

Investor expectations: Collapse and subsequent recovery in the COVID crisis

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- The global COVID-19 pandemic led to a historic contraction of global economic activity in 2020. The associated sharp stock market decline was followed by a solid recovery.
- During this period, Vanguard investor expectations for U.S. stock market returns fell sharply. Mean one-year expected returns reached a survey peak of 6.4% in February 2020, then fell to 1.3% in March 2020 and 2.2% in April 2020 in the aftermath of the stock market decline. By December 2020, one-year expected returns had returned to 5.6%, reversing most of the earlier decline.
- The probability of a stock market crash changed in exactly the opposite direction. From a low of 4.3% in February 2020 at the stock market peak, it jumped to 7.4% in March 2020 and to 7.9% in April 2020. By December 2020, it had fallen back to 4.9%.
- Overly optimistic investors in February shifted their beliefs, becoming more pessimistic. The February pessimists had the satisfaction of being “right,” so their beliefs didn’t shift as much.
- These results suggest that individual investor expectations are more extrapolative or momentum-based than rational or contrarian oriented. In a more rational or contrarian model, expected returns would rise and the probability of a stock market crash would decline, especially after a large market sell-off. Instead, expectations appeared to follow aggregate market activity in close lockstep, shifting in tandem with recent performance.

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Introduction

Expectations are central to economic and financial decisions. For example, investors take on equity market risk in the expectation that stocks may yield higher returns than safer investments will. Nevertheless, most of the attention in financial markets focuses on historical returns; only a few surveys attempt to gauge what investors think of the future. This study is based on a new survey of expectations of a sample of Vanguard retail and 401(k) individual investors.

This paper is based on a larger initiative with Stefano Giglio of Yale University, Matteo Maggiori of Stanford University, and Johannes Stroebel of New York University. The survey results were initially analyzed in Giglio et al. (2021a) and then extended to include the COVID-19 market crisis in Giglio et al. (2021b).¹

Our research is novel in a few ways. First, our survey elicits expectations of both the stock market over various time horizons and the probability of various market scenarios. Second, it asks investors not only about market returns but also about growth rates in the real economy, which are critical determinants of long-run returns. Third, as described in detail in the academic paper, our analysis integrates survey responses with anonymized administrative data, allowing us to demonstrate the connection between actual beliefs and portfolio behaviors for the first time.

When the bimonthly survey was designed, we anticipated that one of the most interesting questions would be about how beliefs would change during an economic crisis or a large stock market crash. The administration was designed such that we would be able to quickly field an additional survey on short notice should such an event occur.

The COVID-19 pandemic precipitated such a crisis. The global event and its associated lockdowns caused the sharpest and deepest short-term economic contraction in modern history (see Vanguard 2020a). Our regular bimonthly survey was fielded on February 11, 2020, just prior to the U.S. stock market peak on February 19 and the widening of the COVID economic crisis. U.S. markets then fell 34% before bottoming out on March 23, 2020.²

We fielded an extra survey on March 11, and our next regular bimonthly survey on April 16, 2020. By mid-May, markets were recovering, and by mid-August they had surpassed their February peak.

Caveats on results

Although our findings are based on tens of thousands of survey respondents randomly selected from millions of investors, the results may be influenced by the type of people who tend to be Vanguard clients. Particularly in the retail market, they may be drawn to Vanguard for its philosophy, which emphasizes the importance of asset allocation, broad market diversification, and buy-and-hold investing over security selection, market timing, and trading (see Vanguard 2020b). Therefore, their beliefs may differ from those of other investors.³ In addition, the respondents include only those who choose to answer the survey.

Further, we observe only a portion of their total wealth. However, since our questions are focused on market expectations and not on returns for holdings, this is less of a concern.

Study population

Our bimonthly online survey involves a random sample of U.S.-based Vanguard investors invited by email to participate. About 80% of the sample is drawn from our retail clients and about 20% from participants in employer-sponsored defined contribution retirement plans. To be included, investors must have opted into receiving Vanguard statements via email, be over the age of 21, and have total Vanguard assets of at least \$10,000. Overall, this group holds about \$2 trillion in assets at Vanguard.

The median COVID-19 survey respondent was 60 years old and had Vanguard account wealth of \$225,000, of which 70% was invested in equities. More detailed summary statistics are available (see Vanguard 2020c).

Twenty-seven survey waves were completed between February 2017 and December 2020. This analysis focuses on the February, March, and April 2020 COVID-19 waves.

¹ See Giglio et al. (2019) for a nontechnical description of the work.

² As measured by the S&P 500 Index.

³ However, while acknowledging that the time period of the survey was shorter and that not all surveys ask similar questions, Giglio et al. (2019) compared the results with responses to other surveys and found substantial co-movement.

