

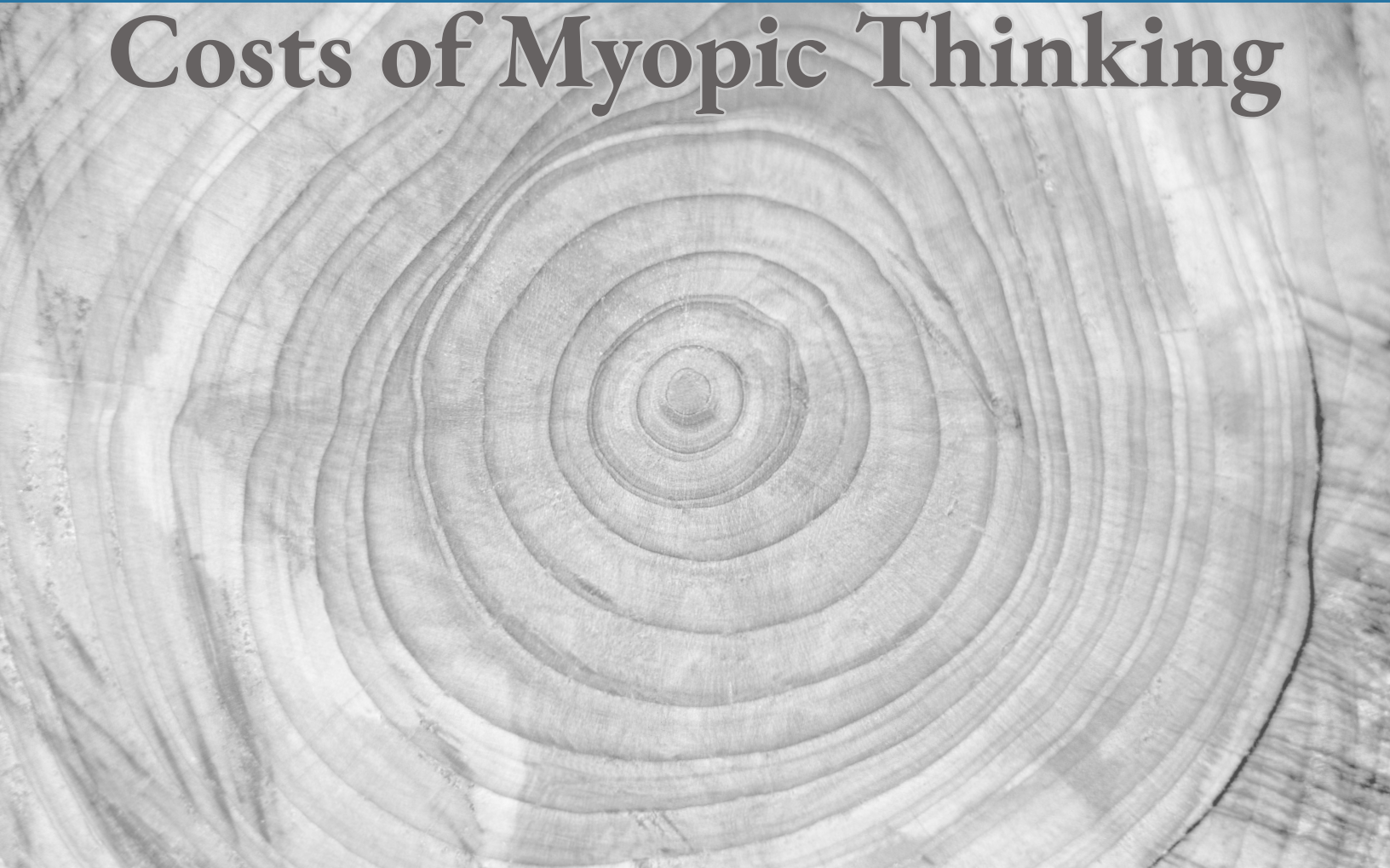


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Long-Term Investing: The Costs of Myopic Thinking



Summary

- For long-term investors, short-term measures of risk can lead to suboptimal investing decisions. This was a key point from Warren Buffett's 2014 Annual Letter.
- Because most investors focus on the very short-term (a bias Nobel Prize-winning economist Richard Thaler calls myopic loss aversion), there is an opportunity for truly long-term investors to outperform.
- Capitalizing on this long-term opportunity is easier said than done. However, owning a portfolio of stocks with stable long-term fundamentals, little debt, and attractive valuations can give an investor the confidence to avoid making emotional, short-sighted decisions.

