Please Be Seated: We Are Crossing a Zone of Turbulence

Most investors' true investment horizons are far longer than the next few months.

March 2020

KEY INSIGHTS

- When the unknowns appear overwhelming, as is the case today, investors should use their old friend, time, to look beyond the current situation.
- Investors should position portfolios according to their true investment horizon, which in most cases is far longer than the next couple of months.
- Just like flight passengers, investors should look beyond the current turbulence due to the coronavirus and remain seated until they arrive safely at their final destination.

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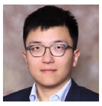

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"Please be seated as we are crossing a zone of turbulence," is the unpleasant voice of the pilot's warning during your flight (even if flying is becoming a distant memory). No matter how uncomfortable and violent the turbulence, no passenger seriously thinks of jumping off the plane at that moment. Everyone sticks with their initial decision which was:

1. To stay in the plane until it lands safely at its destination.
2. To trust the pilot and air traffic controller to effectively neutralize the impact of the turbulence...

We think this flight analogy plays well with the current market situation. The global spread of the coronavirus and the lack of OPEC agreement on oil created unprecedented pockets of turbulences in the investor's flight. These factors generated the fastest bear market in the history of the S&P 500, showing how severe the air pocket drop has been. But, just like the flight passengers who do not jump off the plane during the turbulence, investors should also stay the course with their pre-defined investment strategy, in line with their time horizon[1]. Of course, this doesn't prevent investors from making tactical adjustments to their portfolios, just like a pilot would trim the controls of the plane when required. More importantly, investors should not lose sight of the fact that their investment strategy is built with a specific time horizon in mind. Judging its success using much shorter term data is unlikely to be helpful.

In this note, we show how 'time' combined with a disciplined process are amongst the most important risk management tools left for investors to navigate the crisis effectively. Time is your friend, so use it to your advantage.

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[1] The length of the investment horizon can be subjective. For strategic allocation, one may define long-term as a 10-year or more horizon. For tactical allocation, one may define long-term as a 12-month plus horizon.

> The worst of the virus will likely be behind us a year from now.

The Coronavirus Situation

The unknowns surrounding the global coronavirus pandemic have created many concerns and uncertainties for us all. Since it is new, epidemiologists, biologists and doctors are working tirelessly to understand the basic mechanics of the virus and how it can be stopped. We still don't know when the number of new cases and associated deaths will peak globally.

What we seem to know at present is that:

- Strict containment measures can successfully decrease the number of new cases each day (as in China, Hong Kong, and South Korea).
- A vaccine generally takes twelve to eighteen months to be developed.
- If the search for a vaccine for the coronavirus fails, a population may become autoimmune if and when a certain percentage of the population contracts the virus (assuming that it doesn't mutate over time). It's difficult to assess with certainty when this herd-immunization could occur though.

These known facts are not particularly reassuring. But they all have in common **the time factor: the worst of the virus will likely be behind us a year from now.** The extreme measures of travel bans, country or city lockdowns, and quarantine will be over and life as we knew it before the outbreak will have largely returned. As hard as it might be today, this suggests that investors should project their thoughts to beyond the worst of the virus outbreak to define their investment strategy today[2].

The Policy Response

Our fixed income colleagues elegantly summarized the policy response to the global coronavirus crisis in their recent note "Strong Fiscal Response Needed After Fed Moves on Liquidity," dated March 17. While central banks are acting forcefully to address the liquidity issues in the market, they cannot do much to address the twin supply/demand shocks that the world is facing due to the spread of the coronavirus and the associated containment measures. Governments around the world are following through with providing a comprehensive fiscal response in order to dampen the negative economic impact.

Unfortunately, a coordinated and meaningful fiscal response takes time because:

1. Fiscal packages usually require legislative approval.
2. Often, it is only when governments are pushed into action by extreme circumstances that they agree to implement convincing fiscal measures (the EU debt crisis is a useful playbook in this respect).

