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Dear Clients:

In the middle of a bull market, investors often forget that risk exists. In the middle of an uncertain market, investors often forget that uncertainty can be asymmetric – sometimes the uncertainty is tilted upwards, and sometimes the uncertainty is tilted downwards. The challenge for every market participant in an environment which has both high-flying markets and high levels of uncertainty with no clear direction is to build a portfolio which can help them get closer to their goals regardless of the outcome. This is not an assessment of the merits of relative outperformance as much as it is a comment on objectives.

It is easy to get caught up in a discussion of who beat what index or which funds were in the top decile in a given quarter. After all, these are clear quantitative comparisons. Unfortunately, they often tell us very little about the likelihood of meeting expectations and achieving goals over longer timeframes. Especially in times like these, we encourage everyone to recall their portfolio goals; revisit how you are defining and measuring success; and reassess whether that definition is consistent with those goals. For many of our clients, doing so is a reaffirmation that volatility matters as a success metric as much as, if not more than, performance rankings.

Why Volatility Matters

We understand that many investors just want to deliver returns that beat their benchmarks. Missing out on gains can be difficult to stomach even if prudent. Unfortunately, volatility in general is bidirectional, so any discussion about reducing volatility in a portfolio necessarily implies reducing the magnitude of both losses *and* gains. Even so, much has been made of the significant inflows to "low volatility" funds recently.[1] Why? Because investors are being tactical, attempting to seek low volatility as a temporary haven from high *downside* volatility. This tells us that, despite the bidirectional nature of volatility as a metric, investors see the current market as asymmetric to the downside.

While we agree with this assessment, we also view lower volatility investments as a core part of a long-term strategic risk profile, not a tactical place to hide. One reason for this point of view is that most investors are better off focusing on long-term portfolio construction instead of fretting over when to enter and exit tactical portfolio adjustments. The latter requires an understanding of the complex interactions between an uncountable number of factors that impact markets; the

1 Inexplicably, the regulators have allowed a number of equity ETFs and mutual funds to call themselves "low volatility" *in their names!* Meanwhile, they consider the term "risk management" to be overly promissory because one can only *try* to manage risk and cannot guarantee that risk will in fact be managed. Never mind that someone managing something doesn't imply successfully managing it – sorry, Orioles fans. In our experience, low volatility is not so much an objective characteristic as it is a portfolio goal that requires ~~managing~~ *trying to manage* risk. The investment management industry is chock full of managers' failed attempts to mitigate volatility as proof of this.

former requires only an understanding of one's long-term goals and whether a particular investment strategy gets her closer to those goals *over time*. The lower the volatility of a portfolio, if paired with a strategy which employs a believably repeatable investment process, the more likely that portfolio is to do the job it is expected to do.

But there is a less understood reason that low volatility is a risk profile well-suited for a core investment portfolio: the more an asset value moves around, the lower the future expected value of that asset. For those who have studied derivatives and are familiar with the Black-Scholes option pricing model, this will be a known impact of volatility. But this discussion is not intended to be a complicated math lesson, so we will keep the explanation simple, focusing on a quick summary of three key components: (1) compounding of returns; (2) investor psychology; and (3) realized volatility skew.

First, and the most common explanation for why volatility hurts asset values, is due to compounding of returns. Put simply, for a given average annual return, the more volatile a portfolio is, the less it will be worth in the future. Figure 1 illustrates this effect using a simple scenario in which we fix average annual return at 5% and assume up and down years have the same magnitude and always alternate. However, these assumptions are not necessary for this effect to be true. The impact comes from compounding up and down performance. The recovery, in percentage terms, required to get back to even after a down move is larger than the decline from which the portfolio is trying to recover. Put in arithmetic terms, $90\% \times 110\% < 95\% \times 105\% < 100\% \times 100\%$. The bigger the difference between consecutive up and down returns of equal size, the lower the compounded return even if the arithmetic average of those returns is the same.

