PHYSICAL RISKS TO THE SUPPLY CHAIN

THE VIEW FROM FINANCE

A report prepared by
CFO Research Services in
collaboration with FM Global

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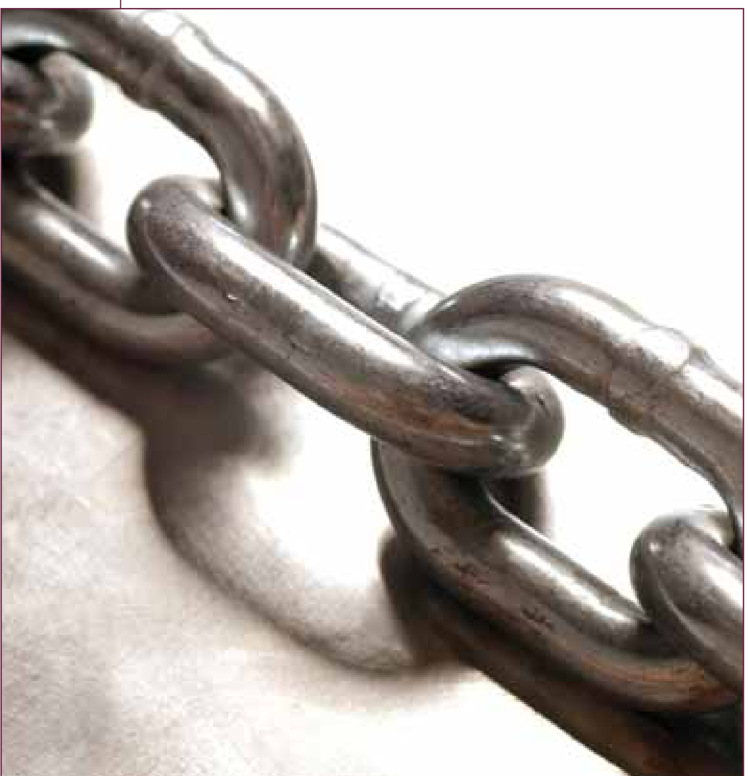

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ABOUT THIS REPORT

In the fall of 2008, CFO Research Services (a unit of CFO Publishing Corp.) conducted a survey among senior finance executives in North America to examine their views on physical risks to the supply chain—the risk of business disruption due to natural or man-made disasters, infrastructure breakdown, facilities and equipment failures, and other physical hazards along the supply chain.

We gathered a total of 169 complete survey responses from CFOs and other senior finance executives across the United States. Respondents work in a broad range of company segments, as follows:

ANNUAL REVENUE

$500 million to $1 billion	18%
$1 billion to $5 billion	38%
$5 billion to $10 billion	12%
$10 billion to $20 billion	10%
More than $20 billion	22%

TITLES

CFO	17%
Director of finance	17%
VP of finance	11%
Controller	10%
EVP or SVP of finance	6%
CEO, president, or managing director	2%
Treasurer	2%
Other	34%

Note: Percentages may not total 100%, due to rounding.

Respondents work for companies in nearly every industry. The financial services and manufacturing industries are particularly well represented.

A hidden cost embedded in efficiency efforts

Intense business competition in recent years has led many companies to reduce operating costs by sourcing raw materials and production inputs from overseas. At the same time, many businesses have pursued administrative efficiencies and cost reduction through supply-chain "reengineering" initiatives—efforts to simplify and streamline the supply chain that often involve the systematic consolidation of suppliers. Consolidation can dramatically reduce the number of transactions and help companies gain greater negotiating leverage for volume discounts and better service with the suppliers they retain.

> **The benefits of global sourcing and supplier consolidation can carry a hidden cost:** increased exposure to the risk of supply-chain disruption.

