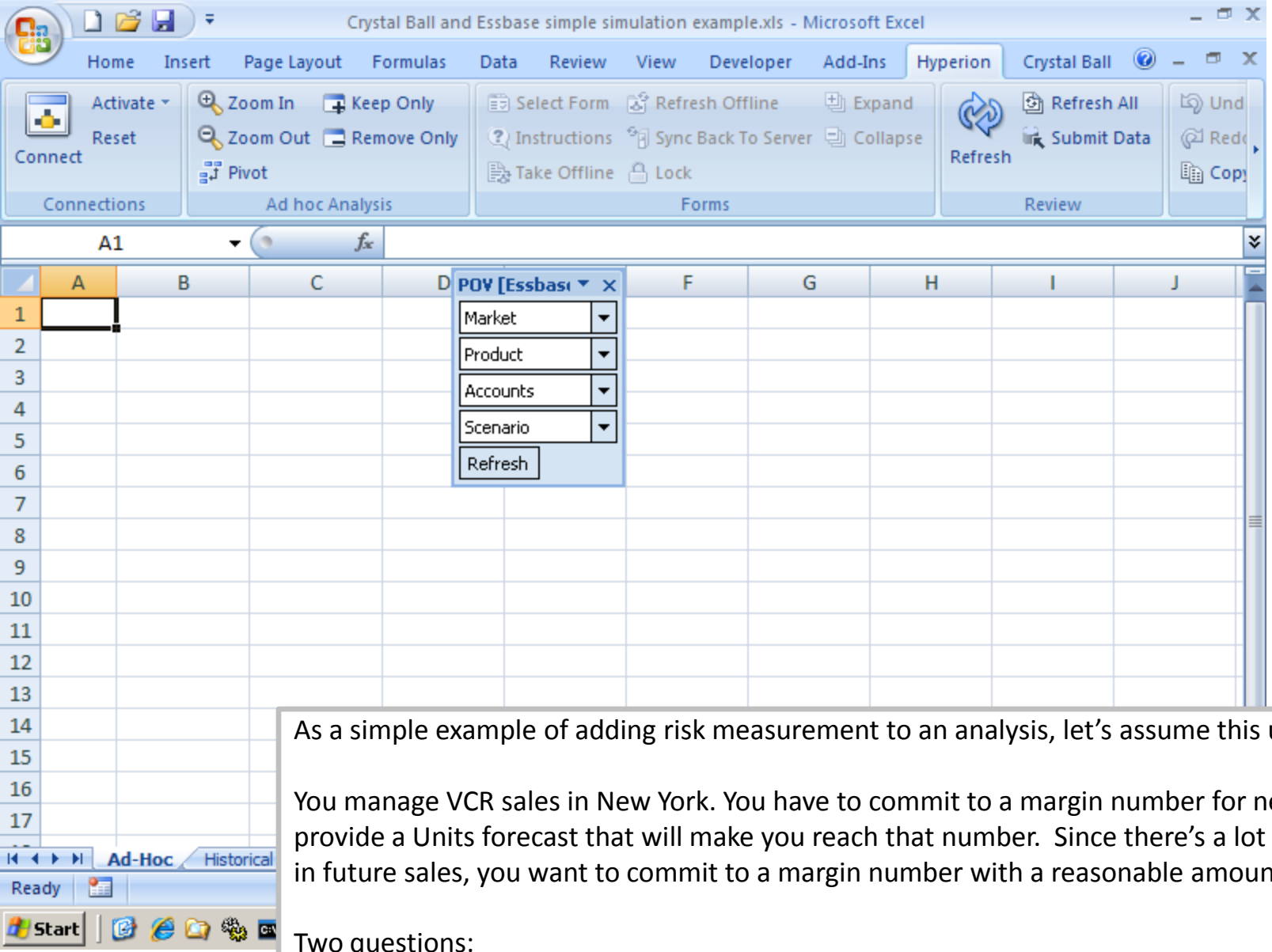
ORACLE

Adding Risk Measurement to Enterprise Performance Management Analytics

A short demonstration of Oracle Crystal Ball and Hyperion Essbase

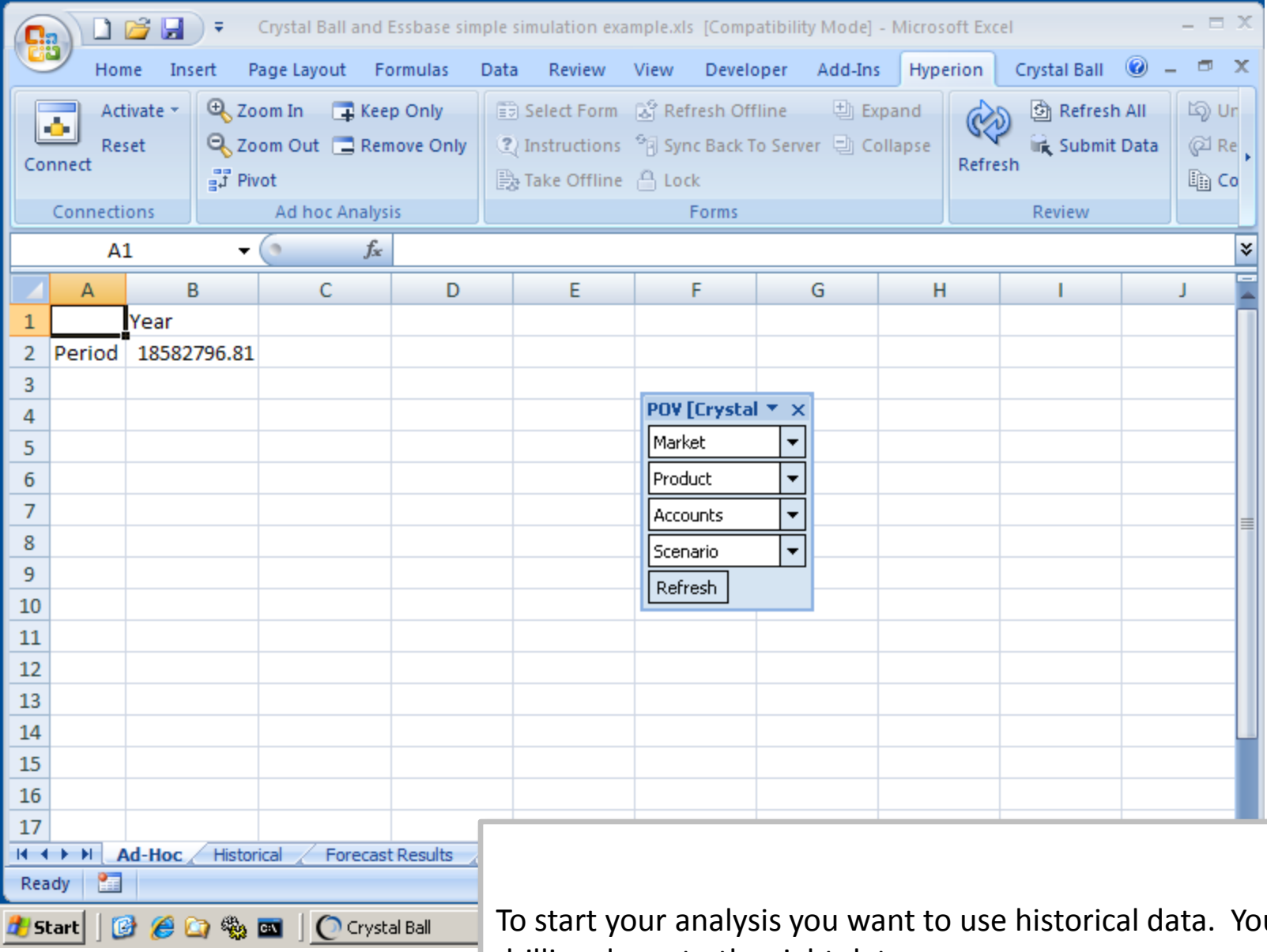


As a simple example of adding risk measurement to an analysis, let's assume this use case:

You manage VCR sales in New York. You have to commit to a margin number for next year and provide a Units forecast that will make you reach that number. Since there's a lot of uncertainty in future sales, you want to commit to a margin number with a reasonable amount of risk.

