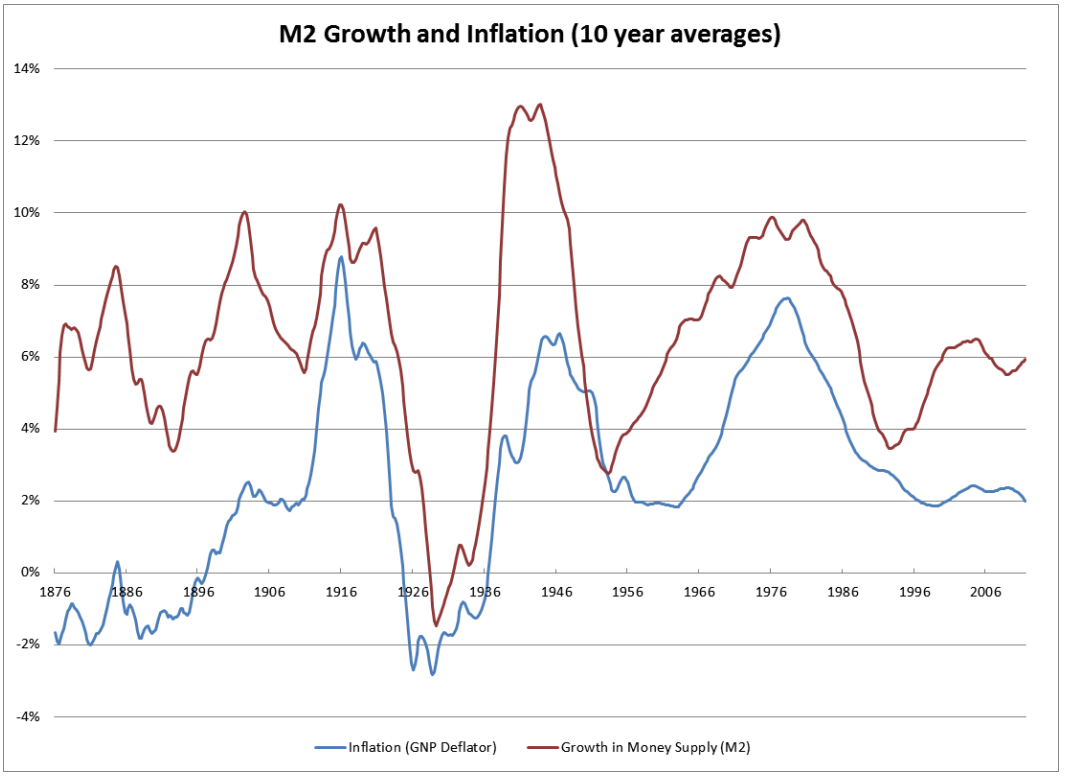


Figure 16.13. *M2 and Inflation by Bkwillwm is used under a CC BY-SA 3.0 License.*

Friedman advocated for a steady rate of monetary growth at a moderate level. This, he felt, would provide a framework under which a country can have little inflation and much growth. If we look at the data, it appears that the Fed has followed this advice (until just recently):

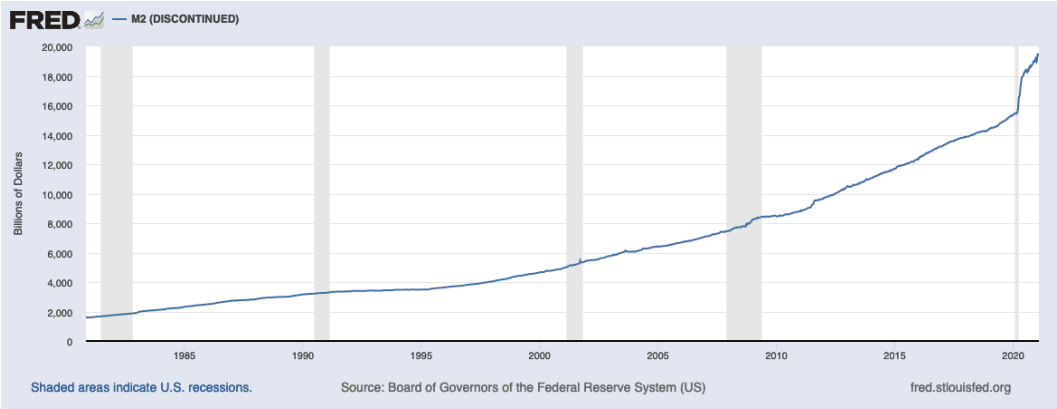


Figure 16.14. *Board of Governors of the Federal Reserve System (US), M2 (DISCONTINUED) [M2], retrieved from FRED, Federal Reserve Bank of St. Louis; September 30, 2021.*

Unfortunately, the Quantity Theory of Money assumes a constant ratio of annual Gross Domestic Product to annual Money Supply (M2). This ratio (**GDP/M2**) is called the **Velocity of Money**. It actually shows the turnover of M2 or equivalently how many dollars of GDP does one dollar of M2 buy in a year. When Milton Friedman was doing his Nobel Prize-winning research, this ratio was quite stable. However, this relationship has broken down in recently, so now we likely need to revise Macroeconomic Theory. See the graph of Velocity of Circulation below.