But the benefits of global sourcing and supplier consolidation can carry a hidden cost: increased exposure to the risk of supply-chain disruption. Overseas sourcing increases risk exposure by introducing distance and creating complexity; consolidation increases exposure by concentrating the risk of failure among fewer suppliers. To take full advantage of their sourcing strategies both domestically and abroad, companies need supply chains that are not only flexible, predictable, and efficient but also insulated from disruption.

This report focuses on one important category of supply-chain risk: the risks to physical assets along the supply chain. These are risks associated with natural disasters such as hurricanes, earthquakes, or floods; non-natural catastrophes such as fires or explosions; and poor physical asset management, whether at company-owned facilities or at a partner's facilities. These issues seem particularly urgent in light of recent natural disasters that shook companies' supply chains around the world. Hurricanes Katrina and Rita, earthquakes and flooding in China, tsunamis in Southeast Asia, and other events have shown the impact of rare but catastrophic events: their destructive impact can affect not only individuals, families, and communities but also whole economies.

Increased global sourcing contributes to greater risk exposure

To gauge companies' plans for overseas sourcing—especially in light of a global economic downturn—we asked respondents about their current sourcing practices, and whether they expect their global sourcing activities to increase, decrease, or stay the same over the next three years. We found that many companies already source production inputs from abroad—more than two-thirds (67%) of respondents say that sourcing production inputs from overseas suppliers is now at least "somewhat common" at their companies. A solid majority of respondents (62%) expect global sourcing activities to increase over the next three years. (See Figure 1.)

Survey results also suggest that finance executives recognize a connection between overseas sourcing and greater risk exposure: a substantial number of respondents (39%) agree that their companies' global sourcing strategies increase exposure to physical risks along the supply chain. (See Figure 2.)

We also found that just-in-time inventory and lean manufacturing practices—business practices that tend to increase exposure to supply-chain risk—are at least somewhat common at most respondents' companies. Nearly two-thirds of respondents (66%) say lean manufacturing practices are at least somewhat common at their companies; 64% of respondents say just-in-time inventory practices are at least somewhat common at their companies.

Physical hazards have negatively affected performance

Survey results indicate that physical hazards—in particular, natural disasters and physical failures at company-owned facilities—have negatively affected performance at a substantial number of companies over the past five years.

Respondents are most likely to say that logistics disruptions (55%) and underperformance of supply chain partners (54%)—the most common sources of supply chain-related performance shortfalls—negatively affected their companies' financial performance in the past five years. (See Figure 3, page 3.) But a substantial number of respondents (45%) also say that natural disasters negatively affected performance in the past five years, and a similar number of respondents (42%) report that physical asset failures at company-owned facilities negatively affected performance.

Figure 1. Global sourcing activities are likely to increase over the next three years, say respondents.

In your opinion, will your company's global sourcing activities increase, decrease, or stay the same over the next three years?

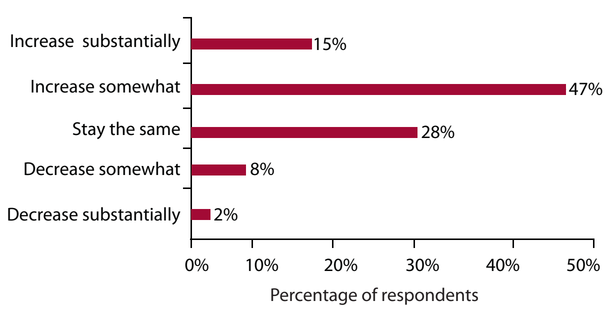


Figure 2. A substantial number of respondents agree that their companies' global sourcing increases exposure to physical risks along their supply chains.

"My company's global sourcing strategy increases its exposure to physical risks along its supply chain."