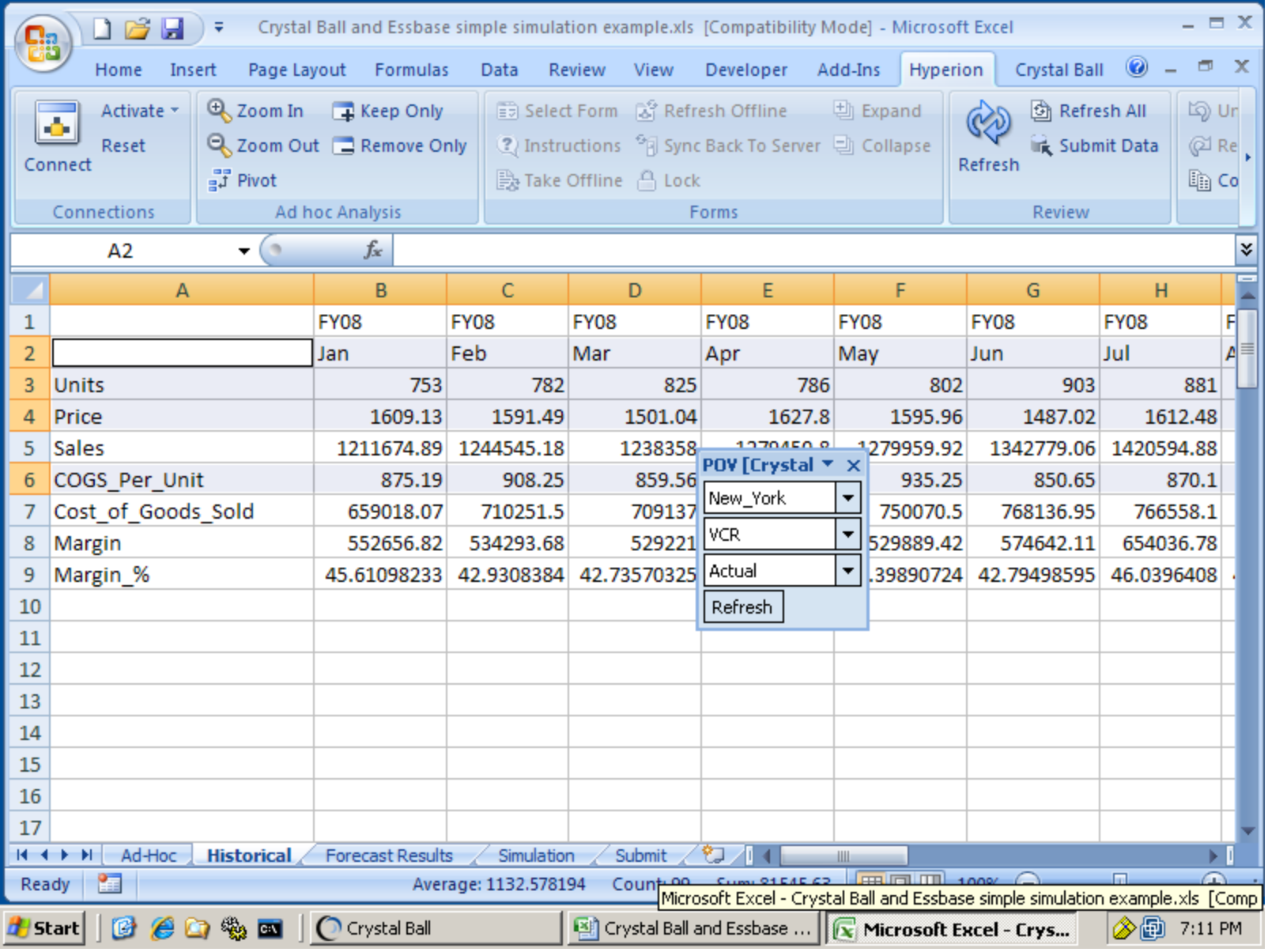
Two questions:
1- What margin number should you commit to, to be 80% confident of hitting your number
2- How many units should you forecast to get to that margin?

Let's show how a quick risk analysis easily answers those questions without changing your daily workflow.

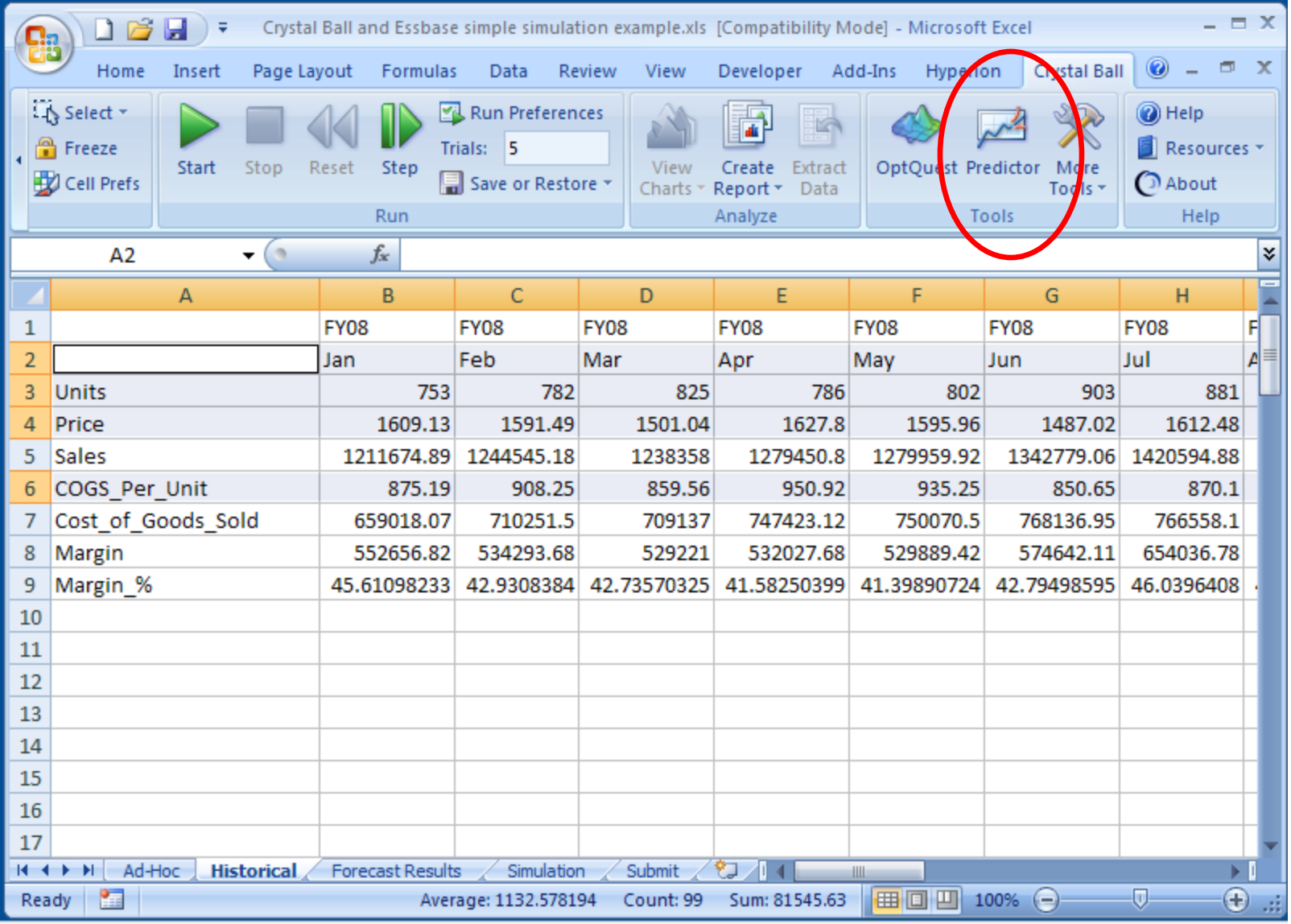


To start your analysis you want to use historical data. You can get this by drilling down to the right data.

