The Link Between Fear and Future Returns

Does waiting for sharp declines in the market actually set you up for outperformance?

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"Buy when there's blood in the streets, even if it's your own."
—credited to Baron Rothschild

I may have no way to prove whether this is the case, but you'd have a hard time convincing me that this quote isn't one of the five most frequently used in the world of investing. However, have you ever stopped to think about what actually constitutes "blood in the streets"?

I also believe that most investors, myself included, would like to think that it's is a case of "I know it when I see it." However, history would suggest that "do as I say, not as I do" is perhaps the more accurate descriptor. Across multiple market cycles, the data is definitive: negative sentiment tends to dominate during bear markets. The investors claiming to be waiting on the sidelines until there is blood in the streets before buying are, generally speaking, nowhere to be found when that time finally arrives. We may all dream of bottom-ticking the next bear market, but most investors would likely benefit from taking subjectiveness out of their decision-making process and instead relying on data.

Measuring Fear

We analyzed the past 50 years of returns data for the S&P 500 to quantify "blood in the streets" (which for brevity's sake we'll refer to as "fear" from here on out). To do this, we first compiled the returns for the S&P 500 for various lengths of time—daily, weekly, monthly, and quarterly—with the view that the larger the decline, the greater the level of fear in the market. We used somewhat shorter measurement periods because sharp, not slow and methodical, declines tend to be associated with increases in fear.

Next, in order to measure whether a high level of fear for each of these time frames was actually predictive of above-average returns, we measured the performance of the market after each decline. As long-term-focused investors, we measured returns over the following six months as well as one, two, and three years.

Before we dive into the data, let's begin by playing a quick hypothetical game. Your goal in this game is to generate the highest six-month and three-year return possible over the next 50 years. You have to choose *now*, without the benefit of reacting to market gyrations along the way, but as a compromise for not being able to monitor the market before making your selection, you're in luck: I've seen the future and I can tell you exactly when the worst day, week, month, and quarter for the S&P 500 are going to be.

Armed with this information, would you still pick randomly? Or would you choose one of the dates I tell you in advance? Given that large declines are associated with greater fear, it stands to reason that you'd choose the latter, more logical choice.

Looking at the Data

Rather than wait until 2074, let's instead look at what has happened in the past. The following two charts show the subsequent returns for the S&P 500 after the worst day, week, month, and quarter for the past 50 years (dark blue) measured against the median for all other periods (khaki brown) as well as the maximum return (blue, immediately to the right of the median).

Looking first at the six-month returns, choosing to invest after the worst day or quarter over the past 50 years may not have generated the highest returns, but I don't think anyone who chose to invest after either would have been disappointed given how much they outperformed the average result. Somewhat surprisingly, however, is that the returns following the worst week (-18%) and worst month (-22%) failed to deliver above-average results despite how much the market had fallen beforehand.

Subsequent 6-Month Returns

● worst ● median ● max ● four best
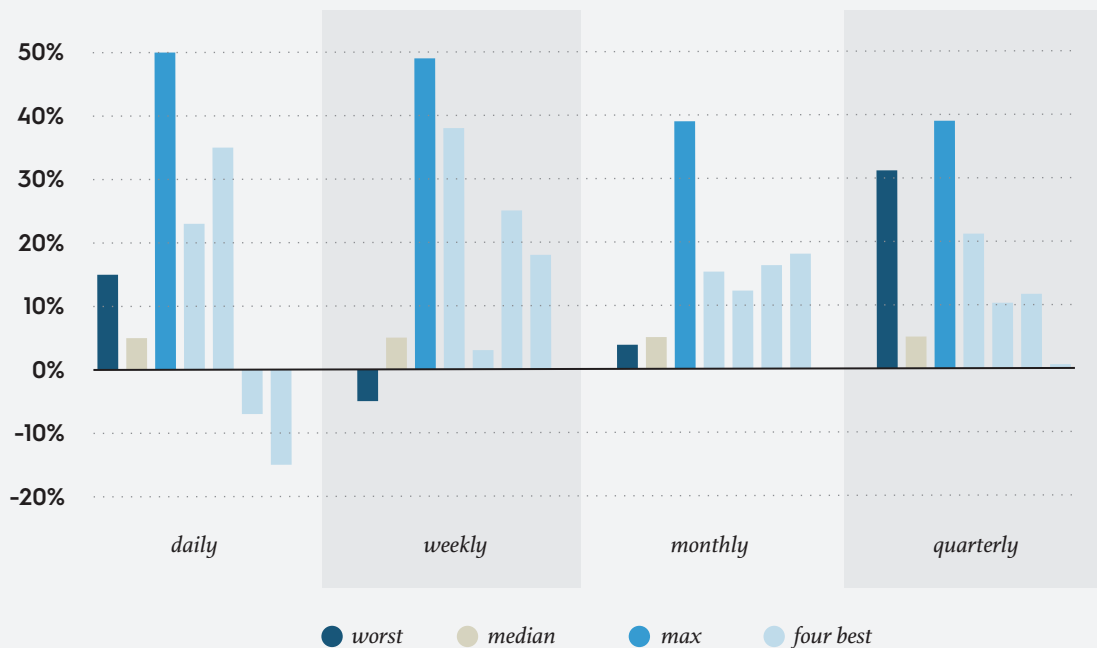
S&P 500 historical data, 1974-2024. Source: Bloomberg, author's calculations.