How Short-Term Metrics Can Lead Long-Term Investors Astray

It can be argued that we as a species are not wired to think rationally about risk and returns. Despite a lot of knowledge and fact, we very often do the wrong things. Long-term investing is celebrated as a virtue and most people claim to be long-term investors, but in practice this is much less often the case. Our brains are wired to react to stress and whether chasing a bull market due to the stress of being left behind or panicking and selling amid the stress of a downturn, it is clear that emotion often overwhelms our more rational side. This is strongly supported by the evidence that average investor returns significantly trail market averages simply because of the timing of inflows and outflows. Part of the shortfall can be attributed to pure emotion. But another part relates to conventional wisdom around risk that we think can sometimes lead long-term investors astray. The purpose of this paper is to highlight the empirical work around long-term returns and to consider whether the conventional measures of risk are accurate and useful in this regard.

As a framework for this topic, we chose a masterfully written excerpt from Warren Buffett's Berkshire Hathaway 2014 Annual Letter to Shareholders. His few paragraphs below cover a lot of ground, go against conventional wisdom, and suggests a different framework to think about risk:

"The unconventional, but inescapable, conclusion to be drawn from the past fifty years is that it has been far safer to invest in a diversified collection of American businesses than to invest in securities—Treasuries, for example—whose values have been tied to American currency. That was also true in the preceding half-century, a period including the Great Depression and two world wars. Investors should heed this history. To one degree or another it is almost certain to be repeated during the next century.

Stock prices will always be far more volatile than cash-equivalent holdings. Over the long term, however, currency-denominated instruments are riskier investments—far riskier investments—than widely-diversified stock portfolios that are bought over time and that are owned in a manner invoking only token fees and commissions. That lesson has not customarily been taught in business schools, where **volatility is almost universally used as a proxy for risk. Though this pedagogic assumption makes for easy teaching, it is dead wrong: Volatility is far from synonymous with risk. Popular formulas that equate the two terms lead students, investors and CEOs astray.** [emphasis ours]

It is true, of course, that owning equities for a day or a week or a year is far riskier (in both nominal and purchasing-power

terms) than leaving funds in cash-equivalents. That is relevant to certain investors—say, investment banks—whose viability can be threatened by declines in asset prices and which might be forced to sell securities during depressed markets. Additionally, any party that might have meaningful near-term needs for funds should keep appropriate sums in Treasuries or insured bank deposits.

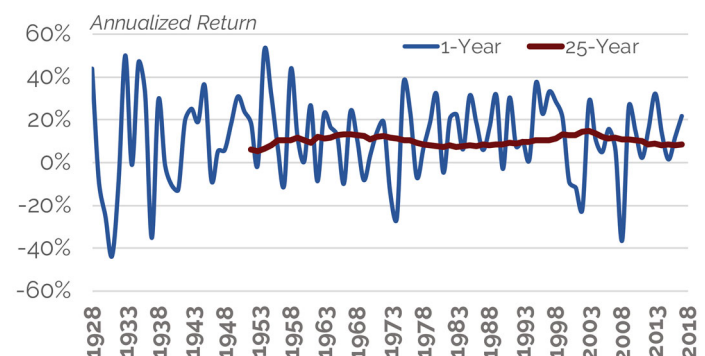
For the great majority of investors, however, who can—and should—invest with a multi-decade horizon, quotational declines are unimportant. Their focus should remain fixed on attaining significant gains in purchasing power over their investing lifetime. For them, a diversified equity portfolio, bought over time, will prove far less risky than dollar-based securities.

If the investor, instead, fears price volatility, erroneously viewing it as a measure of risk, he may, ironically, end up doing some very risky things. Recall, if you will, the pundits who six years ago bemoaned falling stock prices and advised investing in "safe" Treasury bills or bank certificates of deposit. People who heeded this sermon are now earning a pittance on sums they had previously expected would finance a pleasant retirement. (The S&P 500 was then below 700; now it is about 2,100.) If not for their fear of meaningless price volatility, these investors could have assured themselves of a good income for life by simply buying a very low-cost index fund whose dividends would trend upward over the years and whose principal would grow as well (with many ups and downs, to be sure)."

These are powerful words from a wise man. As such, we think it is worth digging deeper into some of the supporting evidence and reasoning behind what Buffett is saying. Given our own long-term orientation, we also think it is useful to explore how Buffett's comments can drive better long-term decision making and risk management.

Stock returns are highly volatile over one-year periods, but much smoother over the "multi-decade" periods that Buffett describes.

Figure 1: Comparison of 1-Year vs. 25-Year Annualized S&P 500 Total Returns



Source: Aswath Damodaran data

Stock Performance Over the Short vs. Long-Term

One of Buffett's first and most important points emphasizes the long-term performance of equities. Not only do equities generate superior long-term returns versus bonds, but in Buffett's words, they are safer as well. That equities are not generally considered safer is conventional wisdom reinforced in business schools and by Wall Street, all of which miss the critical element of how our time horizon dramatically changes the perception of risk.

