On Course Financial Planning
Facing the Future with Optimism and Courage
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The Arithmetic of Investing

A $1,000 investment goes up 10% the first year and down 10% the second. After two years the value is –

A. $1,000 B. More than $1,000 C. Less than $1,000

If the $1,000 investment goes down 10% in the first year and goes up 10% in the second year will this change the answer?

Unfortunately, the answer to both questions is C. In the first case, the investment grows to $1,100 in the first year and declines to $990 in the second. In the second case, it declines to $900 in year one and rebounds to $990 in year two. It doesn't seem fair, but the laws of arithmetic necessitate that a loss must be followed by a larger percentage gain to return to the original value. For example, losing 50% in a $1,000 investment leaves you with $500; necessitating a 100% gain to recoup the loss. It doesn't matter in what sequence losses and gains occur, there is no "sequence of returns risk" because final balance will be the same.

However, retirees who periodically withdraw a fixed dollar amount from their portfolio face sequence of returns risk. The sequence of gains and losses in the early years of retirement will have a significant impact on the sustainability of their retirement portfolio. Retirees can avoid sequence of returns risk by annually withdrawing a fixed percentage from their portfolio rather than a fixed dollar amount. But this is not a very popular strategy because it forces retirees to spend less in a year following one in which their portfolio loses value.

Which of the following investments would you rather have for the next ten years, Investment A or Investment B?

Year	1	2	3	4	5	6	7	8	9	10
Investment A	20%	-10%	20%	-10%	20%	-10%	30%	-30%	20%	-10%
Investment B	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%

Investment A has spectacular returns in five of the ten years. Losses in four of five down years are only half of the prior year's gain. In no year is the loss greater than the prior year's gain. Intuitively, investment A seems a better choice than investment B. But the annualized average return of investment A is only 2.2%. A higher return with no volatility makes B the better choice for most investors. Adding high quality fixed income assets to your portfolio will lower its volatility and make it more likely that you'll be able to stay the course during bouts of stock market volatility. As a bonus, you just might receive higher returns over the long-term.

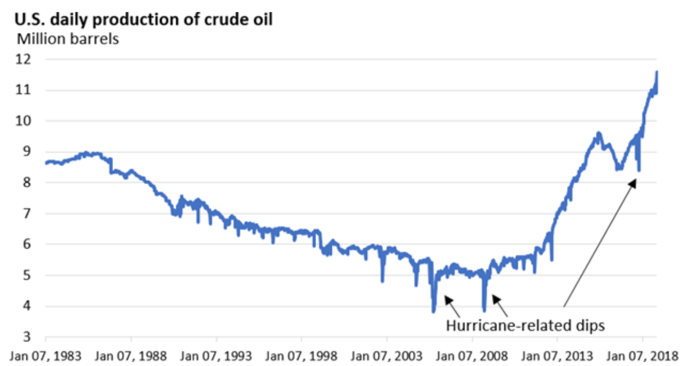
The arithmetic "rule of 72" answers the question: "How long does it take to double my money at a given rate of return?" To find the answer, take the rate of return a divide it into 72. For example, if your annual rate of return is 7.2%, your account will double in ten years. Let's assume that Moe, a 25-year-old, begins saving $500 per month at an average annual return of 7.2% and he increases his savings rate to $1,000 per month at age 35. He continues funding the account until he retires at age 65. During his accumulation years, Moe has enough time for his initial contributions to double four times and his ending portfolio balance will be $1.85 million. Larry, on the other hand, waits until age 35 and begins contributing $1,000 per month until age 65. Larry has enough time for his initial contributions to double three times and his ending balance will be just over $1.18 million. Even though Moe has contributed only $60,000 (17%) more than Larry over four decades, his ending balance will be $670,000 (57%) higher. Start your savings for retirement as early as possible, even if it's just a small amount, because the added benefit of the final doubling of those early dollars is astounding.