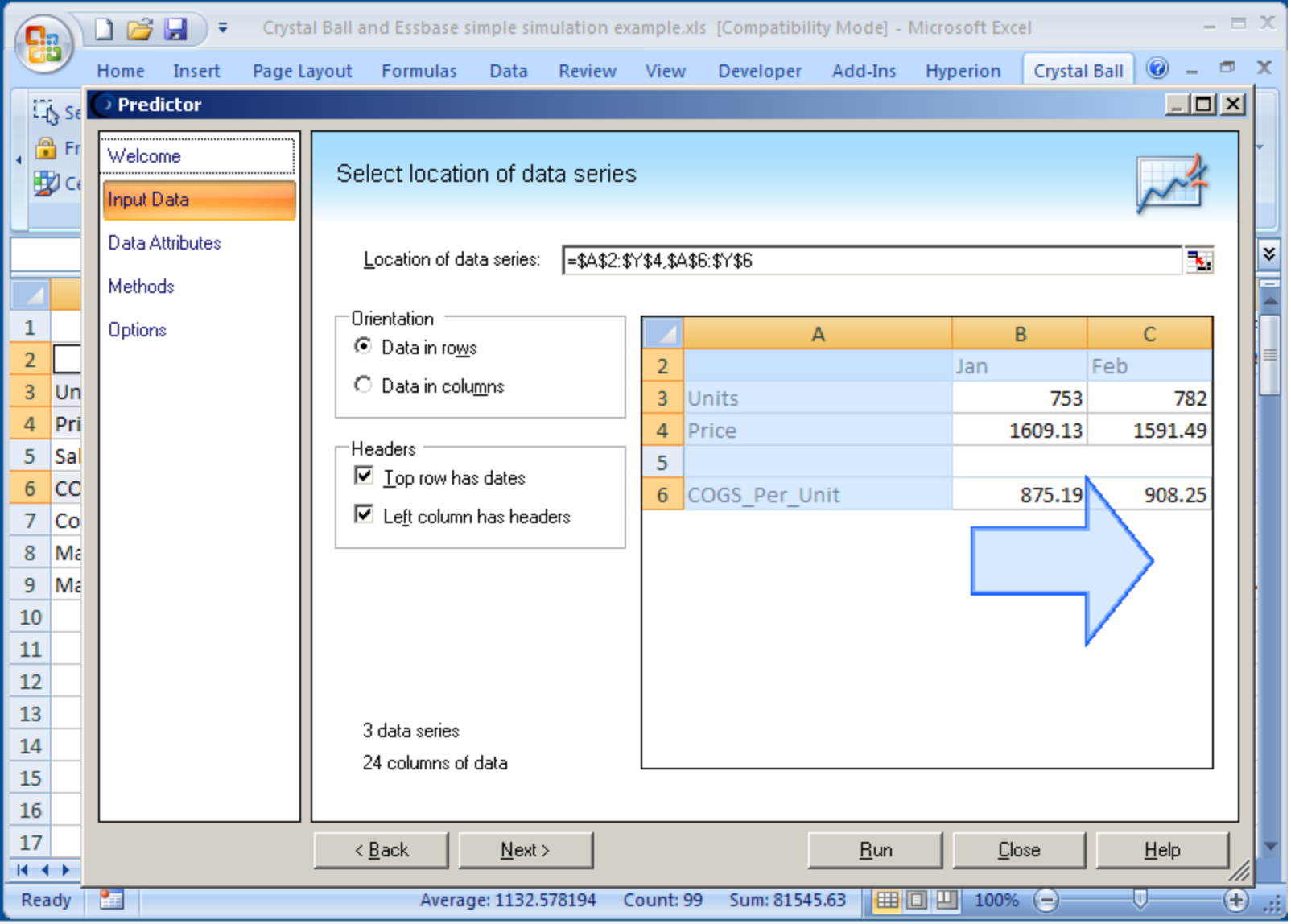
In our example, we will use Excel as our working interface.



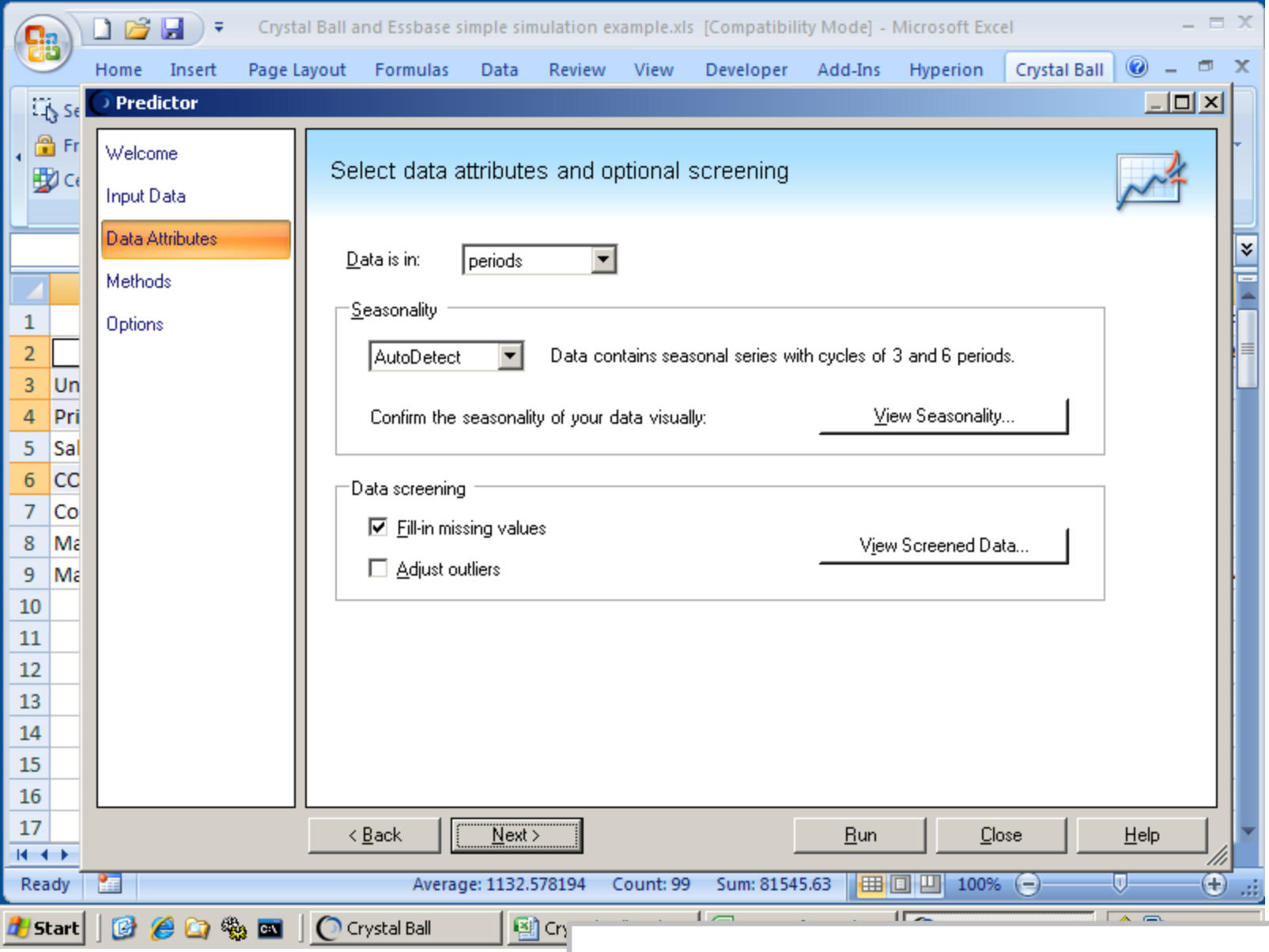
Using an ad-hoc analysis, we drill down the relevant data for our region.



