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Toy Recalls - Is China Really the Problem?

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Executive Summary

The recall of an estimated 20 million Chinese-made toys by Mattel on August 14, 2007 shocked many parents in North America. Coming in the wake of reports about other defective products made in China, the latest recall generated severe reactions. In a poll conducted by *Embassy Magazine*, 75% of respondents reported that they had an unfavourable view of Chinese-made goods. In another poll by Zogby, close to 80% of respondents reported that they were apprehensive about buying goods made in China. Nearly two- thirds (63%) of the respondents reported that they were likely to join in a boycott of Chinese goods until the Chinese government improved its regulation of manufacturers. Discussing the recall, the Chief Executive Officer of Mattel, Robert Eckert, said "we wouldn't have faced this problem if our suppliers followed the rules." At a recent summit meeting in Canada, the prime minister of Canada, and the presidents of the US and Mexico decided to crack down on unsafe goods, particularly those designed for children.

The popular sentiment against Chinese-made products potentially has serious implications for global trade. Chinese-made goods such as toothpaste, pet food, toys, tires and jewelry have been found to be of poor quality or even dangerous. This is a problem encompassing a number of industries and affecting various groups of consumers. In this context, we have analyzed the recalls specifically of toys over the last two decades (1988 – 2007) to see if the number of recalls had systematically increased and what kind of problems were causing the recalls.

The study finds that the number of recalls and the number of recalls of Chinese-made toys have shown an upward trend. However, an examination of the reasons for the increase shows that the number of defects related to design issues attributable to the company ordering the toys is far higher than those caused by manufacturing problems in China. We analyzed these findings in light of the latest recall of toys by Mattel and make two major suggestions: first, ensure the accountability of toy companies to improve their product designs and second, encourage the development of global standards to enhance product safety. Our findings are based on toy recalls and apply to the toy industry. Nevertheless, our findings point to the need to examine the issue more broadly to find out where the responsibility for recalls lies.

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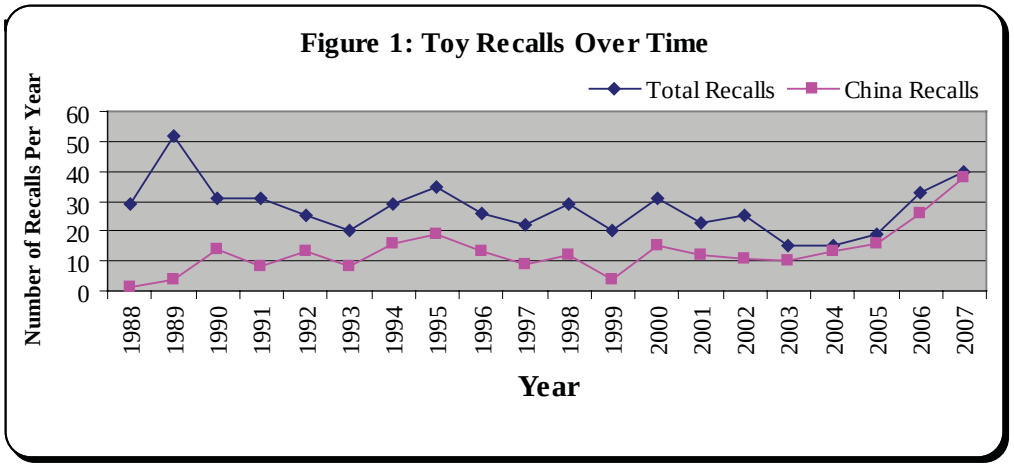
Product Recalls Over Time

The earliest instance of toy recalls from the records of the US Consumer Product Safety Commission (CPSC) was in 1974 when toy chests were recalled following the death of a child. Recalling toys and other products in large numbers is an infrequent but not an unprecedented event. In one instance in 2006, CPSC recalled over 150 million pieces of jewelry made in India and sold in the US, with each piece selling for as little as 25 cents. It was found that about half of the jewelry sold contained excess lead, but all of it was recalled because it was difficult to distinguish which pieces posed a danger and which did not.

Since 1974, over 680 toy products have been recalled. Of these, 550 recalls were made in the last 20 years. Each year, toys were recalled on an average of 28 occasions. The number of recalls over the last 20 years ranged from 15 (in 2003 and 2004) to 52 (in 1989). The number of recalls remained roughly stable until 2006, but appears to have been on the rise since then. This year, CPSC had recalled 40 toys up to August 15. If this data is extrapolated to the year-end, 2007 will see 56 recalls, which would be the highest number of recalls in the history of the toy industry. In other words, there has been a definite increase in the number of recalls in 2007. This trend may or may not continue, but there has been an upward swing since 2006.

