Chapter One

Make Investing Work for You

A few years ago, a friend of Elizabeth's, Jodi, reached out for advice about what to do with a bonus check of $20,000.[*] She already had an employer-managed retirement plan at work, but she didn't pay much attention to it. And now with a small windfall, she had the vague idea that she should invest. She looked up Apple's stock price and wondered whether Elizabeth thought this was a good stock to buy.

[*]Jodi's name has been changed.

And maybe a few others, such as Lululemon, and some shares of Tesla?

"Where to begin?" Elizabeth asked herself. Jodi was falling foul of one of the biggest misconceptions about investing, the first of many misconceptions we're going to debunk in this book.

Jodi's question, and dozens of others over the years from our family and friends, helped us decide to write this book. Investing isn't taught in school, and over the years, lots of smart and well-educated people have asked us questions that tell us they have been misinformed about investing. They don't realize there is a research-based approach to investing, one with an unexpected key: relax! In fact, making money in the markets today is so easy that you can make money in your sleep. Some people maximize effort to get rich, and they usually fail. We want to minimize stress. And when you do that, you'll be surprised at how well you do financially.

We've written this book for people who are interested in joining a robo investment platform and those who are already on robo investment platforms but are not using them as well or easily as they might. Robo investing is great for people who have as little as $50 a month to invest, because you can quickly establish and adjust an emergency savings account earning some of the highest interest rates around. If you're in your 20s, we say: run, don't walk, to set up a low-cost retirement account on a robo platform that will make money for you in your sleep; do not fall for financial services industry marketing that implies you'll succeed trading individual stocks or trying to beat the market! For more on this, see Chapter 3. Robo investing is perfect for millionaire (or soon-to-be millionaire) cheapskates: people who want the high quality of traditional investment advice without paperwork hassles, high cost or high account minimum.

To learn the robo investing approach, you need to follow along in this short book. You'll need to unlearn some of what you know. Because there's so little accurate information about investing, many people operate under misconceptions about what works, what doesn't, and what works best.

Robo platforms apply the understanding developed in the last century about the nature of people and the nature of markets to become—on your behalf—the most disciplined investors. They'll help you meet your goals, taking the level of risk you decide you're comfortable with. Robo investment platforms also put many of the best tools that weren't accessible to everyday investors before, such as tax-loss harvesting and financial planning tools, in reach of everyone by moving them online. The combination of the research-based approach to investing and the easy-to-use tools is like a fine-tuned investment engine. You point it in the right direction and decide how fast you want to go—and then, you can relax.

We believe it's important to understand the concepts of investing and the innards of how robo investment platforms work to employ them. That way, you won't panic or take too much risk or be distracted by the "best new DIY investment idea" you hear about at your neighborhood barbeque or via your news app. Emotions have a way of getting the best of all of us, especially when it comes to the excitement of a get-rich-quick scheme. Luckily, robo investment platforms offer a lot of support for the rational side of our brains.

There is a *slightly* hard part about robo investing. You need to understand yourself, your goals, your needs, and your relationship with money, to tell the robo investment platform what it needs to know to design a portfolio for you and to stick with your plan. This little book will also go over some of the common emotional pitfalls that humans encounter around questions of money.

After you read this book, you'll know how to meet your long-term goals, including retirement and helping your family. You'll know how to invest for medium-term goals, such as big vacations, sabbaticals, and work on your home. Maybe you'll be like the investor who told the *Wall Street Journal* that using a robo investment platform was his version of TikTok! True story![1] It is fun to invest well, not because you're trading individual stocks, but because you wake up every morning feeling that you're on track financially in each phase of your life.

Knowing How to Use a Robo Platform Is a Superpower

A couple of quick asides before we start with the first misconception many Americans—including Jodi—have about investing.

First of all, you're ahead of the game if you're here. Only about 70% of working Americans invest at all, even for retirement, and those are mostly through workplace retirement plans.[2] You know as well as we do the pressures and rewards of today's economy. It's important for you to invest because stocks and bonds have historically delivered high enough returns to beat inflation.

