TD Wealth

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Economic & Market Update

Coronavirus: Just the stats, ma'am

The future is a distribution of probabilities.

Deep down inside, I think many of us know that. However, it is not typical to live life by constantly estimating the probability of events that might impact us. Also, communicating in this fashion is not a fast way to win friends. If someone asserts to you that they are going to become astronaut, or win a gold medal, or become an NHL player, it would be statistically correct to respond by saying that the probability is unlikely. This unsympathetic statistician could then go on and worsen the situation by reciting the probabilities of diseases, financial misfortune, or worse yet, refer to a mortality table. So you can see why we don't think, act, or communicate in terms of probabilities very often.

Normally, people are averse to learning about statistics and applying them to everyday life.

Suddenly, people are attempting to use statistics to make very assertive claims with respect to the Coronavirus.

Until there is a calamity. Then enormous numbers of commentators who normally abhor any notion of statistics and probabilities begin implying that they have the numbers the support their arguments, observations, and forecasts.

For someone like myself who is professionally required to assess things through a statistical lens all day, it can provide much entertainment. Even with good data, forecasting is hard and perpetually fraught with errors. The painstaking work is in managing the acceptable level of errors while trying to arrive at a useful forecast. And, it's on-going. As new data is added, it has to be assessed and the forecast potentially has to be tweaked, or occasionally completely discarded.

The application of statistics is not easy.

Using statistics to make forecasts is extremely difficult.

Following the developments of the Coronavirus for 16 hours a day over the last four weeks, one pattern is clear: over-confidence. I have seen this in both the negative commentators and the positive commentators. Clearly, the negative commentators have the clear upper hand in establishing the current narrative. However, without good data and without adhering to a statistical foundation, none of these amateur forecasters really know what they are talking about.

All forecasts have an error factor.

Managing the level of errors to create a useable forecast is labour-intensive.

In times of great uncertainty, the most prudent stance is usually to assume a "normal" distribution of eventual total infections (**Chart 1**) until proven otherwise by the emergence of quality evidence to the contrary. The bet that the probability distribution will be a different shape because of certain factors at play is an aggressive wager. If that wager takes the form of a short-term tactical investment strategy (i.e. market timing), the risk could overwhelm the investor, irreparably damaging long-term returns.

Many of the media commentators are implying that they have done the statistical work.

However, the quantity and quality of the infection data is currently insufficient to produce statistically-significant conclusions.

A prudent approach would be to assume a normal distribution of total infection probabilities before the data proves otherwise.

Chart 1:
Normal Distribution

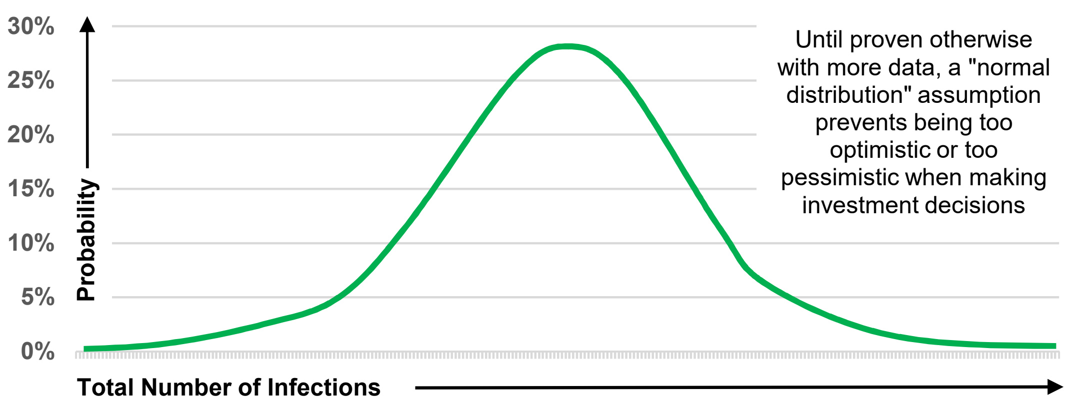
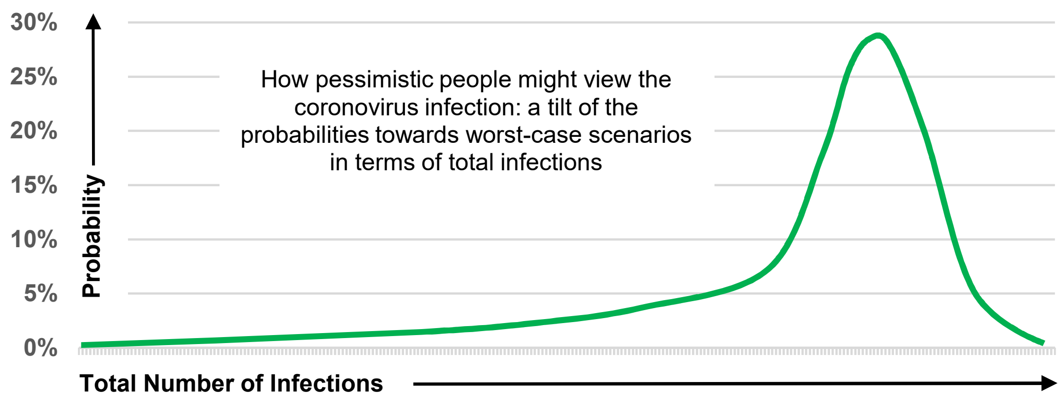