Table 1: Toy Recalls (1988–2007)

Year	Total Number	Recalls of toys made in China	
		Number	Percentage
1988	29	1	3
1989	52	4	8
1990	31	14	45
1991	31	8	26
1992	25	13	52
1993	20	8	40
1994	29	16	55
1995	35	19	54
1996	26	13	50
1997	22	9	41
1998	29	12	41
1999	20	4	20
2000	31	15	48
2001	23	12	52
2002	25	11	44
2003	15	10	67
2004	15	13	87
2005	19	16	84
2006	33	26	79
2007	40	38	95



The number of recalls involving Chinese-made toys also appears to be on the rise over the last few years. Toy companies started moving the production of toys to China in the early 1990s. This trend has continued and accelerated in recent years. Recalls involving Chinese-made toys was hovering around 50% of the total until 2002, so recalls did not increase for well over a decade after manufacturing moved to China. However, since 2003, this figure had hovered around 80% and reached 95% this year. This rise is dramatic. It is important to examine what is causing this rise and what kinds of problems are cited in the recalls.

Of the 40 toy recalls so far this year, 13 were due to choking and swallowing hazards, which are responsible for the majority of recalls over the years. This number (13) is neither abnormal nor uncommon. However, in 2007, eight toy recalls were attributed to excess lead in surface paint. Another eight products were recalled because the small magnets in those toys posed a swallowing and aspiration hazard. These are not among the common causes of recalls over the years. In other words, the problems of magnets and lead paint seem to have resulted in the spike in toy recalls this year. The problems with magnets and lead are qualitatively different from each other and need a closer examination.

Toys Recalls – Design Problems or Manufacturing Defects?

Recalls become necessary because of a fault in design or manufacturing. The distinction between design and manufacturing is important, particularly in the context of the toy industry, because the design of toys is performed by toy companies such as Mattel whereas manufacturing is done by unnamed overseas manufacturers. Efforts to improve product safety and prevent recalls should be targeted at the source of a problem.

A design problem may involve sharp edges on a toy which could cut a child. Other common design problems involve small detachable parts such as balls and beads, which a child could swallow, risking choking.

Other examples of design flaws include open tubes and spaces, which can trap children's fingers or tongues; long strings that pose a strangulation hazard; and sewn buttons and glued eyes on stuffed toys (as opposed to button-less clothing on toys and embroidered eyes). A manufacturing problem can occur as a result of using poor material, such as toy stuffing that contains pieces of wire or broken sewing needles. Other examples of manufacturing issues are poorly fitted parts that break, batteries that overheat, and faulty electrical circuits. Using unacceptable materials or chemicals such as lead paint that are not part of the design are yet another problem in the manufacturing process.

A design problem will result in an unsafe toy irrespective of where it is manufactured. On the other hand, a manufacturing defect arises because of manufacturer errors or negligence. Toy companies develop a design in their home country, and then send it to a manufacturer in China along with specifications. If a toy's design is sound, it does not necessarily mean that the toys produced will be safe or of good quality. By contrast, if the design is poor, the toys manufactured will definitely be faulty. Only toy companies can prevent problems associated with designs. On the other hand,

manufacturing defects can be prevented by both manufacturers and toy companies. In the model of offshore production, manufacturers can prevent defects with careful production. The toy companies can prevent most of these types of defects with efficient quality control and inspection mechanisms.

If shifting manufacturing to China resulted in poorer quality goods, then the number of toys recalled due to manufacturing should be greater than the number recalled due to design. To examine this, we analyzed the recall information available in each communication of CPSC over the last two decades and coded each recall as involving a design problem or a manufacturing problem. In about 10 % of the cases, it was not possible to conclude from the information provided if the problem was a design or a manufacturing flaw. Such cases, were omitted from our analysis. Table 2 shows the data on toy recalls categorized into design flaws and manufacturing flaws.

Of the 550 recalls since 1988, an overwhelmingly number (420 or 76.4% of all recalls) were due to problems which could be attributed to design flaws. In contrast, only about 10% (or 54) of recalls are historically attributable to manufacturing defects such as poor craftsmanship, over-heating of batteries, toxic paint and inappropriate raw materials. In other words, the majority of recalls came about because of design-related problems rather than manufacturing defects.

