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WHAT EVERY CFO NEEDS
TO KNOW NOW ABOUT
WEATHER RISK MANAGEMENT

ABOUT THE AUTHOR

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ABOUT THE SPONSORS

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INQUIRIES

This paper references findings from the 2008 Benchmark Study on Corporate Weather Risk Practices, sponsored by the CME Group and Storm Exchange to discover and illuminate current corporate perceptions, practices and plans for managing and mitigating weather risk.

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I. SUMMARY

Corporate America has a keen new focus on risk management. Unfortunately, it suffers from a blind spot. Year in and year out, companies in a wide range of industries blame adverse weather conditions for their failure to meet sales and profit targets. No hard data has been collected on the phenomenon, but anecdotal evidence abounds.

Now, in a new benchmark study on corporate weather risk management practices commissioned by the CME Group and Storm Exchange, Inc., a decisive majority of senior finance and risk managers confirm that their businesses are significantly impacted by the weather. A stunning eight out of ten warn of a new risk: that the emergence of global climate change and accompanying volatile weather patterns will require changes to their business models in the decades ahead.

But most companies are only just beginning to discern a path to managing weather risk for improved performance. Indeed, a scant ten percent of finance and risk executives say their companies take advantage of readily available financial tools for hedging weather risk today, and only about 12 percent say they plan to do so in the years ahead. Seldom have executives been so like-minded in recognizing a threat to their business, yet seemingly uncertain about addressing it.

Recent developments make this state of affairs increasingly unsustainable. One is the credit crunch that has erupted from the sub-prime mortgage crisis, making it harder for companies to address weather-related earnings shortfalls through cash reserves or bank credit. Another is the volatile behavior of the weather itself, whether linked to climate change or cyclical phenomena. Yet another is the stubborn propensity of human beings to challenge Mother Nature: witness the continued building of residential communities in desert locales at high risk for wildfire danger or along coastlines that routinely take the full brunt of violent hurricanes.

In the face of such developments, the growing probability that the earth is gradually but inexorably warming due to the release of greenhouse gases is just another in a long line of catalysts that mandate a new approach to managing weather risk. The imperative to manage the business risks associated with the weather right now is one that CFOs and corporate risk managers can no longer afford to ignore. At a time when C-suite executives and corporate boards are expressing a new commitment to enterprise risk management, and at a time when regulators and shareholders are demanding it, finance and risk managers will need to take advantage of the tools and markets available to them to manage weather risk.

I. SUMMARY

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These tools include information services to help isolate and quantify weather on the income statement, forecasts to anticipate problems before they arise and financial strategies to hedge the unexpected.

Especially when applied in combination, these tools offer companies an opportunity to improve their bottom line today, not tomorrow, by mitigating a widespread and ever present risk. This paper explains how. Along the way, it highlights new insights from the CME Group and Storm Exchange sponsored benchmark study of senior financial executives and risk managers on the topic of weather risk management, including these key findings:

- 21 percent of benchmark study respondents say their companies are "highly exposed" to risks stemming from weather volatility that, in the worst case, could have a severe impact on their financial performance. Another 38 percent say their companies are "very exposed" to weather volatility and need protection from it.
- Nearly half of energy and agricultural companies say they believe the weather has become more volatile. Other industries appear to be less attuned to the climate changes taking place. Only eight percent of retailers, for example, say the weather has become more volatile.
- Energy is the lone industry in which companies have made a systematic attempt to quantify the impact of weather volatility on their business, with 74 percent saying they have done so. By contrast, only about a third of agriculture and retailing businesses have made the effort.
- A majority—51 percent—of survey respondents concede that their companies are not well prepared to cope with the day-to-day economic risks of the weather.
- Only 10 percent of survey respondents say their companies have used weather risk management tools, but the figure is significantly higher—35 percent—for energy companies.
- Of the companies that have used weather hedging tools, 86 percent say they were useful, and 72 percent say they will continue to use them over the next three years. ■

II. WEATHER RISK MANAGEMENT TOOLS ARE BEING IGNORED

In the summer of 2007, a parade of retailers reported disappointing earnings for their fiscal first quarter. They didn't blame bad fashion choices, poor merchandising or a tough economy. They blamed the weather.

It didn't have to happen. More than a decade ago, innovative energy traders began developing options contracts that could be used to hedge their financial exposure to unseasonably mild winters and cool summers. Today, both in over-the-counter transactions and at CME Group, weather derivatives are widely available to companies that wish to insulate their financial results from the impact of a wide variety of weather variables, including temperature, precipitation and wind. Yet outside the energy industry, relatively few companies are using these new tools even though they routinely employ similar instruments to hedge currency, interest rate, and commodity risks.

The benchmark study of corporate weather risk practices suggests some possible explanations for their reticence. While many companies candidly concede the fact when adverse weather conditions cut into their profits, few know with any degree of reliability just how sensitive their businesses are to the weather. More than half of risk managers and finance executives surveyed say they haven't even tried to measure it. Just over half of those surveyed appear to believe that it wouldn't matter if they did, since they contend that weather risk can't be managed. This suggests either that they don't know that solutions are available, or that they haven't been convinced of their effectiveness. While the former possibility may reflect the relative youth of the weather risk market, the latter may speak to the weather market's own failure to educate finance executives and risk managers about the value of the products available. If so, it represents a disappointing failure, given that among those companies that have used weather derivatives, more than 86 percent have found them to be a useful risk management tool.

