

HOW TO RAISE YOUR CHILD'S

FINANCIAL IQ



The Most Important Things

JOHN LIM

HOW TO RAISE YOUR CHILD'S FINANCIAL IQ:

The Most Important Things

John Lim ©2020

johnlim@outlook.com

DEDICATION

This book is dedicated to my children and wife.
You are the joy of my life.

REVIEWS for

“How to Raise Your Child’s Financial IQ”

“John Lim has distilled your children's financial future down to an easily digested essence; “How to Raise Your Child's Financial IQ” may be the best gift you'll ever give them.”

-William Bernstein

Best-selling author of numerous financial books, including *The Intelligent Asset Allocator: How to Build Your Portfolio to Maximize Returns and Minimize Risk*, *The Four Pillars of Investing: Lessons for Building a Winning Portfolio*, and *The Birth of Plenty. How the Prosperity of the Modern World was Created*, and many more.



“How to Raise Your Child’s Financial IQ: The Most Important Things” can hasten your kids’ progress up the learning curve of money and finance. It’s a high-level book – not a comic book – but it uses humor, clear explanations and everyday analogies to get its point across. Reading it may seem more like work than fun – it may take motivated kids to work their way through it – but the result will be worthwhile. They’ll end up understanding important concepts they’re unlikely to learn elsewhere.

-Howard Marks

Co-founder of Oaktree Capital Management and author of *The Most Important Thing: Uncommon Sense for the Thoughtful Investor* and *Mastering the Market Cycle: Getting the Odds on Your Side*.



“Achieving financial literacy at a young age is like being the only one in a game who knows the rules. Following John Lim's prescription for financial success will give you (and your children) a leg up on life. The sooner you learn that it is better to earn interest than to pay it, the wealthier you will be.”

-James Dahle

Founder of the *WhiteCoatInvestor* website and blog. Author of *The White Coat Investor: A Doctor's Guide to Personal Finance and Investing* and *The White Coat Investor's Financial Boot Camp: A 12-Step High-Yield Guide to Bring Your Finances Up to Speed*.

PREFACE

To young readers:

Can I let you in on a secret? The sooner you learn about money and put what you learn into practice, the wealthier you will ultimately become. That is why it is never too young to learn about money. The study of money is also called **finance**.

This book is about raising your financial IQ or intelligence quotient. Take two people who have exactly the same abilities, drive, and opportunities. Let's assume they work just as hard and make exactly the same amount of money throughout their lives. The person with a high financial IQ will amass far greater wealth than the person with just average financial IQ. Do you see why it is so important to raise your financial IQ?

Amazingly, it does not take a lot of effort to raise your financial IQ. By reading a few good books, I am convinced that anyone can raise their financial IQ significantly. This book is a great starting point. Would you read a few books on finance if it could double or even triple the amount of money you eventually accumulated? Sure, you would!

When someone promises to double or triple your money, you should be skeptical. There is no magic to becoming rich. It boils down to a few fundamental laws of finance which ultimately revolve around one key principle—the principle of compounding (chapter 1). The road to riches is not a short and easy one, but it is better than all the alternatives.

One more thing. Do not expect to be taught this stuff anywhere else. You won't learn about finance in school. You certainly won't learn about it in the workplace. Nor are you likely to be taught by your family or friends. The reason for this is simple: ***we live in a financially illiterate world***. The few who do understand finance—those working in the financial industry—are the least likely to educate you, because their income depends on keeping you in the dark. I congratulate you for picking up this book and beginning a journey that has the potential to transform your finances—and your life—immeasurably for the better.

PREFACE

To adult readers:

As a parent, I know one thing about you with absolute certainty. If you have children or grandchildren, you want the very best for them. Certainly, this extends to their financial welfare. But another thing I know about you is this: you probably lack the confidence to teach your children about finance because nobody taught you. Truth be told, nobody taught any of us.

About four years ago I decided to write a book to my children, passing on everything I knew about finance. I knew nobody else would teach them, and I didn't want them to have to learn through the school of hard knocks. The result is this book. Actually, this book is just the first in a series of books that will cover finance and investing, a series I have called *How to Raise Your Child's Financial IQ*.

This book is unusual in a few ways. First, it is written for children. When I started researching my book, I was startled at just how few books on finance are written for children. This is a shame, because money is something children are naturally curious about. It is also unfortunate because the sooner you learn about finance, the better off you will be financially. Albert Einstein called compound interest the eighth wonder of the world, and the rocket fuel for compound interest is time, which children and young adults have more of than any of us.

The other unusual thing about my book is that it assumes children are capable of learning about real finance, not some watered-down version. Children are intellectual sponges, capable of absorbing and assimilating vast amounts of information. There is growing evidence that IQ is not something we are simply born with, but that it is malleable, particularly in children. Intelligence also takes various forms. The premise of my book series is that anyone can raise their financial IQ with a relatively modest investment in terms of time and effort. Children stand to benefit the most for a number of reasons, but so do adults.

This leads me to my final point. This book was written for children, but I earnestly believe that adults could benefit from reading it as well. As I started with, nobody was taught this stuff. We all start out financially illiterate. My challenge to you is that you read this book alongside your child. Have honest conversations about money. Remember that you are the greatest influencer of your child. My hope is that this book will help you and your child raise your collective financial IQ's.

TABLE OF CONTENTS

Preface	4
COMPOUND INTEREST	7
Key takeaways.....	16
Law of finance #1	17
SAVING.....	18
Key takeaways.....	25
Law of finance #2	26
DEBT.....	27
Key takeaways.....	41
Law of finance #3	42
NET WORTH	43
Key takeaways.....	50
Law of finance #4	51
BUDGETING	52
Key takeaways.....	60
Law of finance #5	61
Letter to my children.....	62

CHAPTER 1: COMPOUND INTEREST

“The money that money earns, earns money.”

–Benjamin Franklin

Albert Einstein is said to have called **compound interest** the eighth wonder of the world. Indeed, no concept is more important to understanding money than compound interest. Nearly every choice you will make involving money revolves around it. Here are just some examples:

1. Using credit cards
2. Taking out a loan to buy a car
3. Paying for college
4. Buying a home
5. Deciding when you can retire (you probably don’t think about this much right now, but someday you will)
6. Whether to buy something or save your money instead
7. How to invest your money

Once you fully grasp the power of compound interest, it will forever change the way you think about money, enabling you to make better decisions in all realms of your financial life.

Grains of wheat & chessboards

An ancient Indian story illustrates the immense power of compound interest. A young man named Lahur Sessa invented the game of chess to comfort the king, who was grieving the death of his son. After learning to play the game, the king was overjoyed by it and wanted to reward the young man. He told Sessa to make any request, and the king would grant it. Initially Sessa refused, but upon the king’s insistence he finally made a request. He asked for grains of wheat in an amount as follows: one grain of wheat on the first square of the chessboard, two grains of wheat on the second square, four grains of wheat on the third square, eight grains of wheat on the fourth square, and so on, doubling the amount of grain on each successive square. (There are 64 squares on a chessboard.)

The king, who was not very good at math, laughed out loud as did everyone in his court. He berated Sessa for such a silly request, calling him a fool for asking for so little. Nonetheless, the king ordered his mathematicians to calculate how many grains of wheat he owed the young man. After a few hours they returned to the king saying:

“Magnanimous King! We have calculated the number of grains of wheat, and we have reached a sum that is beyond human imagination...the wheat that you will have to give to Lahur Sessa is the equivalent of a mountain with a diameter at its base the size of the city of Taligana and a height ten times greater than that of the Himalayas. If all the fields of India were sown with wheat, in two thousand centuries you would not harvest what you have promised young Sessa.”

(from *The Man Who Counted* by Malba Tahan)

As we will see in a minute, the power behind Sessa’s request is really the “magic” of compound interest. Only it is not magic, it is simple arithmetic.

Interest

But before we get to compound interest, we need to discuss **interest**. Suppose I want to borrow \$100 from you. I promise to pay you back in a week. If you know and trust me, you would likely hand me \$100; no questions asked. On the other hand, let’s suppose that I want to borrow \$100 from you, but instead tell you that I will pay you back in *five years*. Let us assume that there is still no doubt in your mind that I’ll keep my word. But, will you still be content to be paid back just \$100 five years from now? I’m guessing the answer is no. (If the answer is yes, you’ll find my email address at the front of the book. I accept all forms of digital payment.) Maybe you had plans to use the money to open a lemonade stand over the summer. You might need the money for an unforeseen emergency. At the very least, you could put the money in a savings account at a bank where it would earn some money or “interest.”

You see, if I want to borrow \$100 from you for five years, you would reasonably expect me to pay you back the \$100 plus something. That “something” is interest. **Interest is the cost of borrowing money**. If I borrow skis and boots for a day at a ski resort, it will cost me. If I borrow a car for a few days, there is a price to pay. It is no different with money. Borrowing money is not free. I must pay for the privilege.

Simple interest

There are two primary ways to calculate interest: simple interest and compound interest. We will look at **simple interest** first. The amount of money borrowed is called the **principal** (\$100 was the principal in our example). What determines how much interest I owe when I borrow money? One equation sums it up:

$$\text{Simple Interest} = \text{Principal (\$)} \times \text{interest rate (\%)} \times \text{time (years)}$$

It makes sense that the more money that is borrowed (principal), the more interest that would need to be paid. It should cost more to borrow \$200 than \$100. It is also quite fair that the longer I borrow money, the more interest I should expect to pay. Time is usually measured in years. Finally, the cost of borrowing money is the **interest rate**. This number is always

expressed as a percent or %. It is the amount per \$100 that is charged per year. An interest rate of 1% means that \$1 is the cost of borrowing \$100 per year. Likewise, an interest rate of 5% means \$5 is the cost of borrowing \$100 per year. Let's put this all together in an example:

If you lend me \$500 for 3 years at an interest rate of 10%, how much interest would I have paid you by the end of the 3 years? First, let us look at the interest I would owe after one year. To arrive at that, I take \$500 and multiply it by the interest rate of 10%. $\$500 \times 10\% = \50 . So, at the end of the first year, I hand over \$50 of interest. Notice that I still have the \$500 that I borrowed. How much interest will I owe at the end of the second year? Again, I multiply my principal of \$500 by my interest rate of 10% to get \$50 of interest owed. I hand that over to you. How much interest do I owe you at the end of the third and final year? That's right, \$50. I could calculate the total interest I pay you by using our Simple Interest formula:

$$\text{Simple Interest} = \$500 \times 10\% \times 3 \text{ years} = \$500 \times \frac{\$10/\$100}{1 \text{ year}} \times 3 \text{ years} = \$150$$

At the risk of beating a horse to death, let us look at the equation more closely. The 10% interest rate is expressed as $\frac{\$10/\$100}{1 \text{ year}}$. This translates to the following: for every \$100 borrowed, I pay \$10 of interest per year. I multiply the interest rate by the principal or \$500. Finally, I multiply by the number of years or 3 years. As in any rate problem, the units cancel nicely, leaving only dollars (\$) of interest. Notice that the amount of interest owed each year does not change. It is always $\$500 \times 10\%$ or \$50. At the end of 3 years I owe $\$50 + \$50 + \$50 = \150 . This is a simple but important point. *The interest each year never changes.* A very slight change in how interest is calculated has profound implications. That is where compound interest comes in.

Compound interest

When calculating the interest on borrowed money, people use compound interest rather than simple interest. Compound interest is far more interesting and powerful, as we saw in the story of grains of wheat on a chess board.¹ As before, let's say I borrow \$500 from you for three years at an interest rate of 10%. At the end of the first year the interest I owe is $\$500 \times 10\%$ or \$50. So far, no difference. But instead of me paying you \$50 in interest at the end of the first year, you say the following:

You: "You know the \$50 of interest you owe me? Keep it for now. You can pay me back later.

Me: I'm thinking to myself, "Wow, what a nice guy you are!" But before I can even finish that thought...

You: "But now you have borrowed a total of \$550 of my money. So, next year you will owe me 10% interest on \$550."

¹ It is probably not yet clear how the story relates to compound interest, but it will be by the end of the chapter.

Me: “Okay, fair enough. After all, I am now borrowing \$550 of your money. \$500 of principal and \$50 of interest.” I scratch my head, take out my trusty calculator, and punch out: $\$550 \times 10\% = \55 . No big deal, I think to myself. Next year I will owe you \$55 of interest instead of \$50.

(...one year later)

Me: “Here is the \$55 of interest I owe you,” handing you a crisp Ulysses S. Grant bill and a Lincoln.

You: “Don’t worry about it. I know I can trust you. Keep the \$55 in interest for now.” What you *really* mean is, “You can borrow and *pay interest* on another \$55.”

Me: By now I know the drill. I take out my calculator and punch some numbers: $\$500$ (principal) + $\$50$ (interest after year 1) + $\$55$ (interest after year 2) = $\$605$. Now I owe you (and continue to borrow) a total of $\$605$. So, next year I will owe $\$605 \times 10\% = \60.50 in interest.

You (always one step ahead of me): “See you next year! Just so we’re clear, the total you will owe me next year when your loan comes due is **\$665.50**.”

Here is a summary of what happened when I borrowed \$500 for three years at an interest rate of 10% with *compound interest*:

year	Interest owed	Total \$ borrowed (and earning interest)
1	$\$500 \times 10\% = \50	$\$500 + \$50 = \$550$
2	$\$550 \times 10\% = \55	$\$550 + \$55 = \$605$
3	$\$605 \times 10\% = \60.50	$\$605 + \$60.50 = \$665.50$

With compounding interest, what we are doing is adding the interest we owe each year to the original principal we borrowed to calculate the following year’s interest. We are paying interest on the *principal plus interest*, not just on the original principal like we did with simple interest.

In our examples, how much did it cost me to borrow \$500 for three years? With *simple* interest, I paid $\$50 + \$50 + \$50 = \150 in total interest. With *compound* interest I paid $\$50 + \$55 + \$60.50 = \165.50 in total interest. Of course, in both cases I will also have to pay back the original amount borrowed or the principal of \$500. The cost of borrowing money is the interest. With simple interest it cost me \$150, and with compound interest it cost me \$165.50 or \$15.50 more.

