

## CHAPTER 7

## Financial Markets:

*What economics can tell us about getting rich quick (and losing weight, too!)*

When I was an undergraduate many years ago, a new diet swept through one of the sororities on campus. This was no ordinary diet; it was the grapefruit and ice cream diet. The premise, as the name would suggest, was that one could lose weight by eating large amounts of grapefruit and ice cream. The diet did not work, of course, but the incident has always stuck with me. I was fascinated that a very smart group of women had tossed aside common sense to embrace a diet that could not possibly work. No medical or dietary information suggested that eating grapefruit and ice cream would cause weight loss. Still, it was an appealing thought. Who wouldn't want to lose weight by eating ice cream?

I was reminded of the grapefruit and ice cream diet recently when one of my neighbors began to share his investment strategy. He had taken a big hit over the past year because his portfolio was laden with Internet and tech stocks, he explained, but he was plunging back into the market with a new and improved strategy. He was studying the charts of past market movements for shapes that would signal where the market was going next. I cannot remember the specific shapes he was looking for. I was distracted at the time, both because I was water-

ing flowers and because my mind was screaming, "Grapefruit and ice cream!" My smart neighbor, who is both a doctor and a university faculty member, was venturing far from the halls of science with his investment strategy, and that is the broader lesson. When it comes to personal finance (and losing weight), intelligent people will toss good sense aside faster than you can say "miracle diet." The rules for investing successfully are strikingly simple, but they require discipline and short-term sacrifice. The payoff is a slow, steady accumulation of wealth (with plenty of setbacks along the way) rather than a quick windfall. So, faced with the prospect of giving up consumption in the present for plodding success in the future, we eagerly embrace faster, easier methods—and are then shocked when they don't work.

This chapter is not a primer on personal finance. There are some excellent books on investment strategies. Burton Malkiel, who was kind enough to write the foreword for this book, has written one of the best: *A Random Walk Down Wall Street*. Rather, this chapter is about what a basic understanding of markets—the ideas covered in the first two chapters—can tell us about personal investing. Any investment strategy must obey the basic laws of economics, just as any diet is constrained by the realities of chemistry, biology, and physics. To borrow the title of Wally Lamb's best-selling novel: I know this much is true.

At first glance, the financial markets are remarkably complex. Stocks and bonds are complicated enough, but then there are options, futures, options on futures, interest rate swaps, government "strips," and the now infamous credit default swaps. At the Chicago Mercantile Exchange, it is now possible to buy or sell a futures contract based on the average temperature in Los Angeles. At the Chicago Board of Trade, one can buy and sell the right to emit SO<sub>2</sub>. Yes, it's actually possible to make (or lose) money by trading smog. The details of these contracts can be mind-numbing, yet at bottom, most of what is going on is fairly straightforward. Financial instruments, like every other good or service in a market economy, must create some value. Both the buyer and

seller must perceive themselves as better off by entering into the deal. All the while, entrepreneurs seek to introduce financial products that are cheaper, faster, easier, or otherwise better than what already exists. Mutual funds were a financial innovation; so were the index funds that Burt Malkiel helped to make popular. At the height of the financial crisis in 2008, it became clear that even Wall Street executives did not fully understand some of the products that their firms were buying and selling. Still, all financial instruments—no matter how complex the bells and whistles—are based on four simple needs:

**Raising capital.** One of the fascinating things in life, particularly in America, is that we can spend large sums of money that don't belong to us. Financial markets enable us to borrow money. Sometimes this means that Visa and MasterCard indulge our eagerness to consume today what we cannot afford until next year (if then); more often—and more significant to the economy—borrowing makes possible all kinds of investment. We borrow to pay college tuition. We borrow to buy homes. We borrow to build plants and equipment or to launch new businesses. We borrow to do things that make us better off even after we've paid the cost of borrowing.

Sometimes we raise capital without borrowing; we may sell shares of our business to the public. Thus, we trade an ownership stake (and therefore a claim on future profits) in exchange for cash. Or companies and governments may borrow directly from the public by issuing bonds. These transactions may be as simple as a new car loan or as complex as a multibillion-dollar bailout by the International Monetary Fund. *The bottom line never changes: Individuals, firms, and governments need capital to do things today that they could not otherwise afford; the financial markets provide it to them—at a price.*

Modern economies cannot survive without credit. Indeed, the international development community has begun to realize that making credit available to entrepreneurs in the developing world, even loans as small as \$50 or \$100, can be a powerful tool for fighting

poverty. Opportunity International is one such “microcredit” lender. In 2000, the organization made nearly 325,000 low-collateral or non-collateral loans in twenty-four developing countries. The average loan size was a seemingly paltry \$195. Esther Gelabuzi, a widow in Uganda with six children, represents a typical story. She is a professional midwife, and she used a tiny loan by Western standards to set up a clinic (still without electricity). She has since delivered some fourteen hundred babies, charging patients from \$6 to \$14 each. Opportunity International claims to have created some 430,000 jobs. As impressive, the repayment rate on the micro-loans is 96 percent.

**Storing, protecting, and making profitable use of excess capital.** The sultan of Brunei earned billions of dollars in oil revenues in the 1970s. Suppose he had stuffed that cash under his mattress and left it there. He would have had several problems. First, it is very difficult to sleep with billions of dollars stuffed under the mattress. Second, with billions of dollars stuffed under the mattress, the dirty linens would not be the only thing that disappeared every morning. Nimble fingers, not to mention sophisticated criminals, would find their way to the stash. Third, and most important, the most ruthless and efficient thief would be inflation. If the sultan of Brunei stuffed \$1 billion under his mattress in 1970, it would be worth only \$180 million today.

