Potential Applications for Weather Derivatives in Managing Fiber Supply Risk

Brooks C. Mendell¹, Michael L. Clutter and David H. Newman

Price volatility, unplanned mill downtime, timber harvest regulations and surprise log truck inspections can lead to disruptions of expected wood flows. Fortunately, most of these disruptions can be mitigated through inventory management and good communication. However, catastrophic or severe weather events can exceed the management abilities and operational flexibility of the most talented wood supply organization. Recent weather-related woodfiber shortages at major Southern pulp and paper mills highlight this risk. We explore the potential of “insuring” against bad weather using exchange-traded, temperature-related weather derivatives. Specifically, we ask "how might weather contracts help minimize financial exposure for wood supply managers in the forest products industry?"

Weather risk is “volumetric” risk, representing the potential impacts on earnings and cash flow from changes in volume. Weather protection takes two primary forms: insurance and derivatives. Insurance policies exist for catastrophic weather events or “business interruption.” Alternately, financial derivatives hedge, or protect from, certain types of weather risk. Derivatives, financial tools that include options and futures, are contracts that get their value from underlying assets such as stocks or oil or mortgages. These contracts enable buyers to lock in prices for future sales or purchases.

Weather derivatives, available since the mid 1990’s, typically payoff based on changes in temperature, snowfall or precipitation. Initially, these contracts traded over-the-counter (OTC). Since 1999, however, weather contracts have been available on the Chicago Mercantile Exchange (CME).

Users of weather derivatives include farmers, energy firms, ski resorts and theme parks. Any firm that can establish a clear connection – a strong and significant correlation – between weather changes and revenue may find weather derivatives useful.

In the forest products industry, potential applications for weather derivatives include tree planting, logging and log hauling, wood procurement and log inventories. Already, some building contractors use weather derivatives for projects with sensitive deadlines.

Weather derivatives have limitations. First, exchange-traded weather contracts are available in only ten U.S. cities, which make their use limited for typically urban forestry activities. Second, weather derivatives continue to face pricing issues. Third, measuring the need and performance of weather derivatives for day-to-day users remains challenging.

¹ Research Assistant, Center for Forest Business, Warnell School of Forest Resources, University of Georgia, Athens, GA. bcm3407@forestry.uga.edu , 706.542.4298 (o)
LITERATURE CITED