Table 2: Toy Recalls by Type of Flaw (1988–2007)

Year	Total Number of Recalls	Number of Recalls due to Design Flaws	Number of Recalls due to Manufacturing Flaws
1988	29	25	2
1989	52	42	2
1990	31	25	3
1991	31	29	1
1992	25	16	0
1993	20	15	1
1994	29	21	4
1995	35	32	0
1996	26	15	5
1997	22	17	1
1998	29	23	1
1999	20	15	2
2000	31	25	2
2001	23	15	4
2002	25	20	3
2003	15	14	0
2004	15	8	4
2005	19	14	3
2006	33	23	6
2007	40	26	10

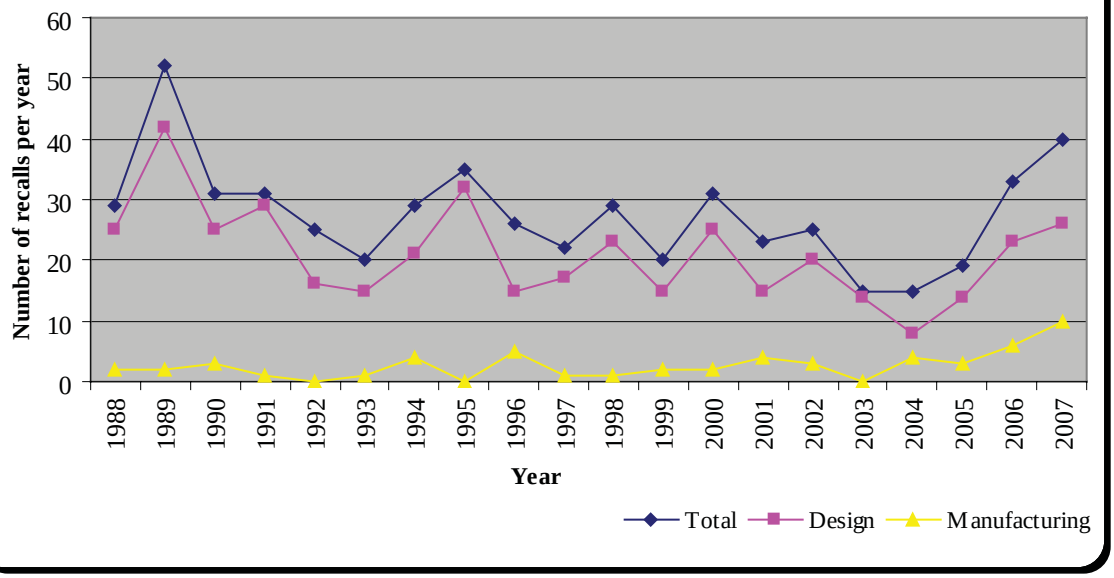
We analyzed the trend in recalls by flaw type to determine if manufacturing flaws or design flaws increased over the years. If Chinese-production

was a problem, then we would expect to see a rise in the number of toys recalled due to manufacturing problems. We found that, as shown in Figure 2, the number of recalls attributable to manufacturing remained roughly the same over the years, but increased in the last two years. In fact, manufacturing flaws accounted for around 20% of the recalls in the last two years. Similarly, the number of recalls attributable to design flaws exhibits an upward trend.

So design flaws resulted in an overwhelmingly large number of toy recalls in the last two decades. Not only have design problems been higher but they also hurt the consumer most. Since 1988, toys resulted in the deaths of four children. During the same period, toys caused 982 injuries on 70 occasions. Of the 70 recalls involving injuries, 51 recalls (73%) were attributable to design flaws whereas only six recalls (9%) were attributable to manufacturing defects. These figures do not include the injuries that may have occurred as a result of exposure to lead paint because the effect of lead cannot be detected as easily or as immediately as other injuries.

Based on our analysis, it is clear that deaths and most of the injuries could have been prevented with better designs and better manufacturing practices. Can companies and individuals learn from the recalls? Finding out what the problem is and what caused the defect is the first step toward learning from these toy recalls. In this context, it is important to examine the latest recall of toys made by Mattel and its Fisher-Price subsidiary.

Figure 2: Recalls by Flaw Type (1988-2007)



Mattel Recall – Design Flaw, Manufacturing Flaw, or Both?

In the latest instance, Mattel recalled four different toys numbering 11.5 million pieces in the US alone because the small, powerful magnets used in these toys could be easily removed by children. If two or more of these magnets are swallowed by a small child, they could cause intestinal perforations or blockage. The problem of small magnets that occurred in close to 90% of the toys recalled is a design flaw, solely attributable to Mattel, rather than a manufacturing defect. According to Nancy Nord, Chairperson of CPSC, the Commission has been seriously examining the problem of magnets in children's toys for over

a year. In March 2006, the CPSC and Rose Art recalled over four million Magnetix building sets following the death of a child due to ingestion of small magnets. This recall was followed up by more recalls of various products involving small magnets.

In the latest recall, Mattel also included 253,000 die cast Serge cars that had excess lead in their surface paint. This recall was a follow-up to the recall of 967,000 toys such as Dora and Elmo, which also contained excess lead. The problem of excess lead in surface paint that occurred in close to 10% of the toys recalled was a manufacturing defect, attributable to Mattel's Chinese manufacturer. It does not, however, mean that Mattel does not have any responsibility for the presence of lead paint in the toys it sold.