Thus, the sultan's first concern would be protecting his wealth, both from theft and from inflation, each of which diminishes his purchasing power in its own way. His second concern would be putting his excess capital to some productive use. The world is full of prospective borrowers, all of whom are willing to pay for the privilege. When economists slap fancy equations on the chalkboard, the symbol for the interest rate is  $r$ , not  $i$ . Why? Because the interest rate is considered to be the rental rate— $r$ —on capital. And that is the most intuitive way to think about what is going on. Individuals, companies, and institutions with surplus capital are renting it to others who can make more productive use of it. The Harvard University endowment is roughly \$25 billion.

This is the Ivy League equivalent of rainy-day money; stuffing it under the mattresses of students and faculty would be both impractical and a waste of a tremendous resource. Instead, Harvard employs nearly two hundred professionals to manage this hoard in a way that generates a healthy return for the university while providing capital to the rest of the world.<sup>1</sup> Harvard buys stocks and bonds, invests in venture capital funds, and otherwise puts \$25 billion in the hands of people and institutions around the globe who can do productive things with it. From 1995 to 2005, the endowment earned an average 16 percent annual return, which is a lot more productive for the university than leaving the cash lying around campus. (Harvard also managed to lose 30 percent of its endowment during the financial crisis, so we'll come back to the Harvard endowment when we talk about "risk and reward.")<sup>2</sup>

Financial markets do more than take capital from the rich and lend it to everyone else. They enable each of us to smooth consumption over our lifetimes, which is a fancy way of saying that we don't have to spend income at the same time we earn it. Shakespeare may have admonished us to be neither borrowers nor lenders; the fact is that most of us will be both at some point. If we lived in an agrarian society, we would have to eat our crops reasonably soon after the harvest or find some way to store them. Financial markets are a more sophisticated way of managing the harvest. We can spend income now that we have not yet earned—as by borrowing for college or a home—or we can earn income now and spend it later, as by saving for retirement. The important point is that earning income has been divorced from spending it, allowing us much more flexibility in life.

**Insuring against risk.** Life is a risky proposition. We risk death just getting into the bathtub, not to mention commuting to work or bungee jumping with friends. Let us consider some of the ways you might face financial ruin: natural disaster, illness or disability, fraud or theft. One of our primary impulses as human beings is to minimize these risks. Financial markets help us to do that. The most obvious examples

are health, life, and auto insurance. As we noted in Chapter 4, insurance companies charge more for your policy than they expect to pay out to you, on average. But "average" is a really important term here. You are not worried about average outcomes; you are worried about the worst things that could possibly happen to you. A bad draw—the tree that falls in an electrical storm and crushes your home—could be devastating. Thus, most of us are willing to pay a predictable amount—even one that is more than we expect to get back—in order to protect ourselves against the unpredictable.

Almost anything can be insured. Are you worried about pirates? You should be, if you ship goods through the South China Sea or the Malacca Strait. As *The Economist* explains, "Pirates still prey on ships and sailors. And far from being jolly sorts with wooden legs and eye patches, today's pirates are nasty fellows with rocket-propelled grenades and speedboats." There were 266 acts of piracy (or attempts) reported to the International Maritime Organization in 2005. This is why firms sending cargo through dangerous areas buy marine insurance (which also protects against other risks at sea). When the French oil tanker *Lâmberg* was rammed by a suicide bomber in a speedboat packed with explosives off the coast of Yemen in 2002, the insurance company ended up writing a check for \$70 million—just like when someone backs into your car in the Safeway parking lot, only a much bigger claim.<sup>3</sup>

The clothing and shoe company Fila should have bought insurance before the 2009 U.S. Open tennis tournament, but didn't. Like other such companies, Fila endorses athletes and pays them large bonuses when they do great things. Fila endorses Belgian tennis player Kim Clijsters, winner of the U.S. Open, but opted not to buy "win insurance" for the roughly \$300,000 in bonus money they had promised her for a victory. (This was an expensive decision, but perhaps also an insulting one for Ms. Clijsters.) The insurance would have been cheap; Clijsters was unseeded, had played only two tournaments since leaving the game to have a baby, and was considered a 40–1 long shot by bookies before the tournament.<sup>4</sup>

The financial markets provide an array of other products that look complicated but basically function like an insurance policy. A futures contract, for example, locks in a sale price for a commodity—anything from electrical power to soybean meal—at some defined date in the future. On the floor of the Board of Trade, one trader can agree to sell another trader a thousand bushels of corn for \$3.27 a bushel in March of 2010. What's the point? The point is that producers and consumers of these commodities have much to fear from future price swings. Corn farmers can benefit from locking in a sale price while their corn is still in the ground—or even before they plant it. Might the farmers get a better price by waiting to sell the crop until harvest? Absolutely. Or they might get a much lower price, leaving them without enough money to pay the bills. They, like the rest of us, are willing to pay a price for certainty.

Meanwhile, big purchasers of commodities can benefit from being on the other side of the trade. Airlines use futures contracts to lock in a predictable price for jet fuel. Fast-food restaurants can enter into futures contracts for ground beef, pork bellies (most of which are made into bacon), and even cheddar cheese. I don't know any Starbucks executives personally, but I have a pretty good idea what keeps them awake at night: the world price of coffee beans. Americans will pay \$3.50 for a grande skim decaf latte, but probably not \$6.50, which is why I would be willing to bet the royalties from this book that Starbucks uses the financial markets to protect itself from sudden swings in the price of coffee.