Now \$15.50 might not seem like that much. It might buy you a movie ticket at the theatre. But compound interest has a way of sneaking up on you. If we borrowed the \$500 for ten years instead of 3 years, any guess how much more interest we would pay with compound interest versus simple interest? At an interest rate of 10%, it would be \$296.87 more costly with compound interest! Borrow for twenty years and the difference is \$1,863.75! Do I have your attention now?

Let us change our perspective. Instead of thinking about interest as how much it costs to borrow money (the borrower's perspective), let us look at it through the eyes of the lender. Interest is the money that can be *earned* by lending out money to borrowers. No wonder lenders use compound interest. It pays so much more than simple interest.

This is what Benjamin Franklin meant when he said, "The money that money earns, earns money." Interest is "the money that money earns," and this *interest is now earning interest* through compound interest. With simple interest only the principal earned interest. This slight difference may seem small, but it is incredibly powerful!

Time is the "magic" behind compound interest

The effect of compound interest is like a snowball. It grows faster and faster with time. Not only does the snowball get bigger over time, but (don't miss this critical point) it is *growing* faster with time as well. Imagine two people, each starting with the same sized snowball. One person adds the same amount of snow to the snowball each time with his hand (simple interest). The other person adds an ever-larger amount of snow to the snowball each time (compound interest). Over enough time the compound interest snowball will grow to be far larger than the simple interest snowball— it won't even be close.

For example, had I borrowed \$500 at an interest rate of 10% compounded for 15 years, do you know how much I would owe you in 15 years? \$2089. You would have gotten back more than four times what you let me borrow! You may be wondering who in their right mind would lend someone money for 15 years? Well, it turns out that when many people buy homes, they routinely borrow money from banks for 15 or even 30 years. And it is not uncommon for large companies to borrow money for 50 years. Below is a table that summarizes the cost of borrowing \$500 at a 10% interest rate compounded over different time periods:

Borrowing period (years)	Total repayment (principal + interest)	Total repayment/\$500
5	\$805	1.6
8	\$1072	2.1
15	\$2089	4.2
30	\$8,725	17.4
50	\$58,695	117.4

I want you to focus on the right-most column in the table. These numbers represent the total repayment (principal + interest) divided by the total amount borrowed or \$500. If I borrow \$500 for 30 years, I end up paying back 17.4x that amount when all is said and done. If I borrow \$500 for 50 years, I pay back 117.4x that amount! Take a minute to let that really sink in. Just for comparison, if I borrow \$500 for 50 years with simple interest, I would have paid back only \$3000 in interest and principal. \$3000 (simple interest) versus \$58,695 (compound interest).

Now I want you to turn the tables. Instead of looking at it from the borrower's perspective, put yourself in the shoes of the lender. You lend someone \$500 at an interest rate of 10% with compound interest or what is commonly referred to as "compounded at 10%." If the money is lent out for 8 years, you more than double your money. If it is lent out for 15 years, you more than quadruple your money. If it is lent out for 50 years, you have earned more than 117 times your money (\$500 has turned into \$58,695)! I hope you are beginning to realize why Albert Einstein, widely regarded as one of the greatest physicists of all time, reportedly called compound interest the "eighth wonder of the world" (ranking right up there with the great Egyptian pyramids). He also added, "He who understands it, earns it; he who doesn't, pays it." If you get nothing else from this book let it be an appreciation of compound interest's awesome power to either enrich you or make you poor.

Compound interest as repeated multiplication

Let's look more closely at the math of compound interest. There is very little math in this book, but here it is crucial. You will encounter interest rates and compound interest throughout your financial lives. I guarantee that the more comfortable you are with them the more successful you will be in your finances. I will go as far as to say that the better you understand the math behind compound interest, the richer you will ultimately be, because you will make better financial decisions. The good news is that you already have the mathematical tools you need to understand compound interest, because compound interest is nothing more than *repeated multiplication*. (Dear reader: if you read and reread this section and find that you still do not understand it, do not despair. Simply go on reading. But, promise me this: come back later and

read this section until it makes sense to you. Later can be in a week, in a month, or even in a year, but do come back to it. It is *that* important.)

Recall that the original amount we borrow is called the principal. We will use **P** to represent the principal. Let us call the interest rate, **r**. So, if the interest rate is 5%, then **r** would be 0.05. If the interest rate is 10%, then **r** would be 0.10. (The % sign is simply a shorthand for dividing by 100. So, $n\% = n/100$.) Now let us see what we would owe at the end of one year, which is the sum of the principal plus the interest:

$$\text{Amount owed after year one} = \text{principal} + \text{interest} = P + P \times r = P \times (1 + r)$$

Simple enough. Let us calculate what we will owe at the end of the second year. Remember that this is compound interest, so the second year the amount we have “borrowed” is $P \times (1 + r)$ or the amount we owed at the end of year one. Think of $P \times (1 + r)$ as being the new principal. So, the amount we pay interest on is no longer just **P**, but $P \times (1 + r)$.

$$\begin{aligned} \text{Amount owed after year two} &= \text{“new principal”} + \text{interest} \\ &= P \times (1 + r) + [P \times (1 + r)] \times r \\ &= P \times (1 + r) \times (1 + r) \\ &= P \times (1 + r)^2 \end{aligned}$$

We are starting to see a pattern... Just to be sure, let us calculate what we will owe at the end of the third year. Remember that our “new principal” or what we are borrowing for the third year is now $P \times (1 + r)^2$, the balance we owed at the end of year two.

$$\begin{aligned} \text{Amount owed after year three} &= P \times (1 + r)^2 + [P \times (1 + r)^2] \times r \\ &= P \times (1 + r)^2 \times (1 + r) \\ &= P \times (1 + r)^3 \end{aligned}$$

Let’s summarize:

Year	Amount owed at end of year
1	$P \times (1 + r)$
2	$P \times (1 + r)^2$
3	$P \times (1 + r)^3$
\vdots	\vdots
n	$P \times (1 + r)^n$

The amount owed at the end of year **n** is always equal to $P \times (1 + r)^n$. Compound interest is really just repeated multiplication! You initially borrow **P**, the principal, and for every year that you borrow, you multiply by $(1 + r)$, where **r** is the interest rate. If you borrow **P** dollars for 15 years, you will owe a total of $P \times (1 + r)^{15}$ by the end of the 15th year. Since $(1 + r)$ is always greater than 1, each time you multiply **P** by it, you end up with a slightly larger number. So even if $(1 + r)$ is fairly small, $(1 + r)^n$ can end up being very large if **n** is large enough. We have just derived one of the most important equations in finance, the compound interest equation:

Compound interest equation: $N = P \times (1 + r)^n$

Earlier we said that if we borrowed \$500 for 15 years at an interest rate of 10% we would owe \$2,089 at the end of 15 years. We can now calculate this number for ourselves using the compound interest equation. Try this yourself with a calculator:

$$\begin{aligned}\text{Amount owed after 15 years} &= 500 \times (1 + 0.10)^{15} \\ &= 500 \times (1.1)^{15} \\ &\approx 2088.6\end{aligned}$$

If we borrow \$500 for 30 years at 10% interest, how much would we owe?

$$\begin{aligned}\text{Amount owed after 30 years} &= 500 \times (1 + 0.10)^{30} \\ &= 500 \times (1.1)^{30} \\ &\approx 8724.7\end{aligned}$$

The power of compound interest is truly awesome. It is wonderful if you are the one lending money. But if you are the one borrowing, it is another story. You borrowed \$500 but ended up having to pay back over four times that in 15 years or more than seventeen times that in 30 years. That was the “cost” you paid for the privilege of borrowing money. Was it worth the cost? It all depends on what you do with the money.

A mini Starbucks

Suppose you borrow \$500 at 10% interest to open an espresso stand at school. The loan is for three years, and the interest is compounded. You buy an espresso machine, coffee beans, flavored syrups, milk, sugar, and other supplies. Of course, you also need to pay students to work the stand a few hours a day. The espresso stand is a big hit! Lines are long. With the exception of the first month, you make a profit of \$20 a month. Let’s say you made a profit of \$200 for the first year. **Profit** is defined as how much money you have made after all your expenses are paid. For now, we will ignore the expense of the loan or the interest.

As business grows over the years, you expand to two espresso stands. Your business thrives. You raise prices a little, but the lines are still long. The second year you make a profit of \$300. The third year you make \$350. Now it is time to pay back the loan. Let’s do some math:

$$\begin{aligned}\text{Amount owed} &= 500 \times (1 + 0.10)^3 = 665.50 \\ \text{Total profit} &= 200 + 300 + 350 = 850\end{aligned}$$

In the end, borrowing \$500 at 10% interest allowed you to open the espresso stand. You probably didn’t have \$500 of your own money laying around, so you took out a loan. You ended up having to pay \$665.50 to the lender in principal plus interest. It cost you \$165.50 in interest to borrow the \$500 for three years, which was not cheap. But, because you invested that money

to start a profitable business, it turned out to be worth the cost of borrowing. Even after paying back the \$665.50, you ended up with a final profit of $\$850 - \$665.50 = \$184.50$. Of course, there was no guarantee that the espresso stand would end up being profitable. It could have ended up losing money instead.

If there is just one thing you take away from this book, I hope it is an appreciation and understanding of the immense power of compound interest. Nothing is more vital to your personal finances and to making wise money decisions. So many other things we will explore in this book are either directly or indirectly related to compound interest. Once you fully grasp the concept of compound interest and all its implications, you will have a huge head start to your financial life. In fact, you will actually know more about personal finance than most adults. Unfortunately, most adults either do not understand compound interest or simply choose to ignore it to their detriment. I will say it again: Compound interest is truly **the most important thing** when it comes to your money.

Now let us revisit the story of Sessa and the King. Sessa's wisdom allowed him to appreciate the power of compound interest. As we now know, compound interest is simply repeated multiplication. Recall that each square was filled with twice the number of wheat grains as the preceding one. Therefore, the repeated multiplication is by a factor of two, which would be expressed as an interest rate of 100% (Do you see why?)² The first square had 1 grain, the second square 2 grains, the third square 4 grains, and so on. By the 64th square there would be 2^{63} grains of wheat! Type that into your calculator and you'll find it to be an enormous number. Here it is:

$$2^{63} = 9,223,372,036,854,775,808$$

² If the interest rate, r , equals 100%, then $(1 + r) = 1 + 1 = 2$. So, from the compound interest equation, $N = P \times 2^n$

Compound Interest: Key Takeaways

- Interest is the price we pay for borrowing money
- Simple interest: only the principal (amount borrowed) earns interest
- Compound interest: both the principal and interest earn interest
- Time is the “magic” behind compound interest
- Compound interest is really just repeated multiplication
- Compound interest equation: $N = P \times (1 + r)^n$
- Compound interest is the greatest force in finance

Law of Finance #1:

*Compound interest is the most important thing in
finance.*

CHAPTER 2: SAVING

“A penny saved is a penny earned.”

–Benjamin Franklin

In chapter one we learned how compound interest can grow one grain of wheat into a mountain of wheat rivaling the size of the Himalayas. But we must start with the grain of wheat. In other words, we need to save money before we can grow it. The cornerstone of personal finance is saving money. Unless you learn to save, nothing else you do financially will matter.

You may be thinking to yourself, “I don’t have a real job yet. How can I save money when I am not working?” That may be true, but do you get an allowance? Do you ever get money on your birthday from parents or grandparents? Have you ever had a summer job? The wonderful thing about being young is that you are not burdened with paying for all sorts of things. You do not have a **mortgage** to pay every month (a loan taken out to buy a house). You probably do not have to worry about paying for groceries, gas for the car, electricity and water...all the things that adults need to pay for. Youth has its advantages, and one of them is that you can afford to save.

Never too early

It is never too early to start saving money, so start today. What’s the rush, you may ask? Remember the power of compound interest in chapter one? The fuel of compound interest, Popeye’s spinach, is *time*. Since most of you have probably never heard of the animated cartoon series *Popeye the Sailor*, here is a quick synopsis: Popeye’s sweetheart is Olive Oyl (I didn’t make up these names!). The villain is a brawny bully named Bluto, who is also attracted to Olive Oyl. Bluto is always beating up Popeye and stealing Olive Oyl from him. Each time this happens Popeye reaches for his can of spinach, opens it, and swallows it, at which point he is suddenly transformed into a person with superhuman strength. He promptly proceeds to pummel Bluto and rescue Olive Oyl.

The spinach or secret sauce of compound interest is time.

Consider this: If you save a dollar when you are 9 years old, that \$1 can grow into \$50 by the time you are 60 years old through the “magic” of compound interest. (Here I’m assuming an 8% interest rate over 51 years. Take out your calculator and calculate this for yourself.³) Still not

³ $1 \times 1.08^{51} = 50.6$

impressed? If you save \$10, you will have \$500. Put away \$100 now and have \$5000 waiting for you in the bank at age 60. Now you will not get anywhere near an 8% interest rate at a bank today, but you could certainly get an 8% interest rate or return by *investing* the dollar.

Investing and returns—a short diversion

Let us clarify some terminology. What does it mean to invest? To **invest** means to purchase something, called an investment, with the expectation that it will return more wealth in the future. The most important investments are stocks and bonds (book two is entirely devoted to stocks and bonds). The **return** on an investment is the amount we get back above and beyond what was invested. The return is analogous to the interest we discussed in chapter one. The **rate of return** is analogous to the interest rate; just like an interest rate, it is expressed as a percentage.

For example, if we get a rate of return of 8% on an investment, that means the value of our investment has increased by 8%. The return could be from an increase in the price of the investment itself or from cash that the investment pays out (also called income) or a combination of the two. Importantly, when you invest in stocks or bonds, the returns on your investments can be compounded, just like with compound interest.