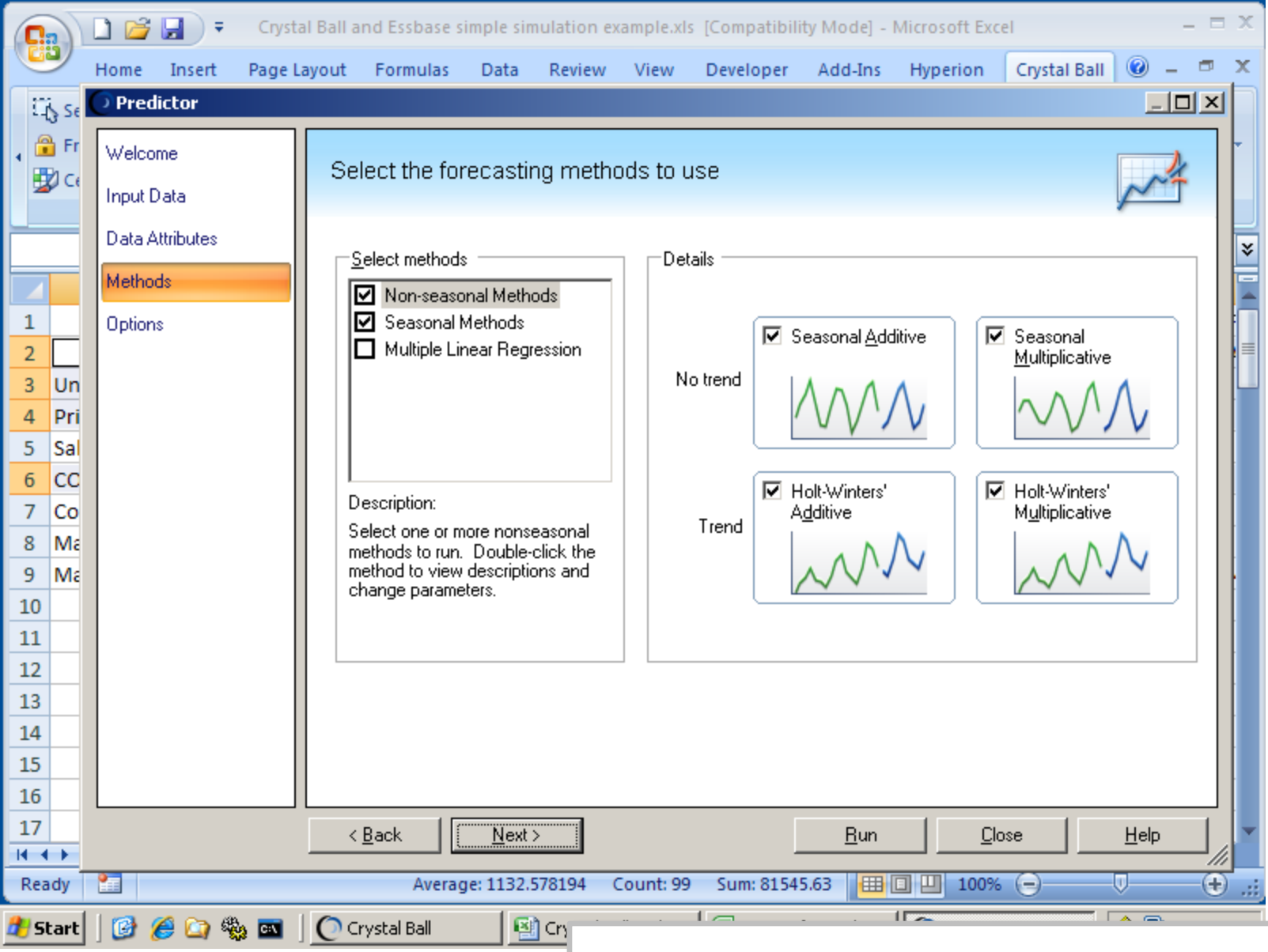
Since we want to use historical data to get a sense of what the future could hold, let's run a time-series analysis on the data to forecast the next quarter. We use a tool called CB Predictor.



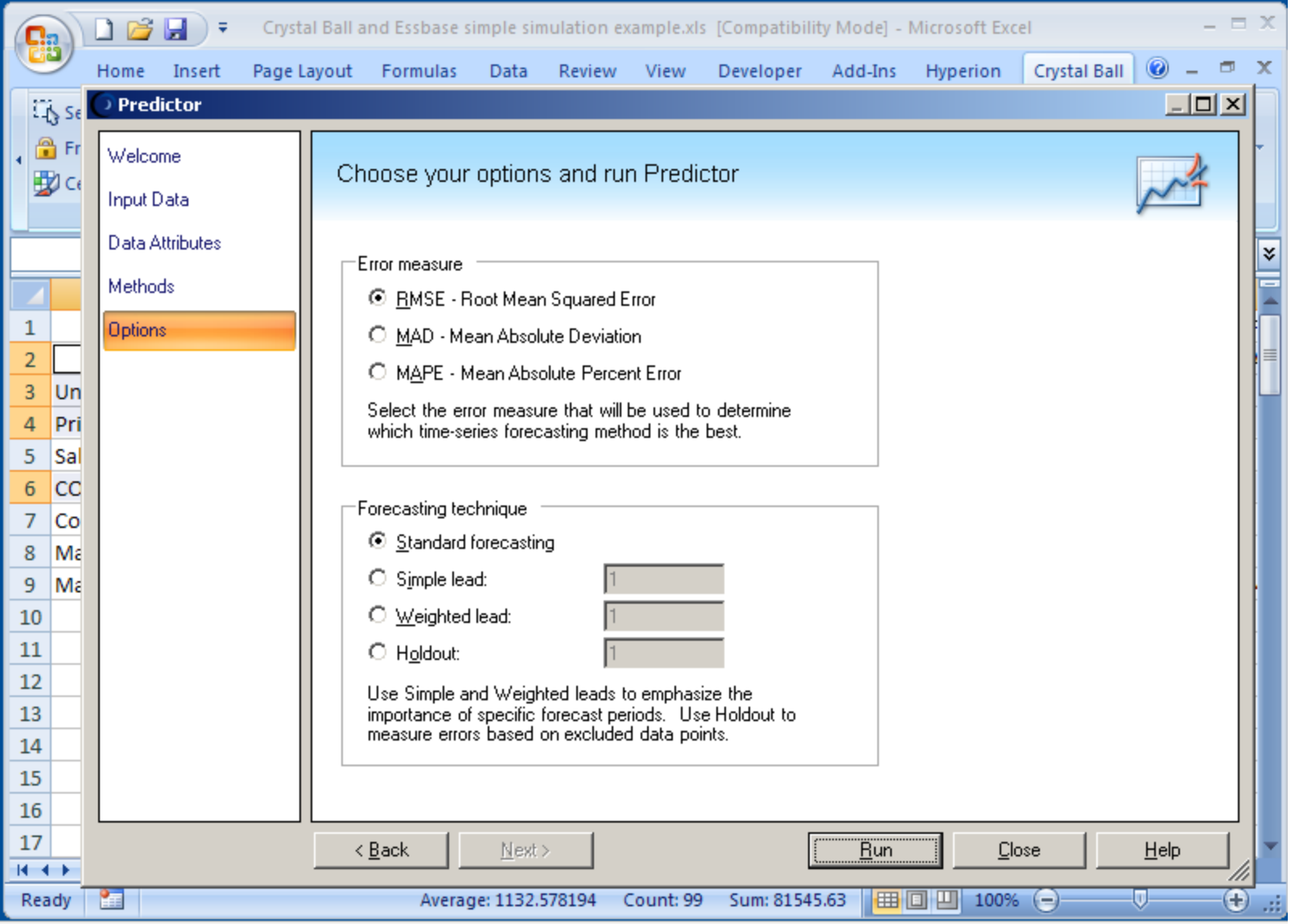
Predictor grabs the data sets of historical data



