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The financial impact of product recall announcements in China

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ABSTRACT

A product recall can be viewed as a firm's worst nightmare. Although the long-term damage to brand equity and company reputation may be difficult, if not impossible, to quantify, the short-term impact on shareholders' wealth is readily estimable. While many studies have examined this issue in the Western context, little is known about the financial impact of a product recall announcement in China. To advance the knowledge about the financial impact of a product recall announcement, we explore this issue using event study methodology. In general, our findings are congruent with previous research that product recalls result in negative abnormal returns. Interestingly, however, we found that Chinese companies suffered from greater financial losses than their Western counterparts did. This study also provides evidence that the Chinese food industry experiences a more severe stock market reaction than the automobile industry and that a passive recall strategy was associated with a more negative stock market reaction than a proactive recall strategy. We conclude with several future research avenues for global research on product recalls.

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1. Introduction

The recent surge in product recalls of Chinese-made products has attracted substantial attention from government and academia, due to their danger to consumers. In Europe, 50% of the product risk notifications in 2005 were related to products from China (European Commission 2005). Statistics announced by the Consumer Product Safety Commission of the US (2007) (www.mondag.com/article.asp?articleid=57594) show that 67% of all product recalls came from Chinese-manufactured products. Thus, product safety in China has become a knotty issue that awaits disposition. For the first time, food and drug safety issues were the topic of Chinese government report in 2009, pointing out that "The government will implement strict market access rules and product traceability and recall systems so that the people buy food and drugs with confidence and consume them with satisfaction." (Wen, 2009). The "Food Safety Law of the People's Republic of China" has been in effect since June 1, 2009, emphasizing inspection for food safety in all tiers, from farm to fork. This action signifies that the Chinese government has decided to pay close attention to product safety issues and thus places substantial value on the enhancement of product quality.

A product recall is an example of a product-harm crisis, which is defined as a "discrete, well-publicized occurrence wherein products are found to be defective or dangerous (Dawar and Pillutla, 2000, pg. 215)". Product harm crises have been increasing in frequency, which has been attributed to globalization, increasing complexity of products and higher consumer demand, as well as more stringent product safety legislation (Dawar and Pillutla, 2000; Karipidis, 2011). Product harm crises and subsequent product recalls are "among a firm's worst nightmares (Heerde et al., 2007, p. 230)," because they cause consumer panic and are very costly, as seen in the recent case of the Sanlu group, which was at the center of the Chinese melamine-tainted milk powder crisis, which filed for bankruptcy proceedings due to the mounting health liability claims associated with its defective milk powder. Product recalls cannot only ruin carefully cultivated brand equity and tarnish a company's reputation, but they can also result in major revenue and market-share losses (Chen et al., 2009).

Although estimating the long-term damage of product recalls on brand equity and company reputation is difficult, if not impossible, the short-term impact on shareholder wealth is nevertheless estimable through the use of event study methodology. The underpinnings of event study methodology state that, in an efficient market, the financial impact of an unanticipated event will be immediately reflected in stock prices (Fama, 1970). Since a product recall is an important unanticipated economic event, the study of the shareholder wealth effect of product recalls provides a good understanding of the efficiency of stock markets (Pruitt and Peterson, 1986). While there is a substantial body of research which has discussed and examined the short-term impact of a

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product recall on shareholders' wealth in a Western context (Jarrell and Peltzman, 1985; Pruitt and Peterson, 1986; Hoffer et al., 1988; Bromiley and Marcus, 1989; Davidson and Worrell, 1992; Thomsen and McKenzie, 2001; Govindaraj et al., 2004; Chu et al., 2005; Cheah et al., 2007; Chen et al., 2009), mostly providing evidence in support of the efficient market hypothesis, little is known about the impact of a product recall announcement in the Chinese stock market. This is important because of China's emerging economy. Many consumer products and components are produced in supply chains that extend through emerging economies, thus this topic has implications in China, as well as in the developed world. In addition, the number of consumers in China is very large, and developing a better understanding of their reaction to recall announcements contributes to the study of supply chain quality. Furthermore, if a company does experience a product-harm crisis and subsequent recall, it is important to effectively craft a recall strategy to mitigate the potential negative effects.

In order to advance the knowledge about the impact of product recalls in China, we investigated the stock market reaction to a product recall announcement, based on publicly listed companies in China. We used event study methodology and compared our findings with those from previous studies that examined publicly listed companies in Western stock markets. We also examined the companies' posture towards supply chain product-harm crises and subsequent product recalls, investigating whether the stock market would react differently depending on the recall strategy followed by affected companies in announcing the recall.

The remainder of the paper is organized as follows. The literature is reviewed and the hypotheses are developed in Section 2. The research methodology and data analyses are described in Section 3. Section 4 discusses the empirical results. Concluding remarks and suggestions for further research are presented in Section 5.