Again, the **policy response needs time** to be designed, ratified and executed. Markets need to see evidence that they are coming. We believe they will come, creating a future environment with extremely loose monetary and fiscal policy settings. As evidenced by the previous response to very accommodative policy settings, this paves the way for the return of more optimistic markets once these measures are deployed.

The Limitations of the Financial System

Following the Global Financial Crisis (GFC) in 2008/2009, new banking regulations and new investment strategies have been implemented. While they have created a more robust banking sector, these measures and strategies are also amplifying certain risks in financial markets. In short, we see two issues at work today:

- Due to capital requirements and trading limitations that have been imposed on investment banks since the GFC, trading liquidity has been much reduced. This explains the strong initial response from central

[2] See "Crisis Playbook—The Fear of Loss and Regret," David Eiswert, T. Rowe Price Insights on Global Equity, March 2020.

Time should help patient investors to navigate market turbulence.

banks focusing on providing liquidity to compensate for the reduced presence of investment banks as market makers[3].

- Systematic investment strategies have become more popular among investors to manage volatility risk. We view two groups of strategies. The first is volatility-based strategies that use volatility signals to systematically allocate across asset classes (for example, risk parity or volatility targeting). The second group is momentum-based strategies that use past trends to drive their asset allocations. When volatility spikes and at the same time the equity market plunges, these two groups of strategies are doing the same thing: selling equities. We are not arguing here that these systematic investment strategies are the roots of the current bear market, but we do recognize that they have the potential to add fuel to the fire, amplifying market swings.

These limitations are not new, and they won't go away in a hurry. In the short term, they are likely to exacerbate price dislocations. Financial markets will progressively digest these systemic issues, however. **Time should once again prove helpful for patient investors to navigate structurally-induced market turbulence.**

Market Reaction after a Crisis

One can argue that every crisis is different. However, there seems to be a certain pattern associated with market behavior during and after a crisis.

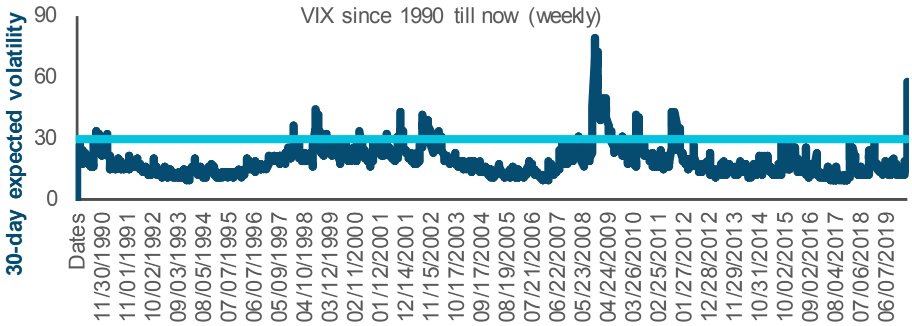
- Volatility typically increases far above average levels. Here, we are using the VIX index of implied market volatility based on S&P 500 options as our volatility indicator and we define a level of 30 or above as being a higher than average level. We are not differentiating between whether the VIX is increasing or decreasing above the 30 threshold, as we are simply trying to capture the most extreme periods. Since 1990, around 10% of trading days meet this criterion.

- After the crisis, market returns tend to deliver outsized returns compared to average levels. When looking at the period from January 1990 to February 2020, we analyze the cumulative returns of the S&P 500 index over a subsequent period of up to 18 months, conditioned on the starting level of the VIX. We differentiate between the VIX below and above 30. As seen in the Fig. 2 and Fig. 3, the cumulative returns when the VIX at the starting period is above 30 would have delivered an average return equivalent to double the returns achieved during periods when the starting point was a VIX below 30. Moreover, the probability to achieve a positive cumulative return over a 12-month period is close to 90% when the VIX is above 30, while it is closer to 80% when the VIX is below 30. We are not implying that the VIX is a forward looking indicator of return. We are just highlighting that investing at times of extreme levels of volatility has historically translated into superior returns. There are obviously other fundamental indicators that any investors should look at to confirm their investment strategies beyond the VIX level.