Other products deal with other risks. Consider one of my personal favorites: catastrophe bonds.<sup>5</sup> Wall Street dreamed up these gems to help insurance companies hedge their natural disaster risk. Remember, the insurance company writes a check when a tree falls on your house; if a lot of trees fall on a lot of houses, then the company, or even the entire industry, has a problem. Insurance companies can minimize that risk by issuing catastrophe bonds. These bonds pay a significantly higher rate of interest than other corporate bonds because there is a

twist: If hurricanes or earthquakes do serious damage to a certain area during a specified period of time, then the investors forfeit some or all of their principal. The United Services Automobile Association did one of the first deals in the late 1990s tied to the hurricane season on the East Coast. If a single hurricane caused \$1.5 billion in claims or more, then the catastrophe bond investors lost all of their principal. The insurance company, on the other hand, was able to offset its claims losses by avoiding repayment on its debt. If a hurricane did between \$1 billion and \$1.5 billion in damage, then investors lost a fraction of their principal. If hurricanes did relatively little damage that year, then the bondholders got their principal back plus nearly 12 percent in interest—a very nice return for a bond.

The same basic idea is now being used to protect against terrorism. The World Football Federation, which governs international soccer, insured the 2006 World Cup against disruption due to terrorism (and other risks) by issuing \$260 million in “cancellation bonds.” If the tournament went off without a hitch (as it did), the investors get their capital back along with a handsome profit. If there had been a disruption serious enough to cancel the World Cup, the investors lose some or all of their money, which is used instead to compensate the World Football Federation for the lost revenue. The beauty of these products lies in the way they spread risk. The party selling the bonds avoids ruin by sharing the costs of a natural disaster or a terrorist attack with a broad group of investors, each of whom has a diversified portfolio and will therefore take a relatively small hit even if something truly awful happens.

Indeed, one role of the financial markets is to allow us to spread our eggs around generously. I must recount one of those inane experiences that can happen only in high school. Some expert in adolescent behavior at my high school decided that students would be less likely to become teen parents if they realized how much responsibility it required. The best way to replicate parenthood, the experts reckoned, would be to have each student carry an egg around school. The egg

represented a baby and was to be treated as such—handled delicately, never left out of sight, and so on. But this was high school. Eggs were dropped, crushed, left in gym lockers, hurled against the wall by bullies, exposed to secondhand smoke in the bathrooms, etc. The experience taught me nothing about parenthood; it did convince me forever that carrying eggs is a risky proposition.

The financial markets make it cheap and easy to put our eggs into many different baskets. With a \$1,000 investment in a mutual fund, you can invest in five hundred or more companies. If you were forced to buy individual stocks from a broker, you could never afford so much diversity with a mere \$1,000. For \$10,000, you can diversify across a wide range of assets: big stocks, small stocks, international stocks, long-term bonds, short-term bonds, junk bonds, real estate. Some of those assets will perform well at the same time others are doing poorly, protecting you from Wall Street's equivalent of bullies hurling eggs against the wall. One attraction of catastrophe bonds for investors is that their payout is determined by the frequency of natural disasters, which is not correlated with the performance of stocks, bonds, real estate, or other traditional investments.

Even the much-maligned credit default swaps have a legitimate investment purpose. A credit default swap is really just an insurance policy on whether or not some third party will pay back its debts. Suppose your husband pressures you to loan \$25,000 to your ne'er-do-well brother-in-law so that he can finally complete his court-mandated anger management program and turn his life around. You have grave concerns about whether you will ever see any of this money again. What you need is a credit default swap. You can pay some other party (presumably with a more favorable view of your brother-in-law's creditworthiness) to enter into a contract with you that promises to pay you \$25,000 in the event that your brother-in-law does not pay back the cash. The contract functions as insurance against default. Like any other kind of insurance, you pay for this protection. If your brother-in-law gets his act together and pays back the loan, you will

have purchased the credit default swap for nothing (which is how the other party to the transaction, or the counterparty, makes its money). How could something so simple and seemingly useful contribute to the near collapse of the global financial system? Read on.

**Speculation.** Of course, once any financial product is created, it fulfills another basic human need: the urge to speculate, or bet on short-term price movements. One can use the futures market to mitigate risk—or one can use the futures market to bet on the price of soybeans next year. One can use the bond market to raise capital—or one can use it to bet on whether or not Ben Bernanke will cut interest rates next month. One can use the stock market to invest in companies and share their future profits—or one can buy a stock at 10:00 a.m. in hopes of making a few bucks by noon. Financial products are to speculation what sporting events are to gambling. They facilitate it, even if that is not their primary purpose.

This is what went wrong with credit default swaps. The curious thing about these contracts is that anyone can get into the action, regardless of whether or not they are a party to the debt that is being guaranteed. Let's stick with the example of your loser brother-in-law. It makes sense for you to use a credit default swap to protect yourself against loss. However, that same market also allows the rest of us to bet on whether or not your brother-in-law will pay back the loan. That's not hedging a bet; that's speculation. So for any single debt, there may be hundreds or thousands of contracts tied to whether or not it gets repaid. Think about what that means if your brother-in-law starts skipping his anger management classes and defaults. At that point, a \$25,000 loss gets magnified thousands of times over.