It's unlikely that you can retire securely without investing, and investing is one of the few actions (in addition to buying a home, starting a business, or getting an education) that can help you build wealth. Over the past half century, from 1973 to 2022, the US stock market has returned an average of 11.7% per year.[3] If you had put $1 in the market in 1973 and left it there, untouched, you would have $253 today. If you had put $10,000 in, you would have more than $2.5 million today! With a more moderate assumption of 7 percent annual return, a $10,000 investment today would grow to $76,000 in 30 years, and $294,000 in 50 years. A quick-and-easy rule derived from the 7% annual return assumption is that your money in the market will roughly double every 10 years.[†] This is the reason you should invest: so that you, too, can take advantage of the market's magic[‡] to double your money every 10 years.

One image to capture the upward movement of the stock market over time is the idea of you, the investor, walking up a hill, while you are yo-yo-ing.[§] Your portfolio—the yo-yo—may go up and down, but if you keep walking, the portfolio will climb, too. You need to pick up the yo-yo and start walking. There are no absolute guarantees in life, but investing broadly in the market is one of the best financial bets there is.

You're also ahead of the game because you're considering robo investing platforms in your toolbox. Robo investing is

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[†]Going forward it is more realistic to expect the US stock market to return on average 7% per year, rather than 11.7%. We will use 7% as the long-term average annual return assumption for the US stock market in the book.

[‡]It's not actually magic, of course, but mathematics, which seems incomprehensible to most of us. The human mind is stuck in a short-term survival mode, not built to see the long-term power of compounding.

[§]We heard first this image shared on a radio show hosted by financial advisor Ric Edelman.

the biggest innovation in the investment space in the past several decades; the platforms give you access to tools previously reserved for wealthy investors. And robo investing platforms are as safe as, or safer than, other kinds of financial firms. Robo investment platforms are regulated by the Securities and Exchange Commission (SEC) as fiduciaries, which means they are required by law to act in your best interest. Your investment accounts on robo investment platforms are insured up to $500,000 by the federal government to protect you against the firm's insolvency, as accounts would be with a traditional bank or advisory service. Cash deposits on robo investment platforms are often insured at multiples of $250,000, higher than some traditional banks. The federal government issues insurance to ensure the stability of the US financial system; robo investment platforms are part of the regulated system.

It's easy to set up an account on a robo investment platform; you can usually do that within five minutes. Most people start investing by connecting a bank account to a robo investment platform and transferring money. Connecting to your bank account is automatic and instant, with the transfer of funds taking a few days or instant at the most advanced platforms. Robo investment platforms have some of the easiest websites and mobile apps to use. We'll get into all of this in more detail later, but we wanted you to feel grounded before we hit the investing concepts.

What Is Investing Today?

Now, let's go! Back to Elizabeth's friend Jodi and the misconception she was laboring under when she asked for advice. She was thinking that she might buy Apple and Tesla. They might be great companies, but Jodi was falling prey to the first misconception about investing.

Misconception #1: Investing means buying individual stocks.

If you believe this and buy individual stocks, you will be putting yourself at unnecessary financial risk and probably pay too much in fees and taxes, to boot. Investing does not mean buying individual stocks. Here's a simple-and-true definition of investing, a foundation to build on:

Investing is the art of driving an increase in your net worth over the long term, meaning more than three years.

In the past, people thought buying individual stocks (and bonds), or keeping money in interest-producing cash products, was the best way to increase their net worth over time. But research in recent decades has definitively established that people are terrible at consistently picking winning stocks, so terrible that picking winning stocks is nearly impossible.

Picking stocks has also gotten harder. In today's information-saturated environment, markets work incredibly efficiently to establish prices. That means the price you pay for a stock (or a bond) is very likely to be the price anyone else would pay, which means it's almost impossible to consistently buy stocks at a discount and sell them at a premium.

If you could predict the future about an individual stock, of course, you could overcome the problem of information saturation: you'd know something that the person trading across from you wouldn't know about the stock. But you don't—the person trading across from you knows as much as you do, and you do not have an edge over them.

Robo investment platforms use a particular tool, index funds, to invest for you. Optimized combinations of index funds representing different asset classes help you make money and manage the inevitable risk of investing. We're going to explain index funds and asset classes next and return to them in more detail later in the book.

What Is an Index Fund?