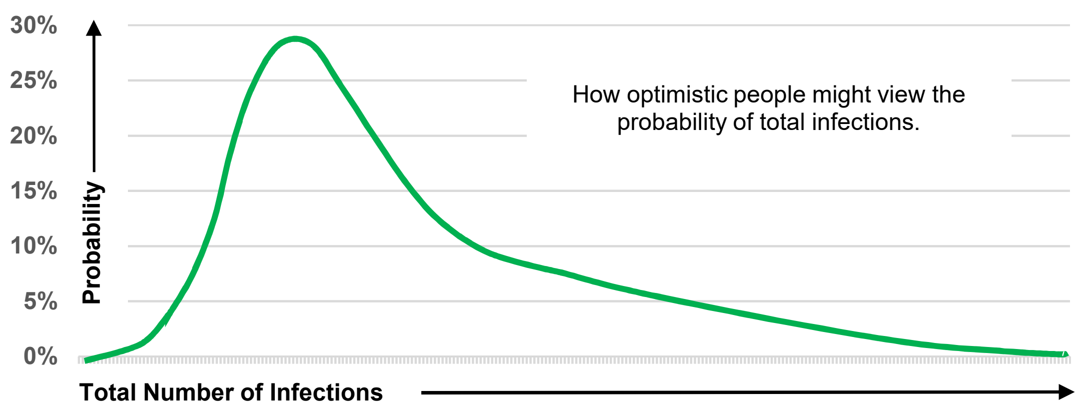
Chart 2 might be how pessimistic observers see the Coronavirus. A statistician would describe this distribution as being “left” or “negatively” skewed. Perhaps the observer’s friends are pessimistic. Perhaps they personally know people who has the virus. Perhaps they had bad experiences as investors during one of the previous market sell-offs such as Black Monday in October 1987, the Dotcom crash, or the Subprime Mortgage/Global Financial Crisis. The list goes on. The instincts of these people (in lieu of reliable data) are telling them they need to do something. If they are investors, one of those things might including selling their investments.

Chart 2:
Left Skewed Distrubution



On the flipside, optimistic observers might envision the probability distribution illustrated by **Chart 3**. Perhaps they have complete faith in government officials to stem the tide. Perhaps they think that the spring weather will help. Perhaps they look at the incredulous slide in reported cases in the People’s Republic of China and buy into the notion that it will be our destiny as well.

Chart 3:
Right Skewed Distribution



Without enough good data, the bias of commentators can be persuasive.

Using bias-ridden forecasts can lead to aggressive investment wagers that could be impacted when better infection data provides clarity.

The biases can be positive (optimistic) and negative (pessimistic).

The perspective of biased commentators can be illustrated by oddly shaped probability distributions.

The distributions exhibit a quality known as "skewness", a stretching out of the distribution to the left or the right.

Skewness is a bold claim that requires a sizable sample of reliable data.

However, we must accept that the current quality of the data remains dismal. It varies from country to country. Even in developed democracies where governments can't suppress the infection data, there is a latency problem. Someone who gets the virus does not know right away. Symptoms take a few days. Getting a test may take time. Then the disease control bureaucrats compile it and release the tally periodically.

Infection data reliability requires more testing to increase the sample size with which to make conclusions.

In emerging market countries, the health systems are generally not up to our standards. There is a risk that many people who are infected are not reported. There just are not enough health professionals available to make the required observations.