Excess lead in surface paint appears to be a significant problem. Of the 54 recalls made in the last two decades due to manufacturing defects, 31 (about 60%) involved lead paint. Of these 31 instances, on 16 occasions the toys were made in China. On other occasions, they were made in Australia (1), Hong Kong (3), India (2), South Korea (1), Mexico (2) and Taiwan (1). Clearly, there is a problem of differences in lead standards between the countries where the toys are made and the countries where toys are purchased. Sometimes, these standards are neither legislated nor publicized or if they are legislated, the standards are not enforced. This raises the risk of making and trading unacceptable goods.

As two different types of problems seem to affect toy safety, the solutions for addressing them need to be different. The design problems can be avoided by improving organizational learning. On the other hand, manufacturing problems can be avoided by setting global standards and improving management practices.

Improving Product Safety

China exports about 20 billion toys per year and they are the second most commonly imported item by the US and Canada. It is estimated that about 10,000 factories in China manufacture toys for export. Considering this mutual dependence, it is important that the problems resulting in recalls are addressed carefully. In the recent past, consumers have faced some of the biggest recalls in history. In August, 2006 Dell Inc. recalled over four million batteries installed in its notebook computers. The batteries were made by Sony in both Japan and China. On the same day that Mattel announced its recall, Nokia recalled 46 million batteries installed in its cell phones. Nokia is negotiating with the battery supplier, Matsushita, over the cost of the recall.

According to industry experts and analysts, these costly recalls are only expected to increase, so it is tempting to blame foreign suppliers.

Although the largest portion of recalls by Mattel involved design flaws, the CEO of Mattel blamed the Chinese manufacturers by saying that the problem resulted 'in this case (because) one of our manufacturers did not follow the rules.' Several analysts too blamed the Chinese manufacturers. By placing blame where it did not belong, there

is a danger of losing the opportunity to learn from the errors that have occurred. The first step in correcting errors is to know why and where the error occurred. The most critical step in preventing the recurrence of errors is to find out what and who can prevent it.

Not only can toy companies learn from their own recalls, but also from the recalls by other toy companies. The issue of magnets did not arise overnight for toy companies, but had been brewing for some time. It reappeared in early 2006, resulting in several recalls.

By paying attention to the early warnings, companies could have better responded to the hazards posed by small magnets by improving the design of their toys.

It is important that management practices be improved to handle the complexity of global supply chains. Companies offshoring their manufacturing to China (and similar countries) cannot simply rely on intermediaries and agents in Hong Kong or Singapore to coordinate production and ensure quality. Such an approach was good enough in the initial stages of offshoring, but clearly falls short a decade after offshoring became a common business practice. The offshoring companies need to develop capabilities and systems to engage more directly and closely with China and similar overseas manufacturing locations. Toy companies need to develop robust systems for quality control and testing of the toys manufactured at their suppliers' factories. Unless companies learn to manage these complexities, it is difficult to ensure product quality and safety.

Although Chinese manufacturers are not responsible for the recall of toys due to small magnets, it does not mean that all products manufactured in China are safe. On the contrary, products such as pet food and toothpaste made in China contained dangerous substances. The Chinese government and industry groups need to address this by ensuring that Chinese exporters adhere to the standards of the importing country. At the same time, the governments of importing countries need to encourage Chinese authorities to develop global standards on consumables, then legislate and monitor them. The difference in standards across the world is clearly an issue. These differences need to be addressed with high priority so that consumers can benefit from globalization of manufacturing and consumption.

The issue of global standards is contentious because different countries have different trajectories of development. The standards of developing countries may not be acceptable to a developed country. On the other hand, developing countries will sometimes argue that they cannot adopt the standards of the developed world because of the high costs associated with these standards. Nevertheless, exports from developing countries should adhere to the standards of the export markets. Accordingly, all those involved in the global supply chain such as suppliers, manufacturers and marketers need to develop systems to ensure the standards are applied.

In a globalized world where design, manufacturing and consumption of products are separated by large distances, slippage at any point can affect consumers all over the world. It is often difficult to pinpoint where the problem occurred. More importantly, the costs of such slippages can be huge. Therefore, all those involved in the supply chain must make extra effort to ensure product quality and safety. Adhering to importing country standards and developing global standards is easier said than done; nevertheless, it is a task that governments, corporations, industry associations and consumers need to address.

Conclusion

This analysis of toy recalls revealed that an overwhelming majority of the recalls could have been avoided with better designs by the companies ordering the toys. Therefore, it is important to focus efforts on learning from the recalls that occurred in the past to minimize their recurrence. The analysis also revealed that the presence of excess lead paint is a result of differences in the standards of exporting and importing countries. These could be avoided through legislation and education.

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