

Digital Wealth

AN AUTOMATIC
WAY TO INVEST
SUCCESSFULLY

SIMON MOORE, CFA

CHIEF INVESTMENT OFFICER, FUTUREADVISOR



WILEY

Digital Wealth

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*An Automatic Way to
Invest Successfully*

Simon Moore

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*Dedicated to Mum and Dad.
Thank you for everything.*

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Preface

The future is already here. It's just not very evenly distributed.

—William Gibson

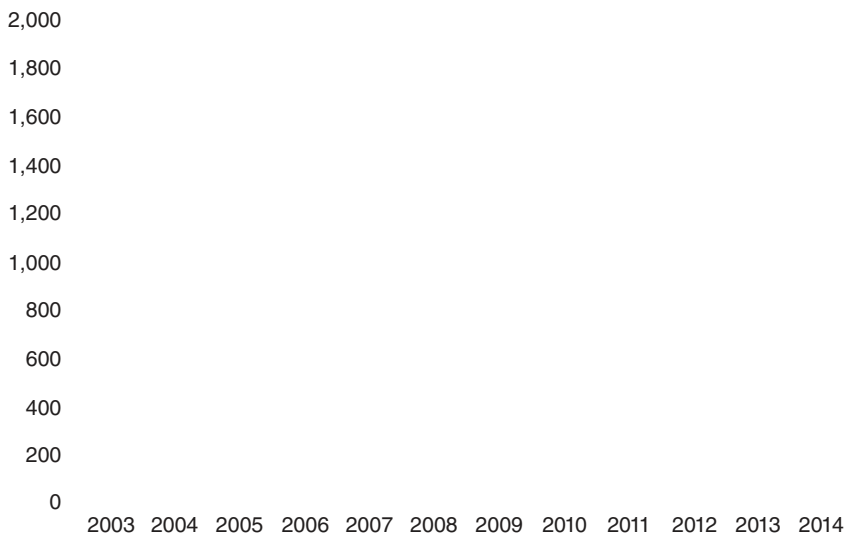
In 1989, three separate global events heralded a revolution in household investing, with the potential to save American households billions over the coming decades.

In 1989, researchers from Carnegie Mellon University's ChipTest project joined forces with IBM. Their computer was renamed Deep Blue after a naming contest. This chess computer would ultimately defeat the world champion. The same principles of deep analysis and simulation across multiple scenarios are employed by investment algorithms. The technology that beat the world champion once required a room of computing power. Today, as a sign of the incredible improvements in processing power, that same software no longer requires its own room and can run on a basic consumer phone.

In May 1989, Index Participation Shares (IPS) began trading on the American and Philadelphia stock exchanges, an equity derivative

attempting to match the returns of the Standard & Poor's (S&P) 500.¹ The Chicago Mercantile Exchange sued, and a decision by a Chicago Federal Court ultimately stopped the practice due to regulatory issues. But public interest in trading an entire stock market in the same way that you can trade a single stock was demonstrated in the brief period that this product traded.

The concept ultimately led to a similar fund being set up in Toronto to track the TSE-35 index the next year, which was again short lived, but this led to the first U.S. exchange-traded fund (ETF) four years later. These ETFs ultimately created a low-cost way to track all major liquid asset classes in a tax-efficient manner.



Number of ETFs over Time

Source: Investment Company Institute.

But the innovation was just as powerful in cost as in simplicity. At the turn of the millennium, the average mutual fund charged an expense ratio of 1.6 percent a year; now many ETFs have expense ratios of 0.1 percent or even lower. That represents a 93 percent decline in costs, often with other important benefits in ease of trading and tax efficiency, too.

And in 1989, Tim Beners Lee was in Switzerland pioneering the idea of hypertext to link different computers together. This was the early

stages of the Internet. The Web has evolved in critical and unforeseen ways since then. This is the technology that enables investment advice to now be delivered online with tremendous efficiency. These benefits are shared with clients in the form of much lower cost and greater ease of access and implementation than with traditional investment practices.