If the parties guaranteeing that debt haven't done their homework (so they don't truly understand what a loser your brother-in-law is), or if they don't care (because they earn big bonuses for making dubious bets with the firm's capital), then an otherwise small set of economic setbacks can explode into something bigger. That's what happened

when the American economy hit a real-estate-related speed bump in 2007. AIG was the firm at the heart of the credit default debacle because it guaranteed a lot of debt that went bad. In his excellent 2009 assessment of the financial crisis, former chief economist for the International Monetary Fund Simon Johnson writes:

Regulators, legislators, and academics almost all assumed that the managers of these banks knew what they were doing. In retrospect, they didn't. AIG's Financial Products division, for instance, made \$2.5 million in pretax profits in 2005, largely by selling underpriced insurance on complex, poorly understood securities. Often described as "picking up nickels in front of a steamroller," this strategy is profitable in ordinary years, and catastrophic in bad ones. As of last fall, AIG had outstanding insurance on more than \$400 billion in securities. To date, the U.S. government, in an effort to rescue the company, has committed to about \$180 billion in investments and loans to cover losses that AIG's sophisticated risk modeling had said were virtually impossible.<sup>6</sup>

Raising capital. Protecting capital. Hedging risk. Speculating. That's it. All the frantic activity on Wall Street or LaSalle Street (home of the futures exchanges in Chicago) fits into one or more of those buckets. The world of high finance is often described as a rich man's version of Las Vegas—risk, glamour, interesting personalities, and lots of money changing hands. Yet the analogy is terribly inappropriate. Everything that happens in Las Vegas is a zero-sum game. If the house wins a hand of blackjack, you lose. And the odds are stacked heavily in favor of the house. If you play blackjack long enough—at least without counting cards—it is a mathematical certainty that you will go broke. Las Vegas provides entertainment, but it does not serve any broader social purpose. Wall Street does. Most of what happens is a positive-sum game. Things get built; companies are launched; individuals and companies manage risk that might otherwise be devastating.

Not every transaction is a winner, of course. Just as individuals make investments they later regret, the capital markets are perfectly capable of squandering huge amounts of capital; choose your favorite failed dot-com and think of that as an example. Billions of dollars of capital flowed into businesses that didn't work. The real estate bubble and the Wall Street meltdown did the same on an even bigger scale. Adam Smith's invisible hand has hurled a lot of capital into the ocean, never to be seen again. Meanwhile, some potentially profitable enterprises are starved for capital because they have insufficient collateral. Economists worry, for example, that too little credit is available for poor families who would like to invest in human capital. A college degree is an excellent investment, but it is not something that can be repossessed in the event of default.

Still, the financial markets do for capital what other markets do for everything else: allocate it in a highly productive, albeit imperfect, way. Capital flows to where it can earn the highest return, which is not a bad place to have it flowing (as opposed to, say, into businesses run by top communist officials or friends of the king). As with the rest of the economy, government can be enemy or friend. Government can mess up the capital markets in the same ways it can mess up anything else—with overly burdensome taxes and regulations, by diverting capital into pet projects, by refusing to allow creative destruction to work its harshly efficient ways. Or government can make the financial markets work better: by minimizing fraud, forcing transparency on the system, creating and enforcing a regulatory framework, providing public goods that lower the cost of doing business, and so on. Once again, the wisdom lies in telling the difference.

Obviously the current crisis has presented some teachable moments. The financial regulatory system needs to be patched up, if not completely overhauled. The challenge will be to protect what a modern financial system does best—allocating capital to productive investments and protecting us from risks we can't afford—while

curtailing the excesses—stupid bets that enrich the folks making them before eventually leaving a mess for the rest of us to clean up.

All that is well and good. *But how does one get rich in the markets?* One of my former colleagues at *The Economist* suggested that this book should be called *Are You Rich Enough?* His logic was that most people would answer no and rip the book off the shelves. Sadly, I'm not a big believer in surefire strategies to trade your way to riches. Just as miracle weight-loss programs violate nearly everything we know about health and nutrition, get-rich-quick schemes violate the most basic principles of economics.

Let me begin with an example. Suppose you are shopping for a home in the Lincoln Park neighborhood of Chicago. After many weeks of searching, you find that a three-story single-family brownstone will cost you somewhere in the range of \$500,000. Some homes are listed for \$450,000 but they need work; others are listed for \$600,000 because they have extra amenities. Just when you begin to despair that you will have to spend \$500,000 for a home, you find a brownstone listed for \$250,000 that meets all of your specifications. When you investigate, you learn that this home is every bit as nice as the ones you've been looking at—same location, same size, same structural integrity. Still wary, you ask your real estate agent for her assessment. She assures you that this house is indeed a remarkable bargain and should be selling for \$500,000. In her professional opinion, there is no doubt that you could buy this house for \$250,000 and sell it only months later for \$500,000 or more. Then you see the final piece of evidence. An article on page 3 of *Crain's Chicago Business* has a screaming headline: "Bargain of the Month: Lincoln Park Brownstone Listed for \$250,000."

So you snap up the house for \$250,000. Sure enough, six months later you sell it for \$500,000—doubling your money.\*

\* Your actual return would be much higher, since much of the purchase would be financed. If you put \$50,000 down, for example, you would have earned \$250,000

How many things are wrong with this story? Quite a few. A reasonable person might begin by asking some of the following questions:

1. If this house was really worth \$500,000, who was the moron selling it for \$250,000? Was this person not willing or able to do the three minutes of work necessary to determine that comparable houses in the neighborhood were selling for twice as much? If not, wasn't there a family member or a real estate agent—whose commission is based on the sale price—willing to point out this enormous discrepancy?
2. Maybe not. In that case, why hasn't my real estate agent bought this house for herself? If this house is a "sure thing" to double in price, why is she working for my 3 percent commission when \$250,000 is staring her in the face?
3. Perhaps my real estate agent is a moron, too. In that case, where are all of the other buyers looking for bargains, especially after this house is featured in *Crain's Chicago Business*? If this brownstone is a tremendous bargain—and has been widely advertised as such—then presumably all kinds of people are going to want to buy it. A bidding war would result, with potential buyers offering larger and larger sums until the price reached its fair market value, which is around \$500,000.

