Perspectives

MAR 2020

# An Analysis of Bear Markets and Recoveries

**After reaching a high of 3,386 on February 19th, the longest bull market in history officially made a record fall into bear market territory in the span of just 16 trading days and only a few days after its 11th anniversary.** The S&P 500 has now been in a bear market, defined as a decline of 20% or more, for nearly a week. So when will this decline end? Let's look at historical data for guidance.

Examining S&P 500 data going back to 1950, the average peak to trough bear market correction was -35.8%, while the median was -33.5%. Bear markets over this time frame range from as minor as -21.6% to as severe as -56.8% during the Global Financial Crisis. As of March 17th, the S&P 500 was -25.3% off its February 19th all-time high.

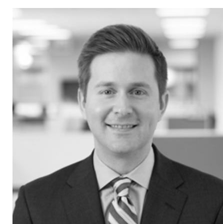
**Exhibit 1:** S&P 500 Corrections Dating Back to 1950

| Bear Start (Peak) | To -20% | Bear End (Trough) | Recov. | Days to Trough | Days to Recov. | Draw-down (%) | 6 Mo Post-Bear (%) | 1 Year Post-Bear (%) | 2 Year Post-Bear (%) |
|---|---|---|---|---|---|---|---|---|---|
| 2/19/20 | 3/12/20 | | | | | | | | |
| 10/9/07 | 7/7/08 | 3/9/09 | 3/28/13 | 355 | 1021 | -56.8 | 52.7 | 68.6 | 95.1 |
| 3/24/00 | 3/12/01 | 10/9/02 | 5/30/07 | 637 | 1166 | -49.1 | 11.5 | 33.7 | 44.5 |
| 8/25/87 | 10/19/87 | 12/4/87 | 7/26/89 | 71 | 414 | -33.5 | 19.0 | 21.4 | 56.9 |
| 11/28/80 | 2/22/82 | 8/12/82 | 11/3/82 | 430 | 58 | -27.1 | 44.1 | 58.3 | 61.5 |
| 1/11/73 | 11/27/73 | 10/3/74 | 7/17/80 | 436 | 1462 | -48.2 | 30.9 | 38.0 | 67.3 |
| 11/29/68 | 1/29/70 | 5/26/70 | 3/6/72 | 369 | 451 | -36.1 | 27.2 | 43.7 | 59.7 |
| 2/9/66 | 8/29/66 | 10/7/66 | 5/4/67 | 167 | 143 | -22.2 | 22.9 | 32.9 | 41.7 |
| 12/12/61 | 5/28/62 | 6/26/62 | 9/3/63 | 135 | 299 | -28.0 | 20.5 | 32.7 | 55.7 |
| 8/2/56 | 10/21/57 | 10/22/57 | 9/24/58 | 307 | 233 | -21.6 | 9.8 | 31.0 | 43.7 |
| | | Average | | 323 | 583 | -35.8 | 26.5 | 40.0 | 58.4 |

Source: Bloomberg

What stands out about the current correction is the sheer pace at which it occurred. The average number of trading days to reach a bear market is 186. The 1987 crash, for example, previously held the post-World War Two era record at 38 trading days to reach bear market status. The current market correction took just 16 trading days.

