

FORECASTING FOR PROFITS

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Forecast Accuracy

Increased forecast accuracy will greatly assist weather market participants' abilities to earn profits in the weather business. Short and Medium Term forecast accuracy has improved greatly over the last three years. These shorter-term forecasts currently aid the current weather market players in "tweaking" their current positions as the winter or summer season unfolds. Market players analyze their current weather positions, their current physical exposure if any (actual selling of electricity or natural gas), and the current forecasts to determine how well their weather book is performing. Short-term forecasts can indicate that some previously put on profitable trades are no longer as profitable or possibly even indicating a loss position. As a result, hedging actions can be taken to wholly or partially eliminate this change in profitability.

The ability to increase the accuracy of Long Term forecasting can be considered the "Holy Grail" of the weather market. Apart from all of the other tangible benefits of accurate long range forecasts such as better party and vacation planning, safer travel, and increased intelligence for meteorologists-accurate long range forecasts can translate into significant profits for weather market players. If technology can be developed to accurately assess temperature and precipitation levels and that technology was proprietary to some in the weather market, then those companies would have a decided advantage in securing profits in the weather market.

Historical Measurements and Data

Another important aspect in participating in the weather market is the accuracy and consistency of the historical temperature and precipitation readings. In order to profitability model weather and assess reasonable values to the contracts traded, the data used as a basis for these calculations needs to be accurate and consistent. In the U.S., the governmental agencies have done a good job in collecting and archiving the temperature and precipitation readings at most of the major sites around the country.

And since the government has controlled the process, the equipment used and the readings obtained are fairly consistent from city to city. This is vital for the weather market's existence otherwise two counterparties would never be able to agree on a deal's economics if these two parties were looking at two different data sets for the same city.

Changes in location of weather stations and changes in the instrumentation used to collect weather data pose their own problems in the consistency of this data. The changeover to ASOS recording devices has caused some uncertainty for the weather market. The new devices are in some cities being back tested to see if the change in instrumentation is causing temperature and precipitation readings to vary simply because of the technology. If this is determined to be true, then market participants will have to adjust their models accordingly to account for these differences. A change in the location of the measuring device can either have no effect or a very meaningful effect on the future readings compared to the site's history. In some cities that have moved their measuring device, the new readings have caused some severe swings in historical trends. If, for example, a site was moved to a higher elevation, a shadier area, or right next to black asphalt, the readings could differ significantly from their historical patterns with no real change in climate. As a result, depending on a company's modeling techniques, transactions entered into without some accounting for these differences can cause significant losses.

Derivative Products

Approximately 90% of the weather derivative contracts sold today are temperature based. Predominantly, these contracts are either Heating Degree Day structures for winter or Cooling Degree Day structures for summer. There have been a few critical day contracts, which are based upon either the actual average temperature for the day or the minimum or maximum temperature for the day. Forecasting capabilities in degree day formats will enable the market participants to have forecasts that match exactly with the contracts that they are writing. Some companies today already provide such a service. If this technology can be refined then as the weather market grows, so will the

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opportunity for those providing such services expand and become very lucrative.

The balance of the weather derivative contracts sold are either precipitation based—snow or rain—or combinations of temperature and precipitation. The main purchasers of these contracts are municipalities, agricultural companies, and theme parks. Theme parks are concerned if it rains or is both cold and rainy in the summer. Agricultural companies are concerned if there is too much rain at harvest time or too little rain during the growing season. Municipalities are concerned if there is too much snow and their snow budgets get exhausted before the winter has finished. As these contracts represent just about 10% of the current derivative market, the next question to be asked is why? Is this just a small niche market or will it grow? The learning curve required for many of the type of companies listed above is steep when it comes to deciding whether or not to spend money never spent for hedging the weather. But, however, if there were accurate forecasting capabilities available, this would greatly aid their analysis and at the same time enable these organizations to make a more informed decision about their weather exposed operations. Remember there are many theme parks and municipalities sprinkled throughout the United States, so this 10% could easily grow to 25%-35%.

Insurance Products

For those organizations and individuals afraid of the “D” word, weather protection can be purchased as an insurance policy. An insurance policy can allow for more flexibility than a derivative, which is generally written, based upon the International Swaps and Derivatives Association guidelines. A policy can be crafted to meet exact specifications of a customer’s concerns complete with multi-triggers that will indicate which events in addition to weather will cause a payment to be made to the insured. Also, if structured correctly, the policy will receive insurance accounting treatment in contrast to a derivative, which is subject to mark to market requirements as well as capital gains tax treatment.

In its simplest form, a buyer pays a premium for the right to collect if certain weather events cause the buyer to suffer a financial loss. A more complex policy can be structured where the buyer not only pays an initial premium for protection, but also under certain weather conditions pays additional premiums if the weather is extremely favorable to its business. This latter approach assists a client in smoothing out its cash flow by sharing some of the benefits of a hotter than normal summer or a colder than normal winter for companies selling

electricity or natural gas respectively. The reason a company would agree to give away some of its upside is, in return, this company would pay less than market value for the insurance protection that protects it from unfavorable weather conditions. Once again, if better forecasting information and technology is available, the difficulty of some of these decisions is eliminated and companies can design structures exactly to their risks.

Conclusion

The weather market is growing rapidly and there are different types of companies getting involved. From the early energy and insurance organizations, to the theme parks and municipalities, to most recently the regulated utilities and investment banks. This market presents great opportunities—especially for those organizations or individuals that can come up with forecasting skills and models that can provide a competitive advantage. Apart from just thinking of meteorology as an art/science which is based on forecasting the weather—this profession can now be transformed to one in which you can FORECAST PROFITS!