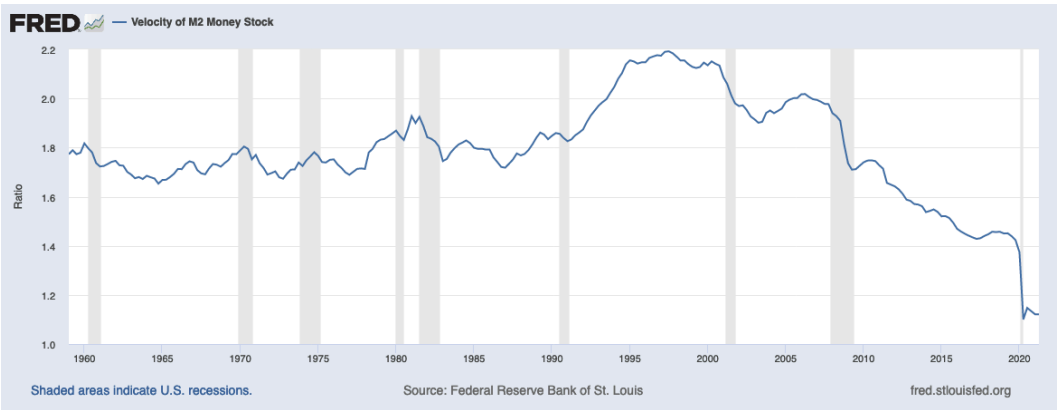


Figure 16.15. *Federal Reserve Bank of St. Louis, Velocity of M2 Money Stock [M2V], retrieved from FRED, Federal Reserve Bank of St. Louis; September 30, 2021.*

The Federal Reserve is very diligent about trying to fulfill its dual mandate of full employment and low inflation. They accomplish this by lowering short-term interest rates and increasing Money Supply during recessions. This makes it cheaper for commercial banks to borrow money in the wholesale credit markets and for bank customers to borrow money. Conversely, the Fed raises short-term interest rates and decreases the Money Supply when inflation appears to be in danger of moving above their target rate of two percent. This makes it more expensive for both the banks and their customers to borrow money.

The short-term interest rate that the Fed controls is the **Federal Funds Rate**. The Federal Funds Rate is the rate that banks lend each other overnight. However, all short-term interest rates in the market follow the Fed Funds Rate, so this rate effectively becomes the wholesale cost of funds to the banks. That is, this is the rate at which banks borrow money. You can see from the following graph their historical record. (The gray bands are recessions.)

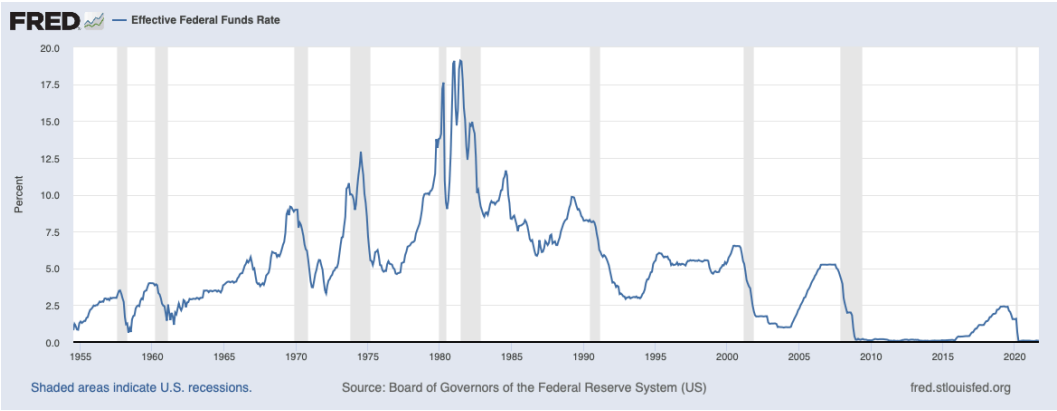


Figure 16.16. *Board of Governors of the Federal Reserve System (US), Effective Federal Funds Rate [FEDFUNDS], retrieved from FRED, Federal Reserve Bank of St. Louis; October 3, 2021.*

The lesson here is that the Fed has dropped short-term interest rates when recessions occur in order to stimulate the economy and conversely raises short-term rates in economic expansions to guard against inflation accelerating. Although forecasting the future is very difficult to do, the Fed tries, with their

economic modelling, to anticipate the movements of the business cycle at least a year in the future; based on that, they calibrate their interest rate actions. The full effects of Federal Reserve Monetary Policy actions take approximately eighteen months to filter through the credit markets and the economy. You can see from the graph above that in the previous recession (December 2007 to June 2009) the Fed Funds Rate was reduced from 5% to 0%, and it was reduced to 0% again in the Pandemic Recession. This means that the banks' cost of money was almost zero, leading all short-term rates to drop precipitously again.

