

In some circles, a million dollars is chump change; it takes only minutes for our government to spend that much, and big corporations have many millions pass through their hands in one day - even during a recession.

But for most individuals, a million is still a big number when it comes to their personal finances. For a long time (probably since the beginning of the $20^{\text {th }}$ century), becoming a millionaire has been a financial milestone for Americans. Even though inflation has dramatically changed the purchasing power of a million dollars, the number is big enough to still have significance. If you have account balances - in the bank, in your portfolio, in your $401(\mathrm{k})$ - that add up to $\$ 1,000,000$, prevailing wisdom says you're doing pretty well.

There are a lot of real-life variables involved in accumulating $\$ 1$ million: career choice, physical health, personal lifestyle, geographic location, the general economic climate, even luck. Ask 10 millionaires for the key ingredients in their success, you'll probably get 10
different answers.
The real-life variables probably have the greatest impact on whether or not someone will become a millionaire, but some of the mathematical variables and the conclusions that can be made from them - are interesting as well.

## Entering the Million-Dollar Matrix

There are three mathematical variables involved in accumulating \$1 million:

- time;
- amount deposited; and
- rate of return.

These three variables are interrelated. The MillionDollar Matrix shown below is a way to illustrate how changing one item can speed up or slow down one's progress toward reaching the million-dollar milestone. And a deeper look indicates that different variables have greater importance at different points in the matrix.

Here's an example to help you use the matrix. Suppose you want to know the monthly deposit that would be needed to accumulate $\$ 1$ million in 20 years. This information is found in the second shaded column from the left (the one that says " 20 years" at the bottom). If you earned a steady annual rate of return of $8 \%$ for the entire 20 -year period, a deposit of $\$ 1,686$ would be required each month to realize a $\$ 1$ million accumulation. If the projected rate of return increased to $12 \%$, the deposit requirement would decrease to $\$ 1,001 / \mathrm{mo}$. If the projected rate decreased to $4 \%$, the deposit would have to increase to $\$ 2,717 / \mathrm{mo}$.

| ANNUAL RETURN | THE MILLION DOLLAR MATRIX |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | MONTHLY DEPOSIT NEEDED TO ACCUMULATE \$1 MILLION |  |  |  |  |  |  | \$84 |
|  |  |  |  |  |  |  |  |  |
| At... 12\% | \$12,123 | \$4,304 | \$1,982 | \$1,001 | \$527 | \$283 | \$154 |  |
| 10\% | \$12,807 | \$4,841 | \$2,393 | \$1,306 | \$747 | \$439 | \$261 | \$157 |
| 8\% | \$13,520 | \$5,430 | \$2,871 | \$1,686 | \$1,045 | \$667 | \$433 | \$285 |
| 6\% | \$14,261 | \$6,072 | \$3,421 | \$2,154 | \$1,436 | \$991 | \$698 | \$500 |
| 4\% | \$15,033 | \$6,769 | \$4,050 | \$2,717 | \$1,939 | \$1,436 | \$1,091 | \$843 |
| 2\% | \$15,835 | \$7,522 | \$4,760 | \$3,387 | \$2,568 | \$2,026 | \$1,643 | \$1,359 |
| In... | 5 years | 10 years | 15 years | 20 years | 25 years | 30 years | 35 years | 40 years |

Remember: The Matrix is not real life - it's just math. In real life, the financial variables aren't static. Rates of return don't stay the same year after year, so any comparison to actual returns is going to differ (although average rates of return over a specific period will correlate with a steady rate of return over the same time period). The matrix doesn't make any recommendation about what type of financial vehicles will be used to generate these projected returns, doesn't factor in any investment risks that might be part of financial instruments that offer the possibility of higher rates of return, and doesn't consider how taxes might impact any of these decisions.

However... the math of the Matrix prompts some interesting thoughts about accumulation. Such as:

The shorter the time period, the greater the emphasis on the size of the deposit. Look at the 5 -year column. If you're starting at zero, and plan to accumulate $\$ 1$ million in 5 years, it's all about the size of the deposit. Sure, there's a difference between depositing $\$ 12,123$ each month at $12 \%$ and $\$ 15,835$ at $2 \%$, but the $12 \%$ earning deposit requirement is a $23 \%$ reduction over what's needed with a $2 \%$ annual rate of return. Compare that spread with the $12 \%-2 \%$ difference at 40 years: $\$ 84 / \mathrm{mo}$. is $\mathbf{9 4 \%}$ less than $\$ 1,359 / \mathrm{mo}$.