**Samantha T. Grant, CFA, CAIA**
Consultant

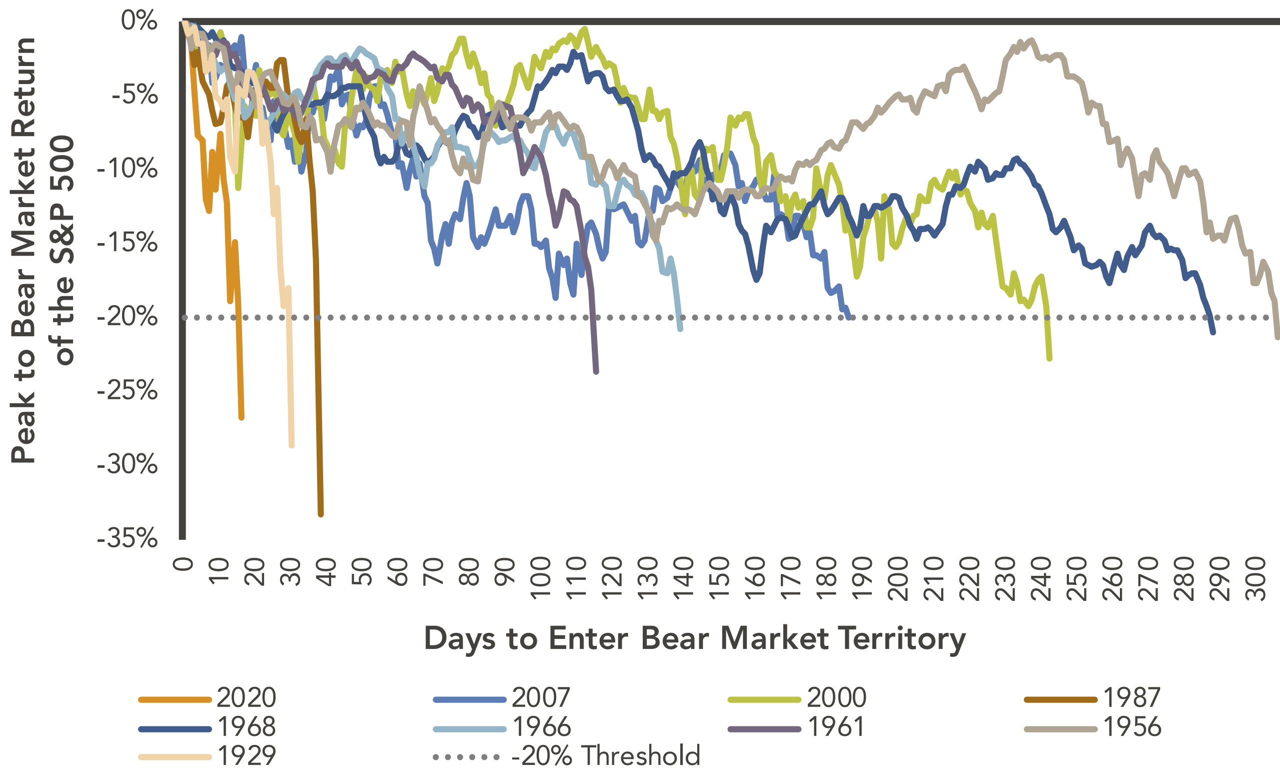


**Rob Britenbach, CFA, CIPM**
Research Analyst, U.S. Equities

**Colleen Flannery**
Research Analyst

The speed at which the current market decline occurred only has 1987 and 1929 in its company as historical comparisons. The bear market correction of March 2020 was at the fastest pace in history.

**Exhibit 2:** 2020 Had the Fastest Bear Market in History




Source: Bloomberg

So when should we expect to see a market bottom? The average number of trading days from the market peak to trough is 323. As mentioned earlier, we are roughly one week into the current correction — even though it may feel like an eternity. It remains to be seen how long this current correction will take to recover. Even the shortest bull market correction over this time frame took 58 trading days to get back to its prior peak. While it seems doubtful our current COVID-19 and oil shock induced crisis will resolve over that short of a time frame, investors should take solace in knowing that markets over the long-term tend to move upwards. Even as soon as six months post market trough, stocks have an average post bear market return of +26.5% and are often significantly higher 1–2 years out.

## SMALL-CAPS

Small-caps, as measured by the Russell 2000, have been in a bear market since hitting an all-time high back on August 31st, 2018. The Russell 2000 initially hit bear market status on December 17th, 2018 and has yet to recover from that prior August 2018 peak. As of March 17th, 2020, the Russell 2000 was -36.4% below its August 2018 all-time high.

