Thinking in Scenarios Improves Forecasts

Making accurate predictions based on historical precedent is flawed, but thinking in scenarios reduces uncertainty.

This month, as forecasters predict what the new year will bring, many of them will reflect on how tough a year 2016 was for forecasts. Based on what was considered most likely to happen, most didn't expect Brexit or a Donald Trump presidency in the United States, nor even Bob Dylan winning the Nobel Prize in Literature. As is typical for forecasters who focus on predicting one outcome, the majority went with the most likely case based on what they'd seen before.

Equity analysts behave in a similar fashion when estimating the target share price forecasts of the firms they cover. Most investment reports don't publish formal risk assessments. Analysts typically provide investment recommendations in the form of a buy, hold or sell call, often derived from a fundamental analysis of the firm's intrinsic value and its projected cash flows. However, existing research finds that while target prices do convey information, they also seem to be optimistic, inaccurate and of little long-run investment value.

In my recent paper published in the *Journal of Financial Economics*, **Can analysts assess fundamental risk and valuation uncertainty? An empirical analysis of scenario-based value estimates**, my co-authors and I find that there is a better way to present a fuller picture of future possibilities by putting multiple scenarios on the table, instead of limiting predictions to a single-point outcome.

We used the setting of equity research to demonstrate this. We find that scenario-based forecasting helps analysts improve the overall risk picture surrounding the firms in their coverage as well as enhancing their forecast accuracy and reducing their optimistic biases.

Using a unique dataset of scenario-based valuation forecasts issued by U.S. sell-side analysts from 2007 to 2010 at Morgan Stanley, my co-authors and I explore what happens when analysts are asked to supplement their existing forecasts of target prices with additional scenario-based valuation forecasts.

Bear, bull and base cases

Since January 2007, Morgan Stanley analysts have been required to provide three scenario-based forecasts as part of their investment reports; a bull case, a bear case and a base case valuation. These three cases take into account different possible outcomes for the companies they cover, such as competition, new product launches, regulatory changes, changes in market demand and macroeconomic conditions.

We find that giving a "spread", a width of possible

valuation ranges showing a report's upside and downside valuation forecasts, captures a fuller picture of the fundamental riskiness of the firm's operations and its long-run valuation. For example, in our study, larger spreads were associated with large changes to the firms' fundamentals in the year following the release of the analyst report, illustrating how the spread of possible outcomes accounted for the potential of challenges down the line. For firms with more uncertainty, the spread is wider. A narrower spread shows greater conviction and less uncertainty on behalf of the analyst.

This is crucial in light of the fact that analysts often display an inherent optimistic bias in the firms they cover. Although this bias in their base case scenarios remained throughout our study period, the inclusion of the spread provided a fuller picture of what analysts thought the future had in store for the firm.

How a crisis changes the picture

Our dataset also gave us a unique opportunity to examine how the financial crisis changed the way analysts modelled risk. Our results indicate that while analysts retained their optimistic forecast bias post-crisis, they began placing greater weight on the firm's systematic risk exposure and less weight on factors contributing to optimism when modelling spreads. This allowed for better calibration of their models and better forecasting of the risks involved to companies at the time.

Our research demonstrates the value of thinking in scenarios. When forecasters extrapolate given patterns, they often end up confronted with 'surprising' outcomes. The fact of the matter is that once the prospect of a President Trump and a Brexit had been put on the table, they were always potential outcomes and even strong possibilities. The current business of forecasting encourages strong convictions in very particular outcomes which can lead to overconfidence, something that has been commonly shown to be inferior to open-minded forecasting.

When forecasters are asked to explore the possible outcomes they otherwise would not have thought about, they are able to take more factors into account to allow for upsets to their base case scenario. This not only helps to allow for uncertainties, but reduces optimistic biases, improving overall forecasting.

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