Over the long run, the average Federal Funds Rate has been 4.74%, so dropping the Fed Funds Rate to 0% is extraordinary. Sometimes the dual objectives of the Fed (full employment and low inflation) are in conflict. The negative correlation between high levels of unemployment and low rates of inflation is known as the **Phillips Curve**, after the economist who first wrote about this phenomenon. The historical record shows strong evidence for this relationship.

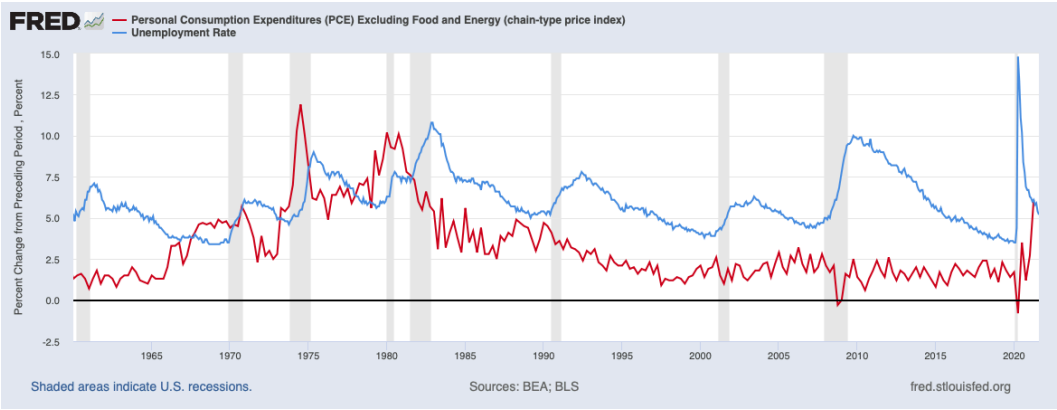


Figure 16.17. *U.S. Bureau of Economic Analysis, Personal Consumption Expenditures (PCE) Excluding Food and Energy (chain-type price index) [DPCCRV1Q225SBEA], retrieved from FRED, Federal Reserve Bank of St. Louis; October 4, 2021. U.S. Bureau of Labor Statistics, Unemployment Rate [UNRATE], retrieved from FRED, Federal Reserve Bank of St. Louis; October 4, 2021.*

Note in the graph above that when the unemployment rate goes up (the blue line), the inflation rate (the red line) goes down (often with some lag). However, the traditional Phillips Curve (the inverse relationship of inflation and unemployment) has broken down in the last ten years, as you can see from the

following graph. The unemployment rate decreased to a fifty-year low of 3.5% in February 2020, and inflation stayed below the 2% target of the Federal Reserve Bank. There are a number of reasons for this, but I do not have the space here to talk about it in detail.

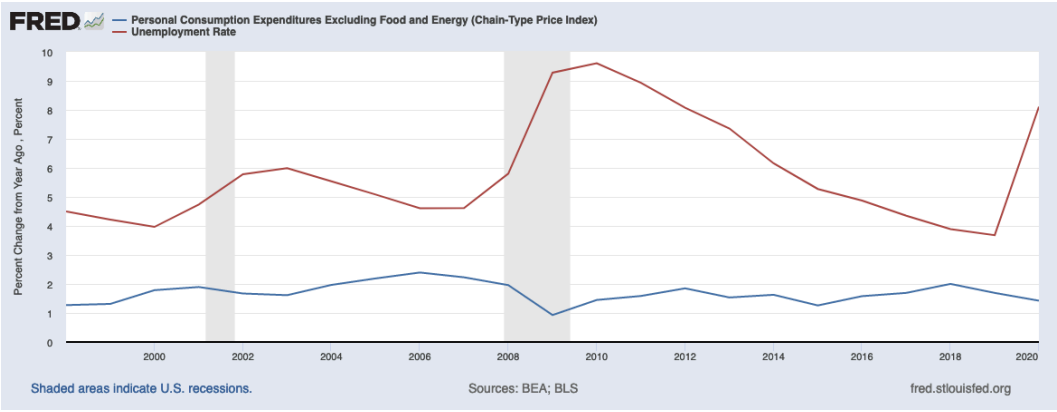


Figure 16.18. *U.S. Bureau of Economic Analysis, Personal Consumption Expenditures Excluding Food and Energy (Chain-Type Price Index) [PCEPILFE], retrieved from FRED, Federal Reserve Bank of St. Louis; October 5, 2021. U.S. Bureau of Labor Statistics, Unemployment Rate [UNRATE], retrieved from FRED, Federal Reserve Bank of St. Louis; October 5, 2021.*

For the rate of inflation, I am using the preferred inflation measure of the Federal Reserve Bank. This is the change in prices of Personal Consumption Expenditures not including food and energy (which the Fed considers too volatile). This price index is known as the **PCE Price Index**, excluding food and energy and its annual change is the rate of inflation.