**Exhibit 3:** Russell 2000 Corrections Dating Back to 1978

| Bear Start (Peak) | To -20% | Bear End (Trough) | Recovery | Days to -20% | Days to Trough | Days to Recovery | Draw-down (%) | 6 Mo Post-Bear (%) | 1 Year Post-Bear (%) | 2 Year Post-Bear (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8/31/18 | 12/17/18 | | | 73 | | | | | | |
| 6/23/15 | 1/13/16 | 2/11/16 | 11/14/16 | 141 | 161 | 192 | -26.4 | 28.9 | 45.6 | 55.0 |
| 4/29/11 | 8/8/11 | 10/3/11 | 1/2/13 | 69 | 108 | 315 | -29.6 | 37.0 | 37.6 | 75.7 |
| 7/13/07 | 3/3/08 | 3/9/09 | 4/27/11 | 160 | 416 | 539 | -59.9 | 70.8 | 95.1 | 139.2 |
| 3/9/00 | 4/14/00 | 10/9/02 | 11/10/04 | 26 | 652 | 526 | -46.1 | 13.8 | 59.4 | 76.0 |
| 4/21/98 | 8/25/98 | 10/8/98 | 12/29/99 | 90 | 122 | 319 | -36.9 | 28.7 | 37.7 | 57.8 |
| 10/9/89 | 8/20/90 | 10/31/90 | 9/30/91 | 225 | 277 | 238 | -34.0 | 43.1 | 55.3 | 67.2 |
| 8/21/87 | 10/19/87 | 10/28/87 | 8/3/89 | 41 | 48 | 461 | -39.1 | 36.5 | 38.8 | 57.3 |
| 6/24/83 | 2/23/84 | 7/25/84 | 12/12/85 | 168 | 274 | 350 | -26.0 | 19.6 | 30.8 | 52.2 |
| 6/15/81 | 9/23/81 | 8/12/82 | 11/4/82 | 70 | 294 | 59 | -29.2 | 64.6 | 93.9 | 73.6 |
| 2/8/80 | 3/25/80 | 3/27/80 | 7/17/80 | 31 | 33 | 77 | -26.7 | 56.9 | 75.2 | 45.7 |
| | | Average | | 100 | 239 | 308 | -35.4 | 40.0 | 57.0 | 70.0 |

Source: Bloomberg

So how does this longer occurring small-cap bear market stack up to history? Examining Russell 2000 data going back to December 1978, the average peak to trough bear market correction was -35.4%, while the median was -31.8%. Bear markets over this time frame range from as minor as -26% to as severe as -59.9% during the Global Financial Crisis. So thus far, it's been a slightly worse than average bear market correction in terms of severity.

What can history tell us about the time to see a market bottom? The average number of trading days from the market peak to trough for the Russell 2000 is 307. The current count for small-cap is 386, longer than average. The average time it takes a bear market correction to recover from its trough ranges from as few as 59 trading days to as many as 539 trading days. While we don't know when the clock will start for the next bull market, the table above shows that even downtrodden small-caps have historically provided significant upside gains 6 months, 1-year, and 2-years out following a market bottom.

## VOLATILITY

The CBOE Volatility Index (VIX) measures the 30-day implied volatility of the S&P 500 index by way of the options market and has served as a "fear gauge" for the market broadly since the early 90's. The pattern of volatility can often be an indicator of current and expected market conditions. The VIX closed at an all-time high of 82.7 on March 16$^{th}$, 2020. In the current correction, we have seen four of the largest daily spikes in VIX since its inception in the 1990s and we have had some of the biggest percentage daily losses in the S&P 500 since 1926: daily returns of -11.98% on March 16$^{th}$, -9.51% on March 12$^{th}$, and a -7.6% return on March 9$^{th}$.

**Exhibit 4:** Volatility Post-VIX Spike

| Peak Date | Market Trough | VIX Peak Level | # of Moves in Following 6 Months from Peak | | | |
|---|---|---|---|---|---|---|
| | | | 1 < 3% | 3 < 5% | 5 < 7% | 7% < |
| 10/8/98 | 10/13/98 | 45.7 | 47 | 1 | | |
| 9/20/01 | 9/21/01 | 43.7 | 44 | 2 | | |
| 8/5/02 | 10/9/02 | 45.1 | 66 | 11 | | |
| 11/20/08 | 3/9/09 | 80.9 | 50 | 23 | 6 | 2 |
| 8/8/11 | 10/3/11 | 48.0 | 53 | 10 | 1 | |
| 8/24/15 | 8/25/15 | 40.7 | 56 | 2 | | |
| 2/5/18 | 12/24/18 | 37.3 | 31 | 2 | | |
| | | **Average** | 49.6 | 7.3 | 3.5 | 2.0 |