Look at the comparisons between the $2 \%$ and $12 \%$ annual returns at the 10 - and 15 -year periods. While the monthly requirement is almost halved, you still must consider whether the additional investment risk required to earn $12 \%$ per year would be worthwhile, especially for extended time periods. If you choose to project a lower rate of annual return (say 6\%), the deposit numbers don't move very much. At any time period less than 20 years, the main ingredient in accumulating \$1 million is funding. You must be able to save a lot of money in a relatively short period of time.

With longer time periods, the challenge is consistency, both in deposits and rates of return. As the time period gets longer, the deposit required gets smaller and increased rates of return deliver exponential results. Less money can do more when the time is long and the return is high.

But in longer time frames, it's easy to see how reallife issues could undo the math. Question: For a responsible, future-oriented 25 -year-old, which would be harder: saving $\$ 84 / \mathrm{mo}$. for 40 years, or earning $12 \%$ a year for 40 years? Answer: Both.

Can you imagine making a monthly savings deposit for 480 months and never missing a payment? Can you imagine an investment that delivers $12 \%$ annual returns

Remember: the math is in the Matrix.
A few percentage points in higher returns isn't going to deliver as much impact as figuring out how to set more aside.
for 40 years without a hiccup? Math says it's possible, real life says no. (See the article "Buy-and-Hold: Hanging On, or Gone for Good?" on p. 3 of this issue.)

If the higher long-term rates of return are not realistic, this means 40 -year savers should set aside more than $\$ 84 / \mathrm{mo}$. At a $6 \%$ annual rate instead of $12 \%$, our typical 25 -year-old needs to save $\$ 500 / \mathrm{mo}$. - for 40 years. That's a big challenge, for anyone, let alone most 25 -year-olds. How many people keep anything - the same job, the same house - for 40 years?

If you think you're getting a late start on accumulation, be cautious about "catching up" by seeking higher returns. According to the Employee Benefits Research Institute's 2009 survey, released April 16, 2009, almost half of American workers 55 and older reported their savings and investments were less than $\$ 50,000$ - and $30 \%$ said they had less than $\$ 10,000$. These are people with a short accumulation horizon, and most of them aren't close to accumulating $\$ 1$ million.

Given their circumstances, some older accumulators may feel their only hope is to swing for the investment fences, hoping to hit a financial home run. But remember the math is in the Matrix. A few percentage points in higher returns isn't going to deliver as much impact as figuring out how to set more aside. Further, if you lose money attempting to achieve a higher return, you have a shorter time to recover the loss.

It's worth remembering that most Americans at all income levels currently experience their peak earning years between the ages of 45 and 54. This peak earning period has steadily increased over the past 20 years, and there are indications this trend will continue. So, while the monthly deposit to achieve a $\$ 1$ million dollar accumulation in a short time may seem steep, it's also possible that your ability to save larger amounts may be ramped up as well.

## Where Are You in the Matrix?

Even if the Matrix isn't real life, the math gives you some things to think about.

As mentioned earlier, saving starts with funding. Once they understand the format, almost everyone who enters the Matrix gravitates toward a time frame that matches their current age and projected retirement. A 40-year-old checks out the columns for 20, 25 and 30 years. A 55 -year-old looks at the 10 -year column, or if he doesn't have much savings, scans the 15 and 20 -year columns. The rate of return matters, but mostly, you're checking to see if you can match the required deposits.

This is a natural and productive starting point. "How much are you saving each month?" is a pivotal question, and the Matrix gives you some perspective on whether you ought to be looking to save more, depending on your objectives and circumstances.

Next, there should be a consideration of what you believe is a reasonable rate of return. During the boom years in the financial markets over the past two decades, it was common to believe averaging double-digit annual returns was realistic. Now...well, most people are less optimistic. It's not that double-digit returns are out of reach, it's the awareness that they may also be accompanied by double-digit losses that tends to dampen expectations - or bring them to more realistic levels.

Assuming a lower rate of return means higher funding levels will be required to reach your objectives. That can be a bummer, because more money allocated to saving for the future means less allocated to spending today. However, overfunding your financial objectives and underprojecting your rate of return is better than the reverse - underperforming and underfunding would be the worst of both worlds.