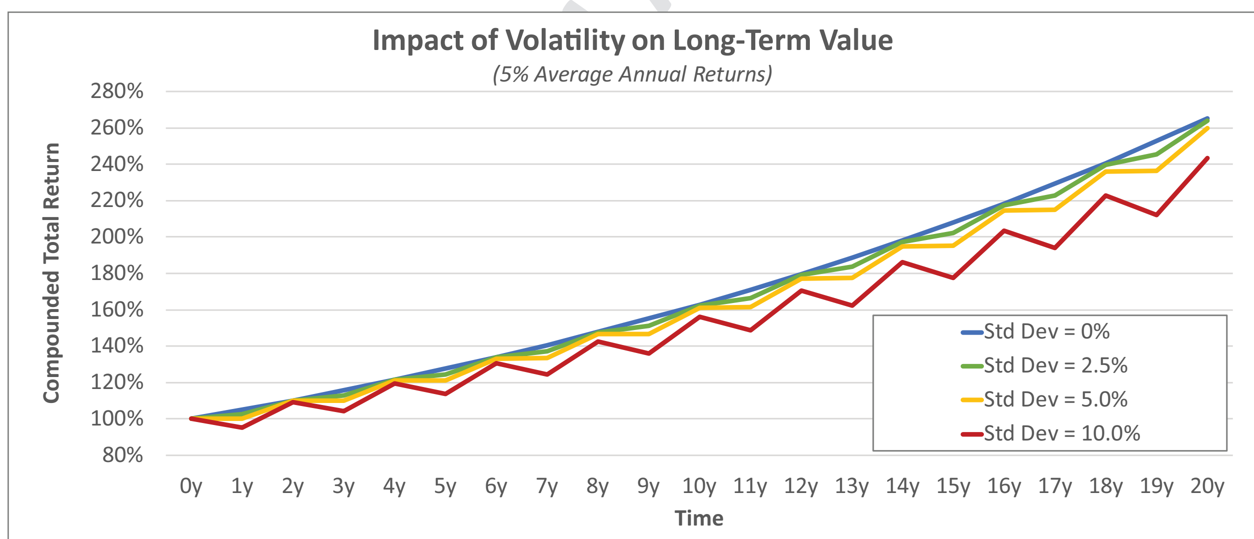

Figure 1: Expected value over time decreases as the standard deviation of returns increases even if average annual return is fixed. The illustration uses a scenario in which the magnitude of up and down moves are identical and alternating, but the conclusion holds in less contrived scenarios as well. The key effect is the geometric compounding of volatile returns.

Many will note that this is a good reason to report long-term performance in terms of annualized compounded total return. This is true, and we encourage everyone to think this way. However, standard deviations are still calculated on a time series of simple periodic returns (e.g. monthly or annual). This calculation, then, assumes an arithmetic mean of the time series, around which a normal distribution of returns is described by the standard deviation. This is not an incorrect

approach, necessarily, but it does highlight just one of many assumptions investors may not be aware they are making every day.

As noted earlier, this explanation of the negative impact of volatility is not an uncommon one. But there are other less-discussed reasons why volatility undermines long-term expected value. The next one we highlight is investor psychology, and this goes hand-in-hand with the sequence of returns. For those who aren't familiar with the term, "sequence of returns" refers to the order in which a time series of returns happens, which gives rise to "sequence risk." For example, do the up years and down years alternate, or do several up years happen before down years, or vice-versa? If we compound returns over a given timeframe, the sequence theoretically wouldn't matter: 95% × 105% = 105% × 95%. But, generally, investors have a tendency to sell more frequently when markets decline than when they advance, especially if those declines result in a negative portfolio return. So the order in which the ups and downs happen matters a great deal. If the up markets come first, there is typically more tolerance for declines before a portfolio goes into negative territory. On the contrary, if the down markets come first, patience may be thinner, and investors can be more likely to cut losses. And if an investor needs access to the capital, say for a down payment on a house or an unexpected medical emergency, the sequencing of the returns could mean the difference between realizing losses and locking in gains when investments have to be sold to raise money. The more volatile the portfolio return profile, the more likely that investor psychology can hurt.