Market environment

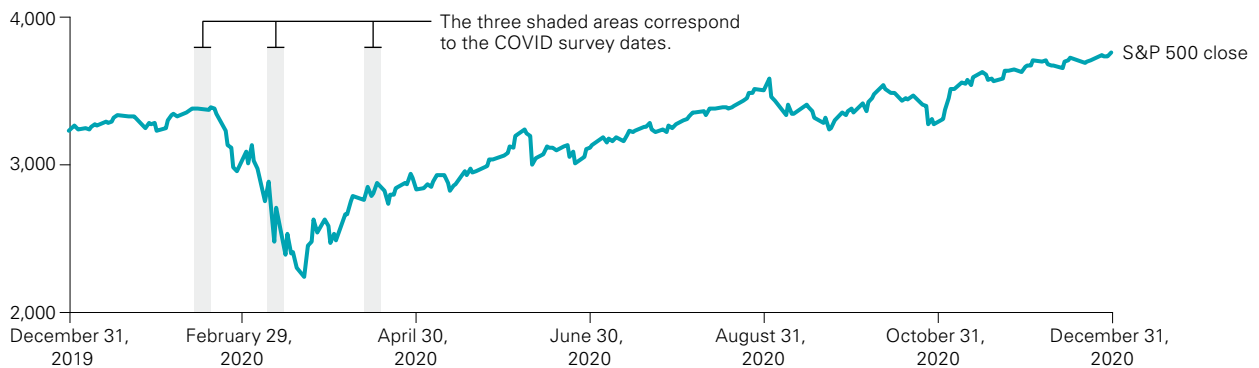
Figure 1 shows the S&P 500 Index's closing value on each day in 2020; the shaded areas correspond to survey dates. Our regular bimonthly survey was fielded on February 11, 2020, just prior to the U.S. stock market peak on February 19. U.S. markets then fell 34% before bottoming out on March 23, 2020. We fielded an extra survey on March 11, when U.S. stock markets were crashing. Our regular bimonthly survey was fielded on April 16, 2020. By mid-May, markets were recovering, and by mid-August, they had surpassed their February peak. For the year, the S&P 500 Index gained 16%. From the March 23 bottom, it gained 68%.

Top-line survey results

All waves of the survey questioned investors about their expectations for U.S. equity and bond markets and the U.S. economy (see Vanguard 2020c for survey question details).

Figure 2 shows the responses to questions related to U.S. stock markets. Short term 1-year expected returns fell from 6.4% in February 2020 to 1.3% in March and 2.2% in April, then rose to 5.6% in December. By contrast, long term ten-year expected returns rose modestly in March and April 2020.

Figure 1. S&P 500 Index daily close and dates of the investor expectations survey

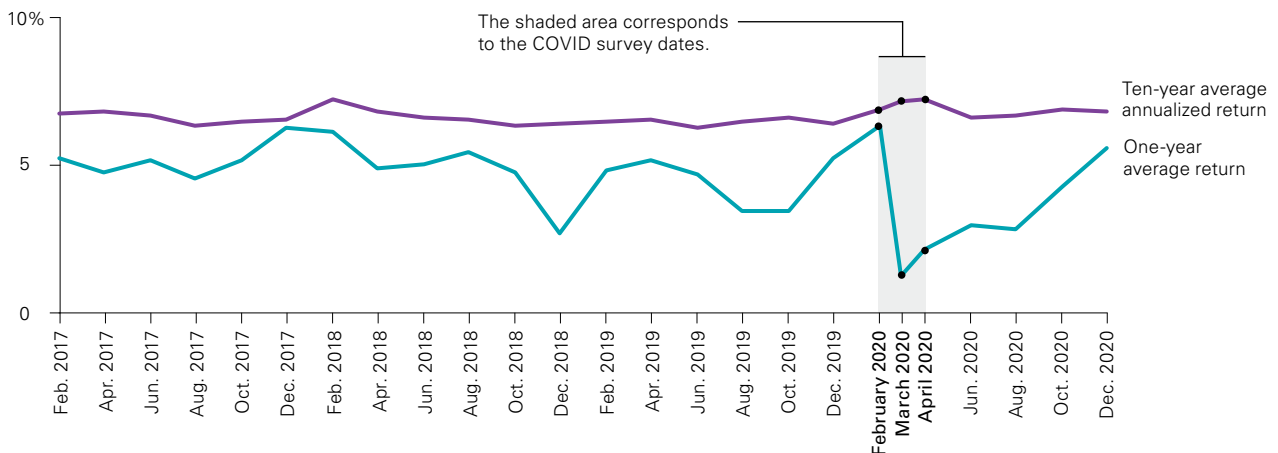


Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Notes: The three shaded areas correspond to the COVID survey dates. The survey was fielded from February 11 through March 3, 2020; March 11 through March 17, 2020; and April 16 through April 30, 2020. More than 90% of responses are received in the first two days of each wave.