## Making The Matrix Work For You

In terms of accomplishment, accumulating \$1 million by saving is still a big deal. Most millionaires didn't become millionaires by saving. They did something, owned something, built something, or sold something to acquire their millionaire status. So while it's mathematically possible for a middle-class American to save his way to $\$ 1$ million, it's a project that requires diligence and discipline - and one that will most likely take a minimum of 15-20 years to accomplish.

If you're looking for help in the million-dollar Matrix, ask yourself this question: Would you rather work with someone who helps you find a way to
a.) save $\$ 2,568 / \mathrm{mo}$. for 25 years at $2 \%$, or
b.) save $\$ 1,001 / \mathrm{mo}$. for 25 years at $12 \%$

The answer to this question speaks to our perception of that loosely defined term "financial planning." Most often, the phrase is used when discussing investment strategies, but there are other possible applications. For example, planning could include strategies for debt structuring, budgeting, tax planning or risk management. If those strategies make it possible to save more money, they are certainly just as valuable, maybe more, than those that focus on trying to squeeze out higher returns.

In general, it is easier, and less risky, to earn $2 \%$ than $12 \%$. If a financial professional can show you (through better management of debt, expenses, taxes, etc.) how to

> How much are you saving each month? The Matrix gives you some perspective on whether you ought to be looking to save more...
meet the demands of the Matrix through higher deposits at lower risk, your chances of succeeding are better than the reverse. The TV stock pickers and newsletter writers get a lot of press when they hit a home run, but you may find that financial efficiency combined with steady, conservative returns gets the job done just as well.

After all, you don't care where you enter the Matrix. All that matters is if you leave with a million dollars.

## WHERE ARE YOU IN THE MATRIX? <br> IS YOUR FOCUS ON HIGHER RETURN, OR MORE SAVING? <br> COULD YOU BENEFIT FROM GREATER FINANCIAL EFFICIENCY?

## Here's a quick quiz on a financial concept.

## Do you know the answer?

Conventional financial wisdom says the long-term trend of financial markets is generally upward. Even considering the declines over the past 18 months, what was the annual rate of return for the S\&P 500 stock index for the 10-year period ending $3 / 31 / 2009$ ? (Source: BTN research)
a. $\quad 5.2$ percent
b. 3.4 percent
c. 1.2 percent
d. -3.0 percent

## Buy-and-Hold Strategy: Hanging on... or gone for good?

Buy-and-hold: an accumulation strategy based on the belief that even though there will be intermittent periods of volatility and decline, profitable rates of return will be realized by those who keep their money invested in the financial markets over long periods of time.

The buy-and-hold approach is often recommended for "retail investors," (i.e., those who aren't professional money managers, but place their money with financial institutions through brokers or other financial representatives) because buy-and-hold doesn't require nonprofessionals to engage in regular market timing (trying to buy on lows and sell on highs), thus minimizing both mistakes and expenses.

There is considerable historical evidence that buy-and-hold is profitable over longer time periods, particularly 20 years or more. And prior to last year's steep decline in market values, most shorter-term buy-
and-hold periods for the past three decades showed good results as well.

But the statistical evidence supporting buy-and-hold doesn't translate to the real world, primarily because retail investors don't hold what they buy.

For the past 15 years DALBAR, a research company based in Boston, MA, has issued an annual report titled Quantitative Analysis of Investor Behavior (QAIB), which measures the "effects of investor decisions to buy, sell, and switch into and out of mutual funds." Here's an excerpt from the 2009 report:

> Throughout the 15-year history of QAIB, which encompassed periods of unprecedented market upswings as well as last year's drop, the "average investor" has continuously achieved 20-year results that have lagged what the oft-quoted return statistics would lead investors to believe are achievable. Why? There is one simple reason:
> When the going gets tough, investors panic.

According to DALBAR's research, the average mutual fund shareholder stays invested for $4-5$ years during good times, and as little as $2 \frac{1}{2}$ years during down stretches. Consequently, investors never realize 20-year profits because they never stay in the market that long. In addition, most retail investors enter or exit the market at the wrong time - they buy high and sell low. According to DALBAR's research, this is not a recent phenomenon; average investors have never bought-andheld for long periods, and have always achieved real returns well below the statistical possibilities.