This book explains how and why algorithmic investing works—how it builds on these three pivotal developments in recent decades spanning different fields. Computational analysis is well suited to large-scale number crunching, with the ability to perform calculations more accurately, frequently, and without error than humans. In addition to that discussion of what powers algorithmic investing, you will see how a low-cost approach and diversified approach to investing has historically led to better results and how this finding is supported by many academic studies. One major theme that research shows is how lower-cost investing typically provides superior results than more expensive strategies.

In turn, digital investment advice embodies decades of financial development including Nobel Prize–winning economic thinking. This book also explains the often overlooked area of tax-efficient investing and how the market’s focus on pretax returns misses one of the easiest ways to improve performance. This is because beating the market is challenging given the competitive forces in play, yet tax efficiency offers a way to potentially increase portfolio returns in a more sustainable manner.

Unfortunately, today America’s savings rate is too low for many and is well below historic norms. Many are still overpaying for investment advice or unintentionally mismanaging their own investment portfolio due to behavioral and other biases. This book explains what the future of investment management is likely to look like based on the tremendous growth of both ETFs as an asset class and digital investment advisors as an important service.

Investment advice has previously been the preserve of the wealthy, and digital advisors pose less of a threat to the traditional financial advisor and more of an opportunity for the field of financial advice to reach the majority of households who are managing their own portfolio. This shift should save countless households significant time and effort, while providing peace of mind on some of life’s most important but often neglected topics.

¹Gary L. Gastineau, *The Exchange-Traded Funds Manual*. Hoboken, NJ: Wiley, 2010.

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Chapter 1

America's Savings Challenge

“The best time to plant a tree was 20 years ago; the second best time is now.”

—Chinese Proverb

We Don't Save Enough

As many an NFL star can attest, it can be easy to have wealth in the short term but not keep it for the long term by spending beyond your long-term means. This problem plays out across U.S. society. The allure of advertising and broad availability of debt don't help. It can lead to a bias toward spending, rather than saving, to try and keep up with the neighbors. This often comes at the expense of long-term security.

Unfortunately, the numbers for savings rates in the United States are poor relative to both history and other countries. As you can see from Figure 1.1,

up until the 1980s, the U.S. savings rate was comfortably around 10 percent. Since the 1980s, the savings rate has fallen and now trends around 5 percent. Recessions generally cause the savings rate to spike, but the long-term trend in the United States is clear. The savings rate has basically halved.

This rate is lower than all but a handful of developed countries. Of course, adjustments need to be made for demographics and the degree of “safety net” that a government offers to replace the need for saving for emergencies such as unemployment or healthcare costs. However, even after considering both factors, it seems clear that the U.S. savings rate is insufficient for many to achieve a comfortable retirement.

Social Security presents an additional risk. In the United States, the amount Social Security expects to pay out exceeds the amount coming in. As the report of the Trustees of Medicare and Social Security report:

Neither Medicare nor Social Security can sustain projected long-run program costs in full under currently scheduled financing, and legislative changes are necessary to avoid disruptive consequences for beneficiaries and taxpayers.¹

The numbers of Social Security don’t add up due to demographic trends. America has a rate of immigration that keeps its population, on