Here's what Elizabeth said to Jodi, roughly: people used to trade more in individual stocks and bonds, and in fact tried to invest for their futures that way. But stocks and bonds bought one at a time or in small handfuls are extremely risky. What if you were holding a lot of AT&T stock when the news broke that the company might be responsible for miles of decade-old lead-covered telecom? That dividend-producing stock *looked* safe. But no individual stock is very safe. Consider Carnival Cruise lines. In December 2019, the stock looked like smooth sailing ahead, based on the population of cruise-loving baby boomers. In December 2019, Carnival's stock was trading at $45. By April 1, 2020, after the start of a global pandemic, whose exact timing nobody could have predicted, the stock was down to $11. Even if you are the rare person able and lucky enough to pick a big winner or two, you'll erase your gains with other bad bets or mistakes in timing. The fact of owning individual stocks means you're more likely to trade them (because that's what you think you ought to do). Owning individual stocks is detrimental to investors' long-term returns because investors tend to buy and sell them more often. Even when they try to invest in many stocks at once, everyday investors invariably get the timing wrong because they are human. They sell in a panic or buy with overconfidence.

Index funds make investing cheaper and less risky by allowing investors to hold shares of many stocks representing a broad market at once and by encouraging investors to buy and hold. They were invented in the middle of the 20th century, based on the idea that while nobody can accurately predict the ups and downs of single stocks over the long term, we can reasonably bet that the entire economy, represented by the stock market, will grow. One example of an index fund is an S&P 500 index fund that mirrors the combined, weighted stock performances of the largest 500 companies trading in the US stock market. Another is a Wilshire 5000 index fund, which mirrors the performance of 5,000 stocks of US public companies, small, medium, and large. Today, about 68,000 companies around the world have issued shares that trade on public markets, in countries from the United States to France to Brazil. In the United States, where the markets are the biggest, about 6,000 company stocks trade publicly.[4]

A relatively new format of index funds trade on the market, called Exchanged-Traded Funds (ETFs). As of this writing in August 2023, the price for a share of Vanguard's Total Stock Market ETF was $221, up from $149 five years ago. When you buy an index fund, you bet that a very large swath of the market (the swath mirrored by the index fund) will go up over time. If you buy an S&P 500 index fund, you're betting that the 500 largest companies in the United States will grow, even if they aren't the same 500 companies over time. If you buy an index fund that mirrors the bond market, you're betting most of the companies and governments will make good on their promises to pay bondholders. That means that you, the individual investor, can capture the returns (and risk) of that part of the market.

The Key Concept of Asset Classes

From the beginning of the public markets, stocks (and different kinds of stocks), bonds, and cash have always behaved differently: stocks move up and down in price more often, and over the long term, go up the most as an asset class. Bonds are less volatile. It's easier to predict their prices because there is income attached to them. And cash, of course, becomes more or less appealing as an investment as interest rates rise and fall.

As computers advanced in the late 20th century, it began to be possible to create new combinations of stocks, bonds, real estate, and cash vehicles to create well-defined categories. In the language of investing, stocks, bonds, real estate, and cash are assets. They're grouped into categories called asset classes. Thanks to investment research starting in the 1950s, it is possible to make pretty good predictions of how asset classes will behave over the long term and to create combinations of them that give you the best statistical chance to grow your portfolio with the least amount of risk. This is somewhat analogous to our advances in predicting the weather accurately. Weather forecasters can't predict with perfect specificity and accuracy. But they can tell you how different variables act on each other to create different kinds of weather and make broad predictions based on that information.

We're actually a little better at predicting asset classes' long-term returns than the weather, possibly because human-created systems, while complicated, are less complicated than short-term weather systems. We can predict how asset classes are likely to rise and fall over time in different environments. And research also established that the most profitable way to invest in asset classes is index funds.

You Can Use Index Funds to Invest in Many Different Kinds of Asset Classes

Robo investment platforms use index funds representing asset classes including US stocks, international stocks, bonds, and real estate (and others—we'll talk more about this in Chapter 4). Each of these asset classes has an expected return. It's reasonable, based on a very long history, to expect US stocks to return 7% a year. It's reasonable to expect US bonds to return 4–5% a year. Cash, which is another kind of asset class, is returning upwards of 4% a year as of 2023 summer because the Federal Reserve has been raising interest rates, but that high return looks unlikely to last for more than a year or two.