The real mystery soup data involves authoritarian regimes. Can we trust the numbers at all if governments are able to suppress information because of the possible regime risk? The Coronavirus was able to evolve from a local problem to a global problem because of government-ordered data suppression during the first signs of outbreak.

Data suppression practiced by some countries could delay the ability to make total infection forecasts.

As a result, we don't really know that the total number of infections are at this point. We really don't know what the global infection growth curve looks like, although we are seeing some early signs of reasonable reliability in the North American infection growth curve. Although the North American data has some latency, the numbers are becoming significant enough to make some useful inferences regarding the fatality rate and the pre-existing characteristics of those who suffer severe symptoms.

As the growth curves increase in reliability, at some point we will be able to start making economic forecasts as opposed to economic guesses. The forecasts will be bad. However, the period of economic difficultly should be relatively transitory. As economic activity scales up, we can better determine the fate of various sectors and companies. Sectors that operate on a cash basis and are related to providing the necessities of life would likely have a good chance of a quick return to normal. Those that require a big outlay from their customers? Maybe not. How comfortable would one feel plunking down money at a condo pre-sale? Or, paying up early for that trip of a lifetime in the future?

Once the estimated probability for total infections becomes more precise, economic forecasts using that data will become more actionable.

These baseline economic forecasts can then be applied to forecasts for sectors and individual companies.

Once markets begin to gain these perspectives, it become easier for investors to look at long-term again: how are things going to look in seven years, for example, as opposed to next month. Until we have better data to look back at, making rapid alterations to an investment strategy could end up being premature.

Model Portfolio Update[1]

The Charter Group Balanced Portfolio
(A Pension-Style Portfolio)

	Target Allocation %	Change
Equities:		
Canadian Equities	13.0	None
U.S. Equities	38.0	None
International Equities	8.0	None
Fixed Income:		
Canadian Bonds	24.5	None
U.S. Bonds	3.5	None
Alternative Investments:		
Gold	8.0	None
Commodities & Agriculture	3.0	None
Cash	2.0	None

There were no changes to the specific holdings or the targeted overall asset allocation in the model portfolios during the month of March.

As indicated in the previous *Monthly Letter*, we had reduced the Canadian and international equity exposure and used the proceeds to add to our positions in U.S. equities, gold, and agriculture. The moves were not dramatic, but in accordance with our conservative investment approach. The moves helped during a very challenging month.

Canadian equities were the most disappointing asset class during the month. We had a sense that the Canadian economy was becoming too dependent upon the consumer. Policies were more biased towards the consumer than they were towards business and capital growth. Perhaps what we saw in the past was being manifest in the underperformance of Canadian stocks versus U.S. and international stocks.

No changes were made to the asset allocations or the individual investments in the model portfolios during March.

We conducted a rebalancing of all the model portfolios back to their target weights towards the end of the month.

This adds some "dollar-cost averaging" effect.

[1] The asset allocation represents the current *target* asset allocation of the Balanced Model Portfolio as of 3/31/2020. The asset allocations of individual clients invested in this Portfolio may differ because of the relative performance of the asset classes since the last rebalancing and because of differences in the timing of deposits and withdrawals. The Balanced Model Portfolio is part of a sequence of five portfolios ranging from conservative to aggressive: Conservative, Balanced Income, Balanced, Balanced Growth, and Growth.

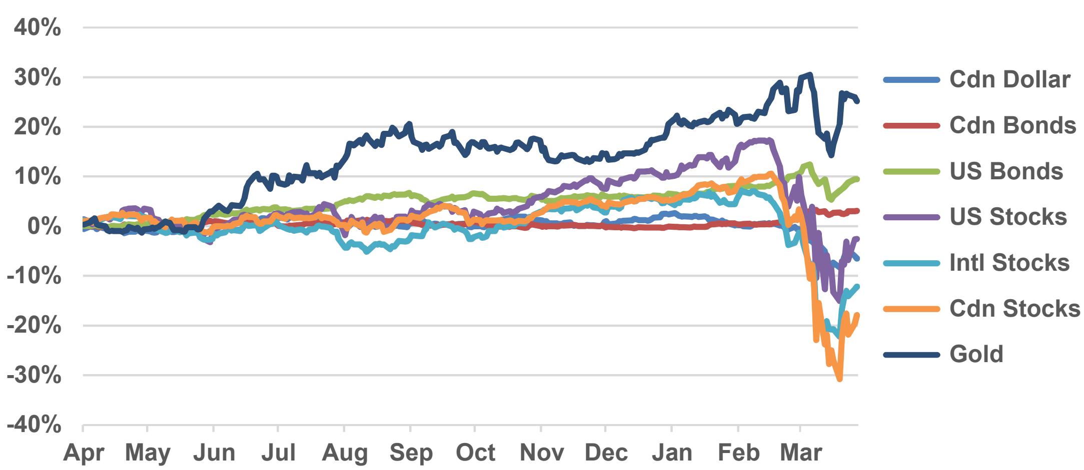
On the bright side, if there ever is such a thing at times like this, the Canadian dollar plummeted versus the U.S. dollar over the month. This was helped in moderating the declines in our investments that are denominated in U.S. dollars. It also helped gold, was actually higher during March when converted back into Canadian dollars.