Build the habit of saving

Rather than saving your money, you may want to spend it on things that you “consume.” This does not necessarily mean buying things that you will eat but rather buying goods or services that are “used up” for lack of a better word. This could mean going out to the movies, buying clothes, or going on a cruise. There is absolutely nothing wrong with using money for any of these things. In fact, it is really the main reason we work in the first place. But please do yourself a favor. Learn to always save and invest some of your money for the future you. It can be just 10% or 20% of what you earn, but save something. By doing this you are allowing your savings to begin the wonderful process of snowballing through compound interest. Equally importantly, you will be building a habit of saving that will serve you well your entire life. Eventually, saving money will become second nature. If you could imagine meeting the future “you” that is 60 years old, this is what he or she might say: “Thank you for being so wise by saving money when you were young. You are now financially secure. Let’s go out and party!”

You may not realize it yet, but you have an enormous advantage over adults when it comes to saving. You have the advantage of time. When it comes to saving and investing money, time is your best friend. It goes back to what we learned earlier about compound interest. Let’s look at an example.

Want to be a millionaire?

Say you want to retire someday with a million dollars. How long do you think it would take you? To achieve this goal, you will of course have to save money consistently over time. You will also want to invest it, so that your savings can grow with compound interest. If you start when you are 15 years old, and save \$200 each month, getting an 8% return on your money each year, you will have a million dollars by the time you turn 60. If you wait until you are 25 years old or just 10 years later before you start saving, how much money will you need to save each month to reach the same goal by age 60? About \$450 a month! Wait until you are 35 before you start saving, and you'll have to save \$1,060 a month! Wait until you are 45 and you need to save a whopping \$2845 a month!!! How much would you rather save each month to get to the same endpoint (a million dollars by age 60)? \$200, \$450, \$1060, or \$2845? By starting to save money earlier, compound interest can do most of the heavy lifting for you. You may be thinking that by starting later, you are saving for fewer years and so it is not a fair comparison. Let us also look at how much money in total you need to save or set aside to reach your goal of having one million dollars by the age of 60:

Different paths to becoming a millionaire by the age of 60

Age you start to save	Monthly savings	Total money you need to save
15	\$200	\$110,400
25	\$450	\$194,400
35	\$1,060	\$330,720
45	\$2,845	\$546,240

The right-most column is the total amount of savings set aside up to the age of 60. For example, if you start at the age of 15 and finish at age 60, you will be saving for 46 years. You are saving \$200 a month or \$2400 a year. So, $\$2400 \times 46 = \$110,400$. Notice that even though you have only saved or put away \$110,400, you have \$1,000,000 at age 60. The difference, \$889,600, is the glorious product of compound interest! Wait until the age of 45 and you will need to set aside \$546,240 in savings to reach your goal. You still benefit from compound interest, but not nearly as much. I don't know about you, but saving \$110,400 seems a lot easier than saving \$546,240, even if it means having the discipline to start saving at a much earlier age.

Goofus and Gallant

As a little boy, I really enjoyed the didactic comic strip, *Goofus and Gallant*, by Garry Cleveland Myers. It starred two boys, named Goofus and Gallant, who could not be more different. Goofus was always being mean and selfish. Gallant, on the other hand, was a model of good behavior and virtue. Just for fun, let us imagine what Goofus and Gallant would do when it comes to handling money. Here are the assumptions: Goofus and Gallant are the same age. They both make the same amount of money each year, and they both get a return on their savings of 8% a year.

Goofus spends his money right away, never saving a dime.

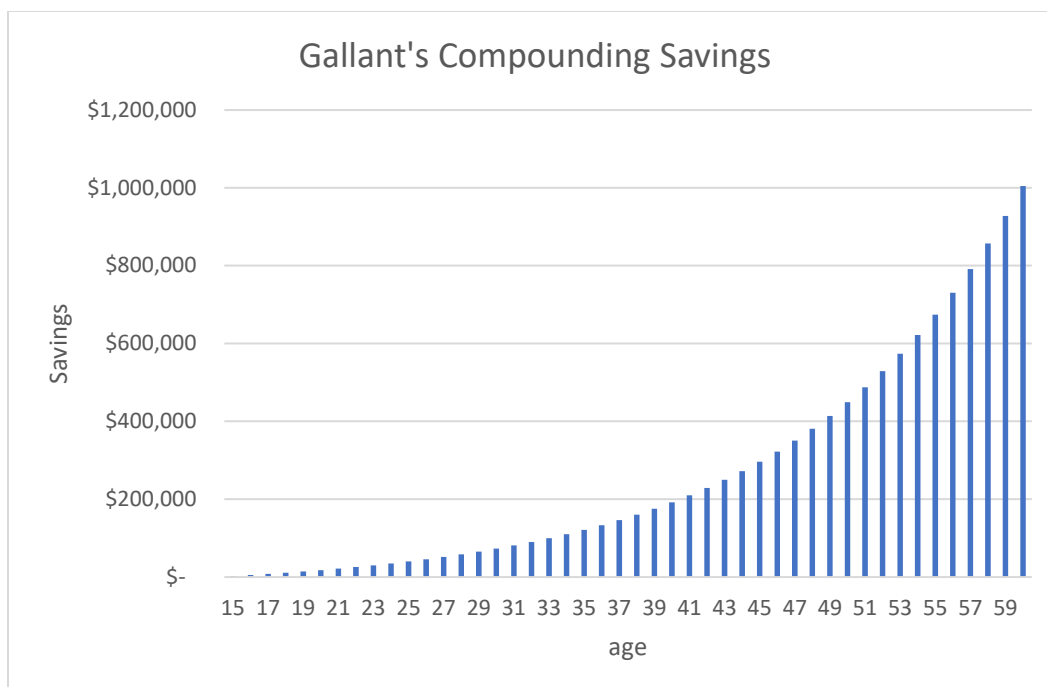
Gallant diligently saves \$200 a month, starting at age 15.

Fast forward 30 years...

Goofus, now 45 years old, realizes he has nothing saved for retirement. He wants to retire from his job by the age of 60. After doing some math, he discovers that he must save \$2,845 a month to reach his goal of one million dollars by the age of 60. But Goofus finds it too hard to save that much and still make ends meet. He decides to save half that amount or \$1,422 a month. He ends up working until the age of 67 before he reaches his goal.

Gallant, also 45 years old, has been diligently saving and investing his money since he was 15. He now has \$296,030 in savings. By continuing to save just \$200 a month he will reach his goal and be able to retire at the age of 60 with one million dollars.

- At age 45, Goofus is faced with some unpleasant choices. He can begin to save a very large amount (\$2,845/month) and retire by age 60. Or he can save half as much (\$1,422/month) and work longer, retiring at the age of 67. If he can only save 5x as much as Gallant (\$1000/month), he will need to work until the age of 71 to reach his goal. No matter how you slice it, Goofus is faced with saving a lot more and probably working a lot longer than Gallant.
- At age 45, Gallant can now spend a lot more money each month than Goofus. Gallant continues to save \$200 a month, but that is way less than Goofus. Remember, we assumed that they both earn the same amount of money.
- Goofus needs to downgrade his lifestyle to live on much less than he has become accustomed to—never a pleasant situation to be in. For example, let's say Goofus and Gallant are earning \$5000 a month at age 45. Gallant saves \$200 of this, meaning he has \$4800 to spend. Goofus *was* spending \$5,000 a month before he came to the stark realization that he needed to start saving. To catch up to Gallant by age 60, Goofus will need to begin saving \$2,845 a month. That means he can only spend \$2,155 (\$5,000 - \$2,845) per month. But he has been used to spending \$5,000 a month. He needs to cut his spending by more than half! Not an easy thing to do.
- After saving diligently for 30 years, Gallant has \$296,030 in savings at the age of 45. Amazingly, in just another 15 years he will reach his goal of one million dollars. Most of the growth to reach his goal occurs in the final years. That is always how compound interest works. A picture is worth a thousand words:



Running a marathon

A marathon is a 26.2-mile foot race. If you have ever run a marathon—as I have—you know that reaching the finish line requires planning. Running a marathon is a very good analogy to saving for retirement. There is the goal, the plan, and the race itself.

The goal:

The goal of a marathon is straightforward. Get to the finish line, which is 26 miles away from the start. But what is the goal of saving for retirement? More fundamentally, why do we save for retirement in the first place?

Sorry to tell you this, but someday you will grow old. There will come a time when you will no longer be able to work due to health or other reasons. You may also choose to stop working to pursue other interests. (When I use the word “work,” I am referring to doing some job that pays money.) The basic notion is to have enough money saved up so that one day you can stop working for pay and still live comfortably off of your savings. Retirement is actually a relatively new concept, beginning in the late nineteenth century. Growing prosperity meant people could afford to stop working late in life and retire. With increasing longevity, the amount of time people spend in retirement has also increased. More than ever before, this means having a plan.

The plan:

Now that we understand the goal of saving for retirement, we need to come up with a plan. How are we going to come up with all that money? Just like running a marathon, there are

no shortcuts. The plan is simple, though not necessarily easy. Whatever money you make while working, you must save a portion of it for retirement. The money saved will also need to be invested so that it grows through compound interest. Before you know it, you will be sitting on a pile of money that will enable you to retire. It really boils down to two things: *how early* you begin to save and *how much* you save.

The race:

Think of your financial life as a marathon. You will want to start the marathon by saving aggressively. Saving well will power you through the first half of the marathon. But like the story of the turtle that overtakes the hare, compound interest eventually overtakes the power of saving in the second half of the race. It is in the last several miles of the marathon that compound interest really comes on strong. Compound interest really shines toward the end of the marathon but only if it has been fueled by savings throughout the race *but especially in the first half*.

When you are young, the habit of saving will have a much greater effect on growing your money than compound interest. Why? Because compound interest takes time. In the beginning compound interest is just getting started; it is “warming up.” Early on, the effects of saving will be far more evident than that of compound interest. Furthermore, your savings is the fuel for compound interest.

But compound interest will have its day in the sun toward the end of the marathon. Fueled by savings and time, compound interest eventually kicks into high gear. One day you will notice that the money you have saved and invested is now earning so much money that the effect of *money earning money* dwarfs that of saving money. You are metaphorically being carried for the final miles of the marathon, so you can now rest and enjoy the view—the finish line (retirement) is in plain sight.

Going back one last time to Goofus and Gallant, ponder this amazing fact: Let’s say Gallant stops saving money at the age of 45. Metaphorically, this is around mile 17 of the marathon or two-thirds of the way through the race (remember, he began savings at the age of 15 for a retirement at age 60). He simply continues investing what he has accumulated up to that point. How much longer do you suppose it takes him to reach his goal of having one million dollars saved for retirement? Answer: Instead of reaching his goal by the age of 60, he reaches it by the age of 61—just one year later! Let that sink in for a moment. At the same time Goofus finally gets serious about saving and will need to save thousands of dollars a month to reach his goal, Gallant can stop saving altogether and still reaches his goal, only one year later than planned. He has reached the point in the marathon when he can stop running and be carried the rest of the way to the finish line.

Snowballs down mountains

Let me leave you with a final analogy. Think of saving as gathering snow to make your snowball before you let it roll down the mountain and while it rolls down the hill (imagine

yourself packing more snow on the snowball as it rolls). The natural growth of the snowball as it rolls is compound interest. If you keep adding snow to your snowball (or start with a bigger snowball to begin with), it will grow far larger as it rolls down the mountain. And think of time as the size of the mountain. As a child, you are rolling your snowball down Mount Everest. Your snowball will roll for a very long time. Saving, compound interest, and time are powerful forces on their own, but put them together and you are looking at an unstoppable avalanche.

Saving: Key Takeaways

- It is never too early to start saving. The secret sauce of compound interest is time.
- The sooner you develop the important habit of saving, the better off you will be financially.
- There are many roads to becoming a millionaire, but the sooner you start, the less you will ultimately need to save.
- Remember the lesson of Goofus and Gallant. If you put off saving money like Goofus, you will likely need to downgrade your lifestyle in the future and work for much longer.
- Saving for retirement is like running a marathon. Save early and consistently in the first half and let compound interest work its magic in the second half.

Law of Finance #2:

Nothing else will matter if you do not learn to save.

CHAPTER 3: DEBT

“The borrower is servant to the lender.”

—Proverbs 22:7

King Solomon, considered by many historians to be the wisest and richest person of his time, wrote those words nearly three thousand years ago. What he had to say about borrowing and lending is no less true today and has never been more relevant.

What is debt?

Here is one definition of **debt**:⁴ “A sum of money that is owed or due.”

When you choose to borrow money, you are taking on debt. Debt is an “IOU” or promise to pay back money that one borrows. Just remember two things about debt. First, you are usually borrowing money that you *do not have*. After all, if you had the money, you would not need to borrow in the first place. Second, no one is forcing you to borrow. Borrowing money or taking on debt is almost always a *choice*. As we shall learn in this chapter, it is usually a poor choice.

The good, the bad, and the ugly

First, the good news. No one is born into debt. If you are reading this before going to college (which is my sincere hope), you probably do not have any debt. You are starting with a clean slate. And since debt is a choice, you can choose to avoid debt as much as possible. Not all debt is avoidable, but fortunately most is.

Now for the bad news. Our society and culture are full of booby traps that make it incredibly easy to fall into debt. We are encouraged to borrow all the time. Want to buy a \$1000 iPhone but don’t have the money? “No problem!” says your phone company, “just pay us \$50 per month for the next 24 months.” Guess what? When you “buy” an iPhone for \$50 a month, you have just borrowed money or taken on debt. Your phone company has lent you \$1000, which you immediately exchange for a shiny new iPhone. For the next 24 months, you are repaying the loan.

More bad news: Debt is almost never free, and it is often very expensive. When you borrow money, you need to pay back what you borrow...and then some. That extra is called

⁴ Oxford English dictionary

interest, which is the cost of borrowing money (see chapter 1). Doing some quick math from the iPhone example, we find we ended up paying $\$50 \times 24 = \1200 for the \$1000 iPhone. The \$1000 iPhone ended up costing us \$1200. The extra \$200 was the cost of borrowing money, also known as interest. The expensive iPhone just became a whole lot more expensive!