Source: Bloomberg, as of December 2020.

Figure 2. Responses to the investor expectations survey: Expected stock returns

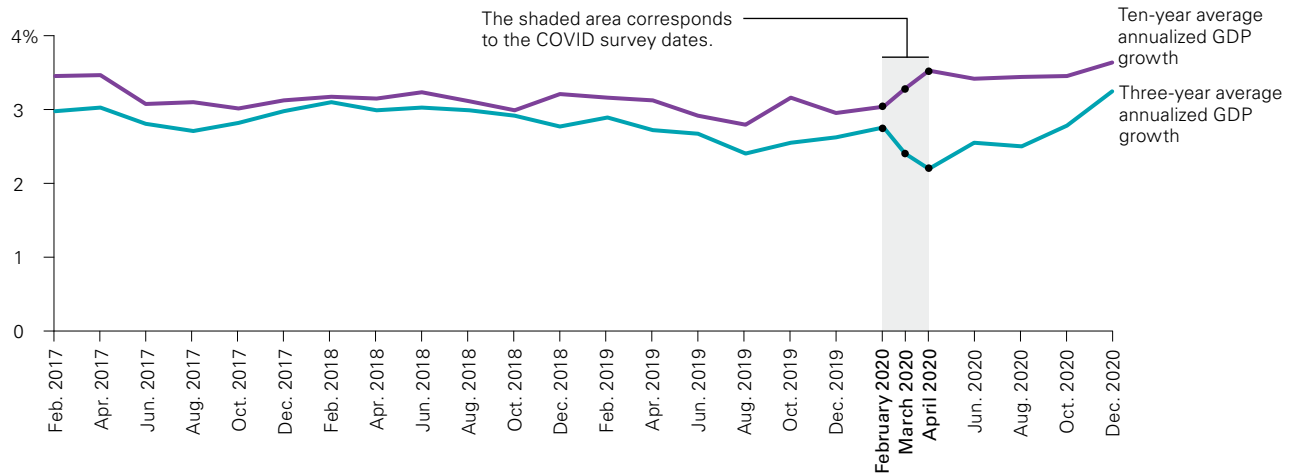


Source: Vanguard, 2021.

Figure 3 shows the responses to questions related to GDP. Similarly, three-year GDP expectations fell from 2.8% in February 2020 to 2.4% in March and 2.2% in April, then rose to 3.2% in December. In contrast, long term ten-year GDP expectations rose modestly in March and April 2020.

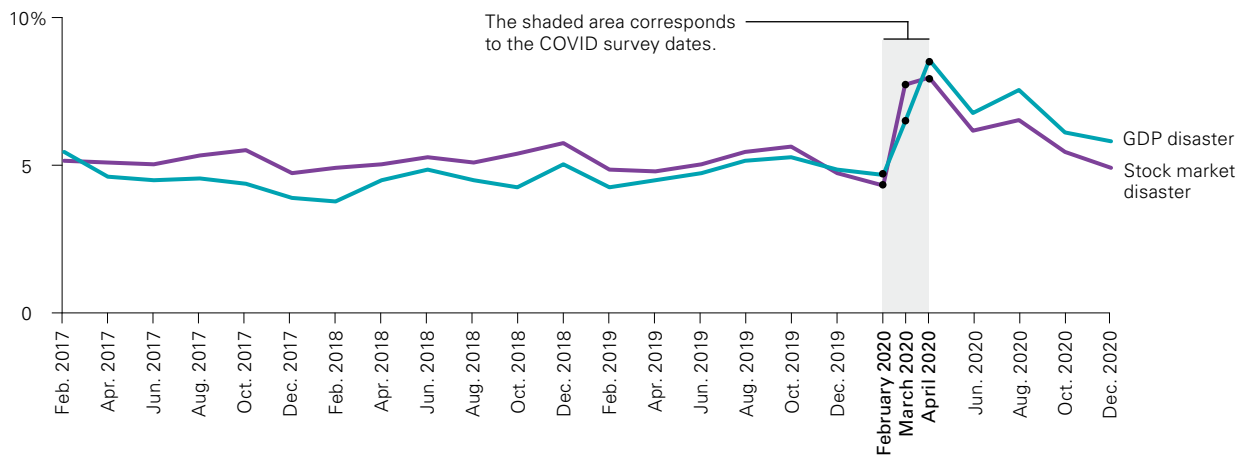
Figure 4 shows the responses to questions related to the probability of stock market and GDP disasters. In February 2020, near the peak of the market and before the COVID-related economic crisis, respondents assessed the likelihood of a stock market disaster or crash at 4.3% (defined as the probability of a one-year return of less than -30%). In March, as the market and economic crisis became apparent, the likelihood of a crash jumped to 7.7%. It rose to 7.9% in April before falling back to 4.9% in December.