Source: Bloomberg

In our analysis, we identified VIX readings above 34.8 — two standard deviations away from the since-inception average of 19.2 — as major spikes in volatility. Since inception of the VIX, the market has seen 307 of these elevated levels through March 16th, 2020. More than 50% of that heightened volatility occurred around the global financial crisis and 20% occurred around the dot-com bubble. Highlighted in Exhibit 4 are a few periods of peak VIX, defined as the highest two-standard deviation move north of the long-term average for a given down period. We see volatility remains heightened by varying degrees for a period of six months. In the six months following the peak, investors are likely to experience nearly 50 days of daily market moves between 1% and 3%. While there is the potential for daily moves in excess of 5%, they are much more rare.

We can extrapolate that the higher the spike in the VIX, the higher the subsequent volatility in price return. Although the sample size is low, it's worth noting a few positive trends:

- The price return six months out from the highest spike in the VIX tends to be to the upside.
- The average trading days it takes to reach the trough after a VIX spike is 55 trading days.

The differences between our trackable history and the events of the most recent few weeks are abundant, but a record-breaking spike is a notable event with potential for signaling that a bottoming is near.

## VALUATIONS

Another indicator of a market bottom is valuations. Recently, valuations have been a huge driver of S&P 500 returns. In 2019, earnings growth was essentially 0%, but the market was up 31.5%. This implies that the market return was driven by an increase in price that was not supported by fundamentals or an increase in corporate profits. Historically, earnings growth has contributed two-thirds and multiple expansion has contributed one-third to S&P 500 returns.

**Exhibit 5:** P/E Multiple Contraction in Bear Markets

| Bear Start (Peak) | Bear End (Trough) | Starting Fwd P/E | Ending Fwd P/E | P/E Contraction | Days to Trough | Drawdown |
|---|---|---|---|---|---|---|
| 2/19/20 | 3/16/2020* | 19.5 | 14.2 | -27.2% | 19 | -29.5% |
| 9/20/18 | 12/24/18 | 18.1 | 14.5 | -20.1% | 66 | -19.4% |
| 4/29/11 | 8/8/11 | 13.8 | 11.2 | -18.7% | 70 | -18.6% |
| 10/9/07 | 3/9/09 | 16.7 | 11.2 | -33.1% | 355 | -56.8% |
| 3/24/00 | 10/9/02 | 26.3 | 14.7 | -44.2% | 637 | -49.1% |
| 8/25/87 | 12/4/87 | 15.2 | 9.6 | -36.8% | 71 | -33.5% |
| | **Average** | 18.3 | 12.2 | -30.6% | 240 | -20.3% |
| | **Median** | 17.4 | 11.2 | -33.1% | 71 | -33.5% |

* First row uses March 16, 2020 as the trough and is sourced from Goldman Sachs Investment Research
Source: Bloomberg
Note: In order to make this analysis more robust, we used periods that were close to bear market territory.

A decline in equity prices during a drawdown ultimately leads to a decrease in P/E multiples. We reviewed equity bear market drawdowns over the past 30 years including the close calls in 2011 and 2018. On average, forward P/E multiples contract by -30.6% in a bear market correction. The current equity P/E multiple has compressed by -27.2%. The current market correction is not yet to the average, but not far off. The earnings component — or the "E" of the ratio — is currently variable as analysts try to estimate the impact of closed borders and social distancing.