Combine this behavior pattern with the precipitous decline in values over the past 18 months and the result is a strong backlash against buy-and-hold as a legitimate accumulation strategy. Type the phrase "the end of buy-and-hold investing" in a search engine, and the results are astounding. Some recent headlines, from prominent sources:

## An End to Buy-and-Hold Stock Investing? (CBS News EconWatch, March 9, 2009)

More Investors Say Bye-Bye to Buy-and-Hold
(Wall Street Journal, April 8, 2009)

## Buy-and-Hold in Disrepute

(Forbes, April 18, 2009)

Most of the commentary in the articles confirms DALBAR's findings: Things are tough, and investors are in panic mode. In some cases, there is a sense of betrayal conveyed by investors. They were told values might drop, but never expected the fall could be this steep, and the time it will take to recover the losses seems too long. In the $W S J$ article, 31 -year-old Kenneth Kimmons described why he stopped making regular deposits to his 401(k): "I just got tired of putting money away and losing it."

But if buy-and-hold dies out as a popular strategy for retail investors (read: the average American saver), is it really a bad thing? Maybe not.

Buy-and-hold was touted as a set-it-and-forget-it financial approach. It was passive. You simply provided the money, let the markets do their magic, and "Presto! 30 years later, you can retire!" The WSJ article referenced above mentions that the recent losses resulting from the passive approach has prompted many savers to take a more active and responsible approach to managing their money. As Robert Lenzner says in the Forbes article, "Investors beware: You have to watch over your money like hawks, read your monthly
 statements and ask questions. You must be active, not passive..."

For some retail investors, this active approach means a move toward more conservative financial products that accurately reflect their true risk tolerance - so they don't have to watch over their money like a hawk, or read monthly statements. For example, some insurance companies reported a $60 \%$ increase in sales of fixed annuities over the past year.*

For others, a more active approach means exercising direct control over their investment decisions. Instead of letting someone else manage their money, the individual is taking all the responsibility. The WSJ article reports that discount brokerage companies are "seeing record levels of trading activity and new-account openings."
"Typically in a bear market, you'll see a retraction of activity and reduction of people opening new accounts," says Jay Pestrichelli, managing director at TD Ameritrade. "This time around, somebody forgot to tell the retail client that's what happens."
Not everyone is convinced that retail investors will find results from personal management better than what they experienced with buy-and-hold. John Bogle, the 79-yearold founder of mutual fund giant Vanguard Group, who helped popularize index funds and promoted the-

[^0]individual investing is "a fools' game. If you want to trade the market, you've got to be right twice -- you've got to get out and get back in." Not only is there the question of whether individuals are savvy enough to manage their own money, but active short-term investors typically pay more commissions, fees and other costs. And various studies have shown that most market timers typically lose more money than buy-and-hold investors.

Perhaps what's happened is retail investment clients are beginning to understand the true risks associated with investments in the financial markets. As Declan McCullagh commented in the CBSNews article, "Financial planners and writers love to assure skittish investors that, no matter how bad the stock market looks right now, share prices always go up by 10 percent or so in the long run." Now they are beginning to understand how long the long run can be, and they aren't sure they want to hold on for the entire ride, especially if it includes some steep declines.

## The "Sage of Omaha" is Optimistic


"Amid this bad news, however, never forget that our country has faced far worse travails in the past. In the $20^{\text {th }}$ Century alone, we dealt with two great wars (one of which we initially appeared to be losing); a dozen or so panics and recessions; virulent inflation that led to a $21 \frac{1}{2} \%$ prime rate in 1980; and the Great Depression of the 1930s, when unemployment ranged between $15 \%$ and $25 \%$ for many years. America has had no shortage of challenges.
"Without fail, however, we've overcome them. In the face of those obstacles - and many others - the real standard of living for Americans improved nearly sevenfold during the 1900s, while the Dow Jones Industrials rose from 66 to 11,497 . Compare the record of this period with the dozens of centuries during which humans secured only tiny gains, if any, in how they lived. Though the path has not been smooth, our economic system has worked extraordinarily well over time. It has unleashed human potential as no other system has, and it will continue to do so. America's best days lie ahead."

- Noted investor Warren Buffett, from his Chairman's Comments section of the Berkshire-Hathaway 2008 annual report, published February 2009.