Index funds make investing a lot simpler than buying individual stocks and bonds. How can anyone know whether a big chip maker such as Nvidia (currently one of the five most valuable stocks in the US) is going to be allowed to sell chips in China? If it can, it'll grow faster and its stock has a better chance of rising. Meanwhile, if the US government says no, the stock could drop. You'd have to be inside the heads of US and Chinese government officials, Nvidia executives and lobbyists, and you'd have to figure out whether . . . oh . . . there might be a global event that is going to cause the whole market to crater!

So Here Is Our Practical Definition of Robo Investing

Robo investing is a research-based, low-cost, automated method of driving a reasonably predictable increase in your net worth over the long term by using portfolios of index funds representing different asset classes.

Robo investment platforms do the complicated work of combining index funds, representing the asset classes, incredibly well. In the process, they have a secret weapon to increase your after-tax profits: tax-loss harvesting, which we'll get to in Chapter 6.

Stock-Picking Is Boring and Painful When You're Not Making Money

Some people get paid good money to make educated guesses about events such as the above example of Nvidia, and even those professionals' guesses mostly turn out to be wrong. But for most people, even attempting to do this kind of investment work is *boring*. Once you realize you're not likely to get rich, what's the point? If you wanted to keep track of the earning potential of thousands of companies in the markets or evaluate the risk of the next big catastrophic event such as a pandemic, you would have become a Wall Street professional or an economist, which you did not, because you're reading our book. Index funds work a lot better for individual investors. If you buy an index fund, you're buying the returns of the market, for a tiny fee (it doesn't cost much to create and run an index fund).

Investing with index funds means you're lessening the risk of owning individual stocks, but it's important to note you're also buying the risk of particular swaths of the market, which can go down, too. There are ways to minimize your risk—by buying index funds representing different swaths, or asset classes, and holding your investments over a long time. A robo investment platform will help you do both. But it's important to note that even with good index funds that you buy through a robo investment platform, you can't escape some risk. Investing is about taking some risks to be rewarded with returns. Everything in life has a price. There is a night and a day, a yin and yang, a risk and a reward. The keys to managing investment risk are time and diversification, as we'll talk about in Chapters 3 and 4.

Shortcut to Robo Investing

If you're the kind of person who learns by doing, you can go ahead and skip to the last section of the book, Section 4, which is about how to get started on a robo investment platform. It's really easy: you can set up an account in a matter of minutes, move a little money into it, and start experimenting. As of summer 2023, there were 13 widely recognized robo investment platforms in the market. Section 4 will also offer some information about how you should pick one.

But we'd like you to read Sections 1–3 because we believe you'll be better equipped to set your financial goals and to use the robo investment platforms to their fullest extent. And you'll be more likely to stick to your investing plans when the market takes a dive, as it inevitably will.

The Nobel Prize–winning economists who created the theoretical foundation of robo investing were, respectively, Paul Samuelson, Eugene Fama, Harry Markowitz, and Daniel Kahneman; and more economists and industry practitioners contributed empirical evidence supporting the low-cost, broadly diversified and behavioral approach to investing. We go into their research in more detail in Sections 2–3. Using software invented early in the 21st century, robo investment platforms turned the discoveries of these researchers into innovations for everyday investors. Robo investment platforms use risk questionnaires to consider your age, your finances, and your goals. Then they assess different index funds for their fees and qualities and construct a broadly diversified portfolio for you. They also respond to changes in the market, keeping your portfolio balanced and minimizing your taxes (in your taxable accounts, if you have them).

Final Note

Investing with index funds on robo investment platforms is not a get-rich-quick scheme. They're about doing well as an investor while exerting as little effort as possible. With a nod to Megan Trainor: *if beating the market is what you're into, then go ahead and move along.* This may not be the book for you (though you are welcome to stick around for a challenge, and we hope you do). In this book, you'll learn that the idea of beating the market is a mirage.** Investing well and meeting your financial goals so you can spend time on your career, your hobbies, and your passions can be a reality.

**The beat-the-market mirage propagated by the investment industry is like Barbie's physical proportions: a completely unrealistic idea that is so appealing that it became the unattainable standard. Mattel reduced the doll's bust size in 1998 and introduced differently shaped dolls over the years. Even so, a real-life woman with the physique of stereotypical Barbie would not be able to walk because of her overly large head and long, thin curves.

