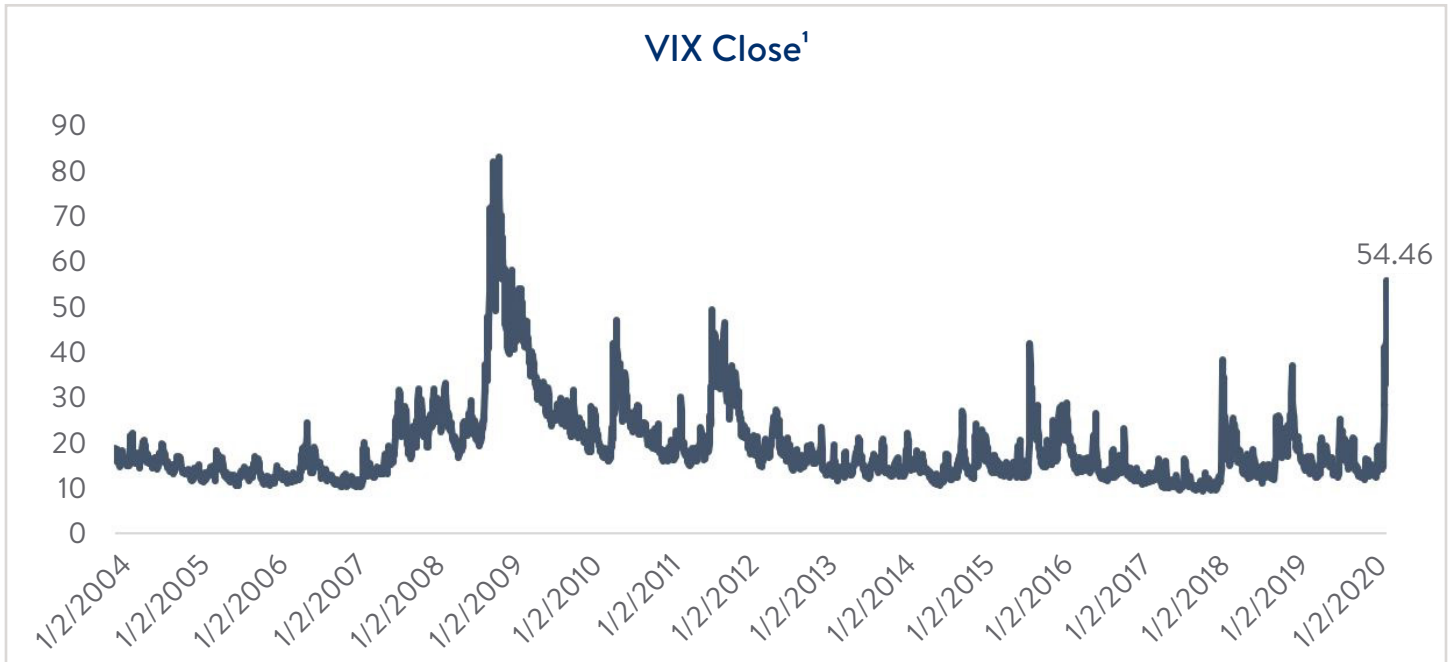


Market volatility update – March 2020



The most difficult part of history is living through it: Risk assets across capital markets have experienced a historic decline over the past week. Uncertainty over the Coronavirus has been an exogenous shock to the global economy. Its reach, impact on global supply chains, unknown impact on demand, and resulting impact on company earnings have sparked a risk off move that has sent volatility to levels not seen since the 2008 Global Financial Crisis, and treasury yields to levels not seen since the first issuance of US debt in 1790.