To be fair, CFOs and treasurers who remain unfamiliar with weather derivatives can cite plausible reasons why weather risk has not been a higher priority. During the decade that the weather market was developing, finance executives had both greater maneuverability and more alternatives to manage unplanned revenue shortfalls or cost increases arising from adverse weather. When the first weather hedges were deployed in the late 1990s, for example, U.S. companies were riding the crest of a supercharged economy, one in which the impact of miscalculated or overlooked risks could be obscured by fast-growing corporate profits and the easy availability of bank credit. In such an environment, finance executives often found themselves diversifying their product offerings and geographic distribution through merger and acquisition strategies, rather than worrying deeply about fundamental weather sensitivity and the resulting financial exposures.

II. WEATHER RISK MANAGEMENT TOOLS ARE BEING IGNORED

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There have been other distractions too. After the turn-of-the-decade accounting scandals took down several high-profile companies, Congress responded with the Sarbanes-Oxley Act of 2002, ushering in a new era of regulatory oversight that kept finance chiefs preoccupied with accounting and financial reporting protocols. More recently, the credit crisis that erupted in the sub-prime mortgage market and spread to virtually every sector of the economy has again narrowed the focus of finance executives to issues such as generating cash flow and ensuring the health of corporate balance sheets.

Yet the time when companies could categorize weather as an unmanageable risk—an unfortunate but unavoidable cost of doing business—has passed. Having confirmed by their frequent proffering of the "weather excuse" that meeting sales and earnings targets often depends as much on the vagaries of the weather as on anything they do, many companies can no longer ignore the availability of tools that can help them hedge that risk.

The $4 Trillion Rainy Day Economy

The weather affects what we wear and eat, where we travel, and even what we do each day. It impacts crop yields, drives energy consumption and shapes traffic flows on highways and airways. Government economists estimate that as much as a third of the U.S. economy—approximately $4 trillion—is sensitive to the weather. When it does not behave as expected—when winters are mild, when croplands get too much or too little rain, or when summers turn unexpectedly cool—companies that build their business plans around weather norms often get hurt.

And these companies say so regularly enough that Wall Street has a name for it: "the weather excuse." Among the companies using it to explain poor financial results last year, in addition to a bevy of retailers, were a footwear manufacturer who blamed the weather for slower-than-expected sales of outdoor boots; a construction materials company that said unseasonable rains had cut into its sales of cement, stone, sand and gravel; and an electric utility that said restoring power lines downed by severe windstorms had pared its earnings by about 7 cents a share.

II. WEATHER RISK MANAGEMENT TOOLS ARE BEING IGNORED

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Some industries have embraced that message more readily than others. Among energy companies, 74 percent of finance and risk managers say they have attempted to quantify the impact of the weather on their financial results, and 35 percent say they have employed weather hedges in a bid to minimize that risk.

By contrast, only 29 percent of retailers have attempted to calculate their weather exposure, and none of those retailers surveyed say they have used weather hedges to manage the volatility of their financial results. The widely divergent weather risk management practices across industries underscore the nascent state of the weather risk market itself. But sophistication levels are rising. For an industry such as retail in which missed sales and profit goals are not infrequently ascribed to adverse weather conditions, this begs an important question: How much longer will Wall Street analysts and shareholders continue to find "the weather excuse" an acceptable defense for poor performance? ■

A CONVERSATION WITH ANALYST RICHARD HASTINGS

As Consumer Strategist for Global Hunter Securities, Richard Hastings appreciates the impact that weather can have on income statements and balance sheets. "Besides dampening demand when it is unseasonably warm or cold, the weather has a subtle impact on shopper psychology," he says. "The shopper's spending capacity may stay the same, but their psychological perspective changes, and that impacts what they do in stores or even online."

While the retail sector is sensitive to weather trends, Hastings notes, the construction industry is more vulnerable to major weather events, such as hurricanes, tornadoes and floods. "There are certain things you just can't do at a construction site in the mud," he says. "And because time equals money, anything that makes a construction project take longer is bad."

We asked Hastings how he sees weather risk management unfolding for the industries that he follows.

Question: Most retailers and construction companies continue to accept the financial risks associated with unseasonable or abnormal weather as a cost of doing business. When do you see that changing?

Hastings: I look for that to change over the next two to three years, in part due to the impact of global warming. Because of warming, weather volatility is not going to go away. Just look at what we've seen in the past few years—tornadoes in the winter in the southeastern United States, unusual droughts, unusual outbreaks of extremely cold Arctic weather in the northern part of the country. There are a number of things happening that don't conform to popular notions about global warming, but they're real, and ultimately, companies are going to have to factor them into their risk management practices.

Question: Which weather events of the past few years have you found most striking from a risk perspective?