The ugly reality about debt is just how pervasive it has become in our society. According to a recent study, U.S. households with any kind of debt owed \$131,431 on average⁵. While a big chunk of this is mortgage debt or what many would consider “good debt” (more on this later), there is no denying that debt plays a huge role in people’s financial lives.

As a purely financial concept, debt is not that complicated. If you understand compound interest, you understand debt. You can always calculate the true cost of borrowing money at a given interest rate and for a given length of time. However, as illustrated in our iPhone example, debt is often disguised. The phone company did not say, “We will loan you \$1,000 with an interest rate of about 10% for two years.” Why? Because the more you are kept in the dark about the true cost of your purchase, the less likely you are to question it. One reason so many people borrow money is that they lack a clear understanding of compound interest and its implications for debt. In short, they don’t really understand how expensive debt is.

However, debt is often more of a *behavioral and psychological* decision than simply a financial one. The decision to go into debt—remember that it is almost always a choice—is often subconscious. Every day we are lured into debt in more ways than we realize. If we are not careful, our thoughts and behaviors can be manipulated into spending our way into debt, often without us even realizing what is happening. If we are to raise our financial IQ, not only do we need to understand the cost of debt, but we also need to raise our awareness of the countless ways we fall into the trap of debt.

The war for your wallet

Know this: There is a constant war being waged for your wallet. Everyone wants you to spend your limited dollars on them. But they are not content to stop there. They want to lay claim on your future dollars too, which they accomplish by convincing you to take on debt. And you better believe that they are highly equipped in this battle for your dollars. They have studied you carefully and understand what makes you tick. We cannot hope to successfully defend ourselves against this barrage until we better understand the enemy and its tactics; knowledge is power. So, who exactly are the enemies we face?

Credit cards—the Trojan Horses

At the end of a fruitless ten-year siege of the well-fortified city of Troy, the Greeks came up with an ingenious plan. They built a huge wooden horse, inside of which soldiers quietly hid. Then the Greek army pretended to give up and sailed away. The relieved Trojans pulled the wooden horse into their city as a victory trophy. That night, the Greek force crept out of the

⁵ Data source

horse and opened the gates for the Greek army, which had sailed back under the cover of night. The rest, as they say, is history...

Credit cards are the Trojan horses of banks. It is their way of gaining access to our wallets, quite literally! When you pay for something with a credit card, you are borrowing money from the bank. Every time you use your credit card, it is just as if you walked into a bank and took out a loan. But there is one significant difference—it is far more convenient, taking only a few seconds. Of course, you receive a bill or statement each month from the bank requesting repayment. But here is a dirty secret about credit cards: banks do not want to be paid back right away. They want you to take your good old time. Why? Because when you don't pay your balance completely each month, you are charged interest on the balance. The interest rate you pay on credit cards is often astonishingly high. Of course, the interest is compounded, and we know how compounding causes what we owe to snowball.

Quick example: a credit card with an interest rate of 20% on unpaid balances is not uncommon. Let us say you buy a \$500 smartphone with such a card. When you get your monthly statement from the bank, it will show a “minimum monthly payment” which is very small, say \$10. If you only paying \$10 a month, at an interest rate of 20% it would take you about 8 ½ years to pay the balance in full. Furthermore, you would have paid \$1,030 in total to the bank! In other words, the \$500 smartphone ended up costing you twice as much—\$500 going to the phone maker and \$530 to the bank.

A more subtle way credit cards operate like Trojan horses is that they can get us to spend more than we would otherwise. Studies have shown that people spend more when they pay with credit cards. Now I am not arguing that we shun credit cards completely and return to using cash or checks for all our purchases. If you use credit cards prudently, credit cards are a wonderful convenience. Used intelligently, credit cards can actually *save* you money since many offer valuable perks, such as paying you a small percentage of your spending in the form of cash or reward points. But realize that these rewards are subsidized by other card users that carry a balance and end up paying exorbitant interest.

The bottom line: only pay for something with a credit card when you already have money in the bank to pay for it. In other words, **always** pay your credit card balance in full each month. If you are not doing this, take your credit cards out of your wallet or purse and pay with cash instead.

Installment plans, leases, and financing

Picture yourself as a horse. You grow up galloping freely on acres and acres of farmland. Now imagine that one day you wake up and find yourself in a horse stable or stall, enclosed on all four sides with little room to move. When you buy something on an **installment plan**, you are building a financial stall around yourself. You are giving up some of your financial freedom. How does an installment plan work? With an installment plan a buyer pays for something with regular installments while enjoying the use of it. By spreading out payments over months or years, items that once seemed unaffordable or exorbitant suddenly seem within reach. We saw how an installment plan works in our earlier example of the \$1,000 iPhone.

Leases are similar to installment plans, except that with a lease you are just a renter; you never actually own whatever it is you are leasing. Car or truck leases are especially popular. Why save up twenty or thirty thousand dollars to buy a new car when you can just lease one for a few hundred dollars a month? Even better, when your lease is up, you can sign another lease for a brand-new car or truck. The allure of being able to drive the latest model every few years is simply too great for many people to pass up. By failing to do the math behind car leases, they underestimate the true cost. As we shall learn in the next chapter, automobiles can be one of the great destroyers of wealth.

Before we leave the topic of cars, let us talk about **financing**. Suppose you see an advertisement for a sleek sportscar that you find irresistible. Let's say it costs \$50,000. You don't have anywhere near that much money saved up, but no worries, the ad mentions that you can drive away with the car for as little as \$876 a month with financing. "Financing" is simply another word for a loan. In this case your car loan payments are spread out over 60 months with an interest rate of 2%. Unlike with leasing, the car is yours—that is, once you have paid off the loan. You tell yourself that you can afford to pay \$876 a month. The temptation to walk out of a dealership with the car of your dreams for just \$876 is just too great. Before you know it, you have the keys to your dream car. But in doing so you have built a financial "stall" around yourself. You are borrowing from the future to pay for something that you cannot afford today. For the *next 5 years*, \$876 of your monthly paychecks are going to the financing company. You have become, in Solomon's words, a "servant to the lender."

These methods of payment have become ubiquitous. Installment plans, leases, and financing are just variations on a common theme. In each case the buyer is enticed to make a purchase that would otherwise be unaffordable or unattractive. By spreading out payments over months or years, the true cost to the buyer is deceptively low. Interest costs can more easily be hidden as well. While 2% financing from our example sounds quite cheap, what it amounts to is an extra \$2,560 in interest payments over the life of the car loan, amounting to a 5% premium on the price of the car. However, the true price to be paid by these payment schemes (even when no interest is being charged) is the holding hostage of your future income. Like the horse in a stall, the more purchases you make in this manner, the more of your financial freedom you are surrendering.

The bottom line: Unless you have the money to pay for something in full, don't buy it.⁶ Save up until you do.

Sirens of advertising

In Greek mythology the Sirens were dangerous creatures that were part bird and part woman. They lured nearby sailors with their enchanting music and singing, causing them to shipwreck on the rocky coast of their island. Today, the sirens of advertising lure us to spend beyond our means until we shipwreck our finances on a mountain of debt. Advertisers are far more sophisticated and effective today than they were in the past. They used to blast the world with commercials on television and radio; they would take out ads in newspapers and magazines.

⁶ Later in the chapter, we will cover the two major exceptions to this rule: buying a house and paying for college.

Now with the ubiquity of smartphones and with the advent of Google, Facebook, Snapchat, and Instagram, just to name a few, they know more about you than some of your closest friends. They also have your attention 24 hours a day, 7 days a week. If you are like most people, your smartphone is the last thing you look at before drifting off to sleep and the first thing you grab the moment you wake up. Is it any wonder that the ads that continually entice and bombard you on your phone are so effective? Is it a coincidence that Apple, Alphabet (parent company of Google), and Facebook are among the ten largest companies in the world? These titans are modern-day sirens threatening to wreak havoc with your finances.

Furthermore, your circle of friends has unwittingly become accomplices of the Sirens of advertising through social media. Every minute of the day you can see what they are doing, what they are buying, and what they “like.” Google knows what you are interested in by what you search, the content of your email, and even the photos you take. It even knows your physical location through apps like Google maps. The ads Facebook and Google send your way are like heat-seeking missiles that are incredibly precise and effective.

Now I am certainly not suggesting you live in a cave without the internet or smartphones. Nor am I telling you to cancel your social media accounts. (Although there is mounting evidence that spending less time on social media *will* make you happier.) Companies like Google do provide many incredibly valuable services. However, let’s not fool ourselves into thinking these resources are free; they definitely come with strings attached. We are giving them something equally valuable—knowledge of who we are and what we are interested in. There is nothing more valuable to a marketer than those two pieces of information.

Finally, consider this. Never before in human history has it been easier to satisfy a material desire. Until recently, if we wanted something, we needed to drive to a store and buy it. With mail order catalogs (remember those?) we needed to pick up the phone and make a call. The item would arrive a week or two later. Not so today. With a simple click on our smartphone, we can buy virtually anything we wish and have it delivered on our doorstep the very next day or sooner. One word embodies this on-demand convenience: Amazon. Well, maybe two words: Amazon Prime. No doubt online shopping is a tremendous convenience and can be a huge time saver. But if we don’t think the Amazon revolution has had a profound effect on our spending, we are deceiving ourselves. Having the world’s marketplace at your beck and call 24/7 can be an irresistible temptation to spend, spend, and spend some more.

Short of cancelling your Amazon Prime subscription, here is one suggestion: before buying anything online, sleep on it. Give yourself at least 24 hours to separate what may be a temporary whim or fancy from a legitimate need or real desire. The larger the purchase, the longer the waiting period should be. But what if delaying my purchase causes me to miss out on a blockbuster sale? Trust me; the money you save by not going through with spur of the moment purchases will far exceed the money you forfeit by occasionally missing out on temporary sales.

Returning to Greek mythology, we can learn a lot from how the great Odysseus dealt with the Sirens. When Odysseus and his men sailed by the island of the Sirens, he had his sailors plug their ears with beeswax, so they could not hear the Sirens’ music. In this way they passed by the Sirens unscathed. More than ever before, we must guard ourselves against the modern-

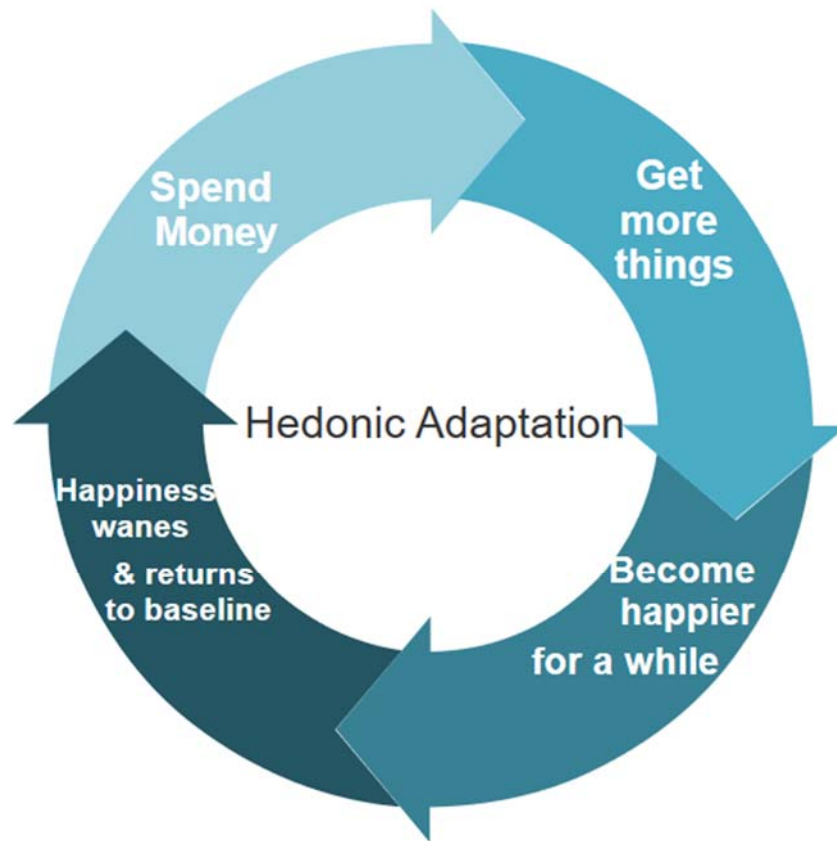
day Sirens of technology; we must learn to plug our ears with metaphorical beeswax. But how? First, by jealously guarding our most precious asset: what we pay attention to. Second, by limiting how much of our identity we share online. If we leave ourselves at the mercy of the sirens of advertising, we risk shipwrecking our finances.

