




Markets for Safety


Product recalls yield mixed effects on firms

BY BETTY JOYCE NASH

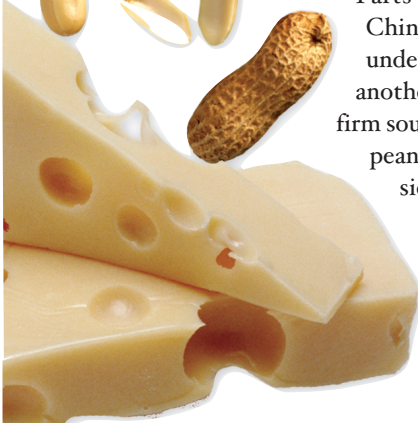


For customers, product defects can create inconvenience at best and cause injury or death at worst. Ensuing recalls also can wreak reputational and sales havoc on firms and sometimes even competitors as the market accounts for information about faulty products.


Potential fallout has escalated as the supply chain has gone global and extended the product-recall reach.



A high-profile example involved the 2007 recall of 276 types of toys and other children's products, mostly due to lead-based paint. Parts had been supplied by a multitude of Chinese manufacturers, and toys were sold under brand names in the United States. In another case, a 33-year-old family-run Virginia firm sought bankruptcy after salmonella, traced to peanuts used in foods worldwide, was linked to sickness and several deaths.



Firms can and do survive product recalls, but the direct costs of severe recalls can be high. Indirect costs may in some cases exceed direct costs. Less severe recalls may cost very little. Firms may suffer regulatory fines, as in the case of Toyota's recent \$16.4 million levied by the National Highway Traffic Safety Administration (NHTSA), but are most likely punished by the market in a severe recall. Firms may suffer market share and stock value declines after demand plunges. Margins can shrink if a manufacturer slashes prices to spur sales. For instance, Toyota drove April automobile sales by flooding the market with buyer incentives, a sign of fear about the extent of a recall's damage to its bottom line and reputation, says automotive economist George Hoffer of Virginia Commonwealth University. Recalls can tarnish reputations.



Market response is important, and economists have tried to make sense of how direct and indirect costs add up after a recall. It's complicated to unravel the array of factors at play but market responses do generally provide incentives for firms to make safe products. These days, markets can respond more quickly than ever to product recalls, though long-term effects appear mixed in empirical studies.

Reputation on the Line

Research has confirmed the benefit of a good reputation in the marketplace. Using the definition of reputation to mean the "consumer's subjective evaluation of the perceived quality" of the producer, management professors Pamela Haunschild of the University of Texas-Austin and Moowoon Rhee of the University of Hawaii studied how the reputation of an automaker affects market share in response to recalls.

High-reputation firms enjoy lower costs, can charge higher prices, and can access capital more easily. They profit from better sales and status, and that serves as some protection against competitors and new market entrants. These assets also translate into greater survival rates and better financial performance. "A positive reputation is also important to a firm's competitive advantage because it is a positive signal to potential buyers and suppliers, increasing their willingness to contract with a firm," the authors write.

A good reputation naturally creates expectations of quality among consumers. The market differentiates between high-quality, high-priced products and low-quality, low-priced products, with buyers expecting less from mediocre products. That means missteps in quality among high-reputation firms violate consumer expectations to a greater degree and could prompt some brand switching.

Haunschild and Rhee used official product recall information from NHTSA. (While nearly all recalls are "voluntary," the law requires that manufacturers conform to standards. When they find defects, they're obliged to inform NHTSA within five days and notify customers.) To explore how pre-recall reputation influences impacts on recalls, the authors used auto industry data from 1975 to 1999, and the results were published in 2006. "The results were pretty clear," Haunschild says. "High-reputation firms suffer more than low-reputation firms." The authors also investigated substitution effects and found that among more unique products, recall impacts were lessened because "consumers can't just go find another alternative."

With the instantaneous information flow via the Internet, reputation effects could be greater. "For the high-reputation automakers, my sense is, and we see it with Toyota, there is more of a penalty," she says. Studies indicate consumers may refresh expectations after learning of defects and that may prompt substitute purchases.