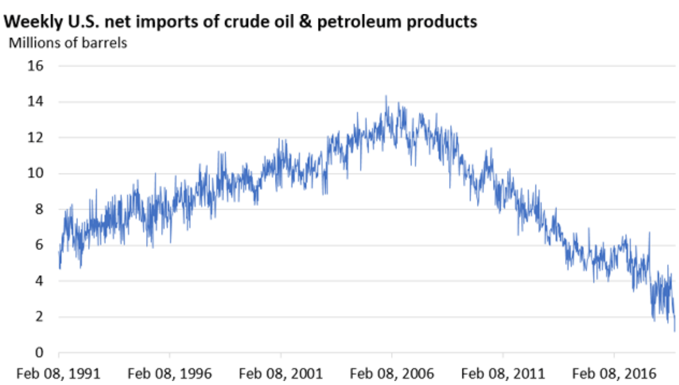
Slow and steady just might be the best strategy for achieving your financial goals. Growing wealth slowly is the most unappreciated benefit of patient, disciplined, long-term investing. Exceptional years of market beating returns are unnecessary. By avoiding large losses in the short-term, most investors will do quite well with modest annual gains over a long-time horizon. Looking at five-year rolling periods from 1927 through 2014, (1927-1931,1928-1932, etc.) losses in domestic stocks occurred just 14% of the time. Over ten-year rolling periods, losses occurred only 5% of the time. These results are for a 100% stock portfolio. The frequency of loss over rolling periods declines even further if the portfolio has a significant allocation to high quality bonds. So why do so many of us waste time and energy fretting over the short-term performance of stocks?

Patience is the one great advantage individual investors have over fund managers. Most investors, including most retirees, have at least a ten-year investing time horizon. But slow and steady is a strategy that few fund managers can use. They must obsess over short-term performance. Few will remain employed if they underperform their competitors for more than a couple of years because many of their investors will leave for greener pastures. A well-known fund manager with a few years of disappointing performance will be subject to increased media scrutiny and be forced to justify his or her money losing trades. As a measure of self-preservation, some poor performing managers, realizing they have nothing to lose, begin making more frequent and riskier trades in an attempt to reverse course – even though research shows that more active trading usually produces lower returns.

Few investors understand the basic arithmetic of investing or the important role that patience and loss avoidance play in long-term wealth accumulation. Investing can be made simple, but it will never be easy. In many ways, investing in the stock market is a faith-based exercise; faith in human ingenuity; faith in the capitalist system and faith that people will work hard to improve their lot in life. Not everyone has enough faith to take the risks involved in stock investing. These people are savers, not investors, a distinction which is rarely noted in the financial media.

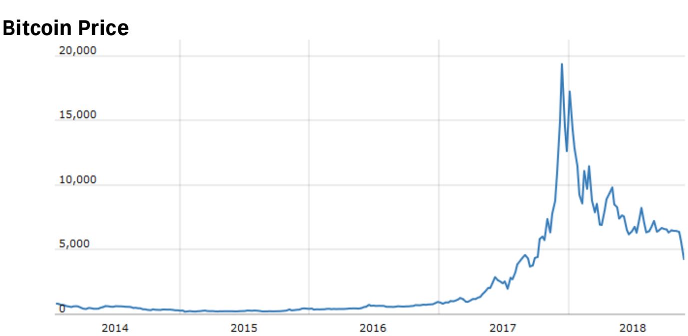
In the News





With a daily production of 11.6 million barrels of crude oil, the USA is now the world's largest oil producing nation, surpassing Russia and Saudi Arabia. One reason for this welcome news is that the big-name oil companies have gotten into hydraulic fracturing. Approximately 70% of daily production comes from shale field output that has almost doubled since the beginning of 2012. This is being done with roughly half the number of drilling rigs that were in use just five years ago, demonstrating the massive improvements in productivity that have occurred the past few years. When refined products are included, the country's energy trade balance swung into surplus in October – making the USA a net exporter of oil for the first time since the 1940s. According to the *Wall Street Journal*, Many U.S. producers are profitable with oil at $50 a barrel but most OPEC members need prices ranging between $70 and $90 per barrel to balance their budgets. In the end, shale oil might do to OPEC what digital film did to Kodak.

Despite all the handwringing, there hasn't been a nonrenewable energy resource that has been depleted. Before disappearing, a replacement energy source appeared on the scene – which is why we no longer use whale oil for heating, lubrication or illumination. The common flaw in the logic of most gloomsters is that their forecasts ignore technological advances. I remember in the 1970s when, for reasons that I can't recall, there was a paper shortage. Today, we are in the midst of replacing paper and ink with electronic paper and electronic ink, as the internet version of this newsletter clearly shows. The stone age didn't end because the world ran out of stones and the oil age won't end because the world runs out of oil. We'll eventually replace petroleum as our primary source of energy while there's still plenty of oil to go around. At least that's the way I see it.



Last year at this time, Bitcoin was the topic of conversation as it rocketed to its all-time high of just below $20,000. Young investors lacked a frame of reference to identify a classic mania driven financial bubble and many older investors succumbed to greed and forgot the lessons of previous bubbles. As of the end of the second week in December, Bitcoin's price has collapsed to $3,200. As I noted in the January issue of this newsletter – *"It's impossible to offer investment advice on something like bitcoin. Call me old-fashioned but I'm suspicious of anything that goes up 1,375% in one year. If the price rise of an asset looks like the left side of the Eiffel Tower, it won't be long before the price decline looks like the right side of the Eiffel Tower…Bitcoin's fame is due solely to its rapid price appreciation. Only time will tell if it will become infamous."* When an asset loses 84% in one year, it joins the ranks of the infamous.