The Fed not only lowered short-term interest rates to the lowest in sixty years, but beginning in the Great Recession, they performed some unprecedented actions under Chair Ben Bernanke to bring long-term interest rates down dramatically. At the start of the Great Recession, the Federal Reserve Bank had approximately $800 billion worth of assets. In 2008, the Fed increased their assets to $2 trillion by increasing the money on their computers. This is sometimes called **printing money**, but no paper currency is actually printed; instead, money appears electronically out of thin air. This is why money that has no gold or silver standard behind it is called **fiat money**.

If you look at the graph below, you can see that from 2008 to 2015, the Fed increased its assets to approximately $4.5 trillion. It used this money to buy long-term U.S. Treasury Bonds and mortgage-backed bonds issued by Fannie Mae and Freddie Mac, the government home mortgage agencies. This brought down long-term interest rates to their lowest in 50 or 60 years for Treasury and corporate bonds, as well as for home mortgages. The financial markets dubbed this action **Quantitative Easing**, although Ben Bernanke has said that he did not favor the term, instead preferring the name, "long term asset purchases."

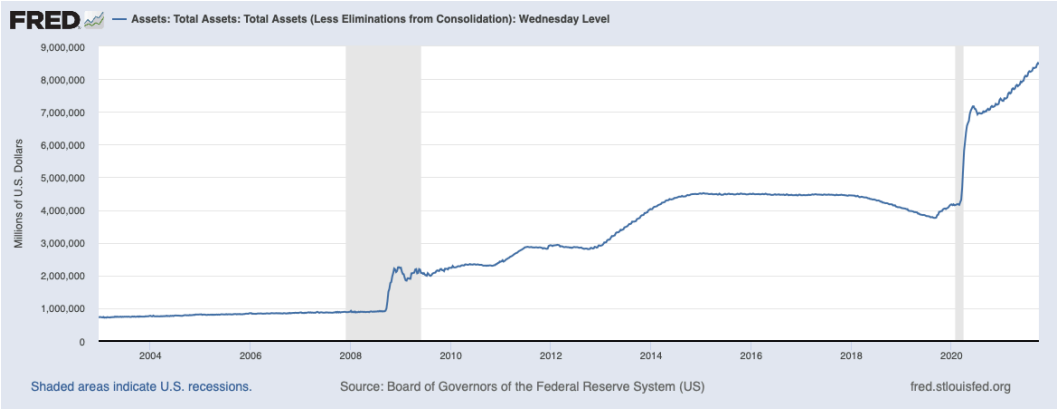


Figure 16.19. *Board of Governors of the Federal Reserve System (US), Assets: Total Assets: Total Assets (Less Eliminations from Consolidation): Wednesday Level [WALCL], retrieved from FRED, Federal Reserve Bank of St. Louis; October 3, 2021.*

As is evident from this graph, the Fed began to dispose of the trillions of dollars in bonds in 2018 by selling small amounts per month on the open market. However, as the Pandemic Recession took hold, the Fed revived their playbook from the Great Recession and increased the money on their computers within one month to $7.1 trillion. This additional money has been used to lend to banks, to buy more Treasury bonds, and to buy more bonds issued by Fannie Mae and Freddie Mac. The Fed is also buying bonds issued by major corporations and has begun a program called "Main Street Lending" whereby the Fed has set aside $500 billion to lend money to mid-sized corporations, which will be guaranteed by the U.S. government.

The effect of the Fed's increased demand for long term bonds has brought the 10-year Treasury bond yield to .6% and 30-year home mortgages to 2.98%.

These are the lowest rates ever in the history of U.S. financial markets. Additionally, Jerome Powell has stated that the Fed will keep both short-term and long-term interest rates at this low level "as long as it takes" for the economy to recover.

The fiscal stimulus passed by Congress and the monetary stimulus enacted by the Federal Reserve Bank worked remarkably well. By early 2020, the unemployment rate had dropped from almost 15% to a low of 3.5%, the lowest in about 60 years. However, in a cruel economic reversal, inflation took off, fueled by supply-chain bottlenecks due to the pandemic and as a result of the Russian invasion of Ukraine. By early February 2020, inflation was about 8% nationally in the U.S.