With respect to the outlook, the stock and bond markets still have some distance to go before fair value pricing can emerge. Currently, we are seeing declines driven by fear based on uncertain headlines, selling to cover margin calls (which has caused selling in bonds and gold because they are the easiest things to sell), and low liquidity in some securities that would otherwise be considered quality investments. But also, we see "herd" buying as institutional investors feel for a bottom that they can't see but an optimistic signal (again, based on uncertain information and data) leads them to chase things higher. Government stimulus can cause some excitement, but it is so difficult to conceptualize in terms of its focus, breadth, and impact, that it will be a while before rallies on these kinds of headlines can be sustainable.

Below is the 12-month performance of the asset classes that we have used in the construction of The Charter Group's model portfolios. (**Chart 4**).[2]

Chart 4:

12-Month Performance of the Asset Classes (in Canadian dollars)



Source: Bloomberg Finance L.P. from 4/1/2019 to 3/31/2020

Canadian stocks generally underperformed U.S. stocks in March.

The decline in the Canadian dollar versus the U.S. dollar further widened the underperformance of Canadian stocks from the perspective of a Canadian investor.

Gold was higher during the month, especially when priced in Canadian dollars.

Markets are still in search of certainty. Negative news towards the end of the month seemed to help markets. At the least, it establishes a baseline with which to evaluate any positive news.

The best defense against retesting the stock market lows during March is a incremental progression of certainty going forward.

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[2] Source: Bloomberg Finance L.P. – The Canadian dollar rate is the CAD/USD cross rate which is the amount of Canadian dollars per one U.S. dollar; Canadian bonds are represented by the current 3-year Government of Canada Bond; US bonds are represented by Barclays US Aggregate Bond Index; U.S. stocks are represented by the S&P 500 Index; International stocks are represented by the MSCI EAFE Index; Canadian stocks are represented by the S&P/TSX 60 Composite Index; Gold is represented by the Gold to US Dollar spot price.

Top Investment Issues[3]

Issue	Importance	Potential Impact
1. U.S. Fiscal Spending Stimulus	Significant	Positive
2. Coronavirus Geopolitics	Significant	Negative
3. Canadian Dollar Decline	Moderate	Positive
4. Canadian Federal Economic Policy	Moderate	Negative
5. China's Economic Growth	Moderate	Negative
6. Short-term U.S. Interest Rates	Moderate	Positive
7. Canada's Economic Growth (Oil)	Moderate	Negative
8. Deglobalization	Medium	Negative
9. Global Trade Wars	Medium	Negative
10. Long-term U.S. Interest Rates	Light	Negative

[3] This is a list of the issues that we currently deem to be the ten most important with respect to the potential impact on our model portfolios over the next 12 months. This is only a ranking of importance and potential impact and *not* an explicit forecast. The list is to illustrate where our attention is focused at the present time. If you would like an in-depth discussion as to the potential magnitude and direction of the issues potentially affecting the model portfolios, I encourage you to email me at mark.jasayko@td.com or call me directly on my mobile at 778-995-8872.

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The Charter Group is a wealth management team that specializes in discretionary investment management. For an annual fee, we manage model portfolios for private clients and institutions. All investment and asset allocation decisions for our model portfolios are made in our Langley, B.C. office. We do not outsource any of the decision-making for our model portfolios – there are no outside actively-managed products or funds. We strive to bring the best practices and the calibre of investment management normally seen in global financial centres directly to the Fraser Valley and are accountable for the results.

Accountability is further enhanced by the fact that we commit our own investable wealth to the same model portfolios in which our clients are invested.

The information contained herein is current as of March 31, 2020.

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