## 529 Plans Prove Problematic

On April 14, 2009, the State of Oregon announced it was suing the national investment company responsible for managing its state-sponsored 529 college savings fund. Oregon Attorney General John Kroger alleges the investment company misled families into thinking they were making rock-solid investments for their children's future. Instead, Kroger says one of the firm's funds took undisclosed risks that resulted in a $36 \%$ decline in value for 2008. In a transcript from a report aired on NPR, Kroger says Oregon families "lost about $\$ 40$ million, and we want our money back."
(Actually, Oregon's argument is not with the losses incurred, but that some funds supposedly structured to avoid or minimize market losses, particularly for those accounts that would soon be tapped to pay for education expenses, were not invested according to the objectives stated in the prospectus.)

As Jason Zwieg of the Wall Street Journal notes in an earlier March 21, 2009 article, Oregon is not alone in losing money. Of the 3,506 options in 529 college plans tracked by Morningstar, Inc. " $93 \%$ fell in value over the past year, and 1,098 lost at least $40 \%$."

The main attraction of 529 plans is the tax advantages during accumulation and distribution, provided the funds are used for qualified education expenses. These benefits also come with restrictions: Investment choices are determined by the sponsoring state, transfers and/or exchanges are limited, and funds withdrawn for nonqualified reasons may be subject to both income tax and penalties.

Under normal circumstances, the combination of advantages and restrictions seems to provide substantial incentive for families to invest long-term for their children's college education. But when the investment portion goes south, things unravel.

Families whose children are ready to enter college are finding their 529 accounts have sustained losses their current balances are less than their deposits. For families whose financial situation has taken a turn for the worse (lost jobs, foreclosure, bankruptcy, etc.), education plans may be off the table. Yet deciding to access the funds often still means incurring penalties along with the investment losses.

Other states are considering legal action against some of their plan managers. And even the IRS is trying to help. In an April 16, 2009 CNNMoney's Carolyn Bigda noted "in light of the market's recent volatility, the IRS

[^1]
is allowing savers in 2009 to switch 529 plans twice. Normally, you can only make a move once per year."

According to Zweig, one of the shortcomings of the state-sponsored plans is that "the public's faith in 529s appears to be based partly on a false premise: that state bureaucrats are good at managing other people's money." Clearly, the politicians were no better (or worse) than the rest of us when it came to investment acumen.

Beyond the assignment of blame, there's a case to be made that 529 s are susceptible to this type of turmoil because of the financial philosophy that underlies them. Many government-sponsored savings programs come with restrictions and incentives to encourage a narrow response from citizens. The 529 is designed for families to invest for college in a list of investment options chosen by state officials - that's it. As long as everything goes well, both for the investment and the individual, the outcome is usually acceptable.

This compartmental approach - a specific plan with a singular purpose - often conflicts with the fluid nature of individual financial lives. At different times people want education money, or retirement money, or down payment money. And many individuals don't have enough money to leave unused in separate compartments for several years - they would like to use the money they have for the reason that's important right now. When things go wrong or priorities change, there's often not
enough money in one compartment, or there's a prohibitive cost for redirecting the money to another compartment.

Given the choice, most Americans would probably prefer a tax-favored account with unlimited accessibility, similar to life insurance cash values - a larger pool of money available for whatever issues or opportunities may arise. Of course, well-intentioned politicians will fret that giving individuals an unrestricted tax-favored account may result in irresponsible spending. And considering the alleged abuses and failures of the financial professionals with 529 s , the expectation may be tighter restrictions.

## FINANCIAL LITERACY QUESTION (from page 3)

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a. 5.2 percent
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d. -3.0 percent

Answer: d.
The steep losses in 2008 wiped out all the gains from the previous nine years. According to BTN research, this 10year period represents the eighth-worst decade for S\&P investing since the S\&P was established. (The worst 10year period, from August 31, 1929 - August 31, 1939, registered total losses averaging -5 percent each year.)


[^0]:    *www.InvestmentNews.com, March 6, 2009: Fixed-Annuities Sales Rose 60\% in 2008. Sales of fixed annuity climbed to $\$ 107$ billion last year up $60 \%$ from 2007, according to the Beacon Research Fixed Annuity Premium Study.

[^1]:    "...the public's faith in 529s appears to be based partly on a false premise: that state bureaucrats are good at managing other people's money."