A great deal of good work has been done examining returns, but let us start by simply considering one-year versus trailing 25-year returns. Charting the total return series for the S&P 500 Index starting in 1928, it is evident in **Figure 1** that one-year returns are highly variable. Some years saw positive returns of around 50% and other years produced declines of 30%-40% or more. By contrast, annualized rolling returns over 25 years are nearly a flat line. Over the "multi-decade" horizon that Buffett writes about, annualized returns since 1928 have actually been fairly steady despite the enormous volatility of short-term returns.

One-year returns for the S&P 500 are considerably wider in range than annualized 25-year returns.

Figure 2: S&P 500 Range and Frequency of Single Year Returns (1928 to 2017)

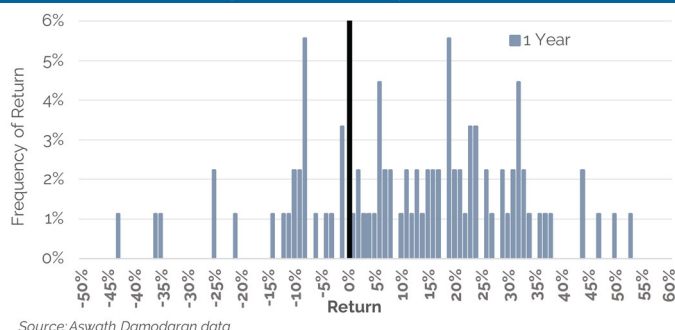
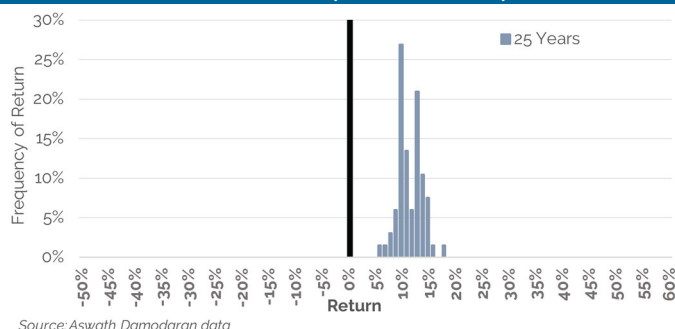
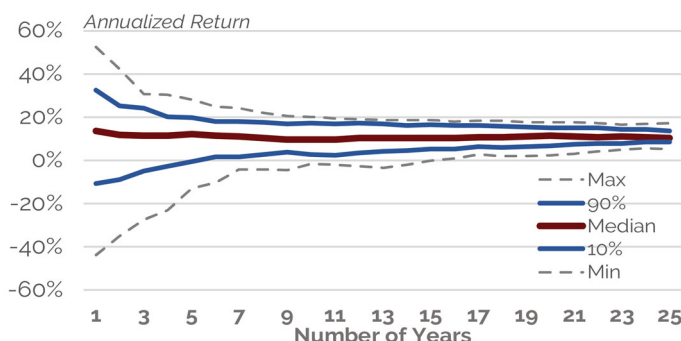


Figure 3: S&P 500 Range and Frequency of Annualized 25-Year Returns (1928 to 2017)



The range of annualized returns narrows considerably after around 10 years and becomes even tighter as the "multi-decade" horizon is reached.

Figure 4: S&P 500 Annualized Return Ranges by Holding Period (1928 to 2017)



The worst 25-year period unsurprisingly started with the Great Depression in 1929. But even despite this historically bad starting point, annualized returns over the ensuing 25-year period exceeded 5%. This highlights exactly what Buffett describes—that over long periods of time, equities have historically been fairly "safe" investments despite enormous economic and geopolitical turmoil.

Another graphical way to consider the range of short-term versus longer-term returns is to look at frequency of outcomes. **Figures 2 and 3** contrast the distribution and frequency of one-year and 25-year returns. The range of outcomes is quite wide for the one-year numbers and differs considerably with the narrow range for the 25-year returns.

It is important to note that the variability in compounded returns declines dramatically well before you reach the 25-year mark. In other words, while 25 years is consistent with Buffett's suggested "multi-decade horizon", the downside risk of investing in equities is mitigated over time periods that are shorter than this as well. **Figure 4** depicts the range of historic minimum and maximum returns, and the 10th and 90th percentile of returns by holding period. At approximately a holding period of 7 years, the return bands begin to narrow considerably and at around 15 years, they become fairly tight.