[3] See "Strong Fiscal Response Needed After Fed Moves on Liquidity," T. Rowe Price Insights on Global Economics, March 2020 for more details.

VIX Levels above 30 Coincides with Crisis Periods

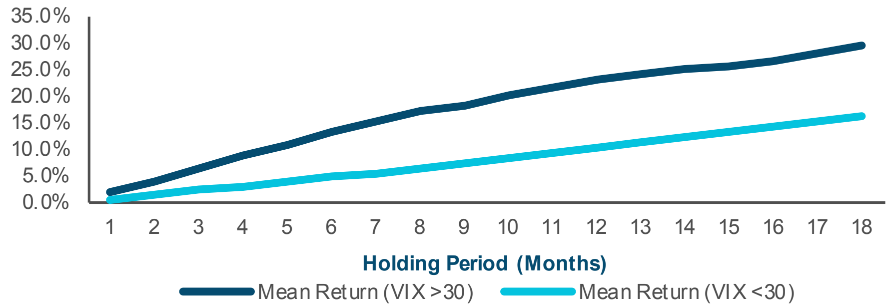
(Fig. 1) VIX = Index of Market Volatility Based on S&P 500 Options



As of March 13, 2020.
Source: Bloomberg Finance LP, as of March 13, 2020. Analysis by T. Rowe Price.

Cumulative S&P 500 Index Returns

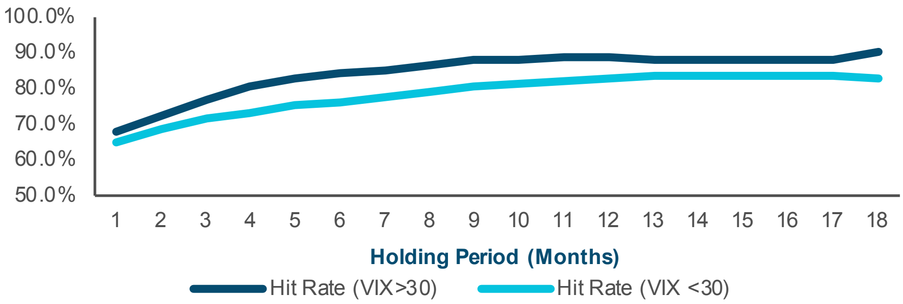
(Fig. 2) Conditional to the Starting Values of VIX



Past performance is not a reliable indicator of future performance.
January 1990 to February 2020
Source: Bloomberg Finance LP, as of February, 2020. Analysis by T. Rowe Price.

Percentage of Positive S&P 500 Index Returns

(Fig. 3) Conditional on VIX above or below 30



Past performance is not a reliable indicator of future performance.
January 1990 to February 2020
Source: Bloomberg Finance LP, as of February, 2020. Analysis by T. Rowe Price.

Investors can potentially benefit from the current volatility to achieve higher subsequent returns.

The charts illustrate that **investors can potentially benefit from the current period of heightened volatility to achieve higher subsequent returns with a greater probability of being positive—if history is any guide.**

The Destination

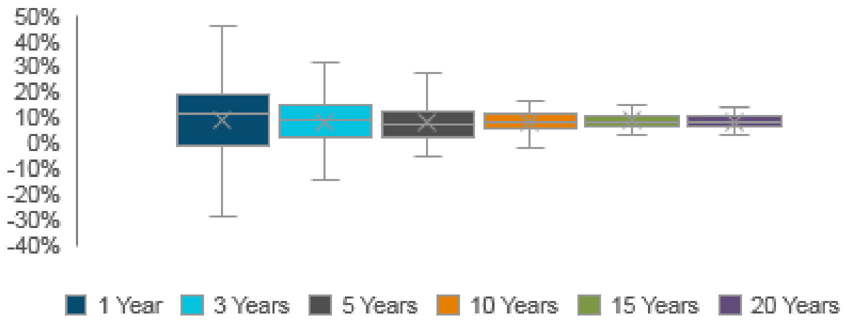
While investors often tend to evaluate their financial success over a relatively short time frame, such as quarterly or annually, the real investment horizon is typically much longer than that. Whether it is a pension fund, an individual saving for retirement or a life insurance company, the true investment horizon can usually be measured in decades.