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The light blue bars above represent what your returns would have been if you'd invested after one of the four *best*-performing days, weeks, months, or quarters over the past 50 years. Admittedly, this might be considered the opposite of waiting until the market is gripped by fear, but the results were much better than one might expect—these "best of the best" periods tend to deliver above-average performance, and often actually outperformed investing after the largest declines in the market.

What's the opposite of blood in the streets? The results achieved *after* one of the four best-performing days, weeks, months, or quarters over the past 50 years tend to deliver above-average performance, and often actually outperformed investing after the largest declines in the market.

What about the returns over the next three years? We know that markets can easily stay irrational for six months, so the previous results may simply be a sign of temporary market momentum. Interestingly, while the numbers move around, things don't change all that much. Again, only the worst day and quarter set you up for above-average performance over the next three years. And you still would've had better odds of outperforming had you randomly invested after one of the periods of strong performance.

Subsequent 3-Year Returns

Source: Bloomberg, author's calculations.

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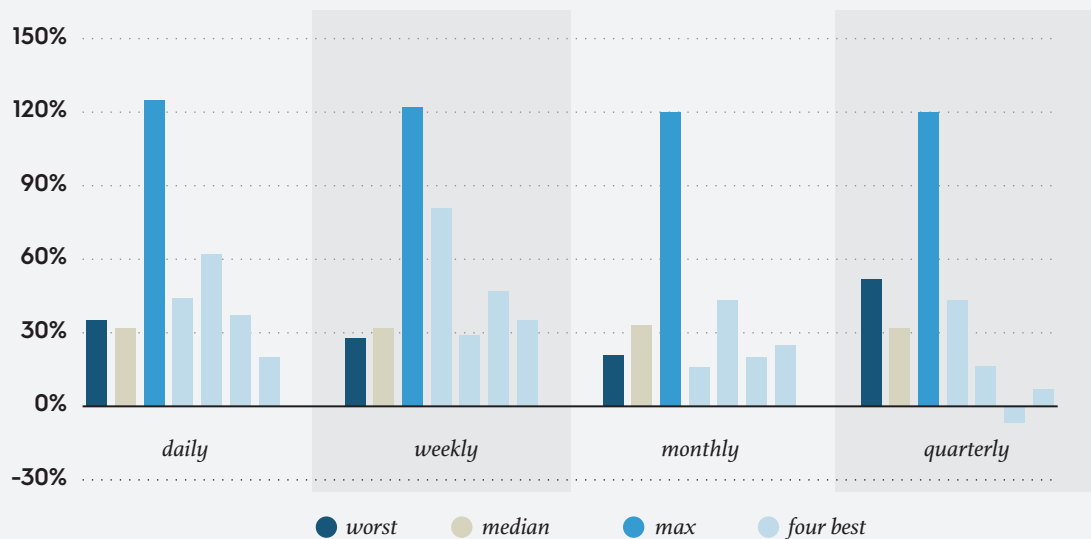
Based on this alone, you might be tempted to conclude that it's better to invest when the market appears to be euphoric, not in a state of panic. As interesting as that thought may be, this is far from a rigorous analysis. If we attempt to quantify the amount of panic in the market by looking at changes in the price of the S&P 500, then definitionally speaking, these are the periods of greatest panic in the market. However, although we're looking at 50 years of data, by looking at just the worst initial returns, we've only got a sample size of 1 for each of the four measurement periods. And with such a small sample size, anything can happen.