Figure 3. Responses to the investor expectations survey: Expected GDP growth



Source: Vanguard, 2021.

Figure 4. Responses to the investor expectations survey: Probability of a disaster



Notes: The probability of a stock market disaster is defined as a one-year return of -30% or lower. The probability of a GDP disaster is defined as negative average annualized three-year GDP growth of -3% or lower.

Source: Vanguard, 2021.

Similarly, In March 2020, the average probability of a GDP disaster, defined as average annual GDP growth over the next three years of less than -3%, also spiked. The average February respondent assessed the likelihood of a disaster at 4.6%. This likelihood was assessed at 6.4% in March and 8.5% in April. Expectations moderated between April and the end of 2020, but the probability remained above pre-COVID-19 assessments.

These results suggest that individual investor expectations are more extrapolative or momentum-based than rational or contrarian-oriented. In a more rational or contrarian model, expected returns would rise and the probability of a stock market crash would decline, especially after a large market sell-off. Instead, investor expectations appear to follow aggregate market activity in close lockstep, shifting in tandem with recent performance.

COVID-19 and the evolution of beliefs

Our survey waves target 2,000 respondents. Many responses come from people who participated in previous waves. The April wave obtained 2,516 responses, including 715 from participants in the February wave.

Figure 5 shows how beliefs about one-year stock market returns and the probability of a crash changed between February and April 2020. Panel A shows the evolution of beliefs in expected one-year returns. Investors are grouped into four categories based on their beliefs in February 2020, prior to the March stock market crash. The most pessimistic investors appear in the top row. Representing 6% of respondents, this group expected negative returns.

Figure 5. Changes in beliefs by initial belief between February and April 2020

Panel A: Change in expected one-year stock returns

Expected one-year stock returns in February	Proportion of February survey respondents	Change in expected one-year stock returns between February and April 2020			
		Less than 0%	Between 0% and 5%	Between 5% and 10%	Greater than 10%
Less than 0%	6%	51%	31%	15%	3%
Between 0% and 5%	22%	29%	54%	12%	5%
Between 5% and 10%	50%	13%	36%	41%	10%
Greater than 10%	22%	5%	32%	30%	33%

Panel B: Change in probability of a crash

Probability of a crash in February	Proportion of February survey respondents	Change in probability of a crash between February and April 2020			
		Between 0% and 2.5%	Between 2.5% and 5%	Between 5% and 10%	Greater than 10%
Greater than 10%	19%	69%	3%	13%	15%
Between 5% and 10%	20%	35%	9%	34%	22%
Between 2.5% and 5%	4%	29%	6%	32%	33%
Between 0% and 2.5%	57%	24%	3%	26%	47%

Notes: Panel A shows the transition density between the level of expectations in February about one-year stock market returns (rows) and changes in the expectations in April (columns). Panel B shows a similar analysis of the probability of stock market returns over the coming year being lower than -30%. Source: Vanguard, 2021.

The most optimistic investors appear in the bottom row. Representing 22% of respondents, this group expected one-year returns of greater than 10%. Fifty-one percent of the February pessimists remained pessimists in April. Only 5% of the most optimistic February respondents were pessimists in April, expecting negative returns.

Panel B shows the evolution in beliefs regarding the probability of a stock market crash, defined as the probability of a return of less than -30% for the coming year. The most pessimistic investors appear in the top row. Representing 19% of respondents, this group assessed a greater than 10% probability of a crash.

The most optimistic investors appear in the bottom row. Representing 57% of respondents, this group assessed the probability of a stock market crash in the next year as between 0% and 2.5%. Only 28% of the February pessimists remained pessimists in April, assessing the likelihood of another crash at greater than 5%. The most optimistic February respondents were more pessimistic in April; 73% of them assessed the likelihood at greater than 5%.

Overly optimistic investors in February shifted their beliefs, becoming more pessimistic. The February pessimists had the satisfaction of being "right," so their beliefs didn't shift as much.

Conclusion

We analyzed real-time investor expectations during the COVID-19 stock market crash. Over the shorter term, investors became more pessimistic and reduced expected one-year returns while increasing their expectations of the perceived probability of another stock market crash or negative economic outcomes. Overly optimistic investors in February shifted their beliefs, becoming more pessimistic. However, this short-term pessimism did not affect long-term market and economic expectations, which remained largely unchanged. These results suggest that individual investor expectations are extrapolative or momentum-based in nature, tending to track the aggregate market performance in tandem, as opposed to rational or contrarian.

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