The Federal Reserve abruptly reversed its program of monetary stimulus and in 2020 raised short-term rates from effectively 0% to 3%. (the Federal Funds Rate). This caused the 10-year treasury bond yield to rise to 4.2% and 30-year mortgage rates to rise from 3% to 7%. As a result a number of economists and financial institutions predicted a recession in early 2023, which is unknown as of this writing.

Modern Monetary Theory

The most interesting development in economics within the last decade has been the growing popularity of **Modern Monetary Theory (MMT)**. If you are not an economist, do not worry. I am going to explain this in the simplest way possible.

MMT, distilled to its essence, is a theory which posits that when it comes to nations with a fiat currency, the only restraints are real restraints, not financial restraints. Meaning, the restraints an economy faces are not how much money is contained in the budget, but rather, what labor and resources it has available to utilize. This theory and its application are built off a few key assumptions:

1. The federal government cannot default on its debts since it issues its own currency. Theoretically, if the government is $27 trillion in debt, it can just issue another $27 trillion to remove the debt. Some of you are immediately going to shout "inflation!"—trust me, that will be addressed later.

2. MMT proponents see (involuntary) unemployment as evidence that the

economy is operating under capacity. For the sake of better utilizing our resources and making the country better, we should be striving to reach full employment.

For now, let's just take a step back and analyze some underlying features of the US monetary and fiscal systems.

Fiat Money

In response to inflation in the 1970s, the Nixon administration made the decision to pull the United States off the gold standard. For years, anyone could trade in their US dollars to the federal government and receive the equivalent of its worth in gold. This placed an extreme limitation on the amount of money the US government could circulate in the economy; it needed to hold enough gold to meet the demand of those wanting to exchange it. It also meant that trade and fiscal deficits were inherently rocky waters. If a foreign government suddenly asked you to pay your debts in gold, you better hope you had it on hand. Nixon's decision to untether the US dollar from gold transformed it into a fiat currency, a fancy term which essentially means the US dollar has value not because of its worth in gold, but because, well, the government said it does (Kelton, 2020).

This sounds ridiculous, of course. The government just decided some arbitrary bill has value, but how do they possibly enforce that? What's stopping me from issuing my own currency? In fact, many US businesses in the early 1900s did just this. In remote areas where one business would employ all the townspeople, wealthy owners would often pay their workers in "company store dollars." These were only eligible at stores owned by the same person, which itself was a harsh and exploitative system that prevented workers from breaking out of their socioeconomic class (Richman, 2018). This all changed for two reasons. First, federal laws and greater financial oversight eventually ensured people had to be paid in real money. And second, the government established the federal income tax.

Taxes Make Fiat Currency (And the Economy)

Work

While you and I can create our own forms of money, we will still need US dollars to pay taxes. Failing to do so will result in legal penalties, including jail time. Because everyone must pay taxes, everyone has a demand for US dollars (Kelton, 2020). You can choose to hold your assets in bitcoin, emeralds, or property, but every year, you need to convert at least some of that to pay the federal government. Typically, everyone assumes the government issues taxes to finance public expenditure; that is, they rely on our funds to pay for defense spending, education, social welfare, and everything else in their purview. Again, this is misleading, and the way taxes work reveals why.

Many people assume the government operates like a household or business. Essentially, they believe that the government drafts a budget, decides on discretionary spending for the year, builds a tax plan around that spending, collects the taxes, and then redistributes the money into the chosen programs. This sounds logical. After all, if you or I were to start up a business, this is approximately the model we would follow; we would figure out what resources we need, and then use our capital to acquire them. However, for the government, this process is inverted.

The government does not collect taxes and then redistribute them, but rather, they spend money and then collect it back in taxes. The government does not draft its budget and then sit on Capitol Hill waiting for the money truck to arrive and place it in their chosen programs; they spend first, and then collect the difference from the people. Often the government runs deficits, meaning it spends more than it collects from taxes. Americans are then filled with anxiety that a day will come where those deficits have to be paid back, and their children and grandchildren will be forced through brutal austerity measures, drained of every dollar they have, leaving our country doomed. According to MMT, this is hyperbolic.

Debts Do Not Matter

Now that we have all the groundwork laid out, it's finally time to discuss the descriptive claims of MMT. The first, and most shocking is that fiscal deficits do not matter. No matter how much the government is in debt, since it is a

currency issuer, it can always pay it back. If China came over tomorrow and asked for its 20 trillion of our dollars back, we could just change a number in a spreadsheet, and it would be done. This is because with a fiat currency, the government is not tethered to the supply of any other resource. And as a currency issuer, the government has no (legal) limit on the amount of money it can choose to generate in an economy. There are ramifications of course, but we will address that in a bit.