Comparing returns over different holding periods highlights how the riskiness of equities can look very different depending on an investor's time horizon. The short-term variability of returns is extremely high. As Buffett notes, this is relevant for banks or other institutions that, by necessity, have short holding periods. But over longer holding periods that are more consistent with the timeframe of most other investors, the pattern of returns has historically been more stable. For investors with long time horizons, looking at the volatility of short-term returns may lead to the wrong conclusion. It does not seem to make rational sense to measure the riskiness of an investment by looking at historic price moves over a timeframe that is radically different from its intended holding period.

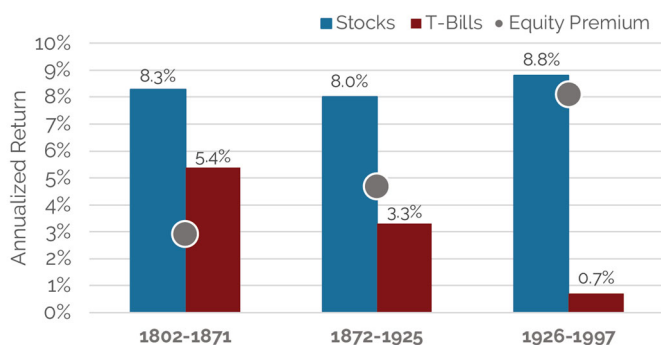
Stocks vs. Bonds in the Long-Term

Another key point from Buffett's letter is that investing in a diversified collection of stocks was and is likely to remain much safer over the long-term than investing in assets that are traditionally thought of as low risk, like U.S. Treasuries—those securities he refers to as tied to currencies.

There is good historical evidence to support this point of Buffett's. Going back to around 1800, stocks have significantly outperformed short-term Treasury bills. In 1997, Jeremy Siegel and Richard Thaler compared the two assets over a range of periods and found that not only have equities done better over each long-term span, but the positive performance difference has widened as real returns on Treasury bills declined (See Figure 5.) Stocks have also done significantly better than long-term bonds with consistent outperformance over rolling 25-year periods going back to 1928 (See Figure 6).

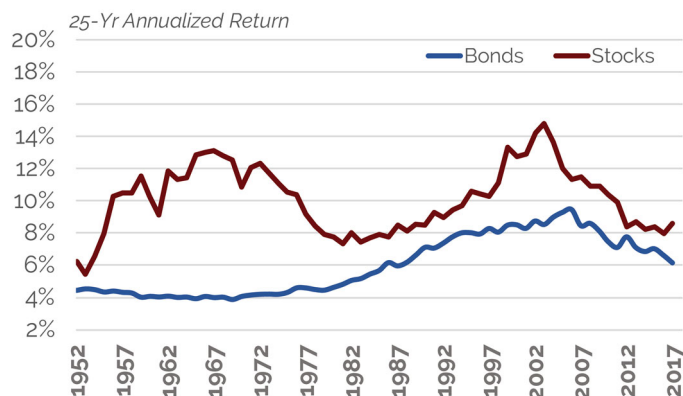
Stocks have consistently outperformed short-term and long-term bonds over the "multi-decade" periods that Buffett describes.

Figure 5: Stocks vs. Short-Term Bonds Annualized Returns Over Different Holding Periods



Source: "Anomalies: The Equity Premium Puzzle" Jeremy Siegel & Richard Thaler The Journal of Economic Perspectives, Vol 11, No. 1 1997

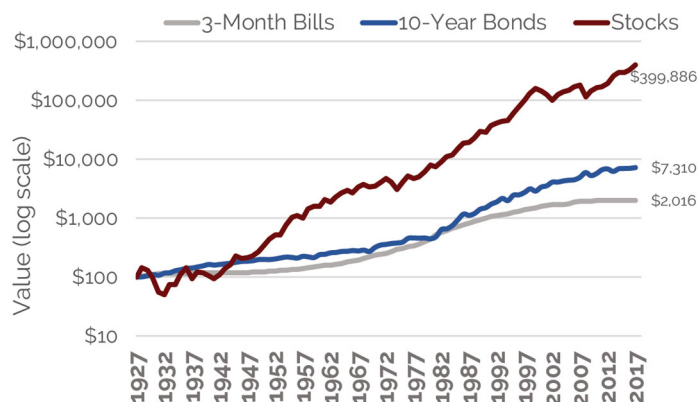
Figure 6: Annualized 25-Year Returns for Stocks vs. 10-Year Treasury Bonds



Source: Aswath Damodaran data

Over the very long term, the impact of better returns on stocks is tremendous.

Figure 7: Indexed Value of \$100 Invested in Stocks vs. Short-Term and Long-Term Bonds in 1927



Source: Aswath Damodaran data

Stocks also outperform corporate bonds over long time periods. A paper in 1990 by Thomas MaCurdy and John Shoven found that over all periods of 20 years or longer, stocks did better than long-term corporate bonds regardless of the date of purchase. In a subsequent 1992 paper, the same pair showed that a portfolio of stocks accumulated over 25 years with steady purchases (to mimic an average investors' actual experience) always beat a portfolio of bonds with the ending stock portfolio averaging 164% larger than the bond portfolio and 17% higher in the worst 25-year stretch examined. Over 35-year stretches, the all-stock portfolio did 56% better in the worst period and on average produced 258% more in final wealth.