Hastings: Certainly we had a lot of bad weather impact from Hurricane Katrina, and from the President's Day Blizzard of 2003, which paralyzed much of the East Coast. But there are more modest examples, too. Pike Nursery's filing for Chapter 11 bankruptcy protection last year was almost exclusively caused by the drought in the southeastern United States. I believe the drought also has had a very bad impact on Home Depot and Lowe's. In fact, if you had to pick the one weather event that has had the most widespread economic effect for the retail sector, it would be the heat wave and drought of the summer of 2007. Generally speaking, earnings for department stores and specialty apparel stores were already trending down last year, but they gapped down way outside of the trend line in the third quarter, largely driven by the severity of the weather and the drought. Demand for clothing declined significantly. The hot, dry weather and drought changed the consumer's psychology toward seasonal change. There was no obvious transition to a new season, and that transition is what gets people motivated to buy.

Question: Companies today have access to quite sophisticated financial tools to manage weather risk. Do you think the companies you follow should be taking advantage of these tools?

Hastings: Certainly for the construction industry, weather derivatives are important to consider because of the risk that a building project can be interrupted by a major weather event. The retail industry has to look at weather derivatives too, along with improved forecasting. The cost of unsold inventory is typically shared between retailers and suppliers. When things are not moving at all, retailers may find it would have been better to have mitigated that risk with an options type product.

Question: When do you think investors will start to hold companies accountable for managing weather risk?

Hastings: I think it will happen when we start to see more inflation, which has not been a factor in consumer goods for a long time. It's been a big deal, and a big problem, for building materials the past couple of years. But when it starts to become a wider issue, the risk of having unsold inventory due to the weather becomes a much more dreadful problem, simply because the cost of that inventory will have been much greater. Inflation puts margins under pressure, it puts operating income under pressure, and it forces companies to think about how they can smooth out the volatility in their earnings. Weather derivatives are one of those tools that can help.

III. THE RISE OF THE WEATHER RISK MANAGEMENT MARKET

In the course of a single decade, the weather market has evolved to offer hedging tools of increasingly sophisticated precision. Companies can hedge against drought across a basket of Southern cities, freezing temperatures in Manhattan on a specific morning, cumulative heating degree days in California over periods of weeks or months, or the amount of snow that falls on a Vermont ski resort in January.

They can buy their hedges in the form of futures, options, collars or swaps, arranging that protection with a private counterparty or simply by purchasing a standardized weather contract traded on CME Group. Unlike an insurance policy, a weather derivative does not require the buyer to go through the claims process and prove a financial loss in order to collect compensation. If the weather index to which their contract is linked hits the predetermined threshold, known as a trigger, the contract pays out, typically within a day or two for exchange-traded contracts, and within three to five days for over-the-counter contracts.

The impetus for creating weather derivatives can be traced to the deregulation of the energy and utility industries in the mid-1990s. Prior to deregulation, most utility companies were both energy producers and energy sellers. They operated power-generating stations fueled by coal, nuclear energy or hydropower, and sold that power over their own transmission lines to commercial, industrial and residential customers. With deregulation, many utilities began to sever their generation and transmission businesses, and monopolies began to be replaced with competitive wholesale markets. Energy resellers, especially, learned that while they could hedge away price risk with futures and options on energy itself, they had no way to hedge away weather risk that could dramatically alter the demand for their product. If an unseasonably hot summer spiked demand for electricity, for example, resellers could find themselves forced into sourcing additional power in the deregulated spot market, where prices could soar right along with demand. Typically, resellers could not pass these increased costs on to their customers. What they needed was a hedge, not against pricing, but against the very weather events driving the volume of energy required by their customers.

It was in this environment that weather derivatives made their public debut in 1997 with a pair of over-the-counter transactions executed between Koch Industries Inc., a privately held conglomerate with interests in energy and other commodities, and Enron Corp., the infamous energy company that later imploded in an unrelated accounting scandal. It was based on a temperature index for Milwaukee, Wisconsin, and was structured so that Enron would pay Koch $10,000 for every degree the temperature fell below normal during the winter of 1997–1998, while Koch would pay Enron $10,000 for every degree above normal.

III. THE RISE OF THE WEATHER RISK MANAGEMENT MARKET Cont'd.

While hedging products were initially created for the energy industry, the marketplace soon began developing weather derivatives to help companies in other industries based not only on temperature indices, but also on precipitation and, even, wind. Contracts were created for, among others, a fertilizer maker, a brewery, a sports-drink company, a movie studio and a golf resort. These contracts took the form of options and futures linked to specific and measurable weather events as reported by an official government weather station. They paid off when the identified weather variable exceeded some predetermined threshold on or over a specified period of time, allowing the buyer to manage day-to-day weather risk in ways that could drive revenues, smooth cash flows, reduce costs and protect against earnings shortfalls.

In a simple example, a seller of natural gas might have purchased an option that would pay the company cash if temperatures in the Midwest moved above a predetermined level from November through February. Or, an agribusiness in Nebraska might have purchased an option that would pay off if rainfall dropped below seasonal norms from April through August. Such options gave companies the ability to tailor their financial protection to their specific circumstances. For the natural gas vendor, that might have been the point at which warm weather ate too deeply into profits. For the agribusiness, it might have been the level at which rainfall was insufficient to produce a strong crop yield.