The Point of Taxes

If the government does not need us to pay down its debts and obligations, then why does it bother taxing? Simple: taxes do not exist to help the government pay for things; the government can create as much money as needed in order to pay for what it wants. Instead, taxes are meant to incentivize people to work, to make them interact in an economy (Kelton, 2020). The government does not need you or me to pay its debts down, but it does need us to attend schools, sell T-shirts, see the doctor, and perform just about every other economic (and legal) interaction possible. Since every year we must collect a certain amount of money to pay taxes, then we must all interact in the economy to obtain this money. There are other notable utilities to taxes, such as controlling inflation, redistributing wealth and income, and encouraging or discouraging certain behaviors (smoking, pollution, etc.), but those all can wait for now.

It should be noted that this analysis is not applicable to every nation in the world. MMT only applies to countries with fiat currencies who are also currency issuers. Countries in the EU do not have access to MMT. None of the nations in the EU issue their own currency, meaning if asked to pay their debts, they cannot simply produce that money out of thin air. Greece found themselves in this situation after a series of considerable financial crises following the 2008 recession. Certain EU rules also prohibit declaring bankruptcy (see Adults in the Room by Yanis Varoufakis), but to be brief, had Greece still been using drachmas and had the drachmas existed as a purely fiat currency, they might have been able to navigate that situation much better without Germany imposing brutal austerity measures on them for borrowing (Kelton and Varoufakis, 2020)

But then this does raise the question: if the US government can theoretically pay down its debts today, then why shouldn't it? Well, because historically, this

has always ended badly. If you follow patterns throughout the history of the country, every time the US government has been in surplus (and sometimes even paid off its entire debt), a recession or even depression has followed (Kelton, 2020). The most recent example was when the dot-com bubble burst following surpluses under the Clinton administration, but some proponents of MMT have gone so far as to say that the surpluses contributed to the 2008 Great Recession as well. In the 1830s, the US government paid off its entire debt, and what soon followed was one of the worst depressions this country has seen.

The reasons for this are again complicated, but it can be explained in a simple flow model. When the government has a deficit, it means that it has printed more money than it has taxed out. For example, if the government prints $100 and distributes it to people, then taxes out $90 from each individual, each person is left with a surplus of $10. However, if the government is in surplus, then that means the opposite has happened: the government issued $100, taxed out $110, and the people now hold a $10 deficit (Kelton, 2020). Unlike the government, households can become insolvent. Meaning, while the government can hold onto debt as a currency issuer, people cannot indefinitely hold on debt. Eventually, households will have to pay for their mortgage, and since they cannot issue money, they will default. Hence, people will have less money, they will start spending less, and the entire house of cards will collapse, taking the economy with it. Thus, even though the government could pay off its debts tomorrow, according to MMT, it is not something it should do.

From here on out, I am going to be oversimplifying some technical aspects as to how the monetary system works. Unless you intend to major in economics or something finance related, you probably will not need to know all of this on a deep level.

Inflation

It's time to address the elephant in the room, the bogeyman that gives every economist nightmares: inflation. Inflation is the idea that as more money circulates in the economy, the value of each individual dollar (or whatever chosen unit of account) is comparatively less. Put simply, the more money the general public has, the more goods and services need to increase in price to compensate. The value of money theoretically lies in its scarcity, just as the value of any goods or commodities lies in scarcity; this is the underlying principle

of economics. If tomorrow, everyone suddenly had 10,000 extra dollars, and markets were behaving perfectly with no delays, then we would expect the prices of nearly every good to increase. Some would increase more in price, some would increase less, but let's ignore those technical details for a moment. Economists tend to agree that a moderate level of inflation is a sign of a prosperous and well-functioning economy, but once inflation crosses a certain threshold, it puts an economy into dangerous territory.

One of the most famous examples of hyperinflation is what happened in the Weimar Republic. For a period in the 1920s, prices doubled every 3.7 days, and the monthly inflation rate was 29,500% (Toscano, 2014). There are countless stories of people showing up with wheelbarrows full of money to purchase the goods they need. The government changed currencies to bring stability back to the nation, but its effects were devastating enough to facilitate the birth of fascism, the rise of the Nazi party, and the beginnings of WWII's eastern front. Given that, it makes sense why most economists would be wary of inflation exceeding a certain threshold.

Most economists think around 2% per year is a stable, prosperous, and preferable level. The FED agrees. They target this rate every year by adjusting interest rates (do not worry about how for now) and try to maintain a certain level of unemployment in order to prevent hyperinflation. This is the part where MMT differs considerably from the prevailing economic theory. MMT asserts that the "natural rate" of unemployment is something which cannot be found out through theory but rather discovered after the fact. Kelton writes:

> The Fed doesn't like to wait until inflation becomes a problem before acting. Instead, it prefers to fight the inflation monster preemptively before it rears its ugly head... This kind of preemptive bias often leads the Fed to err on the side of overtightening, raising the interest rate even when it may be premature or a false alarm. Errors like these carry real consequences in the form of millions of people unnecessarily locked out of employment (2020).