So over the "multi-decade" time horizon that Buffett writes about, stocks have consistently and significantly outperformed bonds. The long-term impact of this outperformance is extraordinary. A \$100 investment in stocks in 1927 would have grown into nearly \$400,000 at the end of 2017. A similar investment in 10-year Treasury bonds would have accumulated to \$7,310, and only \$2,016 if the funds had gone into 3-month Treasury bills (See Figure 7).

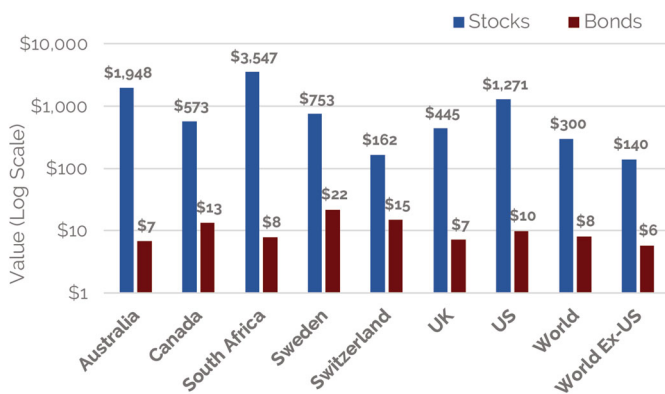
One point worth noting in looking at long-term equity returns is that while over short periods, valuation multiple changes are the dominant factor in stock returns, the opposite is true over very long periods. A recent paper by O'Shaughnessy Asset Management deconstructed how \$1 invested in the S&P 500 Index in 1964 turned into \$150 by 2017. Of the 9.85% annualized return, just 0.45% came from expansion in the P/E multiple. The remainder came from 6.3% annualized sales per share growth, 3.07% from dividends, and 0.03% from profit margin expansion. The results are very important as they suggest returns from stocks are quite sustainable looking forward.

Stock vs. Bond Returns Abroad and in Times of Crisis

While stocks have clearly outperformed bonds over the long-term in the United States, they have also done so globally. Based on data from the Credit Suisse Global Investment Returns Yearbook, **Figure 8** compares the real 2015 value of \$1 invested in stocks in 1900 with \$1 invested in bonds in various countries and highlights the substantially greater gains to stocks.¹

Real stock returns have significantly outperformed bond returns outside the United States.

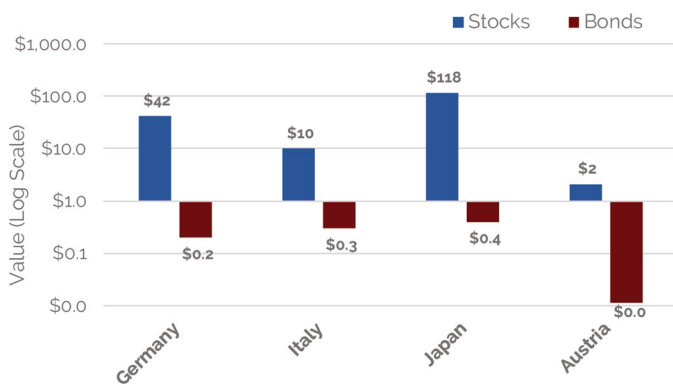
Figure 8: Real 2015 Value of \$1 Invested in Stocks vs. Bonds in 1900 for Various Countries



Source: Credit Suisse Global Returns Yearbook 2016

Consistent with Buffett's statement that stocks are safer than bonds over the long-term, real stock returns in countries experiencing severe crises have significantly outpaced bond returns.

Figure 9: Real 2015 Value of \$1 Invested in Stocks vs. Bonds in 1900 for Crisis Countries



Source: Credit Suisse Global Returns Yearbook 2016

While stocks have generally produced far greater returns than bonds over “multi-decade” time horizons, many investors think bonds are safer than stocks because of their greater short-term price stability. But Buffett describes the use of price volatility to measure risk as being “dead wrong” and states that it is “far from synonymous with risk.” Buffett continues to say that while such thinking “makes for easy teaching,” it “leads investors...astray.” He makes no mention of the short or long-term volatility of stocks and bonds, but simply states that currency-denominated instruments (like bonds) are far riskier long-term investments than a diversified portfolio of companies. To examine this statement, it is useful to compare the performance of stocks and bonds in countries that experienced geopolitical and economic crises.