Haunschild and Rhee also investigated the possibility that high-reputation firms suffer stiffer market penalty because they get more media attention. The authors

counted news articles at the time of recalls of the highest-reputation firm and the lowest — at the time those were Lexus and Hyundai, respectively. Again, results were unambiguous. “When Lexus had a recall, there were many more articles about it than when Hyundai did,” Haunschild says. Recalls get more publicity when firms are well-known for quality and when the recall affects many people.

Effects on Demand for Cars, Toys, Food

Product recalls can slow sales, and sometimes consumers are even reluctant to buy from rival firms producing products within the same category. Automotive recalls date to 1966 and the birth of NHTSA in the wake of the success of consumer advocate Ralph Nader’s 1965 book, *Unsafe at Any Speed*. That first year, manufacturers issued 58 recalls, affecting 982,823 vehicles. Recalled vehicle numbers have varied over the past decade, but the general trend indicates numbers are rising. In 2008, NHTSA announced 22.5 million vehicles in 781 recalls, but in 2009 the numbers fell to 570 recalls, affecting 17.8 million vehicles.

In years past, unbiased information about product quality was generally unavailable, certainly compared to the plethora of independent sources available today. Back then, consumers may have used recalls as a proxy for quality, according to economists Hoffer and his co-authors, Steven Crafton, formerly of George Mason University, and Robert Reilly of Virginia Commonwealth University. In a 1981 paper, they researched effects on demand for specific car models recalled, on models of the same make, and on the demand for similar models made by competitors (substitutes). The authors categorized recalls by severity, using data from NHTSA.

“What we found was that the market responded to a severe recall in the month after the recall,” Hoffer says.

“It did not respond to more minor recalls.” While a severe recall affected demand of the model recalled, it did not affect other lines within the same car make. In particular, the Ford Pinto recall was found to affect not only Pinto but competitors’ similar models. Consumers apparently inferred problems with similar-size models, regardless of the company of manufacture, according to the authors.

Another way the market can penalize firms is through equity response. Findings on shareholder wealth effects are mixed, however. Early work by economists Gregg Jarrell, currently of the University of Rochester, and Sam Peltzman of the University of Chicago in 1985 found effects greater than the direct costs of an automotive recall. Hoffer and his co-authors found no significant effects on auto firms’ shareholders or on recalled firms’ competitors.

More recent studies find that the stock market responds quickly to certain product defects, especially severe ones. For example, a recall on defective heaters cost shareholders less than an airbag recall. Economist Nicholas Rupp of East Carolina University found certain types of recalls caused significant shareholder loss, exceeding direct costs. “One of the conclusions I draw is that effects are limited unless they’re persistent and serious recalls, sometimes resulting in injury or death or in cases where the media piles on,” he says. Rupp measured the dollar value shareholders lost under certain recall characteristics, in order to identify attributes that cause significant losses. Particularly costly, he notes, are recalls of new makes and models “where consumers don’t have much information and then suddenly they get this news.” Minor recalls of heaters, defrosters, or air-conditioning units were not costly whereas airbag recalls were. Airbag recalls, in 1983 dollars, cost between \$136 million and \$162 million in equity losses, he estimated. Highly rated companies — those with AAA bond ratings — had the most

The Private Component of Product Safety Testing

Before consumers became more sensitive to product safety, the knowledge gap between the buying public and product makers loomed large. That’s when Underwriters Laboratory (UL) got started. UL today dominates the independent testing market, with 64 labs, testing, and certification facilities that serve customers in 98 countries. Founded in 1894 by an electrical engineer, UL first catered to insurance firms wanting to gauge fire risks associated with new electric appliances. UL developed testing for the hazards, and from there, the product list grew.

Today, 20 billion UL-approved labels go on 72,000 manufacturers’ products annually. Getting UL certification is voluntary, for the most part, and procedures and standards remain unregulated. In some cases, government testing standards may apply, and UL also has played a large role in promulgating some of the standards.

In the 1970s, Underwriters Laboratory investigated 10,000 incidents of television fires, and developed federal

television standards adopted and still used by the Consumer Product Safety Commission (CPSC). UL conducts quarterly product tests at factories to monitor quality, and companies pay for the tests and the use of the UL label, now a standard symbol of quality in the marketplace.