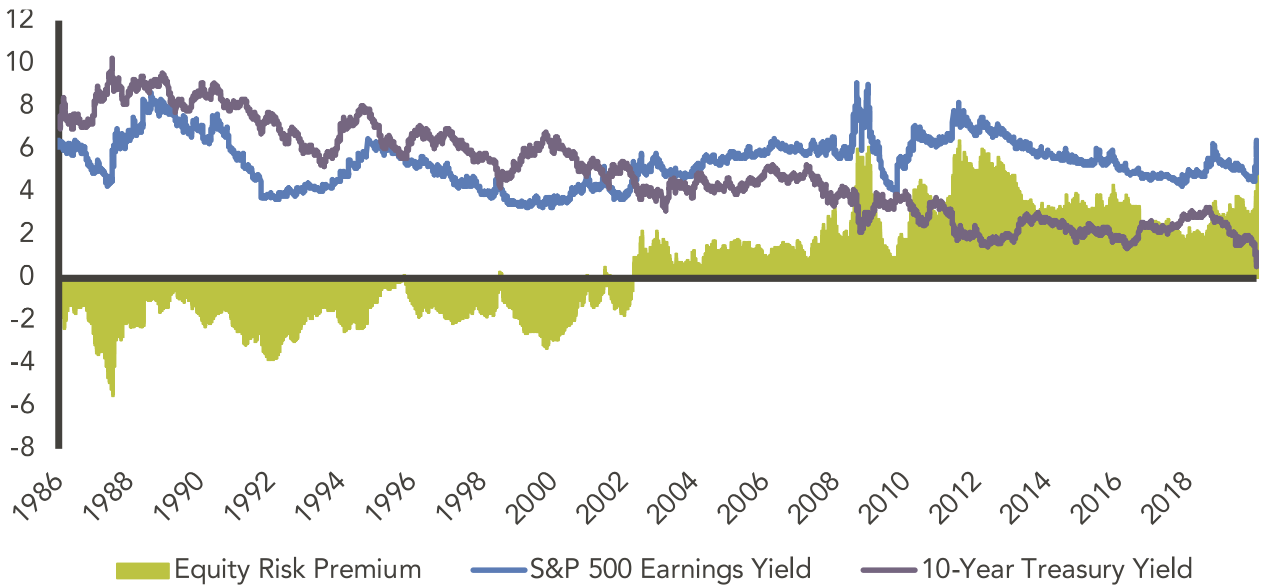
## CONCLUSION

Bear markets have historically been triggered by economic or financial weakness. What makes the current downturn unique is that the initial catalyst came from a virus and the cascading global economic pullbacks associated with it. Valuations were elevated coming into 2020 and uncertainty stemming from a sudden economic contraction, lack of clarity surrounding the impact of COVID-19, and a subsequent oil shock caused a historically sharp correction.

We noted that solid calendar year earnings would be necessary to support a continuation of the bull market through 2020. Earnings growth estimates were close to +10% coming into 2020 but have been ratcheted down the past couple months. As of February month-end, S&P 500 earnings growth for 2020 was projected to be +7.4%. With the escalating impact of COVID-19 on daily business and personal activity, some are calling for zero earnings growth in 2020.

Monetary policy has already sprung into action as traditional and non-traditional tools are being put to work. With the recent two emergency Fed rate cuts, short-term rates are back to the near zero range of 0–0.25%. With investor appetite for safe-haven assets increasing, the 10-year Treasury yield was recently pushed down to record levels. The spread between S&P 500 earnings yield and the 10-year Treasury yield increased noticeably during the recent correction.

**Exhibit 6:** Equity Risk Premium




Source: Bloomberg as of March 18, 2020

However, until the markets gain more clarity on fiscal policy support, macroeconomic indicators, and corporate earnings, equity markets will continue to be volatile. Markets are forward-looking and once the number of new coronavirus cases is on the decline in the U.S., that improving picture will begin to be priced into stocks. While no one knows the specifics of how the future will play out, this data does offer perspective on what the typical bear market correction is, how far we are from that level, worst case scenarios, and possible opportunities to buy equities at attractive prices.

**PREPARED BY MARQUETTE ASSOCIATES**

180 North LaSalle St, Ste 3500, Chicago, Illinois 60601
CHICAGO BALTIMORE MILWAUKEE PHILADELPHIA ST. LOUIS

PHONE 312-527-5500
WEB MarquetteAssociates.com

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