In other words, there is virtually no chance that you will find a Lincoln Park brownstone (without some surprise lurking in the basement) for \$250,000. Why? Because of the most basic idea in economics. You are trying to maximize your utility—and so is everyone else. In a world in which everyone is looking to make profitable investments, no one is going to leave \$250,000 sitting on the table. *Yet people assume the stock market works like this all the time.* We believe that after

on a \$50,000 investment (minus the interest you paid to carry the mortgage during the period you owned the house).

reading about a “hot stock” in *BusinessWeek*, or reading a Wall Street analyst’s buy recommendation (offered to all the firm’s clients), we can load up on stocks that will trounce the market average. But those supposed “hot stocks” are merely the Lincoln Park brownstone in different clothing. Here’s why:

Let’s start with a stunningly simple but, often overlooked point: Every time you buy a stock (or any other asset), someone has to sell it to you. The guy who sells you this “hot stock” has decided that he would rather have cash. He has looked at the current “bargain price” and he wants out—right when you are getting in. Sure, he may need the money for something else, but he is still going to demand a fair market price, just as we would expect someone who has to move out of Lincoln Park to ask \$500,000 for a brownstone, not \$250,000. The stock market, as the name would suggest, is a market. The price of a stock at any given time is the price at which the number of buyers equals the number of sellers. Half of the investors trading your “hot stock” are trying to get rid of it.

Or maybe you know something that the sellers don’t. Perhaps all the people unloading XYZ Corp. missed the *Wall Street Journal* article about XYZ’s new blockbuster drug for male-pattern baldness. Okay, that might happen. But where are the world’s other sophisticated buyers? This stock is a sure thing at \$45, yet for some reason Warren Buffett, the traders at Goldman Sachs, and the top Fidelity portfolio managers are not snapping it up. (If they were, the stock would be bid up to a much higher price, just like the Lincoln Park brownstone.) Do you know something that no one else on Wall Street knows (bearing in mind that trading on any information not available to the public is against the law)?

Or maybe someone on Wall Street is pitching you this stock idea. America’s brokerage houses employ a cadre of analysts who spend their days kicking the tires of corporate America. Is all that information wrong? No—though there are plenty of cases of incompetence and conflict of interest. Analysts provide all kinds of legitimate infor-

mation, just like your real estate agent. When you are shopping for a home, your agent can tell you about neighborhoods, schools, taxes, crime—the kinds of things that matter. Wall Street analysts do the same things for companies; they report on management, future products, the industry, the competition. But that does nothing to guarantee that you are going to earn an above-average return on the stock.

*The problem is that everyone else has access to the same information.* This is the essence of the efficient markets theory. The main premise of the theory is that asset prices already reflect all available information. Thus it is difficult, if not impossible, to choose stocks that will outperform the market with any degree of consistency. Why can’t you buy a brownstone in Lincoln Park for \$250,000? Because buyers and sellers recognize that such a home is worth much more. A share of XYZ Corp. is no different. Stock prices settle at a fair price given everything that we know or can reasonably predict; prices will rise or fall in the future only in response to unanticipated events—things that we cannot know in the present.

Picking stocks is a lot like trying to pick the shortest checkout line at the grocery store. Do some lines move faster than others? Absolutely, just as some stocks outperform others. Are there things that you can look for that signal how fast one line will move relative to another? Yes. You don’t want to be behind the guy with two full shopping carts or the old woman clutching a fistful of coupons. So why is it that we seldom end up in the shortest line at the grocery store (and most professional stock pickers don’t beat the market average)? Because everyone else is looking at the same things we are and acting accordingly. They can see the guy with two shopping carts, the cashier in training at register three, the coupon queen lined up at register six. Everybody at the checkout tries to pick the fastest line. Sometimes you will be right; sometimes you will be wrong. Over time they will average out, so that if you go to the grocery store often enough, you’ll probably spend about the same amount of time waiting in line as everyone else.

Indeed, we can take the analogy one step further. Suppose that



somewhere near the produce aisle you saw an old woman stuffing wads of coupons in her pockets. When you arrive at the checkout and see her in line, you wisely steer your cart somewhere else. As she gets out her coin purse and begins slowly handing coupons to the cashier, you smugly congratulate yourself. Moments later, however, you realize the guy ahead of you forgot to weigh his avocados. "Price check on avocados at register three!" your cashier barks repeatedly as you watch the coupon lady push her groceries out of the store. Who could have predicted that? No one, just as no one would have predicted that MicroStrategy, a high-flying software company, would restate its income on March 19, 2000, essentially wiping millions of dollars of earnings off its books. The stock fell \$140 in one day, a 62 percent plunge. Did the investors and portfolio managers who bought MicroStrategy shares think this was going to happen? Of course not. *It's the things you can't predict that matter.* Indeed, the next time you are tempted to invest a large sum of money in a single stock, even that of a large and well-established firm, repeat these magic words: Enron, Enron, Enron. Or Lehman, Lehman, Lehman.

Proponents of the efficient markets theory have advice for investors: Just pick a line and stand in it. If assets are priced efficiently, then a monkey throwing darts at the stock pages should choose a portfolio that will perform as well, on average, as the portfolios picked by the Wall Street stars. (Burton Malkiel has pointed out that since diversification is important, the monkey should actually throw a wet towel at the stock pages.) Indeed, investors now have access to their own monkey with a towel: index funds. Index funds are mutual funds that do not purport to pick winners. Instead, they buy and hold a predetermined basket of stocks, such as the S&P 500, the index that comprises America's largest five hundred companies. Since the S&P 500 is a broad market average, we would expect half of America's actively managed mutual funds to perform better, and half to perform worse. But that is before expenses. Fund managers charge fees for all the tire-kicking they do; they also incur costs as they trade aggressively. Index funds, like towel-throwing monkeys, are far cheaper to manage.