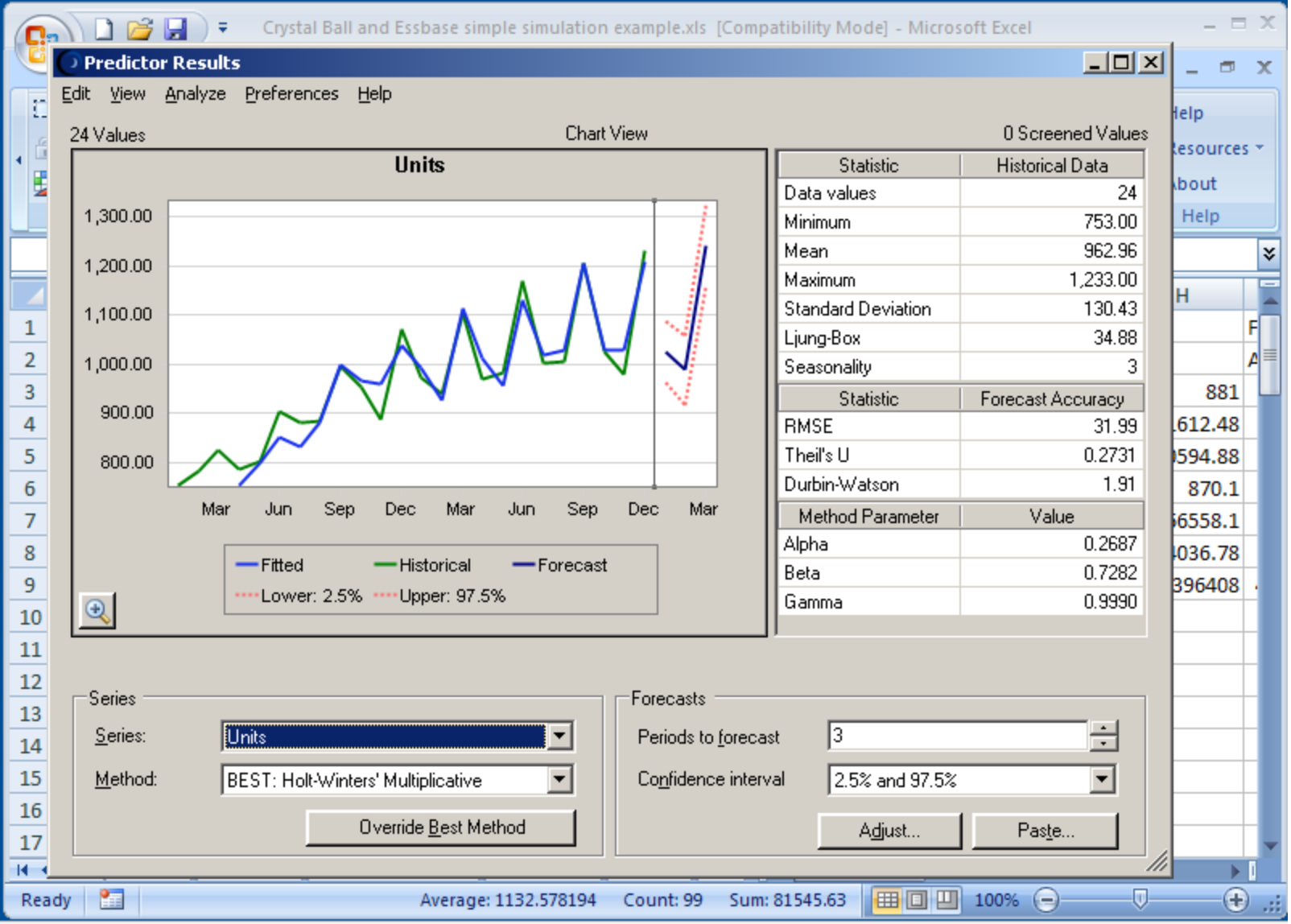
It will auto-detect seasonality (i.e. regular ups and downs)



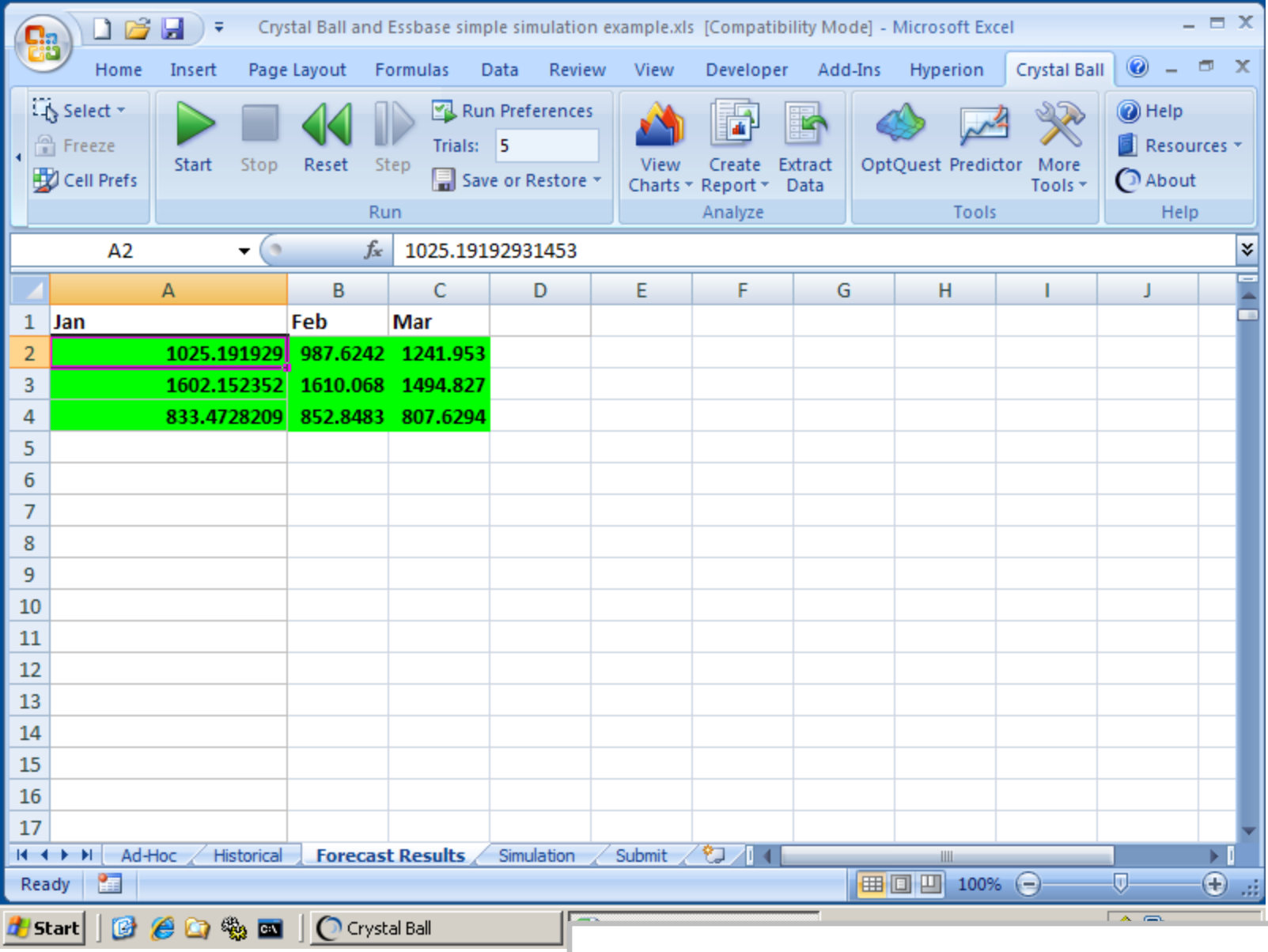
It will apply multiple methods to find the best fit for the data and then use that method to forecast the next quarter