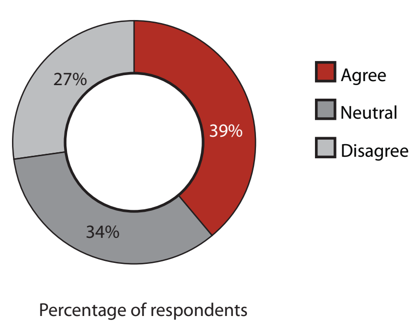
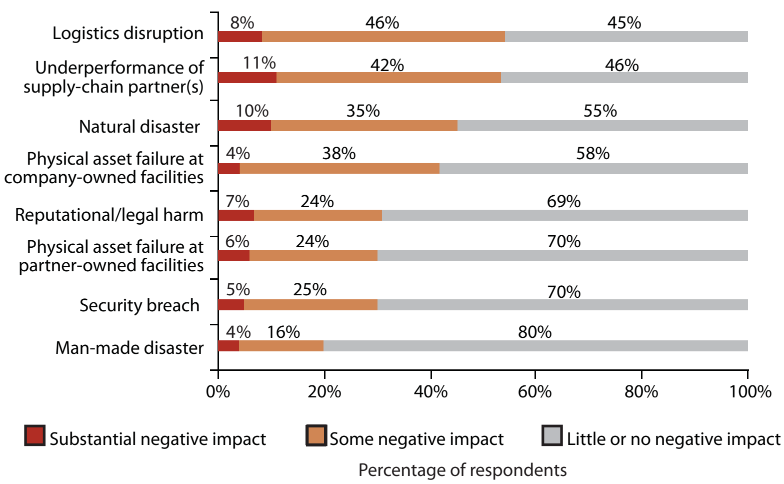


Figure 3. Natural disasters and physical failures at company-owned facilities have negatively affected financial performance at a substantial number of companies.

To what extent, if any, has your company's financial performance been negatively affected by an event in any of the following supply-chain areas over the past five years?



Note: Percentages may not total 100%, due to rounding.

Underperformance of supply-chain partners, logistics disruptions, and physical hazards are also likely to rank high among respondents' future supply-chain concerns. Presented with an array of possible problems connected to the supply chain, a substantial number of respondents say that underperformance of supply-chain partners (55%) and logistics disruptions (42%) will be among their companies' greatest concerns over the next five years.

> **Fifty-eight percent of respondents** say some type of physical hazard will be among their companies' greatest supply-chain concerns over the next five years.

In the same question, we asked about three separate categories of physical hazard: natural or man-made disasters, physical asset failures at company-owned facilities, and physical asset failures at partner-owned facilities. Fifty-eight percent of respondents say at least one of these physical hazards will be among their companies' greatest supply-chain concerns over the next five years.

UNEXPECTED PHYSICAL FAILURES: STORMS, FIRES, FLOODS, AND MORE

Supply-chain surprises are rarely good news. We asked respondents to tell us whether their companies have experienced a particularly unpleasant sort of surprise over the past several years: unexpected physical failures—including facilities or equipment failures, natural disasters, and man-made disasters—anywhere along the supply chain. More than 60 finance executives (out of 169 respondents) confirm in open-ended responses that their companies had indeed experienced unexpected physical disruption over the past several years.

> **Respondents say fires, explosions, accidents, ship sinkings, and other problems** created costly delays and required expensive remediation efforts—repairs, relocation, last-minute sourcing changes, and more.

What kinds of physical failures caught companies by surprise? Man-made disasters have certainly troubled companies in recent years, according to respondents. Several respondents mention large-scale catastrophes like the September 11 attacks—a man-made disaster of extraordinary and grievous proportions. One respondent mentions business disruption and loss of confidence due to the recent attacks in Mumbai, India.

But smaller-scale disasters and equipment failures—far more common than large-scale man-made catastrophes—also proved disruptive: one respondent mentions "a fire at a major supplier's main factory that created a temporary shortage of a key component." Another writes about a boiler explosion that "shut [a] major plant down for three months." Fires, explosions, accidents, ship sinkings, and other problems created costly delays and required expensive remediation efforts—repairs, relocation, last-minute sourcing changes, and more—according to respondents.