The Chicago Mercantile Exchange brought standardization to the weather derivatives market in 1999 when it launched a series of exchange-traded futures and options based on temperature indices for various U.S. cities. It added contracts on four European and two Asia Pacific cities in 2003 and 2004, respectively. Today, CME Group offers contracts on temperature and precipitation indices in 24 U.S., 10 European, two Asian-Pacific, and six Canadian cities. CME Group weather-trading volume reached nearly one million contracts in 2007, up from 798,000 in 2006, with notional value in 2007 equaling approximately $18 billion. It also offers contracts linked to frost days, snowfall and hurricanes. As of March 2008, open interest in the CME Group weather market exceeded 436,000 contracts, and the exchange was trading nearly 5,000 contracts per day, or about 35 percent more than it had been a year earlier. In addition to energy, agriculture, tourism, travel and restaurant businesses, buyers and sellers of exchange-traded weather contracts include hedge funds and other professional traders as well as reinsurance companies seeking to hedge weather exposures they have incurred in the weather insurance markets.

Exchange-traded weather futures and options offer important benefits for these users. They virtually eliminate counterparty risk—the risk that one party to a trade won't make good on the trade—by having CME Clearing serve as the counterparty to each trade. They also offer transparent pricing.

III. THE RISE OF THE WEATHER RISK MANAGEMENT MARKET Cont'd.

But exchange-traded weather contracts aren't available to meet the needs of everyone. Some users need to benchmark temperatures in cities not covered by CME Group products, others need to benchmark weather indices not tracked by CME Group, and still others need the flexibility to set the trigger level for payouts at points other than the standardized triggers used by the CME Group. For that sort of flexibility, companies turn to the over-the-counter market, where they can structure weather hedges tailored to their own geographic exposure, backed by analytics and data that can quantify the financial impact of weather on their specific businesses. Contracts can take the form of futures or options, swaps and collars. Industry participants estimate that the over-the-counter weather market equals the CME Group weather market in size.

In the next section, we'll take a closer look at how weather hedges actually work. ■

BETTER FORECASTS AHEAD?

Meteorologist John A. Dutton, Ph.D., is Dean Emeritus of the College of Earth and Mineral Sciences at Pennsylvania State University, where he taught meteorology for more than 30 years, and a past chair of the Board on Atmospheric Sciences and Climate for the National Research Council. Recently, Dr. Dutton, who is the chief scientist at Storm Exchange, shared his thoughts about global climate change and the ability of meteorologists to predict the weather.

Question: Man has been trying to predict the weather, with rather limited success, throughout history. Given all the advances in science over the past century, are we getting any better at it?

Dutton: Our forecasts of weather at the surface of the earth are pretty good going out two or three days. The errors tend to be in timing, not in phenomenology. We may get the center of a band of snow off by 50 miles, or miss the passing of a front by a couple of hours, but by and large the forecasts are pretty good and major events are not missed. As we forecast further out, we do so with less certainty, although I would say that meteorologists today can forecast the weather for the next seven days as well as they could forecast the next three days 15 years ago. And I believe their capabilities will continue to improve.

Question: What about our ability to make long-range forecasts?

Dutton: Our computers can make numerical forecasts that are pretty good out to about 10 days. Governments compute forecasts out to 15 days, but there's very little skill evidenced there. But when you're looking at true long-range forecasts several months out, you're looking at slow-moving components of the weather such as the ocean, and we can bring some definitive skill to that picture.

Question: Why is the ocean an important component of long-range weather forecasting?

Dutton: Earth is basically a water-covered planet that happens to have some pieces of land lying around occupying about 30 percent of its surface. The ocean is the thermal reservoir for the planet, and it has very strong influences on the weather. You can see it in cycles that drive phenomena like El Niño and La Niña. When we know we're in one of those cycles, we can predict certain weather patterns with considerable certainty. The atmosphere, by contrast, is a high-speed transport system; it responds on a different time scale.

Question: Are long-range forecasts sufficient for business planning purposes, then?

Dutton: At this point, companies are not able to say 'Well, it's going to be a warm summer, and I'm going to plan for that.' What they can do is monitor the conditions during the spring and summer to understand if the forecast conditions are developing. Based on the forecast, they can develop a plan for events that may unfold and implement operational changes to minimize the negative impacts. But you'll always want a hedge in place to cover the risks of adverse summer weather if it would have a significant impact on revenue.

IV. HOW WEATHER HEDGES WORK

Weather hedges provide financial compensation for the buyer when adverse weather occurs. They can be structured to pay out against specific levels of precipitation, temperature or wind, or a combination of those and other weather variables.

The most common weather hedges are options—financial contracts that provide compensation to the buyer if a specific weather index goes above or below a predetermined level, or trigger, during a specified period of time. They might pay out, for example, if rainfall exceeds a certain threshold during the month of June, or if temperatures fall below a certain level during the month of January. For this protection, the buyer of an option pays a cash premium to a counterparty willing to assume the risk.

At CME Group, companies and traders also can invest in weather futures linked to the performance of specific weather indices. When trading futures, all parties to the transaction put down a performance bond, or good faith deposit, to demonstrate their creditworthiness.