Once you extend your time horizon, your potential deviation to the median outcome is reduced. The Fig. 4 and Fig. 5 show that investors in a global equity portfolio (using the MSCI World index) significantly reduce their risk of deviating from their return target (taken to be the average return for each holding period) as they extend their time horizon.

Fig. 4 calculates the distribution of rolling returns for the MSCI World index over periods of 1 year to 20 years. For each box, the middle line represents the median return over that period and the x in the box is the average. The upper/lower lines of the box indicate the top/bottom quartile return over that period. The vertical lines highlight the minimum and maximum value. It is clear for this chart that once you extend your time horizon the minimum and maximum values are closer to the average return, reducing your risk of deviating from your target return.

Return Deviations Narrow as Investment Horizon Increases

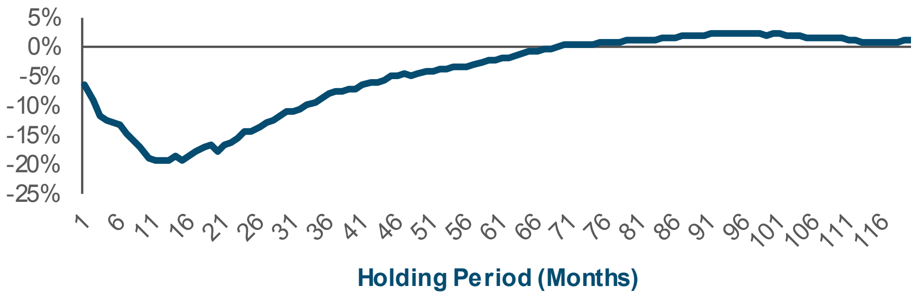
(Fig. 4) Developed Market Annualized Returns by Holding Period



Past performance is not a reliable indicator of future performance.
January 1970 to February 2020
Source: MSCI (see Additional Disclosure). Analysis by T. Rowe Price.

Risk of Losing Money Falls as Investment Horizon Increases

(Fig. 5) Developed Market Stocks VaR 5% by Holding Period



January 1970 to February 2020
Source: MSCI (see Additional Disclosure). Analysis by T. Rowe Price.

> Investing with a disciplined process should incorporate time horizon as a key pillar.

Even when we focus on worst-case scenarios as measured by Value at Risk of 5% confidence level over various time periods (Fig. 5), we see that the risk of losing money diminishes as you extend your investment horizon. For global equity investors, history suggests there is a 95% chance that you don't lose money if your time horizon is longer than 5 years and 9 months. Fig. 5 also shows that this can happen despite occurring a maximum loss in the interim period of as much as 19.5% with a 95% probability.

Conclusion

The current situation created by the coronavirus pandemic has been compared to wartime by many leaders across the globe. Our founder Thomas Rowe Price wrote the following on September 14th, 1939: "there is no time to be panicky. [...] There is very little reliable information on which to base an opinion as to what is going to happen during the months and years ahead". As investors, we must base our decisions on trying to minimize any large deviations from our preferred central outcomes. Investing with a disciplined process should incorporate time horizon as a key pillar. When the unknowns appear to be overwhelming, as is the case today, it seems wise to use our old friend, time, to look beyond the current situation and position our portfolio according to our true investment horizon, which in most cases is far longer than the next couple of months. So, investors please remain seated until you arrive at your final destination!

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