How Well Have Stocks Performed After Declines?

To account for this, we can instead place all of the starting declines for the S&P 500 into various "buckets." The four charts below show the four lengths of time used to calculate the starting return: daily, weekly, monthly, and quarterly returns. Within these four charts, each cluster refers to the four return time frames we mentioned previously: 6 months, 1 year, 2 years, and 3 years. Every cluster follows the same pattern: the median return (**khaki brown**) for the entire time frame, followed by return buckets that progress from highest to lowest as the shade of blue gets progressively darker.

In the daily chart (top left), the first bucket (**the lightest blue bar**) corresponds to the median return for all days that had a one-day return above -3%. The slightly darker blue bar to its immediate right captures the median return after all one-day declines between -3% to -4%. This pattern continues until you get the darkest bar on the far right, which is for all one-day returns of -7% or worse.

Before we continue, it's worth noting that the size and frequency of the "buckets" for each of the four charts differs to account for the differences in the number of observations (e.g., there aren't as many quarters as there are days and we want to make sure we don't run into a similar issue as the hypothetical game above because a bucket only has one or two samples in it), as well as the magnitude of the declines (e.g., a 7% decline over a single day is much rarer than a 7% decline over a full quarter).

Daily

Weekly

Monthly

Quarterly

Source: Bloomberg, author's calculations.

This time around, things look much more promising. If greater declines in the market correspond to greater fear, and greater fear sets the stage for higher returns in the future, then we need to see the bars trend up and to the right. While there are notable exceptions—such as the median 3-year return after weekly declines of -8% or more—for the most part, this is exactly what we see.

Daily

Weekly

Monthly

Quarterly

Source: Bloomberg, author's calculations.

Even though the median is the preferred metric for this type of analysis because it minimizes the impact of extreme outliers, it isn't perfect. To see why, consider a hypothetical basket of 11 stocks. If five of the stocks double over the next year, five of the stocks go to $0, and the remaining stock goes up 10%, technically it's correct to say that the average return for the basket is 10%. But how reasonable is it to expect a return of 10% if you select one of those stocks at random, when more than 90% of the time you're either going to double your money or lose it all?

Addition by Subtraction

This is where box-and-whisker plots come in handy. We've kept the same measurement periods (6 months, 1 year, 2 year, and 3 year); however, for these charts the median is represented by the horizontal dark line in the middle of the light blue boxes. The boxes themselves begin at the second quartile and end at the third for each bucket, meaning 50% of the observed values will fall within each box. Generally speaking, this means that the smaller the box around the median, the more closely the values cluster around the median (and the more likely a randomly selected value will be similar to the median). Lastly, the thin lines that

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extend outward from the box (the "whiskers") represent the minimum and maximum value for each bucket.

Takeaways

As these charts show, for the most part our concern regarding the median was unnecessary. The median returns do in fact fall somewhere near the middle of their respective box. And based on the size of the boxes, it's fair to say that the median does a fair job representing each sample. But perhaps the most important part of this entire discussion doesn't have to do with the medians or boxes, but the whiskers.

Take a look at the daily returns chart. Notice how the best return for each cluster (the upper whiskers) took place after a daily change of no worse than -3%? And this wasn't unique to just the daily returns. Across all measurement periods and return time frames, it was far more common for the best return to occur after a small decline (or even a gain) than it was after one of the largest declines.

Critically, however, the basket of the worst declines was *never* followed by the lowest subsequent return—not even once. In fact, the basket of the worst declines had the highest minimum return 69% of the time. Investing after a large decline wasn't a surefire way to have the best performance. In fact, as we showed earlier, there was a decent chance you may not even have had an above-average return. But the one thing it did do was meaningfully reduce the downside risk. Said another way, the strong median performance for the worst basket doesn't come from multiple amazingly large returns, but from a notable reduction in the number of bad returns. It was addition by subtraction.