But that's all theory. What do the data show? It turns out that the monkey with a towel can be an investor's best friend. According to Morningstar, a firm that tracks mutual funds, slightly fewer than half of the U.S. actively managed diversified funds beat the S&P 500 over the past year. A more impressive 66 percent of actively-managed funds beat the S&P 500 over the past five years. But look what happens as the time frame gets longer: Only 45 percent of actively managed funds beat the S&P over a twenty-year stretch, which is the most relevant time frame for people saving for retirement or college. *In other words, 55 percent of the mutual funds that claim to have some special stock-picking ability did worse over two decades than a simple index fund, our modern equivalent of a monkey throwing a towel at the stock pages.*

If you had invested \$10,000 in the average actively managed equity fund in 1973, when Malkiel's heretical book *A Random Walk Down Wall Street* first came out, it would be worth \$355,091 today (many editions later). If you had invested the same amount of money in an S&P 500 index fund, it would now be worth \$364,066.

Data notwithstanding, the efficient markets theory is obviously not the most popular idea on Wall Street. There is an old joke about two economists walking down the street. One of them sees a \$100 bill lying in the street and points it out to his friend. "Is that a \$100 bill lying in the gutter?" he asks.

"No," his friend replies. "If it were a \$100 bill, someone would have picked it up already."

So they walk on by.

Neither the housing market nor the stock market has behaved lately in ways consistent with such a sensible and orderly view of human behavior. Some of the brightest minds in finance have been chipping away at the efficient markets theory. Behavioral economists have documented the ways in which individuals make flawed decisions: We are prone to herd-like behavior, we have too much confidence in our own abilities, we place too much weight on past trends when predicting the future, and so on. Given that a market is just a collection of individu-

als' decisions, it stands to reason that if individuals get things wrong in systematic ways (like overreacting to good and bad news), then markets can get things wrong, too (like bubbles and busts).

There is even a new field, neuroeconomics, that combines economics, cognitive neuroscience, and psychology to explore the role that biology plays in our decision making. One of the most bizarre and intriguing findings is that people with brain damage may be particularly good investors. Why? Because damage to certain parts of the brain can impair the emotional responses that cause the rest of us to do foolish things. A team of researchers from Carnegie Mellon, Stanford, and the University of Iowa conducted an experiment that compared the investment decisions made by fifteen patients with damage to the areas of the brain that control emotions (but with intact logic and cognitive functions) to the investment decisions made by a control group. The brain-damaged investors finished the game with 13 percent more money than the control group, largely, the authors believe, because they do not experience fear and anxiety. The impaired investors took more risks when there were high potential payoffs and got less emotional when they made losses.<sup>7</sup>

This book is not prescribing brain injury as an investment strategy. However, behavioral economists do believe that by anticipating the flawed decisions that regular investors are likely to make, we can beat the market (or at least avoid being ravaged by it). Yale economist Robert Shiller first challenged the theory of efficient markets in the early 1980s. He became much more famous for his book *Irrational Exuberance*, which argued in 2000 that the stock market was overvalued. He was right. Five years later he argued that there was a bubble in the housing market. He was right again.

If irrational investors are leaving \$100 bills strewn about, shouldn't we be able to pick them up somehow? Yes, argues Richard Thaler, a University of Chicago economist (and the guy who took away the bowl of cashews from his guests back in Chapter 1). Thaler has even been willing to put his money where his theory is. He and some collabora-

tors created a mutual fund that would take advantage of our human imperfections: the behavioral growth fund. I will even admit that after I interviewed Mr. Thaler for Chicago public radio, I decided to toss aside my strong belief in efficient markets and invest a small sum in his fund. How has it done? Very well. The behavioral growth fund has produced an average return of 4.5 percent a year since its inception, compared to an average annual return of 2.3 percent for the S&P 500.

The efficient markets theory isn't going anywhere soon. In fact, it's still a crucial concept for any investor to understand, for two reasons. First, markets may do irrational things, but that doesn't make it easy to make money off those crazy movements, at least not for long. As investors take advantage of a market anomaly, say by buying up stocks that have been irrationally underpriced, they will fix the very inefficiency that they exploited (by bidding up the price of the underpriced stocks until they aren't underpriced anymore). Think about the original analogy of trying to find the fastest checkout line at the grocery store. Suppose you do find one line that moves predictably faster than the others—maybe it has a really fast cashier and a nimble bagger. This outcome is observable to other shoppers; they are going to pile into your special line until it's not particularly fast anymore. The chances of you picking the shortest line week after week are essentially nil. Mutual funds work the same way. If a portfolio manager starts beating the market, others will see his oversized returns and copy the strategy, making it less effective in the process. So even if you believe that there will be an occasional \$100 bill lying on the ground, you should also recognize that it won't be lying there for long.

Second, the most effective critics of the efficient markets theory think the average investor probably can't beat the market and shouldn't try. Andrew Lo of MIT and A. Craig MacKinlay of the Wharton School are the authors of a book entitled *A Non-Random Walk Down Wall Street* in which they assert that financial experts with extraordinary resources, such as supercomputers, can beat the market by finding and exploiting pricing anomalies. A *BusinessWeek* review of

the book noted, “Surprisingly, perhaps, Lo and MacKinlay actually agree with Malkiel’s advice to the average investor. If you don’t have any special expertise or the time and money to find expert help, they say, go ahead and purchase index funds.”<sup>8</sup>

Warren Buffett, arguably the best stock picker of all time, says the same thing.<sup>9</sup> Even Richard Thaler, the guy beating the market with his behavioral growth fund, told the *Wall Street Journal* that he puts most of his retirement savings in index funds.<sup>10</sup> Indexing is to investing what regular exercise and a low-fat diet are to losing weight: a very good starting point. The burden of proof should fall on anyone who claims to have a better way.