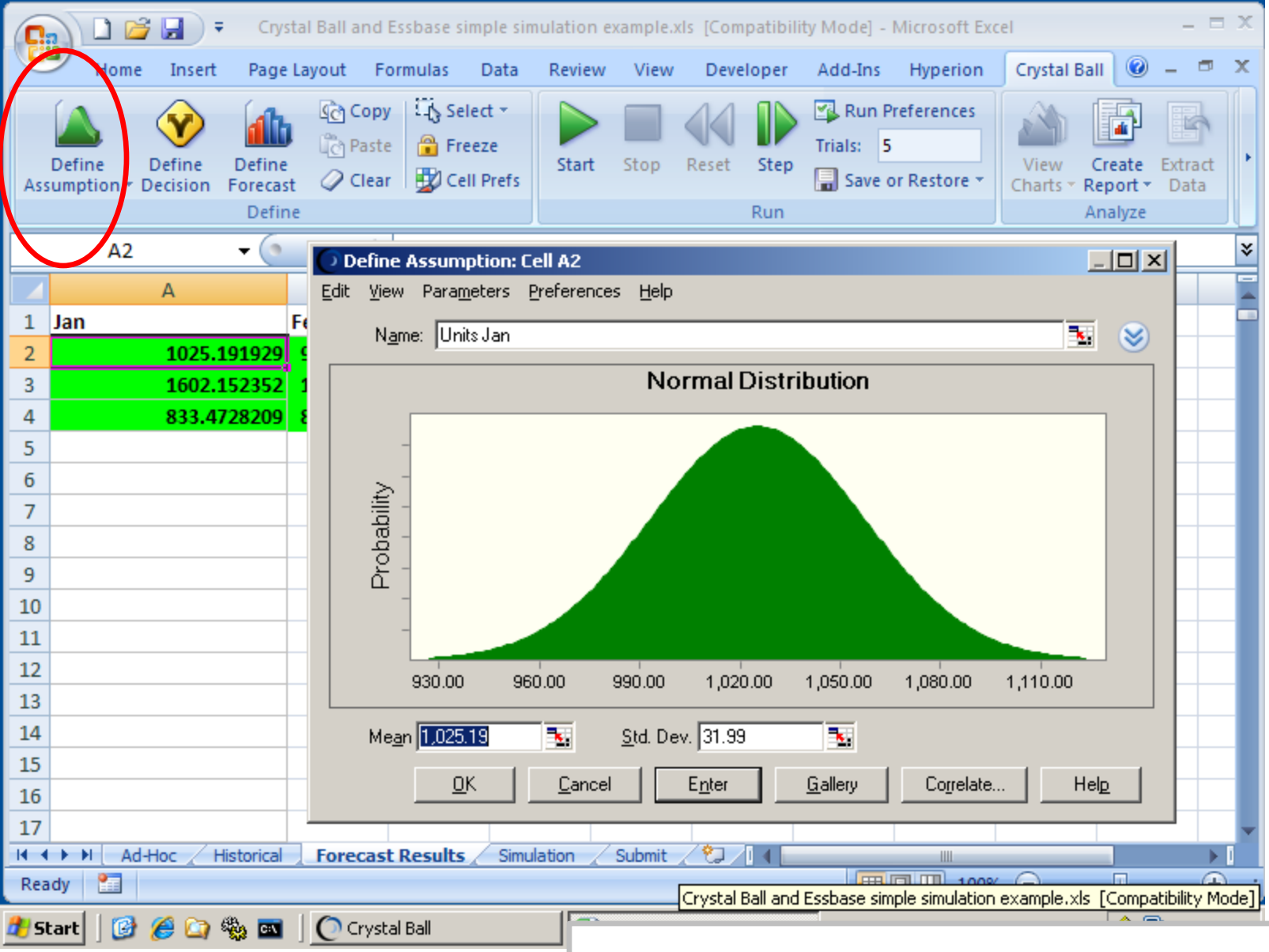
You can choose which forecasting technique to use and error measure



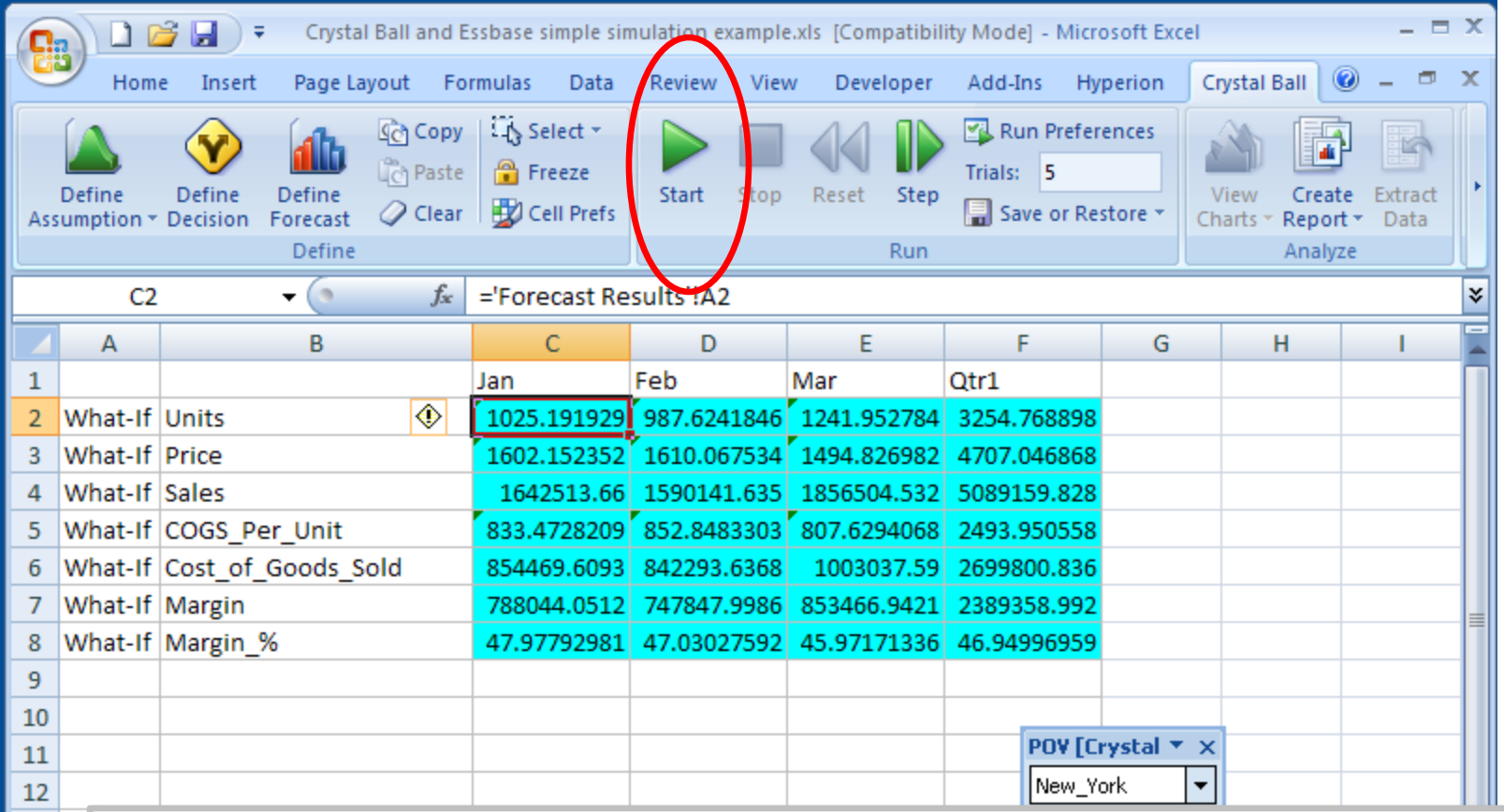
The chart shows the historical data in green on the left, with the blue line representing the best fit method. The darker blue link on the right shows the forecast for the next quarter based on that method, bounded by a confidence interval.