For 2019, the maximum annual contribution to 401(k), 403(b), and most 457 plans will increase from $18,500 to $19,000. If you are 50 or older, your maximum annual contribution rises to $25,000. The 2019 IRA contribution limit increases to $6,000 or $7,000 if you are 50 or older. The Health Savings Account (HSA) contribution limit will increase to $3,500 for individuals and to $7,000 for families with a $1,000 catch-up contribution to these limits for those who are 55 or older.

With total student loan debt approaching $1.5 trillion, concerned parents and students want to know which majors are most likely to lead to a decent career. Bankrate.com recently released a survey that ranked 162 college majors from most to least valuable. The rankings were based on factors including average annual income, unemployment rate among graduates and career progression that doesn't necessitate schooling beyond a bachelor's degree. The top five majors fall within the STEM (science, technology, engineering and math) category. Leading the list where actuarial science, zoology, nuclear engineering, pre-med programs and applied mathematics. The least valuable majors were: visual and performing arts, cosmetology services, culinary arts, clinical psychology, composition and speech, and fine arts.

On days when stocks decline, it's common to hear media commentators claim that the "sellers outnumbered buyers". But this is nonsense. For every seller there must be a buyer for a trade to occur. The correct explanation is that prices declined because would-be buyers weren't prepared to pay yesterday's prices for stocks. So, sellers had to accept lower prices that buyers found acceptable; where seller supply and buyer demand found equilibrium. A stock's equilibrium price point is in constant motion because new information causes active investors to update their expectations about its future performance. This new information can be company specific, industry specific or a development that affects all stocks. Although markets are efficient at incorporating all available information into prices, current prices are not perfect, and a stock's current price tells you nothing about its future price.

In last month's issue, I noted that momentum is one of the most popular factors used by smart beta ETF managers. The belief among momentum players is that stocks that have been going up will continue to go up and stocks that have been going down will continue to go down. (The devil in the details is knowing when these trends will reverse). Momentum players are like a herd of sheep, all moving in the same direction at the same time. They buy stocks with rising prices and short stocks that have been declining – regardless of the underlying economic fundamentals of the company. Momentum is just an updated version of the trend following strategies employed by chart gazing technical analysists in years gone by. This herd-like activity may be playing a significant part in this year's market volatility.

According to data in *Stocks for the Long Run*, by Jeremy Siegel, the daily change in stock prices for the past 100 years has been about two-thirds of one percent. This means that at today's price level, we should expect a daily swing of 170 points up or down in the Dow. Most investors consider a 150 point daily drop in the Dow to be a **plunge!**, a big move, but it's actually below average. Unpleasant, unexpected, unexplainable stock market volatility is normal – it's been happening forever. We just notice it more now that we can check our portfolio's performance on our phone. So, take a deep breath, keep calm, find something else to think about and keep focused on the long term.

Last month, hedge fund manager James Cordier, of OptionSellers.com and author of the book: "The Complete Guide to Option Selling", made a now infamous YouTube apology video explaining to his 290 investors how he lost all $150 million of their money in just three days. Before it was taken down, OptionSellers.com proclaimed on its website that it was *"The Global Authority on Selling Commodity Options."* Its website trolled for affluent investors who wouldn't be happy with just receiving market returns: *"High Net Worth Investors: Are Traditional Investments Not Satisfying You?"…"If you always felt there was a* ***Smarter Way to Invest*** *and all you had to do was find it, you may finally be home."* Cordier told his investors that he could manage the "rogue waves" of the commodities futures market - whatever that means - but in the end had to admit that those pesky waves "capsized our boat". He had 100% of his clients' assets placed on two bets – and when we are talking about options trading, we are talking about gambling, not investing – that oil prices would continue to rise and natural gas prices would decline. Soon thereafter, oil prices dropped 30%, to the joy of everyone except oil producers and Cordier's clients, and natural gas prices jumped 20%. A nasty secret in the hedge fund world is that not all hedge fund managers hedge their bets. Some, like Cordier, use leverage to boost performance and his clients are now on the hook for $35 million in loans that the fund owes the broker-dealer that executed its trades.

Well, somehow, I've gotten through another year without suffering a terminal case of writer's block. There's only one thing left to say in 2018 - Merry Christmas to all and to all a goodnight.