Key Takeaways in This Chapter

1. Investing is not buying individual stocks. Investing is driving an increase in your net worth over more than three years.
2. Asset classes are categories of return-producing property that you own, such as stocks, bonds, real estate, and cash (that's earning interest). Nobel Prize–winning research in the 20th century and empirical studies enabled people to predict how different asset classes behave over the long term.
3. Asset classes have different risk/reward profiles. Stocks are the riskiest and have the highest rates of return. Other kinds of asset classes enable you to reduce the risk of owning stocks, while still earning an impressive return.
4. The ideal way to invest in different asset classes is through index funds, which make investing cheaper and safer, so you can earn the market's returns, which have been very good over time. But you also take on the risk of the market, which goes down periodically.
5. Index funds and robo investing are innovations based on research.
6. Robo investing is a research-based, low-cost, automated method of driving a reasonably predictable increase in your net worth over the long term by using portfolios of index funds representing different asset classes.

Language of Investing[††]

Assets: property.

Asset classes: categories of income-producing property that you can invest in.

Speculating: buy property, such as gold or cryptocurrency, or assume a business risk hoping to make a large short-term profit from market fluctuations. Speculative investments often produce no income, which means their prices are more subject to fluctuation.

Stock: an ownership share in a company that technically gives you a claim to the future income produced by the company.

Bond: a slice of debt issued by a company, government, or a nonprofit entity that promises interest payments.

Index fund: the ideal way to invest in asset classes because they're cheaper and less risky.

Portfolio: your collection of assets and asset classes.

Return: profit.

(*Continued*)

[††]It's not clear why the investment world has a different language. Often, language is used to exclude people. We suspect this is the case when it comes to the processes and information necessary to build wealth, or "capital."

After-tax return: profit after the investment taxes (see Chapter 6).

Risk: price fluctuation, volatility.

The S&P 500 index: A hypothetical portfolio consisting of the largest 500 stocks in the US public stock market, as a representation of the market. S&P stands for Standard & Poor's, the former name of the company who owns and maintains the index (now called S&P Global Ratings).

History of Stocks and Bonds

The first stock was sold by The Dutch East India Co. on the Amsterdam Stock Exchange in the early 1600s to fund voyages. Investors were willing to bankroll expensive voyages in exchange for a slice of the potential profit from the spice trade. The investment was speculative—it could be fantastically lucrative if a voyage was successful, or it could evaporate if the ship sank in the Atlantic Ocean. The capital raised allowed The Dutch East India Co. to set more sails and expand its business. It was once worth almost $8 trillion in today's dollars, even more valuable than Apple, the most valuable company right now and worth $2.82 trillion.

Companies sell stocks to investors to raise capital to operate their businesses. When you buy a share of a company's stock, either from the company directly or another investor, you own a slice of the company. As a shareholder, you are entitled to the company's future profit proportional to your slice. Amazon's stock price grew eight-fold in the last 10 years. If you had bought Amazon's shares for $1,000 10 years ago, they would be worth $8,000 today, a phenomenal return delivered by Amazon to its investors.

Bonds are much older than stocks. The first bond was a government bond issued by the city-state of Venice to fund its war against Constantinople in the 1100s. Venetian citizens bought the bond (i.e., lent money to Venice's government) and got paid a 5% interest rate.

Today, a bond is a slice of debt issued by a company, government, or a nonprofit entity that promises interest payments and repayment of the principal. The bond evolved over time to incorporate features such as semiannual interest payments. Modern bonds, like stocks, can be traded on the market.

Bonds last for a certain amount of time, usually six months to 30 years and in rare occasions as long as 100 years.[‡‡] After you buy a bond you can either hold the

(*Continued*)

[‡‡]We had the same question: Why would someone buy a 100-year bond, if they're never going to get the money? Apparently, institutions buy them.

bond and accept the interest, or sell the bond to someone else who wants the future interest payments and is willing to pay a price for that income. Bond prices are set by a few factors: the interest paid by the issuing entity to the holder of the bond, the creditworthiness of the issuing entity (or government entity), time to maturity, and the prevailing interest rates at the time. Bond prices fluctuate as each of the factors evolve. Bond prices can be volatile, too, such as when inflation suddenly spiked in 2022, which caused a large increase in interest rates and drop in bond prices.