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The scatterplot below of the subsequent 3-year returns after various quarterly changes makes this easy to see. Most of the best 3-year returns occur not after a big quarterly decline, but after a positive quarter. But slightly positive quarters also precede some of the lowest 3-year returns.

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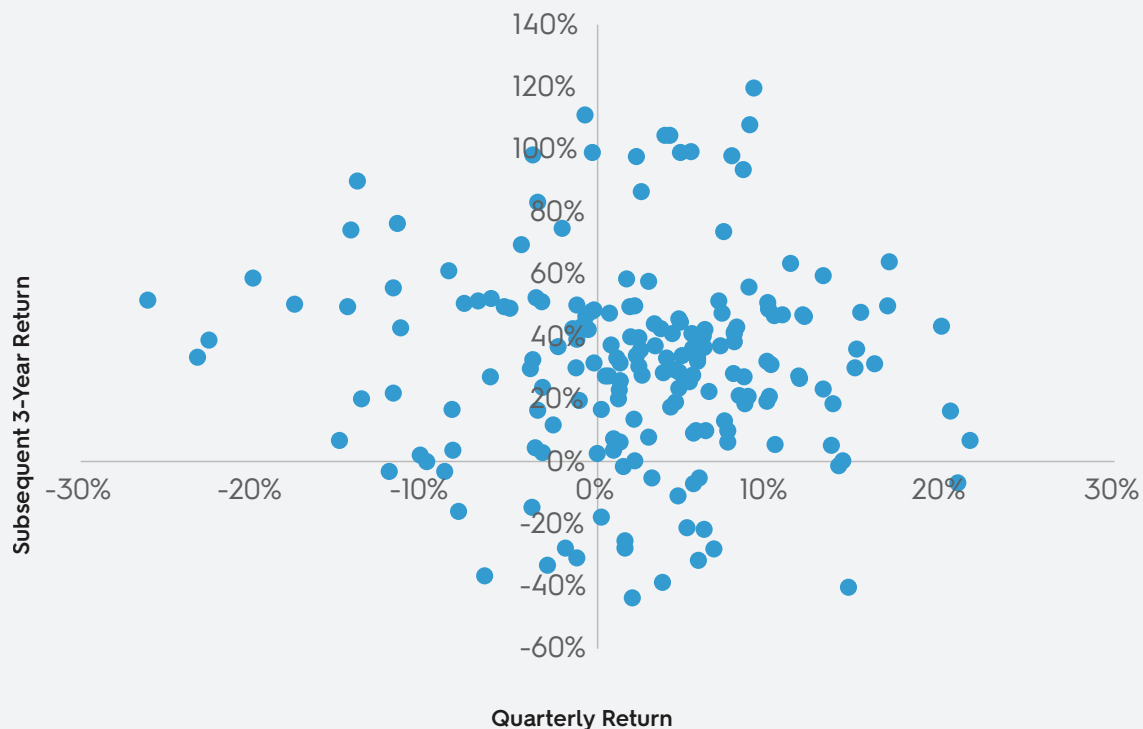
Source: Bloomberg, author's calculations.

Investors who consistently increase their exposure to stocks after notable declines will likely be more than satisfied with the results over the long run because while they may not hit many home runs, they will very rarely strike out.

This brings us full circle back to the original question of the usefulness of fear as a market timing tool. If history is any guide, those who are aiming for extreme returns over a single measurement period run the risk of being disappointed. But that doesn't mean it isn't a useful tool. Investors who consistently increase their exposure to stocks after notable declines will likely be more than satisfied with the results over the long run because while they may not hit many home runs, they will very rarely strike out.

But that doesn't mean that the best strategy is one where you only invest after notable declines in the market—ultimately, I think this is the biggest takeaway from examining the data over the past 50 years. Because of their infrequency, the returns from this

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approach simply aren't high enough to justify waiting for extreme moves in the market. Plus, you run the risk of missing out on large gains in the interim.

With due respect to Baron Rothchild, the investing quote I recite the most—and the one that the 50-year data set bears out—is Ken Fisher's quip that "*time in* the market beats *timing* the market."

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