As damaging as man-made disasters and equipment failures can be, survey responses suggest that damage caused by natural disasters may be even more troubling. Many survey respondents cite unexpected disruption due to hurricanes—particularly Hurricane Katrina, the deadly storm that battered the U.S. Gulf Coast in 2005. Other natural disasters also loomed large among survey respondents: they name tsunamis, wildfires, earthquakes, storms, and flooding—along with their attendant power outages, infrastructure failures, and damage to facilities and equipment—as physical failures that caught their companies by surprise in recent years. One respondent, for example, describes an "extended power outage due to severe storm and flood[ing] this spring—facility [was] lost and will not be back online until December 2008." Another mentions a "tornado that damaged and shut down one operation."

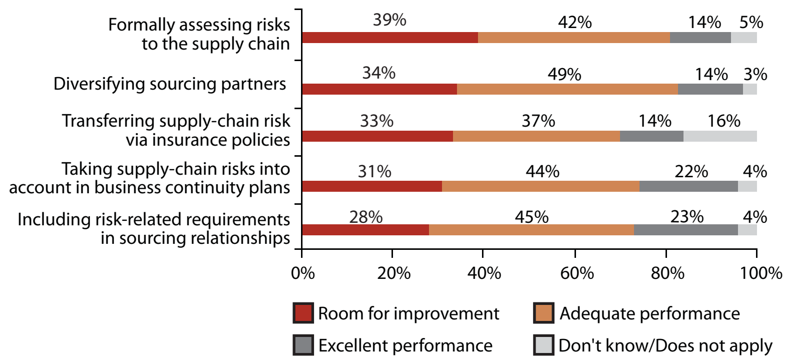
Several respondents note that physical failures experienced by supply-chain partners and logistics service providers had rippled through the supply chain to disrupt their own business in recent years. "[A] shutdown of critical suppliers' production facilities due to accidental damage" caused problems, writes one respondent, while another describes a "logistics facility shutdown due to a regional power outage."

Room for improvement in key supply-chain risk areas

While most respondents say their companies are performing adequately at an array of supply-chain risk management activities, a substantial number—one-third or more—say there's room for improvement in three key areas: formally assessing risks to the supply chain (39%), diversifying sourcing partners (34%), and transferring risk to third parties via insurance or other arrangements (33%). (See Figure 4.)

Figure 4. One-third or more respondents say their companies have room to improve in a few key areas of supply-chain risk management: formal assessment, sourcing diversity, and risk transfer.

In your opinion, how well is your company performing at the following supply-chain risk management activities?



Percentage of respondents

Note: Percentages may not total 100%, due to rounding.

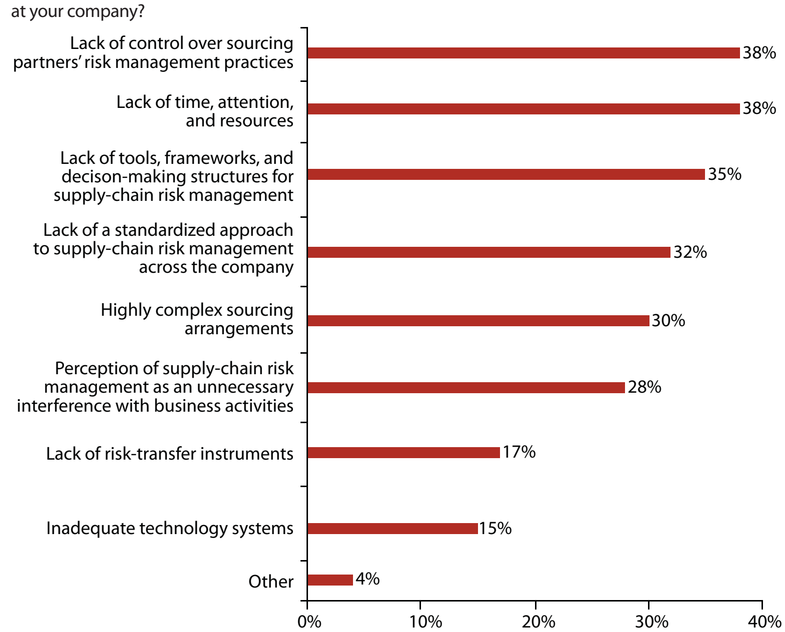
Lack of control over sourcing partners' practices