Hedonic adaptation and the hedonic treadmill

Hedonism is the pursuit of pleasure. Many pleasurable things cost money. So naturally, you would assume if a person has more money and can afford more pleasurable things, than they will be happier. Makes sense, right? Advertisers and salespeople try to get us to buy into this belief system, which can be summarized as follows:

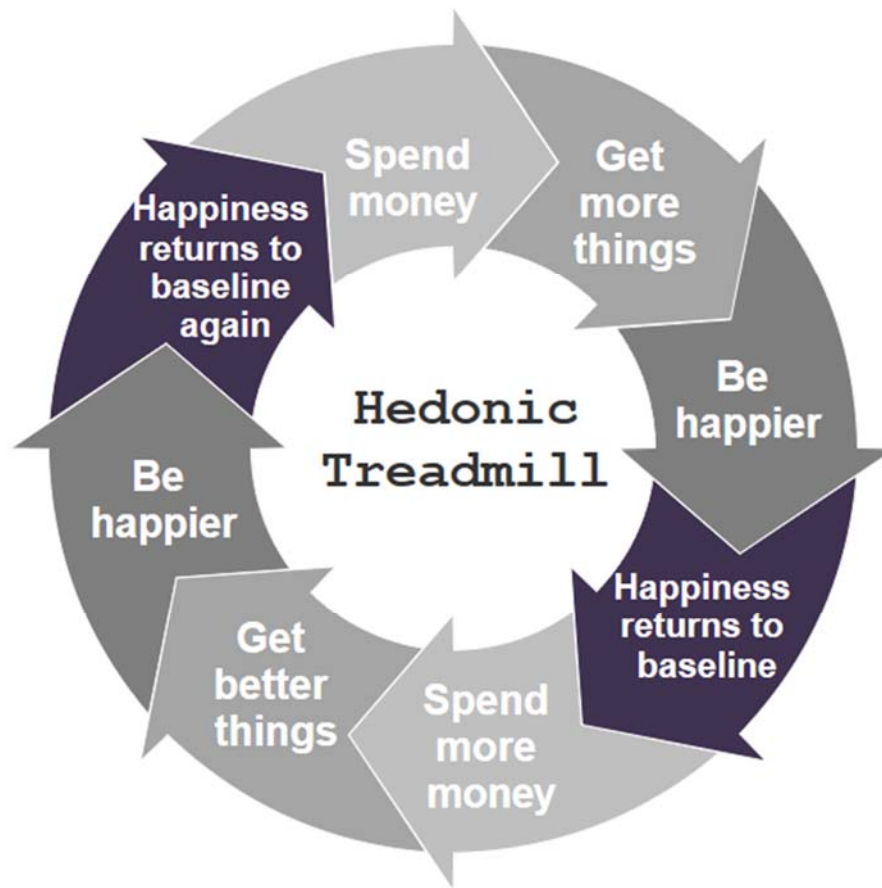


It implies that the more we spend, the happier we will be. Unfortunately, nothing is further from the truth. The following diagram describes what really happens and is known as **hedonic adaptation**:



Humans are wired to adapt to things very quickly. Adaptation is one of our greatest attributes as a species, but it is a dual-edged sword. I recall getting a brand-new Schwinn bike for my birthday when I was ten years old. I felt like I was sitting on top of the world for the next few weeks. I could hardly wait until school was over so that I could take it for a spin in the neighborhood. It brought me great happiness...for a while. But at some point, it just became my bike—nothing special anymore—just a bike. Eventually I took it for granted, and it languished in the back of the garage for days on end. Think back to the last time you got a brand-new smartphone or new shoes. I'll bet you had a very similar experience.

We derive pleasure or get a high from that shiny new thing, but eventually the novelty wears off and so does the pleasure we derive from it. We have adapted. When we depend on material things to fulfill us, we need to constantly feed this insatiable appetite. Worse yet, the things that once brought us so much pleasure begin to fall short. We find that we need to constantly *upgrade* _____ (fill in the blank) to get the same level of satisfaction. Trying to achieve fulfillment from material things is like running on a treadmill. Not only does the treadmill never stop, but it actually speeds up over time. We need to run faster and faster—spending more and more money—just to keep up with it. It looks like this:



Here is a real-life example that everyone can probably relate to. I remember the very first iPhone I ever bought. I was blown away; it was amazing! For weeks I marveled at its beautiful screen and wonderful apps. However, a year later Apple came out with a new iPhone that had better features. It had a sharper screen, was faster, and took better pictures. After getting my hands on the upgraded phone, my excitement lasted a few months and then it just became my phone again. In fact, although it was a much nicer phone, I remember being less impressed by it than the initial iPhone. Why? Because I had already adapted to most of its features, which I eventually took for granted. Only the new and greatly improved features impressed me. Because you can only improve an excellent product so much and since I was rapidly growing accustomed to the technology, I became less and less enthused by each subsequent model. (A similar phenomenon probably explains why movie sequels often bomb at the box office.)

So, how do we deal with the hedonic treadmill? There are two approaches. The first is to continually upgrade (your phone, clothes, car, etc.) once the novelty wears off. Lease a brand-new car and enjoy it for a few years. When its novelty wears off, return it to the dealership for the latest model. Follow this approach and you will be in good company. It is ingrained in the culture of American consumerism. You will also likely fall into debt and fail to build wealth.

The second approach to the hedonic treadmill? Don't get on it in the first place! Realize that material things do not give us lasting pleasure or happiness. The excitement we get from them fades quickly. Furthermore, the pursuit of such things often gets us to overspend and fall victim to debt, which can take time, often years, to pay off. Even if you don't fall victim to debt, you will not be saving as much for your future.

There is a growing body of research that we derive greater happiness and lasting fulfillment from *social experiences* than from material purchases. Better yet, you don't have to spend a ton of money on experiences: A walk in the park with a friend. Sitting around the fireplace with family roasting marshmallows and telling stories. A drive in the countryside. Camping in the wilderness. Unlike material possessions, the pleasures we derive from these social experiences and the fond memories they create seem to persist far longer than the fleeting fulfillment from material things.

Now I am not saying that material possessions are evil and that we should rid ourselves of them and live like monks. To some extent they can and do bring joy to our lives. However, the tireless acquisition of "things" and the constant upgrading of our material possessions are unlikely to fulfill us in any meaningful and lasting way—although they do provide useful employment for landfill companies and their workers. The time we spend working to pay off the debt that such things incur may be better spent elsewhere.

One final point on the hedonic treadmill. When you start out as a young adult, you are usually penniless. As a college student or a new graduate just starting your first job, money is usually tight and savings slim to none. As you advance in your career, you will get raises and begin to live more comfortably. Here is a word of advice: *Be slow to upgrade your lives, even when you are financially capable of doing so.* Dr. James Dahle, of White Coat Investor fame, is well known for telling new physicians to "live like a resident" for a few years after they become full-fledged physicians. As physicians graduate from residency training, they get a very large step up in income. Instead of using the big pay increase to upgrade their lifestyle, he urges new physicians to continue living as if they were still receiving a resident salary. That way they can use the extra money to pay down debt and begin to save for retirement. This bit of wisdom applies regardless of your job or income. We will touch on this again when we discuss budgeting, but the key point is that *it is much harder to downgrade your lifestyle once it has been upgraded.* Be slow to upgrade and you will have years of future lifestyle upgrades to look forward to. Don't envy the person driving a sportscar to high school; rather, pity him. When you have reached the summit, there is only one way to go...down.

Debt: compound interest in reverse

Let us not forget that when we borrow money or take on debt, it is almost never free. As we learned in chapter one, there is a price for borrowing money; it is called interest. When we borrow money the laws of compound interest still hold. Only now the tables are turned. Instead of benefiting from the power of compound interest as a saver, we suffer the consequences of compound interest as a debtor. Our debt compounds.

Anytime money is borrowed, there is a lender and a borrower. As we saw in chapter one, when I borrowed \$500 from you for three years to start an express stand, I ended up owing you \$665.50. The \$165.50 of interest that you earned as the lender came directly from my pocket, as the borrower. In that example it turned out to be profitable to borrow money. The borrowed money was invested in an expresso stand that earned money even after paying back the loan with interest. On the other hand, when you borrow to buy things to enjoy or consume, you are not investing that money. You have consumed it. (Sorry, buying a car is not considered an investment.) The minute you drive a new car off the dealer lot, it is beginning to lose value or **depreciate**.

So, ask yourself the following questions: Would you rather be a lender or a borrower? Would you rather have compound interest work for you or against you? Will you save or borrow? The wisdom of King Solomon bears repeating:

“The borrower is servant to the lender.”

He did not sugarcoat his words. The analogy he makes is that of a master-slave relationship. The borrower who takes on debt is financially enslaved. The lender or saver has the upper hand; he is financially in control. Compound interest is a powerful force that can free us financially if we save and invest. But it is a dual-edged sword that can enslave us when we go into debt.

Mortgage debt and student loans: the exceptions to the rule

In the beginning of the chapter we mentioned that mortgage debt is considered by many to be a form of “good debt.” While some people will argue that all debt is bad, including mortgages, I disagree. Another form of debt that has gotten a bad rap lately is student loans, which are loans typically taken out to attend college. In light of ever-increasing college tuition and student debt, some have even questioned the value of a college education. While it is certainly possible to overpay for college, student loans are the other major exception to the rule that debt is financially harmful and should be avoided at all costs. Let us explore why mortgage debt and student loan debt are generally benign and, in fact, often good investments.

Mortgages

What is a mortgage? A **mortgage** is just the name of a loan taken out to purchase a house. At some point in your life you will probably want to live in a house. Many people decide to purchase a home when they have a stable job and begin to raise a family. Unfortunately, buying a house is a very expensive proposition. The median house price in the United States as of 2018 was \$320,200.⁷ In many cities the cost of a home is far higher. Very few people have that much money saved up. If you waited until you had that much in savings, it could easily be decades before you could buy a house. During that time, you would still need to rent a house or apartment, which itself is a very costly option.

⁷ <https://fred.stlouisfed.org/series/MSPUS>

So, how do mortgages work? Let's say you decide to buy a house that costs \$250,000. You have a stable job and plan to stay put for the next ten years or longer. Having read this book during high school, you got an early start on saving and already have \$25,000 saved up in the bank. You go to a bank and apply for a mortgage. The bank looks at your financial situation (your income, debt, savings, etc.) and decides to offer you a loan for 90% of the purchase price. So, the bank lends you \$225,000 (90% of \$250,000). You must still come up with 10% of the purchase price or \$25,000. The mortgage has an interest rate of 4% and has a *term* of thirty years, which means that your payments (principal + interest) are spread out over thirty years. Assuming you never miss a monthly payment nor pay off your mortgage early, you will have paid off the loan at the end of thirty years.

This type of loan is called a **secured loan**. What that means is that if you fail to pay off the loan or **default** on the loan, the lender (usually a bank) can legally take ownership of the house. The loan or mortgage is **secured** by the house. The bank would typically sell the house and, in so doing, recover or partially recover the amount it lent you.

After learning about the perils of debt in this chapter, you may be wondering why I claim that mortgages are generally a form of “good debt.” Am I contradicting myself? Consider these points:

- The cost of renting *could* be the same or even higher than taking out a mortgage to purchase a home; in other words, your monthly rent payment *might* be the same or higher than your monthly mortgage payment. But when you buy a house and make mortgage payments, over time you build up ownership or **equity** in the house. Once the mortgage is paid off, you own your home outright. This is not true when you rent. You may rent a place for thirty years, but at the end of thirty years you still have nothing to show for your rental payments. Even if your monthly mortgage is more expensive than renting, you will often come out ahead by owning, especially if you stay in the same house for many years.
- Unlike a car that loses value over time once you buy it, a house actually tends to hold up in value and may increase in value over time. While it is certainly not a guarantee, on average home prices tend to rise along with inflation, especially over long time periods (ten years or longer).
- Taking out a mortgage is a form of forced savings. Each mortgage payment consists of two parts—principal and interest. As we learned in chapter 1, the interest is the cost of borrowing money and the principal is the amount of money borrowed. In our example, when you bought the house you put up 10% of the money and the bank put up 90%. Initially, your ownership stake in the house is only 10%. As you make monthly mortgage payments, part of each payment goes to repay the original principal or loan (the rest is interest). As your loan balance decreases over time, your ownership stake in the house increases. Eventually, when the loan is paid back in full, you own 100% of the house. While there is certainly a cost to taking out a mortgage, namely the interest, there is also the benefit that it forces you to save and build up ownership or **equity** in the house over time.
- By far and away the largest expense for most people is housing. This is true whether you own a house or rent. One of the great benefits of buying a house is that by the time you

retire, you will more than likely have paid off the mortgage and own your home outright. This wipes out your largest expense by the time you retire.

- Finally, there is the non-financial reason. For most people, a house is much more than a place to live. It is a home. It is where you raise a family and make lifetime memories. This is not to say that you cannot do these things in a rental property, but as a renter you are really at the whim of the landlords (those who own the property). They may decide to no longer rent, at which point you would be forced to find a new house. For many people there is a deep satisfaction and sense of comfort in being able to live somewhere that they can call their own.

Student Loans

College is *very* expensive. Here are some recent statistics⁸:

Average annual cost of attending a public college or university: \$17,237

Average annual cost of attending a private nonprofit college or university: \$44,551

This implies that a four-year degree from a private university or college costs \$178,200 on average. Just for fun, I looked up the current cost to attend my former college: \$69,109 a year, totaling \$276,436 for four years. Now I just told you that the median house price is \$320,200. As the cost of getting a college education approaches that of a house, it is no wonder that people are asking the following question about a college education: *Is it really worth the price?*

What is often overlooked in the discussion of college tuition is the difference between the price universities charge or “sticker price” and the actual price students pay after scholarships and grants. Remember, that unlike student loans, scholarships and grants do not need to be repaid. They are essentially free money. Let us look at the net cost of attending college or universities, once scholarships and grants are taken into consideration⁹:

Average annual net cost of attending a public college or university: \$12,410

Average annual net cost of attending a private nonprofit college or university: \$23,540

Paying \$94,160 for a four-year degree from a private college or university is still considerable. Is it worth the price? To answer this, we need to know the economic value of a college education. According to a recent study¹⁰, the difference in lifetime wages (salary) of college and high school graduates was \$1 million. Furthermore, the study found that the difference in lifetime wages between the highest- and lowest-paying college majors was \$3.4 million. What this means is that an average investment of up to \$100,000 for college could translate into higher lifetime wages of well over \$1 million.

