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Understanding Uncertain Situations Like COVID-19

The last nine weeks have been unique and challenging for all of us, and have been tragic for many. I hope that you and your loved ones have avoided the worst of COVID-19. I also wish you the best going forward, as we struggle with COVID-19 and its repercussions.

What a difference a month can make. Between February 20 and March 20, we experienced:

- A flu pandemic
- A global quarantine
- A 32% drop in the S&P 500 large-cap market index
- A 40% drop in the Russell 2000 small-cap market index
- A 53% drop in spot oil prices, in an attempt to bankrupt US frackers
- An all-time record for market volatility
- Multiple records for fastest market sell-off

As we contemplate all of the uncertainty related to COVID-19, I have been thinking about United States Secretary of Defense Donald Rumsfeld's news briefing on February 12, 2002:

Reports that say that something hasn't happened are always interesting to me, because as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns—the ones we don't know we don't know. And if one looks throughout the history of our country and other free countries, it is the latter category that tend to be the difficult ones.

-- Donald Rumsfeld

Known known	Unknown known
"I know that I know this."	"I don't know that I know this."
Known unknown	Unknown unknown
"I know that I don't know this."	"I don't know that I don't know this."



Rumsfeld's thinking provides a valuable framework for examining uncertain situations. Using this framework, we can examine what led the US to be the world leader in COVID-19 deaths:

- Viruses have plagued humans from our beginning (known known).
- Viruses occasionally pop up and cause great destruction (known known).
- Scientists are monitoring a constant stream of new viruses that threaten humans (known known).
- We observed a new disease spreading in China, but we have seen many similar diseases spread and then die out. Will this new disease likewise fizzle, or will it be the one that causes major problems (known unknown)?
- Moe, Larry, and Curly were put in charge of conceiving and executing the US pandemic response (unknown unknown).

As we consider how to move forward, two schools of thought predominate: "safety at all costs" vs. "we can't destroy the economy." The "safety at all costs" school-of-thought assumes that every possible human life should be saved, no matter what the cost. By contrast, the "we can't destroy the economy" school-of-thought assumes that each life is not infinitely valuable, so the lives of 97% can't be ruined to save 3%.

In the coming months, conflict is inevitable between these two camps. At the moment, "safety at all costs" is winning, but as time passes and as Americans run low on cash, "we can't destroy the economy" will become more prominent.

If we apply Rumsfeld's framework to these two schools-of-thought, some important points emerge:

- Putting the economy on hold and minimizing social interactions reduces the spread of the disease. Thus far, the pause appears to have been effective in slowing the disease progression (known known).
- Pausing the world economy for months and then restarting it is the largest financial experiment in the history of the world (known known).
- Will the economy quickly restart without grave problems (known unknown)?
- Will restarting the economy and social interactions reinvigorate the disease (known unknown)?
- What other major variables and/or consequences will be obvious only in hindsight (unknown unknown)?



Clarity will only come with time, and the ultimate outcome will come down to a complex mixture of science, economics, politics, and compliance. Out of these variables, science is the easiest to understand. We could arrive at a normal world through:

- Vaccine: Best case estimates are 18 months for a vaccine, but it is possible there may not be a vaccine (known unknown).
- Drug: As of the time of this writing, there is no scientific evidence of an effective drug, but there are many drugs in clinical trials (known unknown).
- Herd Immunity: Many COVID-19 cases have had mild symptoms. In a number of cases, antibody testing has shown that large portions of the population have already had COVID-19 (e.g. 1/3 of residents in New York City). Some studies indicate that the number of actual cases may be 100x the number of confirmed cases. Currently, the possibility of attaining herd immunity without a vaccine is a known unknown, but extensive antibody testing could rapidly transition our knowledge to a known known.

How does this four-quadrant table help you understand uncertain situations like COVID-19?

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