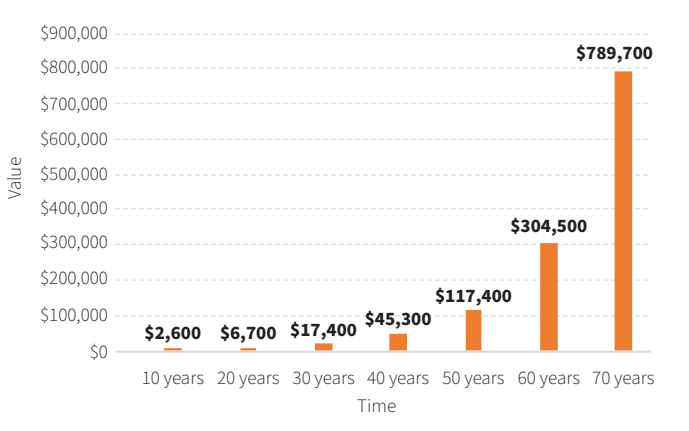
The Miracle of Compounding

Albert Einstein is often credited with saying that compounding is "mankind's greatest invention" or even "the eighth wonder of the world." No one is sure he actually said that, nor is it clear that Benjamin Franklin ever described compounding in this very succinct way: "Money makes money. And the money that money makes, makes money." Regardless of their origins, these sayings have become legendary, cited over and again by investing experts. They live on because this powerful tool – compounding – is poorly understood and therefore frequently overlooked by investors. That can be a grave mistake.

Ask an investor, even a relatively sophisticated one, how much return they would get if they earned 10% annually for 10 years. Many would instinctively say 100%. Through the magic, the miracle, or just the simple math of compounding, the correct answer is 159%.*

See the powerful, increasing impact of each decade on a $1,000 one-time investment

Warren Buffet first saw the following chart when he was 10 years old. He claims it inspired him to start investing and shaped his most basic money-making philosophy. It shows the miracle of the collision of two intangible concepts—exponential growth and a long time horizon—on a $1,000 investment with a fixed 10% annual return.



Source: Visual Capitalist, 2021

*This assumes that you are not withdrawing your money, but letting any gains continue to work for you. The math: $1.10^{10} = 159$.

"My life has been a product of compound interest."

—Warren Buffet, on Bloomberg's *The David Rubenstein Show*, June 2018

"Compounding is not intuitive, so it's systematically overlooked and underappreciated. … Physicist Albert Bartlett put it: 'The greatest shortcoming of the human race is our inability to understand the exponential function.'"

—Morgan Housel, former *Wall Street Journal* columnist and author of *Psychology of Money*, October 2017

Compounding is what happens when the returns you earn on your principal start earning returns themselves. Let's say you invest $500,000 at a fixed 10% annual rate of return. After one year, your principal would earn $50,000 and be worth $550,000. Over the next year, you would earn 10% not only on your principal, but the $50,000 in interest as well, giving you a total of $605,000.

That may not seem like much of a difference, because the effects of compounding are modest at first. Over time, though, they dramatically accelerate your accumulation of wealth. How quickly? Well, there's a "rule" for that.

The Rule of 72

How much can compounding impact your investment? You can use a math trick called the Rule of 72 to estimate the impact. Assume a fixed annual rate of return. Divide that number into 72, and your result is the number of years that it will take you to double your money—assuming reinvestment of gains, of course. For example, an investment of $500,000 that earns fixed 10% rate of return annually (compounded) will take a little over 7 years to be worth $1,000,000 because 72/10 = 7.2 It's not exact, but it will give you a rough idea. Please keep in mind, this is a simplified example to illustrate the mathematical concept. The hypothetical return does not represent the return of a specific investment. The rate of return for most investments fluctuates based on market conditions.

Continued on page 2

How many years does it take to double an investment?

A one-time investment of $500,000

Of course, the miracle of compounding for your investment depends on two things: the rate of return and amount of time you remain invested. While compounding is powerful, it won't help you reach your goals unless you invest wisely and manage your risk. Work with your advisor to build a portfolio that provides the best possible opportunity to do just that, take time to understand it and what it's designed to do, and let it work for you. Let your money make money. And remember, the impact of compounding is felt over time, which means you need to focus on the long term.

This chart also points to the very first step, which is hugely important: start early. Compounding takes time, and as we discussed, the impact is modest for a few years. For example, take an investor who contributes $2,500 per month, every month, and earns a 10% fixed annual return:

Start at age	Years of contribution	Contributed amounts at age 65	Balance at age 65*
25	40	$1,200,000	$13,277,776
35	30	$900,000	$4,934,821
45	20	$600,000	$1,718,250

*This assumes annual compounding

In short, it's never too early to understand the miracle of compounding, the power of investing for the long haul, and the importance of discipline. At the same time, it's never too late, because focusing on those three concepts provide the simplest, time-tested way to help you reach your investment goals.

Exponential growth over time

How does compounding work over time? Let's look at our earlier example where the hypothetical investor invests a one-time amount of $500,000, has a long time-horizon, and reinvests all gains:

Invested one-time amount: **$500,000**
Fixed rate of return: **10%**
Amount after 10 years: About $1,300,000
Amount after 30 years: About $8,725,000*

* $500,000 x (1.10^{10}) = $1,296,871. $500,000 x (1.10^{30}) = $8,724,701.