In the case of Germany, hyperinflation and the impact of two world wars caused the real value of \$1 invested in bonds to become virtually worthless over 115 years with a cumulative negative 80% real return. A dollar invested in equities, by contrast, grew to \$42 in real terms over the same period. In other countries with crises, the situation is similar (see **Figure 9**). This runs contrary to popular wisdom and highlights Buffett's point that over the long-term stocks may be less risky because businesses are better able to weather crises because they have pricing power and are backed by productive and innovative workers and valuable assets. Bonds, on the other hand, are paper securities backed by governments and tied to currencies. This means that while bonds often lose purchasing power in times of crisis due to inflation, currency devaluation, or default, businesses are more adaptable and may be better able to absorb these shocks.

Shortfall Risk

The final risk that Buffett discusses is long-term shortfall risk. While it is the last he discusses, it is likely the most important for investors. Buffett makes the point that when investors “erroneously” mistake short-term price volatility for risk, they are inadvertently taking a substantial long-term risk by owning assets that may fail to adequately grow their savings.

This warning was echoed in an excellent International Monetary Fund (IMF) paper from 2016 that criticized the short-term focus and pro-cyclicality of large institutional asset owners that should, in theory, have very long investment horizons. For such institutions, the author of the paper, Bradley Jones, argues “risk management should be focused on

¹ This analysis looks at real, or inflation-adjusted returns, while the prior examples looked at nominal returns.

minimizing long-term shortfall risk (rather than short-term volatility risk).²

Shortfall risk is also highly relevant for individuals in retirement. Javier Estrada, a professor of financial management, used this framework in assessing the risks of different stock and bond allocations for retirees.³ Based on the assumption that 4% of the initial portfolio will be withdrawn each year in retirement to support spending and that this amount will grow with inflation, Estrada used historic returns to examine the likelihood of running out of money in varying static and dynamic stock and bond allocations.

Estrada found that an all-stock portfolio outperformed all others in terms of the “probability of failure, upside potential, and downside potential when tail risks strike.” In other words, the all-stock portfolio is less likely to run out of money at any point during retirement than any static combination of stocks and bonds or any dynamic combination in which the equity allocation either rises or falls over time. Estrada asked in the paper, “is a strategy that has the lowest probability of failure and provides the same or better downside protection and higher upside potential as other strategies really riskier than other strategies simply because a retiree is more uncertain about how much higher his bequest will be?” Estrada’s finding and questioning is entirely consistent with Buffett’s statement, but completely counter to traditional wisdom, the actions of many investors, and the advice of much of Wall Street.

As a final note to Buffett’s point about long-term shortfall risk, many of the guidelines around stock and bond allocations, like the traditional 60/40 rule⁴, were established during a period in which bond yields were elevated in a longer-term historical context. Over the very long term, bonds have more commonly yielded less than 5%. The spike in rates in the 1970s and early 1980s looks anomalous in this longer history (See Figure 10). This unusual period of higher rates resulted from high inflation in the 1970s and the Federal Reserve’s decision to massively increase interest rates to control it. Yields spiked and took several decades to fall back within the longer-term 2% to 4% range. This significantly boosted bond prices and returns for nearly four decades. But with yields now back within the 2% to 4% range, prospective returns over the next several decades are likely to be considerably lower than over the past forty years. Allocation rules and guidelines established around the experience of the prior several decades could therefore mislead investors and contribute to future shortfalls of the kind that Buffett warned against.

Why? A Behavioral Explanation for Strong Stock Performance

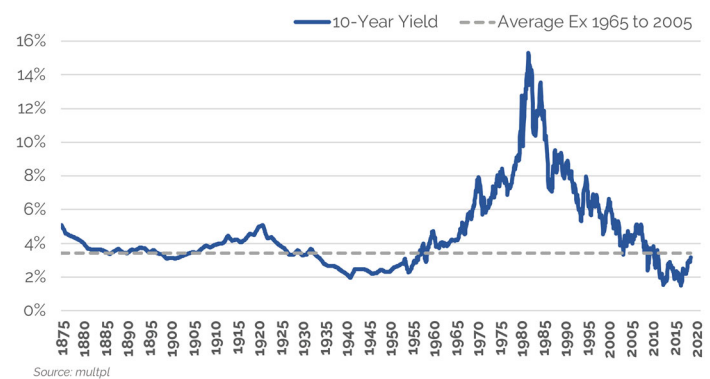
Buffett stated that stocks have been and are likely to be far better investments than bonds for long-term investors. In this paper, we have tried to analyze his various points from a historical point of view. But there is one point missing in Buffett’s letter—why is this the case? Why should stocks always be priced to allow equity investors to do better than bondholders over the long-term?