Weather hedges are most effective when they are custom-tailored to the buyer's exposure and appetite for risk. That means the buyer needs to quantify as accurately as possible how, when and where their business is impacted by the weather, and by how much, preferably by correlating weather, sales and profit data going back at least five to ten years. They also need to construct the right index, or indices, on which to base their hedge. Finally, to effectively balance costs and benefits, they need to structure the hedge with the right trigger level. Hedging against minor deviations from weather norms is prohibitively expensive, while hedging only against catastrophic deviations yields an insufficient transfer of risk. Getting all of the moving parts right often requires that the buyer work with a partner who can help with data analysis, structuring the hedge, and soliciting a price from a counterparty.

IV. HOW WEATHER HEDGES WORK

Cont'd.

A Sample Weather Hedge

Agribusinesses that operate grain elevators are ideal candidates for weather hedges, since grain volume revenues are highly correlated with temperatures during the growing season. Here's how ABC Grain Company, a theoretical integrated agriculture company, might use a weather option to protect against an unseasonably hot summer that decreases crop yields, and in turn, gross throughput revenue.

As daily maximum temperatures increase beyond an optimum growing value, the expected crop yield and ABC's elevator revenues will decrease. Let's say that ABC typically generates $15 million in revenues through the growing and harvesting seasons, when average temperatures produce a cumulative 60 cooling degree days in its grain county area. The company defines a cooling degree day, or CDD, as the greater of the maximum daily temperature less 88° Fahrenheit, or zero. For example, a hot summer day with a maximum temperature of 98° Fahrenheit would produce 10 CDDs. A day with a maximum temperature of 80° Fahrenheit would produce zero CDDs.

ABC calculates that each CDD above the normal 60 decreases its grain volume revenue by $33,540. Before deciding how much of its exposure to hedge, however, the company looks back over the past 50 years and sees that while the average CDDs generated for the growing season is 60, the standard deviation from that average is 50 CDDs. Buying protection against CDDs within one standard deviation of the norm, it finds, would be prohibitively expensive. Instead, it purchases a temperature hedge that begins to pay out only when CDDs for the season exceed the norm plus one standard deviation. In this case, the contract would pay $33,540 for every CDD above 110 CCDs, based on an index of government temperature data compiled at the municipal airport nearest to ABC's grain elevator.

Weather hedges can be used to control, or offset, extraordinary expenses, to replace foregone revenues, or to function as the financial foundation of a marketing campaign or rebate program. They can be used by companies in virtually any industry impacted by the weather, and indexed against a wide range of measurable weather variables, including temperature, rain, snowfall, frost, wind and hurricane events. The index can be tied to single or multiple locations, for a single point in time or a period of days, weeks or months.

IV. HOW WEATHER HEDGES WORK

Cont'd.

Using weather derivatives to hedge or underwrite the potential cost of a marketing campaign or rebate program holds particular promise for manufacturers and retailers, as well as operators of weather-dependent consumer businesses such as amusement parks, restaurants and ski resorts. As far back as 1998, Canadian snowmobile manufacturer Bombardier, which has since spun off its snowmobile business, offered to pay buyers in the Midwest a $1,000 rebate if snowfall in their part of the country did not reach a predetermined threshold that winter. Bombardier's goal was to relieve potential buyers of the fear of buying a new snowmobile only to see a mild winter rob them of their chance to use it. To cover the potential cost of the rebate program, Bombardier purchased a weather hedge based on a snowfall index; the hedge would pay off if actual snowfall was below the trigger established by the hedge contract. While snowfall was not light that year—neither Bombardier nor its customers received a snowfall payout—the company was hardly disappointed; the 38 percent increase in sales generated by the rebate offer handily offset the cost of the weather hedge.

Weatherproof Garment Co., a maker of men's outerwear for top department stores, is also exploring the use of weather hedges as a promotional tool. In December 2006, it saw sales of its jackets decline by 30 percent at retail due to balmy weather in the Northeast. That led to profit-squeezing markdowns as retailers tried to move leftover inventory in January and February, as well as outright returns of merchandise to Weatherproof. In 2007, in a bid to avoid a repeat of that performance, Weatherproof purchased an option on temperatures in New York City for the month of December. The option was set up to pay the company as much as $10 million if the Big Apple proved significantly warmer than normal that month. As it turned out, New York City's weather in December was seasonable, and the option did not pay out. But that was okay with Weatherproof CEO Eliot Peyser, who explains that the seasonably cool weather translated into strong sales of his company's products. "We clearly preferred that the weather would be seasonably cool, and that's what happened," Peyser says. "We were not looking to hit it rich because of mild weather." See interview on page 17.

The wide variety of weather hedging contracts that are now available, combined with the ability to customize terms to the buyer's needs, is making it easy for companies to economically hedge exactly the right amount of weather risk.

WEATHERPROOF EXPLORES WEATHER HEDGES AS MARKETING TOOL

In 2007, men's outerwear manufacturer Weatherproof Garment Co. became the first apparel maker to use a weather derivative to hedge its exposure to mild winter weather. The weather hedge, an option on temperatures in December, never paid off—the winter proved seasonably cool—but that hasn't soured Weatherproof CEO Eliot Peyser on the potential to transform weather risk from a liability into an asset for his company. Peyser recently spoke about his initial experience with weather derivatives and why he's thinking about going back to the weather hedging market.