⁸ The cost for undergraduate tuition, fees, room, and board for the 2016-2017 academic year. From the National Center for Education Statistics. <https://nces.ed.gov/fastfacts/display.asp?id=76>

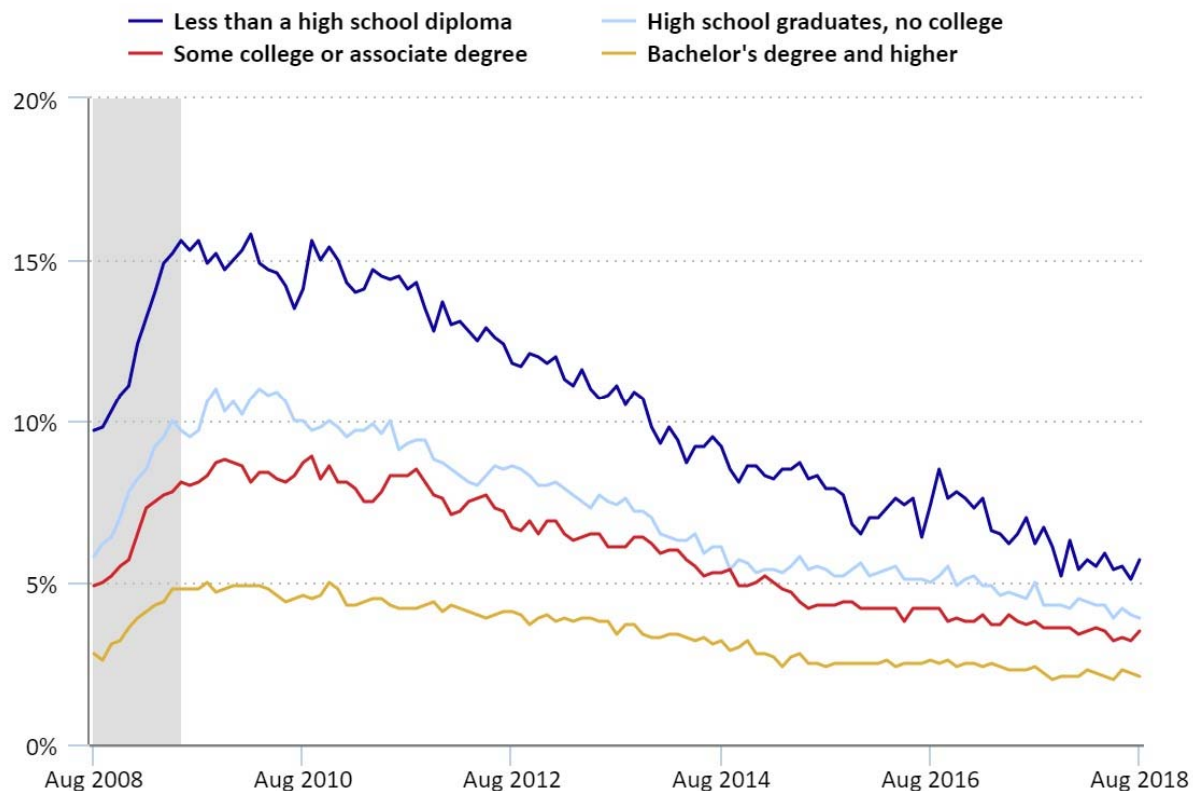
⁹ The net cost for attending college or university factoring in scholarships and grants for the 2011-2012 academic year. From the National Center for Education Statistics.

https://nces.ed.gov/programs/digest/d13/tables/dt13_331.30.asp

¹⁰ <https://cew.georgetown.edu/cew-reports/valueofcollegemajors/>

Job security is another factor to consider. It is far more difficult to find a job without a college degree. The chart below shows the unemployment rates based on educational attainment for the past decade. Those with at least a Bachelor's degree had unemployment rates consistently below 5% (even during the severe 2008-2009 recession and its aftermath). High school graduates with no college had unemployment rates that were often double the rate for college graduates, at times exceeding 10%. Being unemployed can set your finances back significantly, not to mention be a huge stressor in your life.

Unemployment rates for persons 25 years and older by educational attainment, August 2008 to August 2018, seasonally adjusted



Shaded area represents a recession as determined by the National Bureau of Economic Research.
Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.



Finally, the average starting salary of a college graduate in 2018 was \$50,004.¹¹ Contrast this to the median income of those aged 25 to 34 with just a high school degree of \$31,830.¹² The discrepancy in salary is even more startling when you consider we are comparing newbie college graduates to high school graduates who are in some cases more than a decade older with far greater years in the workforce.

¹¹ From National Association of Colleges and Employers (NACE). <https://www.nacweb.org/job-market/compensation/class-of-2018s-preliminary-starting-salary-shows-slight-drop/>

¹² From National Center for Education Statistics. https://nces.ed.gov/programs/digest/d17/tables/dt17_502.30.asp

I hope I have convinced you that a college degree is a worthy investment, even if you have to take on some debt to pay for it. Can you overpay for college? Of course. If you rack up over \$200,000 in student loans for an art history degree (sorry to pick on art history majors!), the return on your investment is dubious, particularly if it ends up taking you a decade or more to repay the loans. There are ways to significantly lower the cost of obtaining a college degree. We already saw that public universities cost about half as much to attend as private universities. You could also attend a community college for a year or two—at a fraction of the cost—and then transfer to a traditional college or university to complete your degree. Think about earning college credit in high school by taking as many AP (Advanced Placement) exams as possible. This could allow you to graduate earlier from college and save thousands of dollars in the process. Be proactive about finding scholarships to help pay for college. There are lots of them out there, but it will take work and dedication on your part to apply for them. Finally, consider working part time during high school and college. Not only will this help defray the costs of your education, such work provides enormous benefits in terms of real-world experiences and organizational skills.

In the end, taking on debt *can* be financially beneficial if you invest the money well. When you take on debt to make consumer purchases, that is a very poor use of debt. However, using debt to purchase a home or finance your college education are often smart uses of debt.

Debt: Key Takeaways

- Debt is “a sum of money that is owed or due.” Interest is the price or cost of debt.
- Taking on debt is usually a choice. Using debt to buy something that you cannot afford is usually a poor choice. (Mortgage debt and student loans are exceptions.)
- The war for your wallet is real and occurs on many fronts. These fronts include credit cards, installment plans, leasing, and financing.
- The “sirens” of advertising are highly effective in luring you to spend and take on debt. Protect yourself by limiting the information you share with them and limiting the time you spend on their platforms (especially social media).
- Before you “Buy Now” on Amazon.com or similar platforms, sleep on it.
- Because of hedonic adaptation, the pleasure you derive from material purchases fades quickly.
- The hedonic treadmill describes the tireless pursuit of fulfillment through the acquisition of material possessions. The satisfaction you receive is temporary, but the costs continue to escalate. Run on this treadmill at your financial peril!
- A growing body of research shows that social experiences provide more lasting fulfillment than the acquisition of material possessions.
- Use knowledge of the hedonic treadmill to your advantage. Upgrade *slowly*.
- Debt is expensive. It is compound interest run in reverse. When you go deeper into debt, it is like digging yourself into a ditch that may take years to escape.
- There are always two parties to debt: the lender (saver) and the borrower (spender). Compound interest dollars are transferred from the borrower to the lender.
- Remember the wisdom of Solomon: “*The borrower is servant to the lender.*”
- When debt is used to finance a productive investment, it can be beneficial. Mortgage debt is a case in point. We all need a roof over our heads. Taking on a mortgage to buy a house often pays off in the long run.
- Go to college! Going to college is an investment that usually pays off in the long run, even if it means going into debt to pay for it. Just be smart about it and don’t overpay.

Law of Finance #3:

*Debt (with the exception of mortgages and student loans)
is the road to financial slavery.*

CHAPTER 4: NET WORTH

*“It ain’t what you don’t know that gets you into trouble.
It’s what you know for certain that just ain’t true.”*

—Mark Twain

Let’s get one thing straight. Without knowing anything about you, I do know this: You are priceless. I know it sounds cheesy, but I am totally serious. No number can define your true worth. But since this is a book about money and finance, we are talking about how much you are worth from a purely financial or monetary standpoint. The term people in finance use for this is **net worth**. But whatever you do, never confuse your net worth with your true worth.

I love the above quote by Mark Twain, which is chock full of wisdom. Speaking of things that “you know for certain,” the family living in a mansion with a 3-car garage full of luxury cars *must* be wealthy, right? Or how about someone making half a million dollars a year. Surely, that is the definition of wealth? In this chapter we will see why the answer to both questions is “No, not necessarily.” We will also learn what net worth is and why it is the best single measure of financial wealth. And sometimes “what you don’t know” *can* get you into trouble. Going through life not knowing your net worth is a case in point.

Grandma leaves for Jupiter

One day your grandmother decides to take a *very* long trip to Jupiter (winter is her favorite season of the year). She asks you to take over her finances until she returns, to which you hesitantly agree. The first question you may have is this: What exactly is the state of her finances? The very best way to answer this question is to calculate her net worth. In other words, if we had to assign a dollar value to your grandma’s financial condition, what would it be? That number is her net worth.

What grandma owns

Let’s start by listing the things that your grandma owns. Your grandma owns a shiny red Ford mustang, lives in a home that she owns, and has lots of “stuff” in her house (furniture, jewelry, lots of clothes, etc.). She has money in checking and savings accounts at her bank. She also has investments in a few accounts (stocks and bonds—which we’ll learn about later) that could easily be converted to cash if you sold them.

What grandma owes

So far so good, you think to yourself. In fact, all the things we just mentioned would increase your grandma's net worth, meaning they add to her net worth. But not everything adds to her net worth. Some things subtract from her net worth. For example, you learn that the Ford mustang she drives is not entirely paid for. She took out a loan when she bought it at the Ford dealership (bad grandma!). To buy her home, grandma also took out a loan (called a **mortgage**), only this loan is much larger. Her mortgage is not yet paid off, so she still owes the bank money. Furthermore, your grandma went back to school a few years ago to study art. To your surprise, she took out a student loan to pay for the tuition. Finally, several credit card bills arrive in the mail a few days after grandma leaves for Jupiter. Those need to be paid too.

Grandma's net worth

So, where do we stand? We only know this after we calculate grandma's net worth. To do that we add up everything that Grandma *owns* in one column (car, home, personal possessions, savings accounts, and investments) and add up everything that she *owes* in another column (car loan, home mortgage, student loan, and credit card bills). Notice that for some items—like the car and house—we need to just estimate their value. We ask ourselves, *how much would we realistically get if we sold these things?*

What she owns		What she owes	
house	\$300,000	Home mortgage	\$86,000
Ford mustang	\$10,000	Car loan	\$4,000
Furniture & other "stuff"	\$10,000	Student loan	\$9,000
Checking & savings accounts	\$5,000	Credit card bills	\$1,000
Investment accounts	\$100,000		
TOTAL assets	\$425,000	TOTAL liabilities	\$100,000

Grandma's net worth is simply the total of what she owns minus what she owes:

$$\text{Net worth} = \$425,000 - \$100,000 = \mathbf{\$325,000}$$

Assets, liabilities, and net worth

Let's summarize what we see in the table. The things that contribute positively to grandma's net worth add up to \$425,000. These are called **assets**. Assets can be **tangible** or physical, such as a house or a car. They can also be **financial**, such as checking accounts and investment accounts. On the other hand, items that contribute negatively to her net worth are her

loans or what she owes to others, which add up to \$100,000. These are called **liabilities**. When we calculate her net worth, we subtract her liabilities from her assets:

$$\text{Net Worth} = \text{Assets} - \text{Liabilities}$$

Whew! That was a lot of work. But you also breathe a sigh of relief because the number is positive. Believe it or not, a person's net worth can be negative. For example, let's say you just graduated from college. You have not started working yet, but you have a lot of student loans from college. You have tried to be a diligent saver and have some money in a savings account, but the student loans probably dwarf your savings (As we learned in chapter 3, college is expensive). When you add up your savings plus whatever you own and subtract the large student loan, you probably get a negative number. Your net worth in this case is negative.

What net worth does not include

But there is one big caveat to keep in mind about net worth. It does not factor in your earnings potential. For example, you may have just graduated from college and learned many valuable skills. You (and your parents) invested a lot of time and money in your education. Your college degree and all that it represents will enable you to get a much better job than if you had not gone to college. In short, your future is bright.

Furthermore, you are young and have many years ahead of you when you will be working and earning money. Right now, this earning potential is your greatest "asset," but it does not show up anywhere in our net worth equation. But don't lose heart! If you work hard and save, your net worth will slowly and surely begin to rise. As we saw earlier, your student loans (a liability) may cause your net worth to initially be negative, meaning your liabilities are greater than your assets. But as you pay off your student loan over time, your net worth will become less negative. One day your assets will equal your liabilities, and you will have a net worth of zero. On that day you should throw yourself a party, celebrating the fact that you are worth nothing! But seriously, that day will be a milestone in your life, because as you continue to save and invest, your net worth will turn positive and continue to increase over time.

Your financial thermometer

One of the main goals of this book is to teach you how to grow your net worth over time. Despite its limitations, net worth is still the best way to measure a person's financial health or wealth. It is like taking your financial "temperature." As we saw with grandma, this means making a list of your assets or what you own and a list of your liabilities or what you owe. Add up all your assets, and then add up all your liabilities. Subtract your liabilities from your assets and you have your net worth. Here is the net worth equation once again:

$$\text{Net Worth} = \text{Assets} - \text{Liabilities}$$

I strongly encourage you to calculate your net worth once a year. Your net worth will tell you more about your financial condition than anything else. It is far more important than your salary or the size of your house. Tracking your net worth will also tell you whether your financial health is improving or worsening. If you follow the advice in this book, your net worth should be increasing over time. The two keys to increasing your net worth is saving and investing. We already talked a lot about the importance of saving in chapter two. We will learn all about investing in the next book in this series, but in a nutshell, investing increases the value of your assets through the miracle of compound interest.

You might be wondering why I place so much importance on saving over spending. After all, when we buy something, aren't we just exchanging one asset (cash) for another asset (a physical good)? This is a valid question. Let us look at this exchange more closely and its implications for net worth.