The impact of both compounding and investor psychology is exacerbated by the third reason we mentioned: realized volatility skew. In short, if an asset exhibits similar levels of volatility at both lower and higher prices, this is called a volatility "smile." But if an asset exhibits higher levels of volatility at lower prices, this is called a volatility "skew" (Figure 2). These terms are typically used to describe the implied volatility of options, but they can also be used to describe what is actually observed, or "realized," in the marketplace. A simple way to identify a realized volatility skew is to calculate the correlation between realized volatility and the asset itself. A negative correlation means realized volatility goes up as price goes down, and vice-versa. Notably, every major index we researched across debt and equity markets has a clear volatility skew. [2]

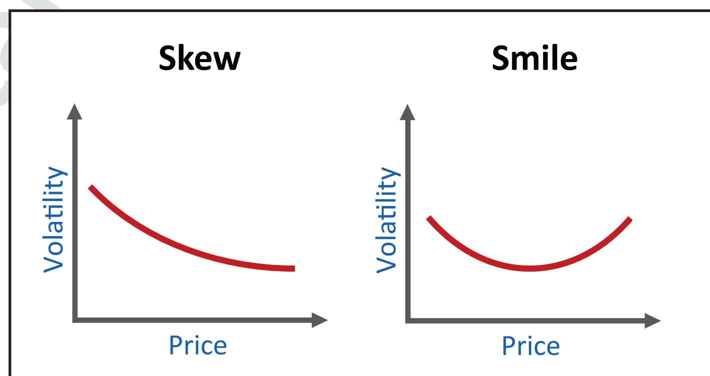

Figure 2: Assets with equal downside and upside volatility are said to have a volatility smile. Assets for which volatility is higher to the downside are said to have a volatility skew.

What does this mean? The negative impact of volatility is not symmetric. All of the effects we've been discussing are likely to be more pronounced to the downside than they might be to the upside, further risking a portfolio's long-term value if investors aren't careful to include volatility as a key metric by which they select investments. Even if volatility turns out to be bidirectional and even

2 We looked at the Dow Jones Industrial Average, the S&P 500 Index, the NASDAQ Composite Index, the Russell 2000 Index, the Bloomberg Barclays US Aggregate Bond Index, the iBoxx USD Liquid Investment Grade Bond Index, the iBoxx USD Liquid High Yield Bond Index and the S&P/LSTA Leveraged Loan Index. We calculated both beta and correlation between the index value and the trailing 3 month realized volatility for the last 3 years, 5 years and 10 years. Every single index over every single timeframe exhibited an inverse relationship between realized volatility and index value. Every. Single. One.

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if investors stick to their investment horizons (as their advisors often counsel them to do), the impact of ups and downs tends to be negative, and having a trader's mentality and being tactical runs the risk of making things worse.

So while many seek lower volatility investments with a first-order goal of tactically reducing near-term downside, we believe the second-order goal of building a portfolio with higher and more consistent long-term expected value is a much more important and achievable characteristic for a core investment portfolio. Though many are flocking to lower volatility strategies as a reaction to the current market environment, the question we think investors should be asking themselves is not how long they should hold them but how to make them a permanent and stabilizing part of their long-term plans.

Apparently, Hope *Is* A Strategy

Did anyone see this coming?

YTD Total Returns as of 9/30/2019

Index	Return	
Dow Jones Industrial Average	**+17.51%**	
S&P 500 Index	**+20.55%**	
NASDAQ Composite Index	**+21.56%**	
Russell 2000 Index	**+14.15%**	
Bloomberg Barclays US Aggregate Bond Index	**+8.52%**	
iBoxx USD Liquid Investment Grade Bond Index	**+15.69%**	
iBoxx USD Liquid High Yield Bond Index	**+11.56%**	
S&P/LSTA Leveraged Loan Index	**+6.79%**	
Philadelphia Stock Exchange Gold and Silver Index	**+26.14%**	
Crude Oil Futures	**+19.07%**	
S&P CoreLogic Case-Shiller 20-City Composite Index	**+2.50%**	*(as of 7/31/2019)*
Bitcoin	**+124.29%**	

(Source: Bloomberg Finance LP)

From what we can tell, few investors expected such a broad and decisive show of strength from all corners of the financial markets. We have certainly been among the more cautious. As we wrote last quarter, uncertainty and volatility tend to go hand-in-hand in our experience, and we've just explained how greater uncertainty lowers the expected value of assets over time. So, when we see an environment in which these natural relationships between uncertainty, asset values and volatility break down to an unprecedented degree, it seems likely we haven't seen the end of this market's story just yet.