Question: Your first weather contract didn't pay off. Why don't you consider it a wasted investment?

Peyser: We knew that if the weather was cool, our merchandise would sell, and that would more than offset the cost of the hedge. Which is exactly what happened.

Question: What were your goals with this first foray into weather risk management?

Peyser: Our goals were three-fold. First, we were looking for a simple financial hedge. We wanted to decrease the risk of being such a seasonal business. From a cash-flow perspective, this made sense. Second, we wanted to use it as a marketing tool to help our retail partners, which we did by promising them that if we received a payout, we would share it with them. This made it easier for them to stock our products rather than someone else's. Finally, we wanted to gauge whether this was a tool we could use in the future to create a promotion for consumers.

Question: How would that work?

Peyser: Initially, we thought about the traditional rebate concept—buy one of our jackets, and if the weather subsequently turns out to be warm, we'll give your money back. But we weren't sure that gives people the right message. It's kind of negative; it says, "It's too warm for outerwear." So now we're thinking about a promotion in which anybody who buys one of our coats the week before Thanksgiving would get the purchase price refunded to them, in the form of a gift card for the store where they bought it, if the temperature is at or below freezing at the start of the Thanksgiving Day parade in New York City. Now it becomes more of a promotional vehicle. We're saying if it's cold, you're going to win.

Question: Are you doing anything else these days to mitigate your exposure to weather risk?

Peyser: We've made some changes to our merchandise because of changes in the weather. For example, we're using a lot of lighter, transitional-weight fabrics and positioning our product as more of a fashion item than a pure cold-weather item. We're also doing more systems-type jackets with take-out liners, that sort of thing. That said, there is still definitely a correlation between weather and our jacket sales. And we think weather derivatives are an interesting way to try to hedge this problem.

Question: Why are you interested in making retailers your partner in this process?

Peyser: In today's market, you have to be a great partner. If your product doesn't sell, you have to be willing to share that pain with your partners and help them out. With the weather derivative, it was a bit of a marketing vehicle to help convince our customers to say, hey, let me go with Weatherproof; they're building this little kitty relating to the weather that they're willing to share with me, and no one else is offering that kind of assistance. Not too many apparel companies are thinking in that kind of innovative way.

Question: Do you expect to see your competitors, or other retailers for that matter, copying your strategy?

Peyser: I'm not sure. If you asked retailers why they're not looking at this themselves right now, they'd say they already hedge their winter assortment by bringing in swimwear. Their strategy seems to be to diversify their product mix. What's ironic, though, is that every quarter you see someone in retail talking about the weather excuse; the weather is never quite right for them. I think you can go further than making excuses. Hedging your weather risk, if you can get it right, can give you a plus financially.

V. SEIZING THE OPPORTUNITY

For companies sensitive to volatile day-to-day weather patterns, now is the time to begin exploring new ways to drive performance through improved weather risk management. The opportunities to hedge weather-related costs or replace weather-related revenues are simply too significant to ignore, especially at a time when climate change is increasing the probability that weather patterns may change.

Companies seeking to better prepare themselves to take advantage of this opportunity should begin by quantifying the impact weather has on their business. Only then can they decide if that risk is small enough to be retained or whether it should be transferred, at least in part, to a third party. If the risk is unpalatable, the company can work with a weather risk management advisor to find out how much it will cost to hedge the risk, and then make a reasoned decision about whether the hedge will be cost effective.

Finance and risk managers will find they may need to educate their C-suite peers on opportunities to manage this risk. Benchmark study findings indicate that some executives continue to harbor the notion that weather risk can't be managed, a view aggravated, perhaps, by the fact that relatively few companies have either quantified their exposure to the weather or the true cost and benefit of hedging it.

If finance and risk managers do not yet appreciate the opportunity that weather hedging presents, then the education process will have to begin closer to home. According to the survey, 36 percent of finance and risk managers think it is important for their company to have access to data and analytical tools that can help them measure and quantify weather risk, and 41 percent think it is either extremely or very important to have access to weather forecasting and financial modeling tools that can help them improve their operating performance. However, only 12 percent indicate that they plan to use weather hedges in the near future, demonstrating a big gap between their appetite for a better understanding of weather risk and their willingness, at this time, to try to manage it.

V. SEIZING THE OPPORTUNITY

Cont'd.

Fortunately, information about using weather risk tools is readily accessible. The sponsors of this paper, the CME Group and Storm Exchange Inc., both offer extensive information about hedging products, as well as descriptions of trading strategies and case studies, at their websites, www.cmegroup.com and www.stormexchange.com. So do many other weather trading firms. The Weather Risk Management Association, an industry trade group founded in 1999, also offers significant news and information about weather risk management at its website, **www.wrma.org**.

Companies that make the commitment now will be best positioned to benefit from further advances in weather risk management strategies.