Net worth destroyers: let's take a drive

Let's say I buy a new car. I lay down \$30,000 for a brand-new Toyota Camry (wisely not taking out a car loan). Both cash (\$30,000) and car (Toyota Camry) are assets. Since the price of a new Camry is \$30,000, isn't that its value as an asset? So, isn't my net worth unchanged after I buy the Camry? Assuming my only asset is the \$30,000 in cash and I have no liabilities, let's calculate my net worth before and after the car purchase:

Net Worth before buying Camry = \$30,000 (cash) - \$0 (liabilities) = \$30,000

Net Worth after buying Camry = \$30,000 (value of new Toyota Camry) - \$0 (liabilities) = \$30,000

Haven't I just exchanged one asset, a new Camry, for another, \$30,000 in cash? Yes! However, there are important differences between \$30,000 in cash and a brand-new Toyota Camry. The minute you buy something and begin using it, it is no longer new. So, the minute I drive my brand-new Camry home, it is no longer brand-new. It isn't worth \$30,000 anymore. Why not? Because if I want to sell it, it is no longer a brand-new car; it is a *used* car. I could probably sell it for very close to \$30,000 if I sold it to someone in a month. Maybe I could get \$29,000 for it. While this seems terribly unfair, think about it from the buyer's standpoint. Why would someone buy a Camry for \$30,000 from me when he could buy one from a dealership for the very same price? After all, he doesn't know the condition of the car. Maybe I repeatedly spilled lemonade in the car while driving through the Mohave dessert for the past month, repeatedly slamming on the brakes to avoid crashing into cacti. Or perhaps I'm selling the Camry because the car itself is a lemon.

When I purchase things with my money, it's true that I'm exchanging one asset, cash, for another asset, a car for instance. Unfortunately, material things lose value over time. In financial lingo, we call this phenomenon **depreciation**. To depreciate means to lose value over time. Assets such as cars, furniture, and computers wear out over time; they become obsolete. They are called **depreciating assets**. Over time, spending money on depreciating assets will

lower our net worth. Buying new cars every few years is a sure-fire formula to lowering your net worth. If we take on debt to buy depreciating assets, we end up destroying net worth even faster. While our asset depreciates over time, our liability (the loan) increases over time due to compound interest.

Net worth builders: saving and investing

Saving requires us to spend less money than we earn. If you make a salary of \$50,000 a year and live on \$45,000 of it, you have saved \$5,000. Your net worth has just increased by \$5,000. You may not have that much control over your salary, but you can control how much you spend and therefore save. For each dollar you save, your net worth increases by a corresponding amount.

The second way to increase your net worth is by **investing**. When you put money in a savings account that earns interest, you are investing. When you buy stocks or bonds with your savings, you are investing. Investing is the process of putting money to use in an asset that you hope will increase in value over time—an **appreciating asset**. We saw how this worked with compound interest in a savings account. It works in much the same way with stocks and bonds, as we shall soon learn.

The other thing to keep in mind is that there is always an opportunity cost to what you do with your money. Going back to the car purchase example, my decision to buy a new Toyota Camry for \$30,000 meant I no longer had \$30,000 to invest. What was the opportunity cost of that decision? It depends on how I would have invested that money and the returns I would have achieved. Let's assume that had I invested the money in stocks, I would have gotten an 8% return over the next ten years. In this case, my stock investment would have grown to about \$64,768.¹³ Let's say that after ten years my Camry is worth about \$5,000—the price I could get for selling it to CarMax. From a net worth perspective, the opportunity cost ten years later is \$59,768 (\$64,768 - \$5,000). Certainly, driving the Toyota Camry provided me with real utility during that time, to which I could assign some monetary value. The real question is whether it was worth the opportunity cost of nearly \$60,000?

Taking your financial temperature

If you are under the age of 18, you probably visit the pediatrician once a year for a health checkup. The doctor checks your weight and height to see that you are growing. Someone also takes your temperature. What emerges is a picture of your overall health.

If you came to me for a financial “checkup,” there is one number that would tell me more about your finances than any other. That's right. I would ask about your net worth, because it is the best single measure of your financial health. The number itself is not as important as how it is trending over time. If you have healthy financial habits, your net worth should *generally* be increasing over time.

¹³ $\$30,000 \times 1.08^{10} = \$64,767.75$

As we mentioned, there are exceptions. For example, if you take out a student loan to attend college, you are increasing your liabilities (your student loan). While the education and degree you obtain are incredibly valuable, they won't be counted as a financial asset when you calculate your net worth. As a result, during college your net worth will decline and may even go negative. But don't despair! Going to college is a worthwhile investment that will pay dividends for the rest of your life (see chapter 3).

Realize also that there will be times when your net worth will *temporarily* decline through no fault of your own. That is because you will own investments, especially stocks, that will go down in price from time to time, sometimes down a lot. As we shall see, this is the unavoidable price we must pay for the higher long-term return of stocks, compared to "safer" investments like bonds and money in savings accounts. But if you invest the right way and are patient, these declines will be temporary.

Aside from such exceptions, your net worth is an excellent barometer of your financial well-being. An increasing net worth over the long term indicates that you are doing two things right: saving and investing. On the other hand, if your net worth is consistently stagnant or declining, that is a warning sign that requires your attention. It may mean you are failing to save adequately, spending all or more than you earn. It could also be that you have too much debt.

I strongly suggest that you calculate your net worth once a year. Focus on your financial assets (checking and savings accounts and investments), debts and loans, and big-ticket items like your house and car. Don't sweat the small stuff; you don't need to count every item in your closet or every penny in the piggybank. The whole exercise should take less than thirty minutes.

One final point: Knowledge is power. Simply knowing your net worth can be empowering. Besides being an indicator of your financial health, knowing your net worth can be a powerful motivator to increase it. It can become something of a game. You begin looking for ways to make your net worth rise even faster. Perhaps you work on paying down your debt faster or eliminating it altogether. You find ways to cut costs in order to save and invest more each year. You see your investments begin to grow and snowball with the power of compounding, which has a powerful positive effect on your net worth. That encourages you to save even more. Seeing your net worth creep higher year after year is satisfying and powerfully motivating. On the other hand, you may be making poor financial decisions without even realizing it. Unless you have a reliable financial compass, it is easy to continue driving in the wrong direction without even knowing you are lost. Net worth is your financial compass.

What wealth is not

I began the chapter by dispelling common notions of wealth. Armed with an understanding of net worth, let us return to these examples and see why they do not necessarily equate to wealth. A mansion and luxury cars are examples of pricey assets. However, what you never see are the corresponding liabilities. How much money was borrowed to buy the house and cars? If I own a million-dollar mansion but have a \$900,000 mortgage, my net worth is only

\$100,000 (assuming no other assets or liabilities). If I take out a car loan to finance the purchase of a \$50,000 car, the effect on my net worth may rapidly become negative. The car will depreciate in value whereas the loan will compound over time.

What about the person earning half a million dollars a year? If he spends as much as he earns after taxes, what is happening to his net worth? The answer: it is going nowhere. Income alone does not build wealth. It is through saving and investing that net worth or true wealth is created.

Net Worth: Key Takeaways

- **Assets** are things you own, including **financial assets** (money in checking & savings accounts, as well as stocks and bonds) and **tangible assets** (houses, cars, jewelry, etc.)
- **Liabilities** are things you owe others, in other words, debts or loans. Examples include home mortgages, student loans, car loans, and credit card debt.
- Your net worth is equal to all your assets minus all your liabilities:
 - **Net Worth = Assets – Liabilities**
- One of the limitations of net worth is that it does not factor in your earnings potential. Going to college may temporarily lower your net worth, but because a college degree raises your life-long earnings potential, it is usually a wise investment.
- Net worth *destroyers* are things that lower your net worth. Buying a car is a prime example. Like most material things we buy, cars **depreciate** over time, which is why purchasing them lowers our net worth.
- Purchasing depreciating assets using debt destroys net worth even faster (the asset falls in value; the liability grows due to compound interest).
- Net worth *builders* grow our net worth over time. The two primary net worth builders are saving and investing.
- Remember that there is always an opportunity cost to spending, which is the equivalent amount of money that could have been invested and compounded over time.
- Net worth is your financial thermometer. It is the single best indicator of your financial health. Recalculate your net worth yearly.
- A steadily increasing net worth is a sign of financial health. Conversely, a declining or stagnant net worth is a warning sign. Usually, it indicates a failure to save or too much debt.
- Remember that short term fluctuations (i.e. declines) in net worth are normal, particularly when they are due to volatility in stock prices. Don't sweat them.
- Knowledge is power. Knowing your net worth is a powerful motivator.
- An expensive house or expensive cars do not equate to wealth; nor does a high income.

Law of Finance #4:

Net worth is the best indicator of wealth.

CHAPTER 5: BUDGETING

“If you fail to plan, you are planning to fail.”

–Benjamin Franklin

Putting it all together: the “simple budget”

In the last two chapters we talked about the importance of saving and the perils of debt. Now, it’s time to put it all together in a practical way. How can we achieve the twin goals of saving and avoiding debt? That is where the “simple budget” comes in.

What is a budget? A **budget** is simply a plan on how to save and spend your money. Usually budgets are designed for a period of one-year. There are two basic parts of every budget. There is the future *income* (how much money you expect to make). Then there are the future *expenses* (how you plan to spend that money). The difference between your income and your expenses is your savings:

$$\text{Income} - \text{Expenses} = \text{Savings}$$

It is usually easy to estimate your income, especially if you have a regular job or allowance. Estimating your expenses is harder to do accurately, especially when you become an adult. That is because there are lots of expenses and they can be quite unpredictable. Nearly every book or class about personal finance emphasizes the importance of making a budget and rightly so. However, for most people coming up with a budget is about as exciting as watching paint dry. And the truth of the matter is that few people stick to their budgets anyway. Fortunately, there is a better way. I call it the **simple budget**.

Let’s step back and consider why we want to create a budget in the first place. Focusing on our savings equation above, we see that we want our income to be larger than our expenses, which leads to a positive number for our savings. When our expenses exceed our income, our savings number becomes negative, which means we are either depleting our savings or taking on debt. The primary goal of a budget is to ensure that we are saving money year in and year out.

The second purpose of a budget is to plan for big purchases. For example, say you have your eyes set on a mountain bike. It costs \$600. You decide to save \$50 a month for the next twelve months so that you can buy the bike in a year.

To summarize, we budget for two main reasons:

- To ensure we spend less than we earn, so that we are able to save
- To plan for big future expenses by setting aside a small amount over time.

The Simple Budget in 3 Simple Steps

The simple budget accomplishes these two goals in the simplest manner possible and in a way that makes it almost impossible to not succeed in following through with your budget. Let's walk through the 3 steps.

Step #1: Estimate your income

Write down how much you make or earn in a typical month. This is your monthly income. Let's say you receive a weekly allowance of \$25 from your parents. Perhaps you also tutor on the side and walk your neighbor's dog. This income is less predictable, but that's okay. Just do your best to estimate this number. For example, you can look at the past 6 months and see that on average these side jobs paid you \$200 per month. So, you calculate your total monthly income:

Monthly allowance	= \$100/month
+ Tutoring & dog walking jobs	= \$200/month
<hr/> Total income	<hr/> = \$300/month

Step #2: Set your savings rate

Decide what fraction or percent of your income you want to save; this is your **savings rate**. The savings we are talking about here is not for a specific future expense (like a bike). It is for your retirement. This may strike some people as ludicrous. They may even ridicule you saying, "A child saving for retirement! How absurd!!" Take my advice and ignore them. Harken back to the immense power of compounding in chapter one. I assure you that you will have the last laugh. How much to save? I recommend saving at least 20% of what you earn. If you really feel like this is too much, then save 15% or 10%. The important thing is to save *something*.

Let's return to our example. You have monthly income of \$300 and decide to save 20%. Then, you will be saving \$60 a month toward your retirement.

Step #3: Plan for big future expenses

Make a list of big future expenses. This is where planning to buy that \$600 bike comes in. Maybe the orchestra you play in is planning a tour to Europe next summer. You really want to go, but it will cost you \$1,200. For each item you simply need to know two things: 1) how much will it cost and 2) when I need to come up with the money. Once you know these two things, you simply divide the cost by the number of months between now and when you need the

money. Let's say you need to come up with the money for the orchestra tour and the new bike in one year:

\$600 bike in 12 months: \$600/12 months	= \$50/month
<u>\$1200 orchestra tour in 12 months: \$1200/12 months</u>	<u>= \$100/month</u>
Total savings for big future expenses	= \$150/month

Let us summarize our 3 steps:

Step #1	Total monthly income:	\$300
Step #2	Total monthly savings (20% of income):	\$60
Step #3	Total monthly "savings" for big future expenses:	\$150

Now you may be thinking to yourself that something doesn't look right. Earlier, I laid out the budget equation:

$$\text{Income} - \text{Expenses} = \text{Savings}$$

In our example, we have monthly income of \$300 and are setting aside \$150 each month for future expenses:

$$\$300 (\text{income}) - \$150 (\text{"expenses"}) = \$150 \neq \$60 (\text{savings})$$

The reason the equation is not balanced is that we are not finished with the "expense" part of the equation. We only estimated our monthly "big future expenses," which was \$150.