As I’ve already noted, this chapter is not an investment guide. I’ll leave it to others to explain the pros and cons of college savings plans, municipal bonds, variable annuities, and all the other modern investment options. That said, basic economics can give us a sniff test. It provides us with a basic set of rules to which any decent investment advice must conform:

**Save. Invest. Repeat.** Let’s return to the most basic idea in this chapter: Capital is scarce. This is the only reason that any kind of investing yields returns. If you have spare capital, then someone will pay you to use it. But you’ve got to have the spare capital first, and the only way to generate spare capital is to spend less than you earn—i.e., save. The more you save, and the sooner you begin saving it, the more rent you can command from the financial markets. Any good book on personal finance will dazzle you with the virtues of compound interest. Suffice it here to note that Albert Einstein is said to have called it the greatest invention of all time.

The flip side, of course, is that if you are spending more cash than you earn, then you will have to “rent” the difference somewhere. And you will have to pay for that privilege. Paying the rent on capital is no different from paying the rent on anything else: It is an expense that crowds out other things you may want to consume later. The

cost of living better in the present is living less well in the future. Conversely, the payoff for living frugally in the present is living better in the future. So for now, set aside questions about whether your 401(k) should be in stocks or bonds. The first step is far more simple: Save early, save often, and pay off the credit cards.

**Take risk, earn reward.** Okay, now we’ll talk about whether your 401(k) should be in stocks or bonds. Suppose you have capital to rent, and you are deciding between two options: lending it to the federal government (a treasury bond), or lending it to your neighbor Lance, who has been tinkering in his basement for three years and claims to have invented an internal combustion engine that runs on sunflower seeds. Both the federal government and your neighbor Lance are willing to pay you 6 percent interest on the loan. What to do? Unless Lance has photos of you in a compromising position, you should buy the government bond. The sunflower combustion engine is a risky proposition; the government bond is not. Lance may eventually attract the capital necessary to build his invention, but not by offering a 6 percent return. *Riskier investments must offer a higher expected return in order to attract capital.* That is not some arcane law of finance; it is simply markets at work. No rational person will invest money somewhere when he or she can earn the same expected return with less risk somewhere else.

The implication for investors is clear: You will be compensated for taking more risk. Thus, the more risky your portfolio, the higher your return—on average. Yes, it’s that pesky concept of “average” again. If your portfolio is risky, it also means that some very bad things will occasionally happen. Nothing encapsulates this point better than an old headline in the *Wall Street Journal*: “Bonds Let You Sleep at Night but at a Price.”<sup>11</sup> The story examined stock and bond returns from 1945 to 1997. Over that period, a portfolio of 100 percent stocks earned an average annual return of 12.9 percent; a portfolio of 100 percent bonds earned a relatively meager 5.8 percent average annual return over the same period. So you might ask yourself, who are the

chumps holding bonds? Not so fast. The same story then examined how the different portfolios performed in their worst years. The stock portfolio lost 26.5 percent of its value in its worst year; the bond portfolio never lost more than 5 percent of its value in a single bad year. Similarly, the stock portfolio had negative annual returns eight times between 1945 and 1997; the bond portfolio lost money only once. The bottom line: Risk is rewarded—if you have a tolerance for it.

That brings us back to the Harvard endowment, which lost about a third of its value during the 2008 financial crisis. And Yale lost a quarter of its endowment in one year alone. Meanwhile, over the same stretch of dismal economic circumstances, my mother-in-law earned about a 3 percent return by keeping nearly all of her assets in certificates of deposit and a checking account. Is my mother-in-law an investment genius? Should Harvard have directed more of its assets to a giant checking account? No and no. My mother-in-law always keeps her assets in safe but low-yielding investments because she has a small appetite for risk. She is protected when times are bad; of course, that also means that if the stock market posts an 18 percent gain one year, she earns . . . 3 percent. Meanwhile, Harvard and Yale and other schools with large endowments earned enormous returns during the boom years by taking large risks and making relatively illiquid investments. (Liquidity is the reflection of how quickly and predictably something can be turned into cash. Illiquid investments, like rare art or Venezuelan corporate bonds, must pay a premium to compensate for this drawback; of course, when you need to get rid of them quickly to raise cash, it's a problem.) These institutions pay an occasional price for their aggressive portfolios, but those bumps should be more than offset in the long run with returns that are a heck of a lot better than a certificate of deposit. Most important, the endowments are different than the typical investor planning for college or retirement; their investment horizon is theoretically infinite, meaning that they can afford some really bad years, or even decades, if it maximizes returns over the next one hundred or two hundred years (although both Harvard and Yale have had to make

serious budget cuts lately to make up for lost endowment revenue). Yale President Richard Levin told the *Wall Street Journal*, "We made huge excess returns on the way up. When it's all over and things stabilize I think we'll find the overall long-run performance [of the endowment] is better than if we didn't."<sup>12</sup> I suspect he's right, but that doesn't necessarily make it a wise strategy for my mother-in-law.

**Diversify.** When I teach finance, I like to have my students flip coins. It is the best way to make certain points. Here is one of them: A well-diversified portfolio will significantly lower the risk of serious losses without lowering your expected return. Let's turn to the coins. Suppose the return on the \$100,000 you have tucked away in a 401(k) depends on the flip of a coin: Heads, it quadruples in value; tails, you lose everything. The average outcome of this exercise is very good. (Your expected return is 100 percent.)\* The problem, of course, is that the downside is unacceptably bad. You have a 50 percent chance of losing your whole nest egg. Try explaining that to a spouse.