We believe the answer resides in the behavior of short-term investors and how their actions create an attractive opportunity for investors with longer time horizons. This idea was wonderfully described in a paper by Richard Thaler, who recently won a Nobel prize for his work in behavioral economics.

In “Myopic Loss Aversion and the Equity Premium Puzzle,” Thaler offered a behavioral explanation for why stocks have historically performed so much better than bonds—a subject often referred to as the “Equity Premium Puzzle.”⁵ In the paper, Thaler combines measures of loss aversion, the behavioral anomaly in which losses cause more psychological pain than similar gains bring in benefit, with varying evaluation periods over which the success or failure of an investment strategy is judged.

Ten-Year Treasury Yields in the U.S. have experienced a multi-decade period of falling rates that benefited prices.

Figure 10: U.S. 10-Year Treasury Yield



² “Institutionalizing Countercyclical Investment: A Framework for Long-Term Asset Owners” (IMF) 2016

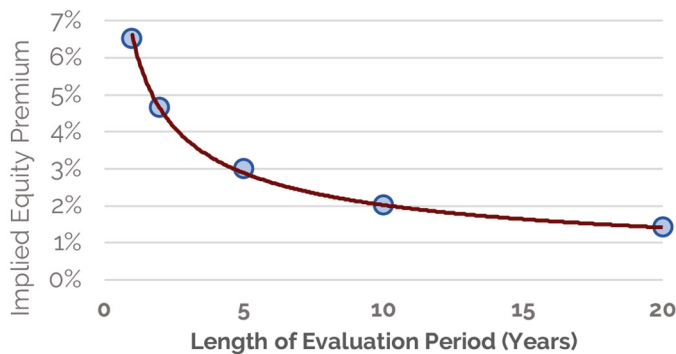
³ Estrada “The Retirement Glidepath: A Vote for Static Asset Allocations” 2015

⁴ The 60/40 rule consists of an asset allocation of 60% stocks and 40% bonds. This type of investment mix has been recommended for a long time and was laid out in detail by Peter Bernstein in a 2002 Bloomberg article “The 60/40 Solution.”

⁵ Myopic Loss Aversion and the Equity Premium Puzzle (Benartzi & Thaler) 1995

Nobel Prize winner Richard Thaler showed that observed excess returns on equities make sense if investors have one-year time horizons.

Figure 11: Implied Equity Premium vs. Evaluation Period



Source: "Myopic Loss Aversion and the Equity Premium Puzzle" (Thaler & Benartzi) 1995

Thaler postulates that it is the combination of loss aversion and frequent evaluation that lead to an unwillingness to bear risk—what he refers to as “myopic loss aversion.” Testing his theory in various ways and observing the returns of various combinations of assets, Thaler calculated the data in **Figure 11**, laying out the implied equity premiums at different holding or evaluation periods. The chart shows that if an investor had a 10-year time horizon, because of the volatility of stocks over that period and an aversion to losses, an investor would demand a two percent premium over prevailing interest rates to justify the risk of owning equities over bonds. By contrast, an investor with a one-year time frame would demand an excess return of 6% to hold equities.

Thaler then uses this relationship and the actual observed equity premium of 6.5% to back into the implication that investors overall have a one-year investment horizon. In other words, the historical excess return of equities makes sense based on observed sensitivities to losses if investors have a time horizon of only a year. Or as Thaler describes it,

“one way to think about these results is that for someone with a twenty-year investment horizon, the psychic costs of evaluating the portfolio annually are 5.1% per year! That is, someone with a 20-year horizon would be indifferent between stocks and bonds if the equity premium were only 1.4% (the 20-year figure), and the remaining 5.1% is potential rents payable to those who are able to resist the temptation to count their money often. In a sense, 5.1% is the price of excessive vigilance.”

In a zero-sum game, where someone’s relative expense is another person’s potential gain, taking a long-term view can be a very wise and profitable decision precisely because so many investors do not.

Behavioral biases are a key factor in explaining why so many investors continue to succumb to the pitfalls of short-termism despite the clear benefits of taking a longer-term view. The

financial media and career incentives among investment professionals can then exacerbate these biases. Investors have been conditioned to focus on the short-term with stock prices quoted each second, the financial media spewing a continual stream of recaps and predictions, and funds being measured on quarterly and annual results. This hyper-awareness of short-term price moves is incongruent with the investment horizon of most participants, which likely is several decades in duration.