The software automatically outputs our next 3-month forecast and creates input assumptions for our risk modeling. The assumptions are defined as ranges of values, instead of single point estimates. This will be useful in a moment when we run our risk analysis.



This shows that for January, we expect to sell about 1025 units, but there's a range around that forecast. Could be as little as 930 or as much as 1110



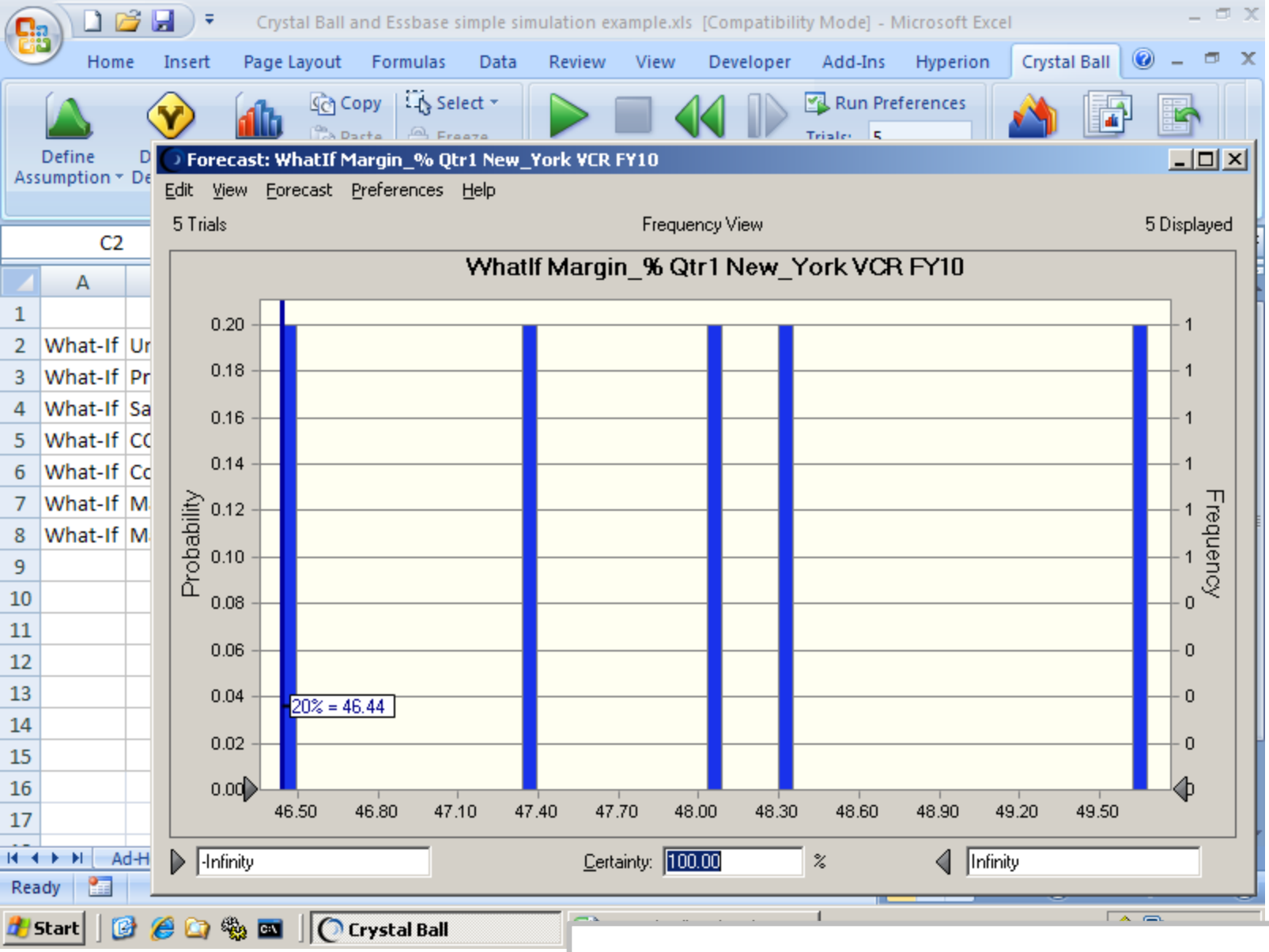
	A	B	C	D	E	F	G	H	I
1			Jan	Feb	Mar	Qtr1			
2	What-If	Units	1025.191929	987.6241846	1241.952784	3254.768898			
3	What-If	Price	1602.152352	1610.067534	1494.826982	4707.046868			
4	What-If	Sales	1642513.66	1590141.635	1856504.532	5089159.828			
5	What-If	COGS_Per_Unit	833.4728209	852.8483303	807.6294068	2493.950558			
6	What-If	Cost_of_Goods_Sold	854469.6093	842293.6368	1003037.59	2699800.836			
7	What-If	Margin	788044.0512	747847.9986	853466.9421	2389358.992			
8	What-If	Margin_%	47.97792981	47.03027592	45.97171336	46.94996959			

Here we've created a "what if" scenario in our Essbase application. We'll use this to run our analysis before committing to a margin number.