As recall numbers have grown, so has this private market for raters and certifiers. Such groups range from published “lists” to private labs like UL. Many are authorized to inform and certify products for government agencies such as the CPSC and the Occupational Safety and Health Administration (OSHA).

In other fields, bond agencies rate issuers, health-care raters grade hospitals, *Consumer Reports* magazine and J.D. Power and Associates rate products and services.

In 1988 OSHA established a list of recognized private laboratories to certify and test the products that must conform to the agency’s standards. Today, 15 private labs are recognized on OSHA’s roster.

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to lose from a recall announcement.

Economists Suresh Govindaraj and Bikki Jaggi of Rutgers evaluated in 2004 the market reaction in a specific case, the recall of the brand of tires linked to Ford Explorer rollovers. Market losses again exceeded direct costs for this firm. The authors also found that tire competitors gained market value, “probably because their products were substitutes for the products affected by recall.”

Another study documents how consumer perceptions produce these spillover effects to other products. The 2007 toy recall that covered items containing lead paint represented an 80 percent increase in the number of recalled kids’ toys over a two-year period. Economists found industry-wide effects. Even infant/preschool toy manufacturers without recalled products suffered a 25 percent decline in sales. Overall holiday sales for similar products by manufacturers named in the recalls fell by about 30 percent, compared to other products sold by the same makers.

Efforts to observe how people make decisions and inferences can prove useful to policymakers, according to one of the paper’s co-authors, economist Seth Freedman, a doctoral candidate at the University of Maryland. After the toy recalls, Consumer Product Safety Commission laws were strengthened. “If consumers punish the manufacturer enough, then the manufacturer will have incentive to produce safe toys,” he says. “But if consumers can’t direct the punishment to a specific target, then the manufacturer may have incentive to produce at lower quality.” He was referring to the multiple suppliers of toy parts to a wide range of companies. Since people didn’t know exactly which toys were made by suppliers using lead paint, purchases of toys that were in the recalled category declined generally.

Uncertainties about market response remain. For example, toy sales among nonrecalled categories didn’t suffer, even of those firms that were hit by the recall. But Freedman points out that it’s unknown whether consumer preference or the increased advertising and promotion by the company facing recalls were responsible. Freedman and his co-authors also found capital market losses at the time of the recalls but could not associate the losses with particular recalls.

Recent research has investigated spillover effects in the pharmaceutical industry. John Cawley of Cornell University and John Rizzo of Stony Brook University published a National Bureau of Economic Research working paper in 2005 using the withdrawal of a drug combination (fen-phen) from the market. The drug was withdrawn in 1997 for potentially fatal side effects. The paper found that competitor drugs benefited from that withdrawal.

Food recalls may represent the greatest threat for firms caught in the growing web of the supply chain when things go wrong. Those can be especially dangerous and costly, and may explain why food companies account for 75 percent to 90 percent of product recall insurance coverage, introduced in the late 1980s after Tylenol tampering. Demand for such insurance has been growing at a rate of about 30 percent a year. While most food companies don’t have product recall insurance because it’s expensive, demand is growing, according to insurers who offer these types of policies. The insurance can cover direct and indirect losses.

While the cost of auto and drug recalls have been investigated, there’s less research about product recalls of food despite recent illness outbreaks involving hamburgers, fruit juices, prepared meats, fruits, and vegetables. Agricultural economists Victoria Salin of Texas A&M University and Neal Hooker of Ohio State University investigated stock market reaction to four food recall events of microbiological contamination. Results varied by product, company size, scope, and severity. Returns to shareholders in some cases fell, but stock market reaction could not be detected in other incidents.

The empirical evidence that detects effects on firms in the case of recalls is hard to arrange and decipher, given the wide range of products, severity, timing, and reputation of firms. While less-severe recalls may be nonevents for firms, one certainty stands out: In the case of a major defect that causes illness or death, even a reputable firm will be penalized not only by regulators but also by the hand of the market.

“The market is efficient at meting out justice,” Rupp says. “The market will punish and reward accordingly.” **RF**

READINGS

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