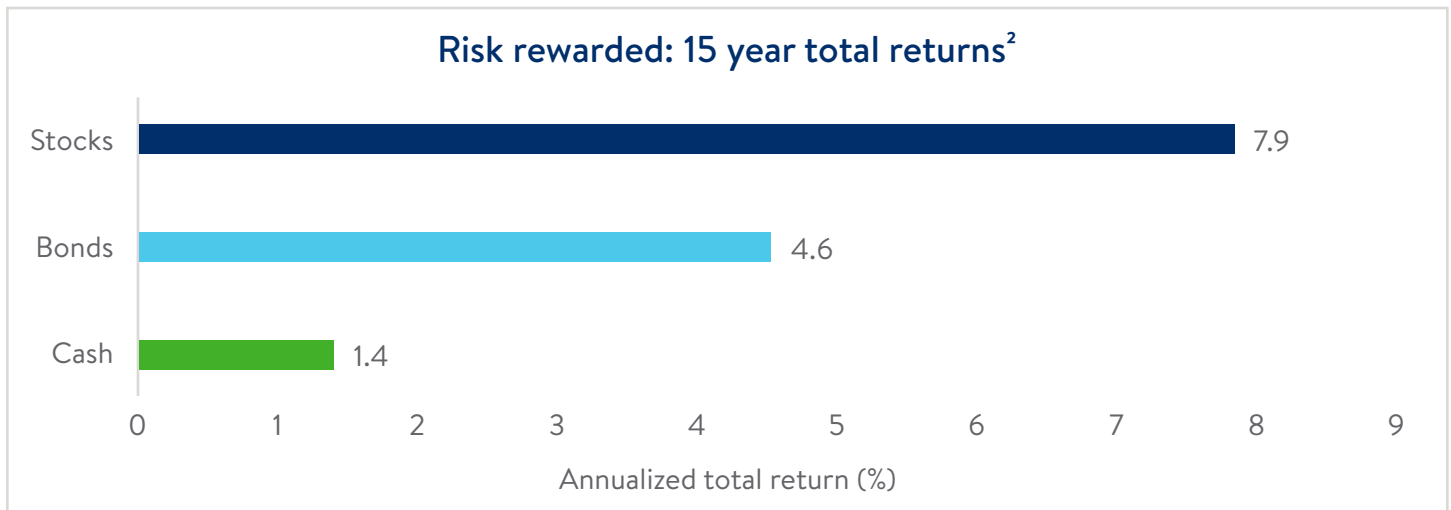


Prior to this week, markets had been extremely resilient to potential areas of concern, from the US military action in Iran, to the initial stages of the virus itself, all being put on the back burner in favor of ever expanding market multiples. This downward move has been of significant magnitude, swift in its velocity, and painful in its impact. However, the impact on realized returns must be put in appropriate context. Having the appropriate timeframe, not just determining the appropriate asset allocation, but also in making an assessment on performance, is important for framing the current market environment. The below chart shows the S&P 500 across three timeframes, the last week, year to date, and the last year. Please remember that past performance is no guarantee of future results.





Risk, the essence of investing: While we recognize it is of little comfort as investors see the last week as not financial loss but rather the loss of future hopes and dreams, it is during these periods of volatility and uncertainty to remind investors that allocating to different investments is the assumption of risk, and these risks are what generate return across the capital markets.



Where do we go from here? : While the impact of the virus is yet to be determined, there are some things that have become clear. The flight to safety has:

- 1) Created more attractive valuations for risk assets, from stocks to high yield
- 2) Brought the entire US treasury yield curve below the rate of inflation



At MassMutual, we understand that the recent market volatility is a fluid situation, and thoughtful risk management is an important component of how we think of constructing durable and efficient retirement solutions. By minimizing downside risk, we believe participants are more equipped to confront their behavioral biases that all too often lead to sub optimal decision making. We believe the ability to stay invested throughout market regimes and consistently assume the appropriate level of risk, is the North Star in securing and protecting financial futures.

¹ <http://www.cboe.com/products/vix-index-volatility/vix-options-and-futures/vix-index/vix-historical-data>; Created by the Chicago Board Options Exchange (CBOE), the Volatility Index, or VIX, is a real-time market index that represents the market's expectation of 30-day forward-looking volatility. Derived from the price inputs of the S&P 500 index options, it provides a measure of market risk and investors' sentiments.

² Morningstar Direct. Chart 3 stocks are S & P 500, bonds are Bloomberg Barclays US Aggregate TR, Cash is ICE BoFA 3 month treasury TR

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