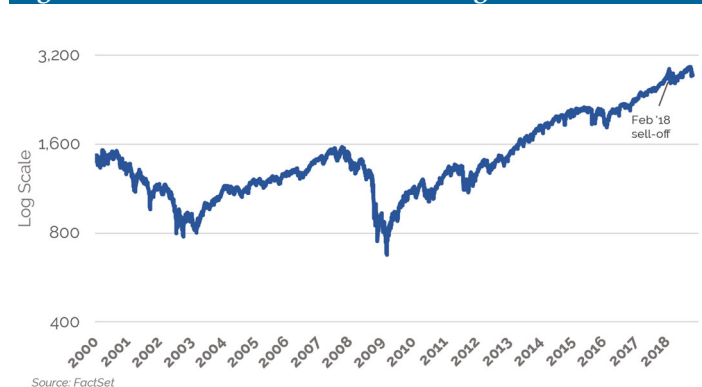
One of our favorite examples of the media stoking fear and short-termism was in the sell-off in February of 2018. A one-day price decline of over 3% for the S&P 500 Index dominated the financial news and led to dire predictions of an impending crash by pundits and prognosticators. CNBC ran the headline “SELLING HELL RAGES ON” and created a corresponding graphic that included flames and devil’s pitchforks (**See Figure 12**). Despite the short-term hysteria surrounding the February ’18 sell-off, the move was not particularly unusual in a longer-term context. In fact, the sell-off is barely noticeable in a long-term price chart of the S&P 500 Index (**See Figure 13**).

The media stoked fear surrounding a February 2018 sell-off that in a longer-term context is barely noticeable.

Figure 12: An Example of the Media Stoking Fear



Figure 13: The Same Sell-Off in a Longer-Term Context



Wisdom From Mike Tyson

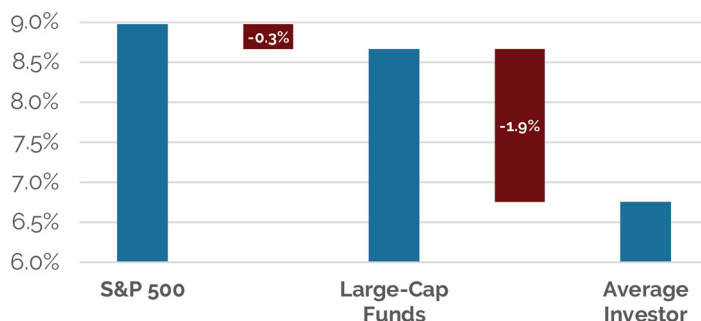
As Buffett stated, stocks have provided better returns and been less risky long-term investments than fixed-income securities. The latter are often thought of as safer due to their superior short-term price stability, but it is reasonably clear given the historical results that short-term price moves should not matter to long-term investors. Buffett calls the use of such short-term price moves, or volatility, to measure risk “dead wrong” and warns that it leads to poor decision making. But it is precisely this short-term focus and behavioral biases on the part of so many investors that provide long-term investors with the opportunity for superior returns in equities which Buffett writes “is almost certain to be repeated over the next century.”

But just because the world’s most successful investor makes a compelling case for long-term investing in stocks does not actually mean that capitalizing on this opportunity is straightforward. Indeed, it is much easier to claim to be a long-term investor than it is to actually be one—especially when faced news imagery of flames and pitchforks.

Our brains are wired to react to stress (like a down market) with instinct and emotion that often overwhelm our more rational longer-term thinking. This makes it pretty tempting to deviate from a well-reasoned and long-term investment strategy in the midst of a large market decline. As Mike Tyson articulated so well, “everyone has a plan until they get punched in the mouth.” It is exactly this kind of emotional and short-term decision making that has caused actual investors’ returns to fall well short of overall market returns (See Figure 15). To improve this gap and better capitalize on the opportunity Buffett describes, we think investors should constantly remind themselves to think long-term, check their portfolios less frequently, and remember Buffett’s wisdom in periods of turmoil.

Suboptimal behavior, like chasing returns higher and selling out in down markets, leads actual investor returns to substantially lag large-cap fund returns which themselves lag overall market returns.

Figure 14: Investor Returns vs. Large-Cap Fund Returns vs. the S&P 500 Index Return 1991 to 2013



Source: Hsu, Myers, & Whitby "Timing Poorly: A Guide to Generating Poor Returns While Investing in Successful Strategies" 2016

Final Word

Finally, there are a number of ways in which our process seeks to capitalize on having a long-term perspective. We measure risk by looking at long-term fundamentals rather than short-term price fluctuations and are focused on limiting large drawdowns to support longer-term compounded returns. Looking at risk from a long-term point of view and in a way that is different from many market participants also reveals investment opportunities that may not be apparent to others. Lastly, by focusing on fundamentally stable stocks with low leverage and attractive valuations, our investment process is designed to give our investors confidence in times of stress. In this sense, our process is not only designed to exploit long-term opportunities with the goal of producing better returns. We also hope it helps our investors avoid the risk of making counterproductive, emotional decisions.

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