In other words, in the first example, the 10-year time-horizon, this hypothetical investor's wealth was multiplied by about 2.6. If the time-horizon was lengthened to 30 years, the multiplier was 17.45!

That's the power of compound growth. Yes, it seems incredible. Why? Because the concept of exponential or compound growth is hard to wrap your brain around. But doing so—understanding it, and letting it work for you, as a 10-year-old Warren Buffett once "observed"—is one of the key pillars of successful investing.

On the dark side

By the way, the Rule of 72 can also be used to calculate the cost of debt. A credit card balance of $1,000 at a 25% APR will be a balance of $2,000 in about three years, because 72 ÷ 25 = 2.88. That, of course, brings us back to yet another famous statement, also attributed to Albert Einstein, after he supposedly said that compound interest is the eighth wonder of the world: "He who understands it, earns it; he who doesn't, pays it."

That one is at the heart of a successful financial life. But just as the Rule of 72 reminds us that we need to let time work to our advantage, there's a lesson for all investors in the power of compounding in reverse—a severe downside that also can be difficult for the human mind to grasp.

Continued on page 3

If an investor were to lose 50% of their portfolio in a year, a 50% advance the next year would not bring them back to even. Instead, it would take about seven years of a fixed 10% annual rate of return to get back to the principal level before the down year. That's because 72 ÷ 10 = 7.2, and the investor needs to double their money after that 50% loss.

That's not meant to frighten you, but to serve as a reminder that the smart investor is guided by an unwavering focus on risk management. Risk is inseparable from return in investing, and the goal isn't just to find larger-than-average returns for a year. Instead, the goal should be to aim for strong returns over the long term, while doing all you can do to mitigate risk, protect the portfolio, and be willing to cut your losses when necessary.

Market Review

The market of 2021 was quite simply one of the most interesting, and at times frustrating, ones we've seen. While the year-end totals show some indexes achieved double-digit returns, including a 28.68% advance for the S&P 500® Index[1], that does not tell the whole story. Things have been choppy, with nearly 70 all-time high closing records for the S&P 500®, but also a series of pullbacks and sideways periods, which required some precision and, more importantly, effective risk management. Markets shifted early in the year, and what led in the early part of the year became a laggard later in the year and vice versa. This is why it may have been a frustrating market for some in 2021.

In the fourth quarter, investors continued to balance broadly strong corporate earnings and the ongoing global reopening and economic expansion with concerns surrounding the lingering pandemic and the uncertainty of the latest developments. Inflation pressures continued to build, and investors kept a wary eye on the U.S. Federal Reserve's (Fed's) efforts to balance mitigating the economic fallout of the pandemic with managing inflation. While the S&P advanced nicely for the quarter, other asset classes, from developed international and emerging-market equities to bonds and commodities, either lost ground or were slightly positive.

We are excited to see what the new year has to offer us as investors: challenges, opportunities, and new insights. From all of us at NewSquare Capital, a happy and healthy New Year!

[1]Statistical data sourced from: Bloomberg Finance L. P., Morningstar, and NewSquare Capital, LLC

Please note, examples of investment returns and interest used throughout this commentary do not consider the impact of taxes or inflation.

NewSquare Capital is an SEC registered investment advisor. Registration of an investment advisor does not imply any specific level of skill or training. For additional information regarding NewSquare Capital, please obtain the Form ADV, Part 2, which is available through your investment advisor representative or online by visiting: www.adviserinfo.sec.gov.

Please remember, past performance may not be indicative of future results. Investing in any investment vehicle carries risk, including the possible loss of principal, and there can be no assurance that any investment strategy will provide positive performance over a period of time. The asset classes and/or investment strategies described in this commentary may not be suitable for all investors.

Historical performance results for investment indices and/or categories have been provided for general comparison purposes only, and generally do not reflect the deduction of transaction and/or custodial charges, the deduction of an investment management fee, nor the impact of taxes, the incurrence of which would have the effect of decreasing historical performance results. It should not be assumed that your account holdings correspond directly to any comparative indices. Please note that you cannot invest directly in an index.

The opinions expressed herein are those of NewSquare Capital as of the date of writing and are subject to change. The material is for informational, discussion purposes only, and does not represent an offer to buy or sell any investment.

Due to various factors, including changing market conditions and/or applicable laws, the content may no longer be reflective of current opinions or positions. Moreover, you should not assume that any discussion or information contained in this commentary serves as the receipt of, or as a substitute for, personalized investment advice from NewSquare Capital.

To the extent that a reader has any questions regarding the applicability of any specific issue discussed above to his/her individual situation, he/she is encouraged to consult with the professional advisor of his/her choosing. NewSquare Capital is neither a law firm nor a certified public accounting firm and no portion of the commentary content should be construed as tax, legal or accounting advice.

If you are a NewSquare Capital client, please remember to contact NewSquare Capital, in writing, if there are any changes in your personal/financial situation or investment objectives for the purpose of reviewing/evaluating/revising our previous recommendations and/or services. Any offer to invest in the firm's investment strategies can be made by a written agreement only.

The information in this document is intended for U.S. residents only. Before investing, an investor should carefully consider the portfolio objectives, risks, charges, and expenses. For more information on NewSquare Capital and its investment strategies, visit newsquarecapital.com.

MM202301-300221