Let us rewrite our budget equation in the following way:

$$\text{Expenses} = \text{Income} - \text{Savings}$$

Applying this equation to our budget:

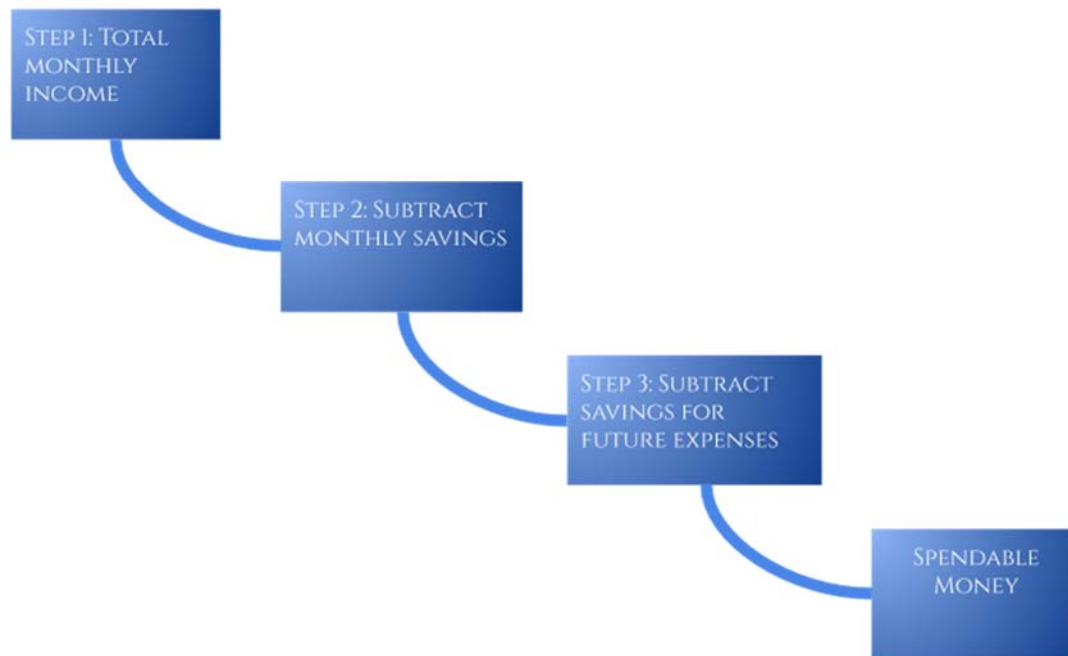
$$\text{Expenses} = \$300 (\text{income}) - \$60 (\text{savings}) = \$240.$$

So, we have expenses of \$240 a month, of which \$150 is for "big future expenses." This leaves us with $\$240 - \$150 = \$90$ for *other expenses*. Our expenses fall into two categories: "big future expenses" and "other expenses":

$$\text{Expenses} = \text{Big Future Expenses} + \text{Other Expenses}$$

Now here is where the simple budget differs from other budgets. It is what earns the simple budget its name. Most budgets require you to list every expense. Groceries, gas, utilities, eating out, etc. Not so the simple budget! Once you have gone through the 3 steps above, you are done. Think of the simple budget like this: each month you start with your cash pile, also

known as your monthly income. From this, you subtract or set aside your savings. Next, you set aside money for your “big future expenses.” What is left is for you to spend as you please. No questions asked.



What is left at the bottom of the waterfall is money available for any and all other expenses. The beauty of this budget is that it takes care of the most important things—saving for retirement and big future expenses—but does it in the simplest possible manner. It also ensures that the most important things are taken out first.

Other expenses: the bottom of the waterfall

But what happens if the money left at the bottom of the waterfall is not enough to live on? This is a valid question, especially when you become an adult and have more expenses to worry about. The answer is two-fold. First, you need to do your very best to cut your expenses so that you *can* live on what is left over. Maybe you cancel that gym membership and take up running outdoors instead. Or perhaps instead of having cable and Netflix, you cancel one of them. Maybe you eat out less often.

Second, if you have truly cut your expenses and still have trouble making ends meet with your “bottom of the waterfall” money, it is time to reconsider your “big future expenses.” While it would be great to go on that trip to Europe *and* get a new bike, at this point you need to make a choice. Which is more important to you, the bike or the trip? The simple budget is simple, but not necessarily easy. Sometimes you will need to make hard choices.

Notice that cutting your saving for retirement was *not* an option. While that may seem like the easiest thing to do, it violates the central tenet of the simple budget. If you need to be reminded of the importance of saving, please go back and reread chapter 2. You cannot “Eat your cake and have it too.” Taking the easy road now ensures a much more difficult road in your future. Sorry, step #2 of the simple budget is non-negotiable.

You may have noticed that with the simple budget you cannot fall into debt. There is no room for spending more than you earn, and saving is built into the budget. Saving and debt are two sides of the same coin. You cannot save when you are going into debt, and you cannot be going into debt when you are saving.

The Simple Budget: Practical Pointers

A plan, which is what a budget represents, that is not followed is worthless. This is where most budgets fall flat on their face. The simple budget keeps things as simple as possible to ensure successful execution. Still, here are some practical pointers to help ensure you succeed with the simple budget.

- Automate your savings—set it and forget it

If you do not have a savings account in your name, it is time to set one up. You may need your parents’ help in doing this if you are under the age of 18. I suggest your savings account be at the same bank that your parents have their accounts. It is a relatively painless process that can be completed in a bank branch or online. (By the way, spend some time getting to know your local bank branch; it is a good learning experience.) Once you have your savings account set up, let automation be your friend. If you have an allowance, have 20% of it automatically deposited into your savings account. Your parents can set up an automatic transfer from their account to yours that occurs weekly or monthly in the dollar amount that is 20% of your allowance. The important thing here is to set it and forget it. It will virtually ensure your success in this most important step of the simple budget.

- Set aside your “big future expenses” fund

For each of your “big future expenses” designate an envelope into which you consistently set aside money each week or month. So, you might have an envelope marked “Europe orchestra tour” into which you put \$100 each month. This helps to make the goal tangible and real. Each time you put \$100 into the envelope you will be reminded of the trip. As your excitement and anticipation for the trip builds, so too will your resolve to continue saving. That will help you to keep on saving during those times your resolve wavers and you are tempted to spend that money on something else. Remember that every long-term goal requires short term sacrifices.

Some banks allow you to create personalized “sub-accounts” within savings accounts, specifically to save for different long-term goals. These can be set up online. If your bank has

this option, take advantage of it. If such sub-accounts are not available, you could always open a second savings account specifically for your “big future expenses” fund. The advantage of this approach is that more of your money will be earning interest. One thing I would advise against is pooling your “retirement” savings with your “big future expenses” fund. Doing this would make it far too easy to occasionally dip into your retirement money for various expenses.

- Build a “rainy day” fund for emergencies

Life is full of surprises, some of which can be quite expensive. Your car breaks down. The roof begins to leak. You lose your job. How do you prepare for such unpleasanties? By creating a “rainy day” fund. Just like saving for the Europe trip, you can save money in a “rainy day” fund. How much to set aside? Six months’ worth of allowance or earnings is about right.

I know what you are thinking. “I don’t even drive a car! If the roof begins to leak, my parents will take care of it.” Yes, that is absolutely true. But, suppose the orchestra tour was announced just three months before the actual trip. If you did not have a rainy-day fund, you might not even have the option of going (remember, your retirement money is off limits!). More importantly, you are building good financial habits that will help you navigate your finances in adulthood. As an adult, a rainy-day fund is absolutely essential.

- Relish the bottom of the waterfall!

Here is the best part of the simple budget: Once you have set aside money for your retirement and big future expenses, whatever remains is yours to spend without guilt. This is the best part of the simple budget. There is no need to plan your spending down to the last detail. Take pity on those unfortunate souls with traditional budgets that require every cent to be accounted for. Better yet, release them from their captivity by sharing this book with them.

With this freedom you will encounter some growing pains. Some months you may find that you have spent all your money too quickly. While you may be tempted to “borrow” from your retirement fund or big future expenses fund, resist the urge. In a real pinch, you might dip into your rainy-day fund, but this should be a rare occurrence. In such instances, be sure to replenish the rainy-day fund right away.

- Fixed expenses

One of the advantages of being a child is that most things are paid for by your parents. As you grow older and take on more responsibilities, you will have more expenses. For example, once you begin to drive a car, you will be responsible for filling it up with gas. When you have a car of your own, you will need to pay for auto insurance. When you move out of the house and rent an apartment, you will need to pay the monthly rent. These are all examples of fixed expenses—expenses that recur on a predictable time table.

As you begin to have more of these fixed expenses, you will need to modify the simple budget by adding a fourth step. Here is the modified simple budget:

Modified simple budget

Step #1	Total monthly income:
Step #2	Total monthly savings (~20% of income)
Step #3	Total monthly “savings” for big future expenses
Step #4	<i>Total monthly fixed expenses</i>

We simply add up our fixed monthly expenses in step 4. Let’s say you need to pay about \$30 every month to fill up the car with gas. Using our earlier example, our simple budget steps would look like this:

Step #1	Total monthly income:	\$300
Step #2	Total monthly savings (20% of income):	\$60
Step #3	Total monthly “savings” for big future expenses:	\$150
Step #4	Total monthly fixed expenses:	\$30

Subtracting the amounts in steps #2 through #4 from step #1, leaves you with \$60 at the bottom of the waterfall:

$$\$300 - \$60 - \$150 - \$30 = \$60$$

\$60 is yours to spend each month—no questions asked. Of course, your fixed expenses will vary somewhat from month to month, but you can smooth out the variations by spreading the expenses over twelve months. For example, if you had to pay your auto insurance premium in December and it is \$1,200 for the year, you would simply set aside $\$1,200/12 = \100 each month as a fixed expense.

Simple Budget ≠ Easy Budget

Now I never claimed that the simple budget was an *easy* budget. I just said it was simple, a lot simpler than the vast majority of budgets. Is it easy to follow the rules laid out above? Honestly, it is not. Tricks such as automating your savings will make it easier to follow through with it. Still, there will be times when you will want to spend more than you have. You will be tempted to reach into your retirement savings. “Just this once!” you will tell yourself. Resist those temptations like the plague! The budget works but only if you follow the rules—no exceptions.

When you are struggling to follow the rules of the simple budget, take comfort in the fact that it does get easier with time. As you develop the habit of saving and living within your means, it eventually becomes second nature. It is my experience that over time you will actually begin to *enjoy* saving money. It becomes like a game to see how much you can save. Maybe you start at a savings rate of 20% but over time you increase it to 25% and then 30% and maybe even 40% or more!!

Here is a simple but profound truth, which I hope will help motivate you to persevere:

Have it easy now and hard later

or

Hard now and easy later

If you save now, later you will be financially secure and have few financial worries. On the other hand, if you do not save or go into debt now, in the future you will face financial stress and hardship. It is really your choice. But realize that it is far easier to take your medicine now and save when you are young than it is to try and catch up by saving later. This asymmetry comes from—yes, you guessed it—the effect of compound interest over time!

Increasing your savings rate

Finally, I want to talk about what happens when you start to make more money. Most people earn more money as they get older. As you make more money, you can spend more money, even as you continue to save. But when you start making more money or get a raise, you have an incredible opportunity. You could probably live on the same amount of money that you were living on before you got that raise. Maybe you want to spend a little more money on certain things that you could not afford before. But if you can manage to increase your savings rate a little bit each time you get a raise, that will have more of an impact than almost anything else I can teach you in this book—with the exception of compound interest.

Quick example: You started out with a salary of \$100 per week. You have been saving 20% or \$20, spending the rest. So, you are comfortably living on \$80 per week when suddenly you get a raise! You now earn \$120 per week. If you up your savings rate to 25%, that leaves 75% to spend, which comes out to $\$120 \times 0.75 = \90 . You can now spend \$90 per week on whatever you want, instead of \$80. But, more importantly you are now saving $\$120 \times 0.25 = \30 per week. That may not seem like a big deal, but it will have a **huge** effect on your future finances! Although the simple budget starts with a healthy savings rate of 20%, the higher your savings rate is, the healthier your finances will be. The sad fact is that most Americans save very little or nothing at all. The average savings rate is about 4.9% today and has largely been below 10% since the mid 1980's¹⁴.

¹⁴ <https://fred.stlouisfed.org/series/PSAVERT>

Budgeting: Key Takeaways

- Two main purposes of a budget: save money each year and plan for big purchases
- Steps in the simple budget:
 - Start with your income
 - minus retirement savings (~20% of your income)
 - minus “savings” for big future expenses
 - minus fixed expenses (especially when you are an adult)
 - freely spend what is left!
- Budget equation: **Expenses = Income – Savings**
- Automate your savings as much as possible.
- The cardinal rule of the simple budget is to *never* touch your retirement savings (until you retire, of course).
- Always have a “rainy-day” fund for emergencies. It should be equal to about six months of income.
- As you get raises, use part of each raise to increase your savings rate a little.
- Remember: “*easy now and hard later or hard now and easy later*”

Law of Finance #5:

Save 20% of your income for your retirement.

Raise the percentage a little every time you get a raise.

LETTER TO MY CHILDREN

April 29, 2019

When I began writing this book four years ago, the motive was simple. I wanted to pass on to you everything that I had learned about finance. While you may find this surprising, I have made many mistakes in my finances (plenty of mistakes in other arenas too, but that is a story for another day...). I like to think I have learned from most of my mistakes. How nice it would be if I could impart my financial wisdom to you, so that you would not have to repeat my mistakes. To err is human, but to learn from the mistakes of others is true wisdom.

I am confident that you will learn the principles in this book—and the ones to follow—without much difficulty. However, know that head knowledge can only take you so far on your financial journey. There will be times when your head will be telling you one thing and your heart another. Finance and investing are cruel that way. My advice to you during those trying times is beautifully expressed in the poem *If-* by Rudyard Kipling (below).

But, first, let me end with a few words of fatherly advice. This book will start you down the path to financial freedom—by which I mean a life free from financial worry—but remember to keep learning. Know that no one will care more about your money than you do. Most importantly, never forget that financial blessings are never an end in themselves but rather a means to help you fulfill your purpose on this earth. Be good and generous custodians. And **always** be grateful.

If- by Rudyard Kipling

*If you can keep your head when all about you
Are losing theirs and blaming it on you,
If you can trust yourself when all men doubt you,
But make allowance for their doubting too;
If you can wait and not be tired by waiting,
Or being lied about, don't deal in lies,
Or being hated, don't give way to hating,
And yet don't look too good, nor talk too wise:*

*If you can dream—and not make dreams your master;
If you can think—and not make thoughts your aim;
If you can meet with Triumph and Disaster
And treat those two impostors just the same;
If you can bear to hear the truth you've spoken
Twisted by knaves to make a trap for fools,
Or watch the things you gave your life to, broken,
And stoop and build 'em up with worn-out tools:*

*If you can make one heap of all your winnings
And risk it on one turn of pitch-and-toss,
And lose, and start again at your beginnings
And never breathe a word about your loss;
If you can force your heart and nerve and sinew
To serve your turn long after they are gone,
And so hold on when there is nothing in you
Except the Will which says to them: 'Hold on!'*

*If you can talk with crowds and keep your virtue,
Or walk with Kings—nor lose the common touch,
If neither foes nor loving friends can hurt you,
If all men count with you, but none too much;
If you can fill the unforgiving minute
With sixty seconds' worth of distance run,
Yours is the Earth and everything that's in it,
And—which is more—you'll be a Man, my son!*