As the marketplace matures, companies will gain access to increasingly better tools for managing weather risk and better technologies for measuring and forecasting the weather, promising the ability to hedge weather exposure with even greater precision. For example, meteorologists are making important strides in understanding the weather phenomena known as El Niño and La Niña—temperature fluctuations in the surface of the Pacific Ocean that help to shape the climate in dramatic ways around the globe, from where and how often hurricanes form into Atlantic Ocean and where they make landfall. The opportunity is great, and for companies that fail to act, the opportunity cost could be great as well. ■

HOW OTHER RISK TOOLS ATTEMPT TO MANAGE WEATHER RISK

Prior to the advent of weather derivatives in 1997, managing weather risk was extremely problematic. Companies had four basic options available to them, all with significant flaws:

Diversification

Companies heavily reliant on one type of weather—snow in the winter, for example—could seek to mitigate their dependence on the weather by diversifying their product line. Thus, a maker of snowmobiles might also decide to produce jet skis, or a ski resort might install a heated pool and water rides for summer guests. While this strategy could offset losses incurred when the weather turned against the company, it could not eliminate them. And it could be extraordinarily costly to implement. Major retailers can find, for example, that the cost of redistributing unsold merchandise exceeds the benefit.

Commodity futures

For energy and agriculture companies and their customers, commodity futures and forward contracts could, with luck, offer some protection against adverse weather conditions. For example, a farmer could lock in a future price for his wheat so that if yields were strong across the industry, thanks to good weather, he could still realize a fair price for his crop. But this provided no protection if his own harvest was somehow compromised by problems unique to his farm. Energy resellers today have the same problem. "If we have very cold winters and very hot summers, people use more electricity, our volume goes up, and so do our costs," observes the CFO of one energy reseller. "We can hedge price, but not volume."

Weather insurance

Companies have long been able to buy insurance to protect against catastrophic weather-related losses; the hurricane that destroys an oil rig, say, or the flood that wipes out a corn crop. Weather insurance is not much good, though, for hedging against merely unusual weather that eats into profits, such as the prolonged cool spell that reduces demand for electricity in the summer or the warm spell that pares demand for home heating oil in the winter. Moreover, insurance requires a proof of loss attributable to the insured weather event before it will pay out. This can be fairly easy to document in some cases, such as the farmer who sees his corn crop wiped out by a severe drought. But in other cases, it can be quite difficult. What if, for example, the weather is hot and dry but not extraordinarily so? Will the same farmer be able to definitively link his losses to drought, or might he be subjected to counterclaims that he didn't plant the right seed variety or didn't irrigate properly, or that the hot and dry conditions weren't technically a drought? In practice, weather insurance tends to be useful only for hedging against low-probability but high-risk events. By contrast, weather derivatives can be used to hedge against higher probability but lower risk events, with payouts based solely on the performance of an agreed-upon weather index with no proof of loss required.

Contract contingencies

Some companies learned to pass weather-related price volatility onto their customers, such as a recently surveyed construction company CFO who said his firm builds weather contingencies into its contracts. "We pass it on to the buyer, so it doesn't really affect us," he says. On an individual project, especially in boom times, that may be true. But that "protection" can fade fast when times get slow and hungry competitors forego weather contingencies, stealing business at a lower price, or when forward-thinking competitors leverage weather hedges to eliminate the need for contract contingencies at all.

VI. CONCLUSION: PUTTING WEATHER RISK IN PERSPECTIVE

While most of the world has accepted the science behind global warming and begun to appreciate its long-term ramifications, the near-term implications of weather and seasonal variations remain less well-recognized and often unaddressed by many businesses.

Certainly, few companies will be able to ignore climate change. It makes sense to begin developing long-term strategies now to minimize their own contributions to global warming, whether from a need to address a changing market or increasing pressure from shareholders, regulators and other stakeholders to do so. Acting early could pay extra dividends; many economists theorize that companies staking an early claim to energy efficiency and reduced greenhouse gas emissions will enjoy a competitive advantage over those that wait. General Electric Co. Chairman and CEO Jeffrey Immelt has widely voiced this view, recently arguing, as *The Wall Street Journal* reported, that government-mandated caps on carbon emissions are inevitable, and that companies can either "get out ahead of these things" or "get stomped by them."

What companies cannot afford to do is focus solely on the macro implications of climate change while failing to consider how today's weather trends are impacting their financial results and sustainability right now.

Whether due to global warming or not, weather patterns today are both unpredictable and volatile; witness last year when, while the Southeast was suffering through a drought of historic proportions, Texas was being inundated by rains so extraordinary that one U.S. airline sustained nearly $100 million in lost revenues and extra costs as a result.

Precipitation trends are, in fact, just as worrisome as temperature trends. *The Wall Street Journal* has noted that some parts of the world, including Australia, India, Western Europe and the American Southwest, are getting as much as 10 percent less rain than they did in the past due to changing rainfall patterns. A continuation of that trend would have major implications for the sustainability of businesses of all kinds. Already, researchers at the Scripps Institution of Oceanography have assigned 50–50 odds to the possibility that Lake Mead, which supplies farms and cities from Colorado to Southern California and is already at half capacity, will be dry by 2021 if climate change continues as expected and future water usage is not curtailed. This could threaten the ability of the American Southwest to sustain civilization, never mind a given industry.