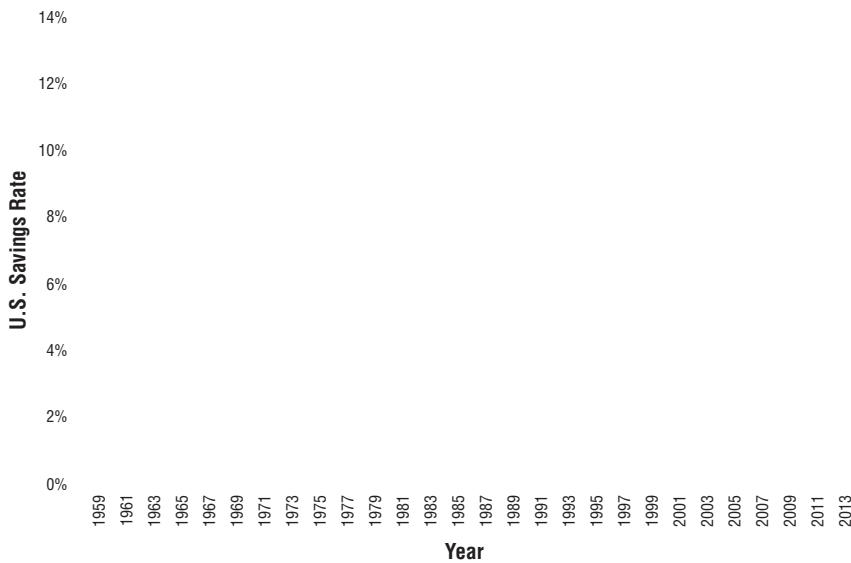


Figure 1.1 US Personal Savings Rate

Source: US. Bureau of Economic Analysis

average, younger than in many developed countries because immigrants tend to be younger than the average population. Despite this, the average age of the U.S. population is approximately 37,² and there will be increasingly more people in retirement than are working. That's a problem because the system is generally expected to balance what gets paid in (contributions from workers) with what gets paid out (payments to retirees). As retirees become a larger proportion of the population the balance breaks down. The Social Security problem is something that can be addressed with political will. However, doing so will likely mean a higher retirement age and potentially lower payments. As a result, reliance on individual savings is likely to increase.

Many people are ill prepared for retirement. Northwestern Mutual runs an annual study on the topic and finds that 42 percent of U.S. adults have not spoken to anyone about retirement, and that people are generally more comfortable talking about death or sex than retirement topics.³ Often, those who have limited confidence in their retirement also describe themselves as having "debt problems," according to Employee Benefit Research Institute (ERBI) research.⁴

The Key Change in America's Retirement Planning Process

It used to be different. Previously, defined benefit plans avoided this problem; an employer took responsibility for retirement outcomes of their employees and the investment allocations to meet those needs.

Over time, the emphasis for most nongovernment employers has switched to providing contributions that employees can use to plan for their own retirement in 401(k) plans and similar tax-efficient vehicles. However, this apparently simple switch conceals a fundamental transfer of risk. Whereas previously employers bore the risk of their employees having a successful retirement, now employees carry the risk. The employer was once on the hook for providing a payout in retirement; now they no longer guarantee any payout in retirement. If the employee makes poor investment decisions or doesn't save enough, then their employer isn't going to step in and help when retirement comes. And, of course, most people are untrained in investment management.

An employer can be expected to bring in the expertise to understand investment allocations and cost minimization in retirement choices.

However, evidence suggests that employees can chase historic returns and use basic strategies such as investing 20 percent across each of five options that are present, even if some choices are very similar and some are not, or loading up on stock in their employer, since they are familiar with the company. These sorts of errors may seem trivial, but can translate into worse investment outcomes when compounded over decades. Other errors, such as significantly overpaying for investment advice or investing in dubious asset classes, can have far worse consequences.

Of course, advice is available, but while employers could find some of the best consultants available and spread that knowledge and benefits over thousands of workers, employees typically seek advice one on one, which is less efficient because it doesn't scale across a large group of people, and can cost as much as 2 percent of the employee's assets to get solid, if fairly generic, retirement advice. The problem of high-cost investments is discussed in detail in a later chapter, but unlike other goods and services, with investment advice you typically pay for the advice with the very savings you have, so high costs can make it hard to achieve your investment goals. This is unlike other purchases because with investment advice you are reducing your rate of return with the fees you pay in order to attempt to increase your rate of return—a direct contradiction. This is why keeping costs low matters.

How Financial Innovation Helps

Fortunately, just as the landscape for retirement support has changed, so innovation has enabled employees to get a better deal. Exchange-traded funds (ETFs) are a critical ingredient here. Unlike mutual funds, which have cost and tax inefficiencies, ETFs often provide the building blocks to assemble a robust portfolio at low cost. In conjunction, algorithmic advice can scale practically infinitely using technology. This provides portfolio management techniques that previously were the reserve of secretive quantitative teams to be publicly available. This means both the instruments and the techniques to ensure a successful retirement are now broadly available. The benefit here is not in lowering the costs of an existing service, but in expanding the reach of that service. Previously, even with relatively high fees, it simply wasn't economical for a financial advisor to serve a client with less than half a million in assets.

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