For years, monetary policy has been the primary tool to battle inflation, but MMT advocates say that with responsible fiscal policy, the US government can achieve both full employment and stable prices. According to these advocates, by adjusting taxes and government spending, the country can continue to print more money. Let me give you a simplified example: if the government decides to spend an extra $1000 on a federal project, that extra $1000 is floated through

the economy. If the government realizes they are $1000 over their inflation target, they can just raise taxes to take that money back out, returning the country to its inflation target. Obviously, reality is not this simple, but the logic follows when considering the entire economy as a model and considering the other legal steps required.

Obtaining Full Employment

We know that the government cannot default, and printed money that threatens to increase inflation can be taxed back out. So what do we do with this? MMT proponents advocate the eradication of involuntary unemployment through a public option for work. You may have heard of this as "The Federal Jobs Guarantee," part of the backbone of the Green New Deal and popularized by politicians like Senator Bernie Sanders and Representative Alexandria Ocasio-Cortez. With this guarantee, the federal government establishes a voluntary pool for any unemployed person to enter. Once put into that system, the government will direct them to work on some project they have created through discretionary spending. Generally, the plan advocates spending it on infrastructure, education, or research and development, fields which historically "pay back". These fields also help connect people to their own local communities and allow them to see the fruits of their labor (Kelton, 2020). While this program would always be in place, it would likely see more use during a recession or depression. To this day, no economist has figured out how to eradicate the "business cycle" of economic downturns, and what a Federal Jobs guarantee would do is soften its effects.

Critics of MMT say this would crowd out the private marketplace, but this should not be the case. The key feature of the jobs guarantee is that it is voluntary. The jobs guarantee is not a program which will always and forever prevent the private market from innovating and growing. Workers will only enter here if they cannot find work otherwise, and they will do this by keeping wages low (but humane) so that when a private sector job is available, they will leave the program to go work with them (as a rational decision in the market). Put simply, there is no crowding out because, well, they are not taking any jobs away. Theoretically, if the private market obtains full employment, then the federal jobs guarantee would have "0" people available in its pool to work. And if there were people in the program, then it would mean they were there because

they could not find work on the private market. It helps the workers who need a job, and it should not prevent employers from filling a position. To the contrary, it may be beneficial to the private sector. The longer someone is out of work, the more their skills depreciate, and the less attractive they become to employers (Kelton). A jobs guarantee ensures they would retain their skills, discipline, and talents.

What We Cannot Do

Well, a lot of things. Despite the government being able to spend as much as it decides, it cannot create its ideal workforces, nor can it spawn materials like steel, oil, or renewable energy from thin air. The real constraints on the economy related to labor and resources, not money. As shown, if the private market is doing well enough that there are not enough workers to build the powerplant, then that powerplant cannot be built. Similarly, just because there are 7 million people out of work, it does not mean we can suddenly build 100,000 fighter jets without any titanium.

According to MMT, the government should not allocate money; rather, it should be allocating resources. The government should not ask "How will we pay for it?" but "What are we capable of paying for?", and, perhaps most important, "What must we pay for, no matter the fiscal cost?"

China and Trade

We have already established that the government can never become insolvent because it is a currency issuer and can always pay back its debts. Explaining how this works with China is complicated, to say the least. It is built upon the US Treasury system, a tool by the FED to set interest rates. For the average person, understanding exactly how this works is probably not necessary. Instead, this quote from Kelton provides a simplified explanation:

> "Borrowing from China" involves nothing more than an accounting adjustment, whereby the Federal Reserve subtracts numbers from China's reserve account (checking) and adds numbers to its securities

> account (savings). It's still just sitting on its US dollars, but now China is holding yellow dollars instead of green dollars. To pay back China, the Fed simply reverses the accounting entries, marking down the number in its securities account and marking up the number in its reserve account. It's all accomplished using nothing more than a keyboard at the New York Federal Reserve Bank.

In other words, paying back China is not something that should fall on the backs of your average American but instead it could be carried out by interactions at the FED. However, it should be noted that China asking for its debt to be paid back immediately is also against their interests. If you want to know exactly how and why, I recommend further reading. Finally, we must consider trade. Even among economists who do not believe in MMT, protectionism and free trade are still divisive issues. Some claim that free trade is great, and when businesses decide to do foreign outsourcing, they are not only benefitting the domestic consumer but also foreign countries by placing businesses there. Others claim that this is exploitation by using cheaper labor to create our goods and supplies, though free trade advocates will rebut that it helps those countries develop. Regardless of these differences, most people tend to agree that there is some balance of trade with regulation which is good – just to varying degrees.