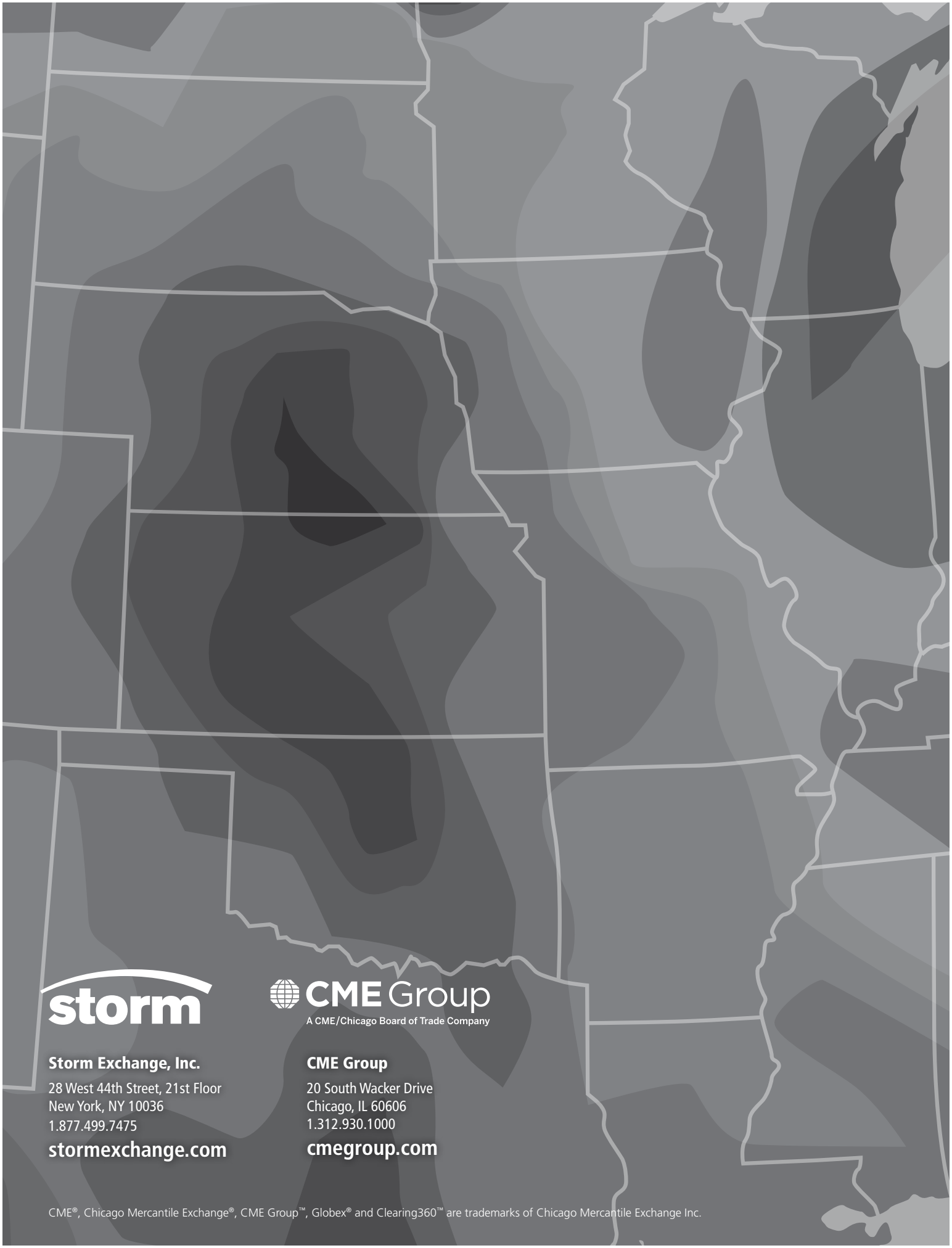
VI. CONCLUSION: PUTTING WEATHER RISK IN PERSPECTIVE

Cont'd.

Such disruptive stresses promise to impact numerous companies in the years and decades to come, including property and casualty insurers, construction firms, real estate developers, and trucking companies, railroads and airlines—not to mention energy and agricultural concerns and retailers. It is a concern for oil and gas companies whose rigs and refineries are jeopardized by Gulf Coast hurricanes, for vintners being forced to higher and cooler elevations where their grapes can ripen for best results, for ski resorts wondering what happened to once reliable winter snows, and for many other companies in a host of other industries. Each industry bears its weather risk in a different form. For agriculture, weather risk is typically measured by its impact on crop yield and quality. In the outdoor entertainment industry, it is customer visits. For the aviation industry, it takes the form of fuel and labor costs and asset utilization.

By confronting current weather risks in the here and now, companies not only reduce exposures to direct financial loss, but also are able to better manage their fiduciary responsibility to shareholders—much as they are challenged today to manage foreign-exchange, interest-rate or commodity risks. This is especially critical at a time when regulators and corporate directors are increasingly enamored with the idea of promoting enterprise risk management—a holistic approach to identifying and managing all of a company's material risks that must include weather risk.

For many years, the "weather excuse" has been sufficient to explain missed performance targets. As global climate change gives weather an increasingly significant role in corporate performance—and as corporate stakeholders learn that tools exist to mitigate the day-to-day volatility that weather risk presents currently—the weather excuse will no longer hold water. ■



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