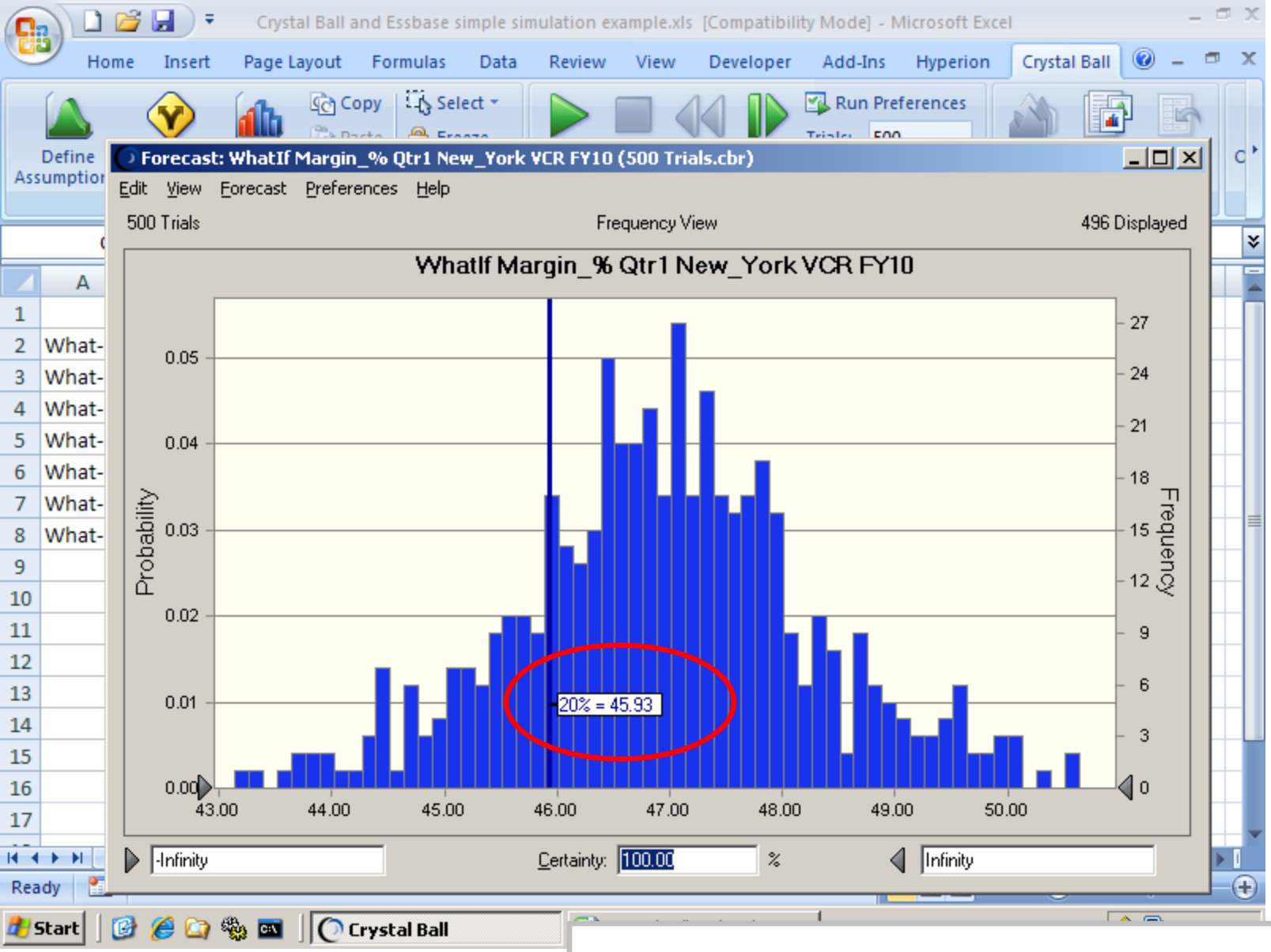
What we're going to do now is run 500 different trials, each using a different input from our variable assumptions. What this will give us is a complete range of all the possible outcomes – the forecast – from which we can compute our statistics and answer our questions:

1- What margin should I commit to, to be 80% confident of achieving it
2- How many units should I then forecast

Let's run what's called a Monte Carlo simulation to automatically calculate all those trials.

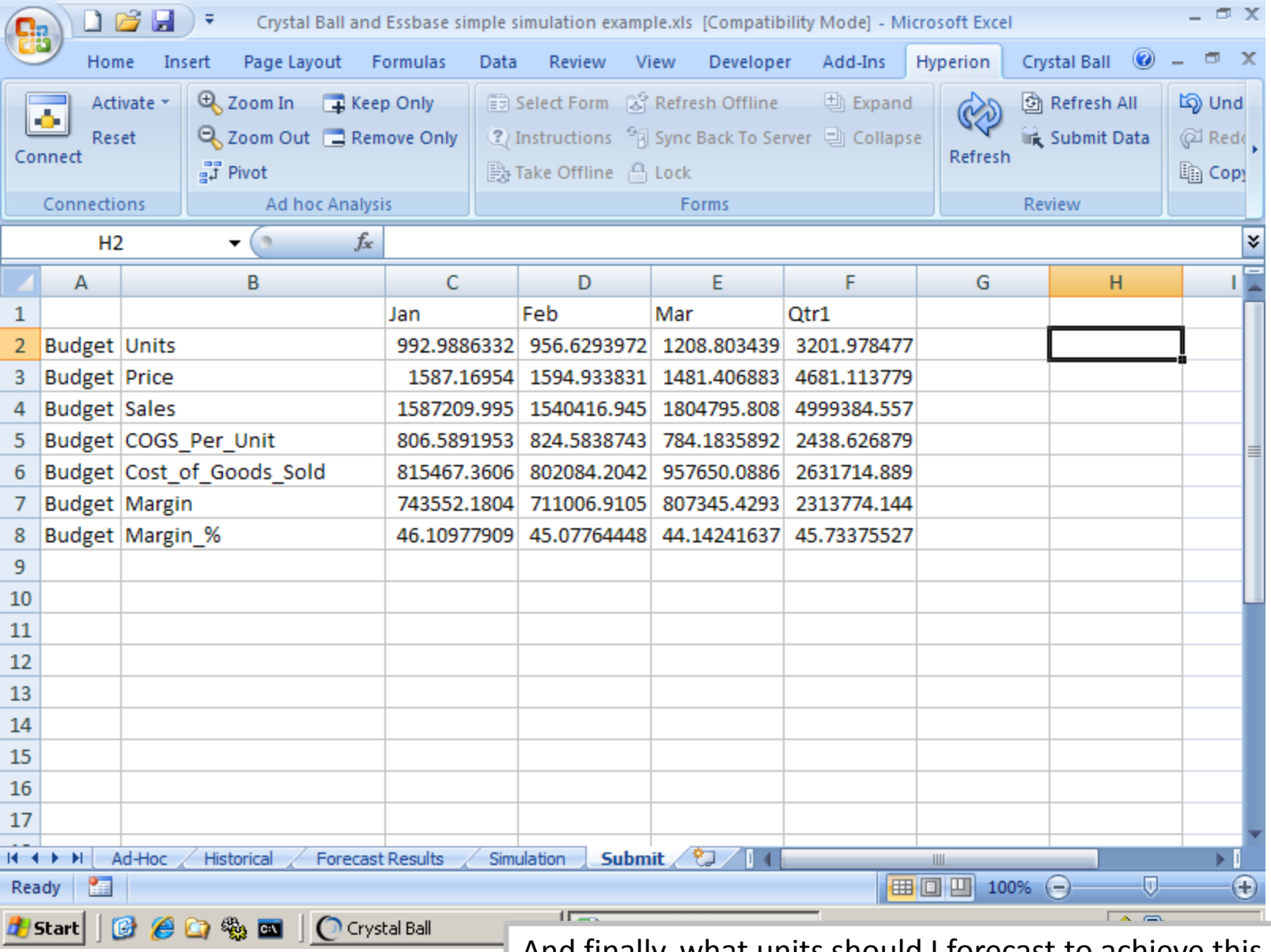


The first 5 trial s show that there is indeed a broad range of outcomes. Let's finish running the 500 trials.



Once the simulation completes, we can answer our first question:

What margin should I commit to, to be 80% confident of achieving it? The answer: 45.93%



And finally, what units should I forecast to achieve this number?

To answer that, we preset the software to automatically extract the 20% numbers for the units, price and COGS, so these now get submitted to our “budget” scenario.

- In our demonstration, we've just seen that adding the ability to measure the uncertainty – the risk – around forecasting numbers will improve the accuracy and confidence around those numbers.

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