So let's bring in some more coins. Suppose you spread the \$100,000 in your 401(k) into ten different investments, each with the same payoff scheme: Heads, the investment quadruples in value; tails, it becomes worthless. Your expected return has not changed at all: On average, you will flip five heads and five tails. Five of your investments would quadruple in value, and five would become worthless. That works out to the same handsome 100 percent return. But look at what has happened to your downside risk. The only way you can lose your entire 401(k) is by flipping ten tails, which is highly unlikely. (The probability is less than one in a thousand.) Now imagine the same exercise if you buy several index funds that include thousands of stocks from around the world.<sup>†</sup> That many coins will never come up all tails.

\* The expected return is  $0.5(\$400,000) + 0.5(\$0) = \$200,000$ , which is a 100 percent return on your \$100,000 investment.

† This exercise is somewhat oversimplified. The flips of a coin are independent,

Of course, you better make darn sure that all those investments have outcomes that are truly independent of one another. It's one thing to flip coins, where the outcome of one flip is uncorrelated with the outcome of the next flip. It's quite another to buy shares of Microsoft and Intel and then assume that you've safely split your portfolio into two baskets. Yes, they are different companies with different products and different management, but if Microsoft has a really bad year, there is a pretty good chance that Intel will suffer, too. One of the mistakes that compounded the financial crisis was the belief that bundling lots of mortgages together into a single mortgage-backed security created an investment that was safer and more predictable than any single mortgage—like flipping one hundred coins instead of just one. If you are a bank with one mortgage loan outstanding, it could go into default, taking all of your capital with it. But if you buy a financial product constructed from thousands of mortgages, most of them will be fine, which offsets the risk of the occasional default.

During normal times, that's probably true. A mortgage goes into default when someone gets sick or loses a job. That's not likely to be highly correlated across households; if one house on the block goes into foreclosure, there is no reason to believe that others will, too. When a real estate bubble pops, everything is different. Housing prices were plummeting all over the country, and the accompanying recession meant that lots and lots of people were losing jobs. The seemingly clever securities backed by real estate loans morphed into the "toxic assets" that we've been trying to clean up ever since.

**Invest for the long run.** Have you ever been in a casino when someone wins big? The casino operators are just as happy as everybody else.

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while the performance of individual stocks are not. Some events, such as an interest rate hike, will affect the whole market. Thus, buying two stocks will not offer as much diversification as would splitting your portfolio between two flips of a coin. Nonetheless, the broader point is valid.

Why? Because they are going to make an extraordinary amount of money in the long run; this is just one minor hiccup along the way. The beauty of running a casino is that the numbers are stacked in your favor. If you are willing to wait long enough—and pose happily for photos as you give a giant check to the occasional big winner—then you will get rich.

Investing has the same benefits as running a casino: The odds are stacked in your favor if you are patient and willing to endure the occasional setback. Any reasonable investment portfolio must have a positive expected return. Remember, you've rented capital to assorted entities and you expect to get something back in return. Indeed, the riskier the ventures, the more you expect to get back, on average. So the longer you hold your (diversified) investments, the longer you have for probability to work its magic. Where will the Dow close tomorrow? I have no clue. Where will it be next year? I don't know. Where will it be in five years? Probably higher than it is today, but that's no sure thing. Where will it be in twenty-five years? Significantly higher than it is today; I'm reasonably certain of it. The idiocy of day trading—buying a stock in hopes of selling it several hours later at a profit—is that it incurs all the costs of trading stocks (commissions and taxes, not to mention your time) without any of the benefits that come from holding equities for the long run.

So there you have it—the sniff test for personal investing. The next time an investment adviser comes to you promising a 20 or 40 percent return, you know that one of three things must be true: (1) This must be a very risky investment in order to justify such a high expected return—think Harvard endowment; (2) your investment adviser has stumbled upon an opportunity still undiscovered by all the world's sophisticated investors, and he has been kind enough to share it with you—please call me; or (3) your investment adviser is incompetent and/or dishonest—think Bernie Madoff. All too often the answer is (3).

The fascinating thing about economics is that the fundamental

ideas don't change. Monarchs in the Middle Ages needed to raise capital (usually to fight wars), just as biotech startups do today. I have no idea what the planet will look like in one hundred years. Perhaps we will be settling Mars or converting salt water into a clean, renewable source of energy. I do know that either of those undertakings would use the financial markets to raise capital and to mitigate risk. And I'm positive that Americans will not have become thin and healthy by eating only grapefruit and ice cream.

## The Power of Organized Interests:

*What economics can  
tell us about politics*

Many years ago I took a vacation with a group of friends. As the sole academic among the bunch, I was the object of mild curiosity. When I explained that I was studying public policy, one of my peers asked skeptically, "If people know so much about public policy, then why is everything so messed up?" On the one hand, the question was idiotic; it's a bit like asking, "If we know so much about medicine, why do people keep dying all the time?" One can always come up with clever rejoinders a decade later. (At the time, I mumbled something like "Well, it's complicated.") I might have pointed out that in the realm of public policy, as in medicine, we have achieved some pretty good wins. Americans are healthier, richer, better-educated, and less vulnerable to economic booms and busts than at any time in our history—the recent economic downturn notwithstanding.

Still, the question has stuck with me for years, in large part because it hints at an important point: Even when economists reach consensus on policies that would make us better off, those policies often run into a brick wall of political opposition. International trade is a per-