Respondents most often cite the lack of control over their sourcing partners' risk management practices (38%) and the lack of time, attention, and resources as being among the greatest obstacles to improving supply-chain risk management (38%). (See Figure 5.) Following close behind is the lack of tools, frameworks, and decision-making structures for supply-chain risk management (35%).

> **"The first step is to gain acknowledgment of the complexities** and inherent risks associated with the supply chain," writes one respondent. "[It's] more challenging than you might believe."

Figure 5. Respondents most frequently cite lack of control over sourcing partners' risk management practices, together with resource constraints, as being among the greatest obstacles to improvement.

In your opinion, what are the greatest obstacles to improving supply-chain risk management at your company?



Percentage of respondents

Note: Respondents were asked to choose up to three answers.

Because resource constraints are a consistent obstacle to improvement efforts at virtually all companies, it is highly unusual for survey respondents to cite any other obstacle to improvement as highly as the lack of time, attention, and resources. These results are therefore a striking statement about the problems companies face when trying to improve supply-chain risk management.

Senior finance executives offer advice to their peers

Survey results reveal that finance executives recognize that there is room for improvement in managing physical risks to the supply chain—and suggest that a lack of control over sourcing partners' practices is a major obstacle to realizing improvement. But what affirmative steps can finance executives take to help their companies manage these risks better? To find out, we gave the senior finance executives who responded to our survey the opportunity to offer advice to their peers, based on their own experiences and observations. (See sidebar.)

What should finance executives seeking to improve do first? "The first step is to gain acknowledgment of the complexities and inherent risks associated with the supply chain," writes one respondent. "[It's] more challenging than you might believe."

SENIOR FINANCE EXECUTIVES OFFER THE FOLLOWING ADVICE TO THEIR PEERS:

CHOOSE VENDORS CAREFULLY.

"Research your supply partner before getting into any relationship."

"Conduct robust due diligence on partners prior to entering in any agreement; explore alternative options; make them accountable for their role."

"Choose good companies to work with and diversify geographically."

KNOW YOUR SUPPLIERS.

"Know your vendors and partners very well."

"Make periodic visits to those suppliers not achieving on-time deliveries. Monitor suppliers for on-time deliveries and quality problems."

DIVERSIFY SUPPLIERS TO REDUCE RISK EXPOSURE...

"Assume disruptions will occur. Don't put all your eggs into one basket."

"Diversity of supply chain is key in reducing risk. Avoid only using one supplier at all costs."

"I believe the best strategy is to decide whether your company wants to be able to respond quickly to new customer orders or not. If so, long-distance sourcing can be devastating if you have long lead times. I believe in sourcing within a four to five day driving distance, so that anything that is needed can be expedited within a day or two to keep the lines running."

...BUT BALANCE SUPPLIER DIVERSITY WITH THE EFFICIENCY ADVANTAGES OF SOLE-SOURCING.

"Find an appropriate balance for your company between sole-sourcing (which reduces costs and creates economies of scale) and multi-sourcing (which reduces risk)."

BE METHODICAL.

"Build a standard set of practices. Avoid 'ad-hocism.'"

"Adopt a methodology to sort the vital few [risks]; you cannot afford mitigation planning for all suppliers, nor should you spend the resources on it."

"Specifically assign the task to a capable decision maker."

"The focus tends to be on measuring and alerting, when it is at least as important to have a plan of action in the face of risk alerts."