2. Theoretical background and research hypotheses

2.1. Financial impact of a product recall

A product recall, like other types of negative publicity, can severely damage a firm's image, and even worse, destroy investors' confidence, which will be reflected in the decline of its stock price. Although the long-term damage to brand equity and company reputation associated with a product recall may be difficult, if not impossible, to quantify, the short-term impact on shareholders' wealth is readily estimable through the use of event study methodology, based on daily stock prices. Event study methodology is a well-established approach that has been used in numerous academic papers to measure the financial impact of unanticipated corporate events, such as supply chain glitches (Hendricks and Singhal, 2003), and the announcement of quality award winners (Wright et al., 1995), ISO9000 (Lo et al., 2009).

Prior researchers have examined the short-term effects of a product recall announcement on the stock prices of affected companies, based on product recalls in the United States (Jarrell and Peltzman, 1985; Pruitt and Peterson, 1986; Hoffer et al., 1988; Bromiley and Marcus, 1989; Davidson and Worrell, 1992; Thomsen and McKenzie, 2001; Govindaraj et al., 2004; Chu et al., 2005; Cheah et al., 2007; Chen et al., 2009). These studies have revealed that, in general, a significant decline in stock price followed a product recall announcement. For example, Jarrell and Peltzman (1985) found that the shareholders of firms producing recalled drugs and automobiles bore financial losses that exceeded the direct costs of recalling the defective products. Much of the prior research on the stock market reaction to a product recall announcement has focused on recalls in the automotive industry (Hoffer et al., 1987; Reilly et al., 1983; Rupp, 2001; Rhee and Haunschild, 2006; Haunschild and Rhee, 2004), however, other notable studies have focused on pharmaceuticals (Dowdell et al., 1992) and tires (Govindaraj et al., 2004). Hendricks and Singhal (2003) studied the effect on stock price associated with supply chain disruptions, in general, which included product recalls across industry types as one type of supply chain disruption.

There has been some debate in previous event studies about the size of the stock market reaction to a product recall announcement. Hoffer et al. (1988) found "little evidence" of a significant effect for a recall firm, after correcting some methodological problems and reclassifying and reanalyzing Jarrell and Peltzman's (1985) data for the 1975–1981 period. Bromiley and Marcus (1989) found that the negative stock market reaction to defective automobile recalls was too small to prevent producers from providing defective automobiles, compared to the expected potential gains from providing these defective products.

As a baseline, we propose:

H_1: A product recall announcement is associated with a negative abnormal return on stock price.

2.2. Signaling effect of recall strategy

Investors may react differently to news of the discovery of a product hazard, depending on the actions and strategies followed by the responsible companies. Beyond the publicly available information contained in the recall announcement, companies take different actions, in terms of when to announce a recall and how to handle it. For example, Siomkos and Kurzbard (1994) divided company responses to a product hazard into four categories: denial, involuntary recall, voluntary recall and super-effort, comprising the "company response continuum." It is important to understand consumer and market reactions to different recall strategies, in order to effectively craft a suitable recall strategy to mitigate the potential negative effects of a product recall announcement (Siomkos and Kurzbard, 1994; Rupp, 2001; Orlitzky et al., 2003; Chen et al., 2009).

Researchers have argued that the stock market reaction to a product recall announcement may vary considerably, depending on the information content of the recall announcement. This is supported by signaling theory (Connelly et al, 2011), which posits that the market interprets an event in terms of the signal that it sends about the quality of a good or service. Buyers and sellers possess asymmetric information about product quality for items that are high in experience qualities; the quality of an item that is high in experience qualities can only be evaluated after it has been purchased and consumed. In the absence of complete information about product quality (Boulding and Kirmani, 1993), consumers form their own "intuitive theories" (Wright, 1986, p.1) about the quality of a product they are considering purchasing. In order to send a high quality message about their products, sellers may rely on signals such as price (Zeithaml, 1988), advertising (Kirmani, 1990; Kirmani and Wright, 1989) or warranties (Kelley, 1988; Wiener, 1985). Based on such signals, consumers form their impressions of the quality of the products that are offered (Beales et al., 1981), prior to purchase.

In the case of a product hazard, the sellers may know about the existence of the hazard, as well as its severity and pervasiveness, but potential buyers do not. A seller which has discovered a minor, non-pervasive product defect may be motivated to accurately inform potential buyers about it, so that it can appropriately compensate the buyers. Thus, buyers may interpret a proactive recall announcement as a signal of a minor, non-pervasive hazard. In contrast, a seller which has discovered a serious, pervasive product defect may prefer to deceive the buyer about the unobserved quality of the product, in order to capture undeserved returns in the marketplace. Because of the pervasiveness or severity

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