But who is driving these markets higher? Apparently, no one knows. Financial news services are full of quotes from every strategist and fund manager they interview calling this market "ridiculous," "exhausting," or something similarly exasperated. Some stories even cite social media posts, just to prove that even people who aren't professional investors are incredulous when it comes

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to unexpected moves in the markets. Apparently, everyone is surprised, and no one seems to want to admit they are among the investors perpetuating a bull market that few saw as inevitable and many argue is unsustainable.

Which leads us to wonder: Are the investors buying in the current environment truly optimistic about the market's prospects for gains? It would be easy for us to write about how this behavior makes no sense, but the hard reality for those who see themselves as risk managers is that this makes perfect sense. After all, more than a few (including us) have warned about growing downside risks at the start of each year since 2011. And, in some years, some warnings came true, if only temporarily. We just experienced one such event in late 2018 as bank loan investors seemed to finally realize the inherent risks in this asset class. Until it didn't. Prior to this decline, the loan market experienced unprecedented growth due to historically loose monetary policy, increased demand from risk-seeking investors and the benefit of floating rate debt if interest rates increased. Today, with lower interest rates and a potential recession looming on the horizon, the loan market hasn't learned many lessons from the fundamental fears from last year and sits at an all-time high.

This is not an isolated observation, limited to any one asset class. Time and time again, fear in the market has been met almost immediately by fear of missing out. Some skeptical investors who reduced risk in their portfolios have not been rewarded for doing so, and others have been conditioned to bet against their own views to maintain or add risk. For this latter group, market declines are expected due to fundamental weakness, and market gains are lucky… and now predictable after years of negative sentiments being offset by positive markets. In year one, they complained about less risk-minded investors getting lucky. Nine years since 2011, this has become a market in which "getting lucky" buying dips is the expected outcome and the most prevalent strategy.

However, we think this year holds a particular risk to this strategy of luck. Wall Street has a tendency to react to its own missed or exceeded expectations in the last quarter of the year. If traders, especially those managing proprietary portfolios at banks and hedge funds, are more profitable than anticipated in a given year, they find themselves in line to get unexpectedly generous bonuses, which are usually determined based on a trader's profits and often formulaically so. Naturally, the psychology that tends to take over is one of paycheck preservation. Why risk giving back gains from a bull market they didn't expect if the market declines to where they thought it would go anyway? In response to this mismatch between expectations and reality, traders often sell their "risk-on" positions and lock in gains to make sure their profits are preserved through bonus day. The bigger the difference between market sentiment and performance, the more likely this is to happen.

To be clear, we aren't predicting a large market decline between now and the end of the year. We are simply highlighting one of many risks which investors face every day. And we find it hard to believe that investors are truly bullish right now given the many uncertainties and risks permeating the marketplace. In our view, betting against one's instincts is a lose-lose situation: If expectations are met, losses follow; gains depend on the investor being wrong. It's up to them (or their clients) to decide if this strategy of luck and investing counter to their fundamental views is truly repeatable or if recent history has just lulled them into a false sense of security.

We have posed questions for our readers in the discussions above which we cannot answer for you. It is incumbent upon investors to decide for themselves whether their portfolios are appropriately aligned with their goals. But we *can* offer fixed income strategies which aim to help investors simplify

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their efforts through a considered and careful focus on volatility and risk-adjusted performance using a repeatable investment process rooted in fundamentals and corporate sustainability. If we do this well and we do it consistently, we believe we can offer our clients something to rely on other than luck in these uncertain times. So that is what we will continue to do.

As always, we are available for your questions, comments or feedback. We thank you for your continued support and confidence in our management.

Sincerely,

Venk Reddy
Chief Investment Officer

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