Sponsor's perspective

Supply-Chain Risk Management: The Journey Toward Corporate Resiliency

Outsourcing key business processes does not mean a company's risks are outsourced. On the contrary, it becomes more critical to manage property-related supply-chain risks because they are no longer under the direct control of the company. As we have seen in this survey, competitive pressures to reduce costs and provide high-value products and services globally are driving companies to consolidate their supply chains and rely on fewer critical suppliers. Many of these critical suppliers are located in areas of the world fraught with natural disaster and fire hazards; their management teams may not be able or willing to anticipate and mitigate those risks. Without a proper understanding of their risks, relying on such suppliers can threaten severe business interruption at any moment, resulting in loss of reputation, reduced market share, or even ceased operations.

Given these realities, how does a company develop a more resilient supply chain? At FM Global, we believe corporations need to view their supply-chain analysis as a journey—one that senior finance executives can champion. That journey consists of addressing the following critical supply-chain risk management activities on an ongoing basis, particularly as they relate to property-related exposures:

- **Recognize the risk.** The journey starts with the recognition that the risk is real, with potentially severe consequences. The challenge is that these risks have a low frequency/high severity profile; therefore, a natural response is, "it will not happen to us." However, as companies expand their outsourcing globally, chances are greater that their outsourcing partners will be located in natural disaster-prone areas. History is rife with examples of low frequency/high severity events—including 9/11 and Hurricane Katrina. Catastrophes can happen anywhere political strife or natural disaster exists.

- **Make the business case.** In order to instill a corporate culture that embraces supply-chain risk, senior finance executives need to win over senior management. Making the case as to why corporate attention should be paid to this issue can be very challenging, given the current economic climate. However, this survey suggests that many companies have experienced supply-chain interruption, and those experiences can be used as lessons in risk mitigation. In the absence of prior experience, these examples offer an opportunity for the senior finance executive to begin championing the effort by identifying a critical supplier's potential exposures.

- **Develop a robust framework for assessing risk.** Respondents indicate room for improvement in the development of a well-formulated process for assessing risk. Dealing with numerous key suppliers can be an onerous task; however, the process can be simplified by mapping out one key product/service line and identifying "pressure points." The specific risks associated with those pressure points can then be examined in greater detail. Working with the risk management and supply-chain/procurement departments is critical in order to obtain an accurate assessment. Insurers with risk engineering capabilities can help assess the facilities of those key suppliers.

- **Integrate risk into supply-chain decisions.** As potential suppliers are examined, risk assessment should be considered a critical criterion for selection. The knowledge of insurers can be helpful in assessing the risk in advance of decision making.

- **Achieve the right balance between risk and market competitiveness.** Companies need to find ways to provide better products and services at reasonable costs, but not at the expense of merely accepting risk. A level of supplier diversification and flexibility needs to be achieved. Distributing the production of a critical component to a few suppliers or having alternate suppliers available in case of a disruption is critical. If that's not feasible, the company should seek alternate solutions—such as holding greater inventory on hand or developing alternative products and services. Getting outside help, including from your insurer, to brainstorm creative solutions with your company may also be valuable.

- **Make insurance the "last resort."** While insurance can reimburse for lost profits and revenues, it can never recoup a company's lost market share or restore a diminished reputation that may result from a supply-chain disruption. For that reason, partnering with suppliers on loss-prevention initiatives becomes of utmost importance in order to achieve resilience.

Outsourcing can be a great opportunity for companies to gain competitive advantage in their respective global markets, but it can also bring an abundance of new risks. Companies that develop supply-chain resiliency through effective supply-chain risk management can not only protect themselves against supply-chain interruption but also position themselves to capture market share from competitors that suffer from such interruptions. The journey toward effective supply-chain resiliency does not stop here; it continues to evolve as companies' outsourcing strategies evolve. Senior finance executives can lead the way in this effort.

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