The MMT community's approach lands somewhere in the middle. They claim that free trade is beneficial to the United States and, in some ways, beneficial to the host countries. Without getting into the complicated history of colonialism and coups, just know that while there are downsides to more open trade, the MMT group argues that being a total protectionist and equaling our trade balances are also not good for these developing nations (Kelton). To "develop", they need to stop relying on foreign imports for necessities, which is something we cannot really affect by looking only at protectionism and free trade. Once again, MMT claims that the Federal Jobs Guarantee will allow us to outsource certain businesses abroad without ruining people's livelihoods so long as we simultaneously ensure Americans still have a public option for work. That way, foreign countries can have more money and jobs available, while Americans can benefit from cheaper commodities and have guaranteed employment.

There are certainly critiques to bring up of this model: it does not address whether people working in a manufacturing plant for decades would suddenly like to switch jobs, and it does not offer a model to help these developing nations actually catch up to the developed world. Also, if a business decides to

invest in a foreign country but then suddenly pull out when things look bad (as has historically happened), then their country may be left in financial ruin (Kelton). MMT offers a possible, temporary alleviation from downsides to trade, but if we really want to help developing countries, there are other ways to do so outside of trade.

Trade is generally a very complicated cost-benefit analysis system that you could probably spend a lifetime trying to understand all the nuances of. Kelton argues that current trade contracts often neglect the needs of the working class, and that even with the Federal Jobs Guarantee, our contracts and trade agreements still need to be fairer. From here, I will leave it to you, the reader, to decide where you stand on trade.

Criticisms

Before I address some of the criticisms, I want to stress that MMT is far more descriptive than it is prescriptive. Although it is used to justify programs like a Federal Jobs Guarantee, MMT itself is a politically neutral idea. MMT is a description of how monetary systems work, while policy like the Federal Jobs Guarantee is a prescription of what to do with these revelations. Many critiques are aimed at these prescriptive implications, arguing why MMT may not be applicable to policy, even if many pieces of its underlying theory are accurate.

N. Gregory Mankiw, a macroeconomist at Harvard, has written a working paper for the National Bureau of Economic Research called "A Skeptic's Guide to Modern Monetary Theory". One of the most striking criticisms he raises is that he worries MMT could have us fall into a feedback loop that would devastate our financial systems. According to MMT, this should not happen with proper fiscal policy, but he leads this into another large critique which perhaps should be taken seriously. The federal government as an apparatus is not the fastest thing in the world, and the economy moves pretty quickly by comparison. He concludes his paper by stating that while theoretically the government could act as an ultimate resource manager, in reality, this is probably too complex with all the bureaucratic layers involved. In other words, Mankiw does not seem to disdain the concept but sees it as ultimately impractical—one of those ideas that sounds good on paper but is too difficult to implement properly. This is where his concern about inflation seems more legitimate; if the government is

over its inflation target and cannot act fast enough to reduce spending or raise taxes, the US dollar may become unstable.

Gerald Epstein wrote an entire book critical of MMT. His critiques were not so much based in theory but more based on presentation and practical implementation. Epstein thinks that most MMT advocates encourage higher spending and deficits without specifying on what that money should be spent. This is a rather nebulous claim, so I do not think this one should be regarded too seriously. However, he does raise some legitimate points. Epstein believes that MMT is a privilege afforded to richer, more powerful countries and inherently barred from poor or developing nations. He says that rich countries whose currency is accepted internationally can run up large deficits without fear of consequence, but this is not something most of the world can claim. He also argues against creating low interest rates, as it can cause the financial sector to behave recklessly and stir up crises. In other words, if the interest rate is kept low, Wall Street may engage in more high-risk transactions that jeopardize the economy, just as they did in 2008. This is somewhat true, but MMT and regulating the financial sector are not contradictory issues. Indeed, tight regulatory mechanisms, low interest rates, and engaging in MMT are all possible simultaneously. But we should take heed of his warning and realize that the country perhaps should not engage in MMT before tightening laws on the financial sector. The final main critique Epstein makes of MMT is that while he thinks it could work in the United States, the window to use it is likely shrinking. The US dollar is a powerful currency, and because of its wide acceptance, the US can borrow cheaply when a crisis comes and still keep interest rates low. Yet this may not last forever. Epstein believes we are trending towards a multi-currency system, and when that happens, MMT will become less and less viable.

Conclusion

After many years in academia, MMT seems to be getting some mainstream attention. As of this writing, the COVID-19 crisis has spurred the government to massively increase spending. Many economists wonder whether the government will engage in MMT's policy recommendations to control high inflation if and when it appears.

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