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Drawing negative inferences from a positive country-of-origin image

Consumers' use of COI and price levels to assess counterfeit drugs

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Abstract

Purpose – The purpose of this paper is to explore how a positive country-of-origin image will impact consumer perceptions for a high-risk product when the price is unexpectedly low.

Design/methodology/approach – An experimental approach was used with consumers from the USA and India. Consumers were divided into groups and given two scenarios that involved purchasing medicine that may have been counterfeit. In one scenario manufacturing took place in India, the other in Switzerland. They were asked to state the probability that certain goods could be counterfeit if they originated from the stated country and then make choices based on those perceived probabilities. An analysis of variance was conducted to test for differences between groups.

Findings – The authors found that in both samples consumers attached greater probabilities toward low-priced medicines if they originated from Switzerland vs India. Conversely, the higher priced medicines were more likely to be counterfeit if they originated from India vs Switzerland. When given a choice scenario consumers chose more versions of the cheaper products from India than from Switzerland.

Originality/value – When country-of-origin is salient then it is believed that a positive country-of-origin image will benefit products that are produced from that country. Consumers expect that more expensive products come from a country with a positive country-of-origin image. The results demonstrate that when there is a conflict between expectations of the country and the price of the product the outcome is lowered perceptions and consumption of the product. This holds true for consumers from a high-cost economy (USA) and consumers from a low-cost economy (India). The authors add to the literature on country-of-origin by demonstrating that a positive image can be a liability when consumers are wary of purchasing a high-risk product.

Keywords India, Image, Switzerland, International business, Country-of-origin, Counterfeiting, Country-of-origin image, Counterfeit goods

Paper type Research paper

Within the literature, the efficacy of the country-of-origin (COO) heuristic has generated much debate (Usunier and Cestre, 2008; Magnusson *et al.*, 2011; Usunier, 2011). Proponents of this heuristic have demonstrated that COO can influence consumers' perceptions of brands (Diamantopoulos *et al.*, 2011; Usunier, 2011) and products (Herz and Diamantopoulos, 2013). Consumers can use the COO to reduce their uncertainty regarding the quality of the product by applying a positive COO image toward creating positive perceptions of the product (Han, 1989; Haubl, 1996; Laroche *et al.*, 2005). Opponents of the COO heuristic counter that country-of-origin image (COI) is not relevant because consumers fail to connect products or brands with any particular country (Magnusson *et al.*, 2011; Samiee *et al.*, 2005; Liefeld, 2004). In other words, prior work has made the argument that the COO is simply not a significant cue when assessing a product.

We acknowledge that opponents of the COO heuristic have merit, especially when the dominance of the brand nullifies any interest or impact from knowing where the brand originated or where the product was manufactured. For example, consumers may be less interested in knowing that Samsung is a Korean firm and more interested in relying on the knowledge that their phone is a Samsung product. We agree that, at times, the COO may not be utilized by consumers; however, this is not to say that it is never used by consumers.

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Noteworthy events indicate that the COO can be made relevant when consumers face the possibility of purchasing a dangerous product that has been manufactured overseas. For example, consider the case of toy recalls when toys manufactured in China were made with lead paint (Bapuji, 2011). A significant amount of media attention including a question in one US presidential debate focused on the fact that these toys were manufactured in China, and consumers then used this information to form negative perceptions of toys from China in general (Bapuji, 2011). This incident illustrates that the COO can become a relevant factor, especially when consumers face the risk of purchasing hazardous products.

Prior work has demonstrated that when consumers have information on the COO and seek to avoid making an unwise purchase, they can use their perceptions of the manufacturer's COO to minimize their risk of purchasing a poor-quality product (Cordell, 1991). Our paper draws on theories of signaling and the expectancy-violation framework to argue that the COO creates expectations regarding products that originate from the country. To test our argument, we draw from incidences where drugs of different price levels may be counterfeit, and in this way, we explore how consumers use their expectations of a COO to draw inferences on the authenticity of the drugs and also on their own subsequent choices concerning the drugs.

The purpose of this paper is to examine how COI, price and counterfeit likelihood affect consumer perceptions and choices of a risky product. Specifically, we examine how both a positive and negative COI interacts with varying price levels of a risky product (potentially counterfeit drug) to influence counterfeit perceptions and choices that consumers make. Prior work has demonstrated that when consumers lack familiarity with a product, the COI can enhance consumer perceptions of the product (Han, 1989) while, conversely, a negative COI can reduce consumer perceptions of a product or brand (Johansson *et al.*, 1994). If these arguments hold, then consumers who are wary of purchasing a risky product would choose the product from the country that holds a more positive COI.

In line with the argument above, consumers would also expect higher priced products to originate from countries that are perceived positively and lower priced products to originate from countries that are perceived negatively (Agrawal and Kamakura, 1999). However, as demonstrated by the emergence of Chinese luxury brands as Ming's jewelry which is sold for a premium in US outlets or discount wines from France such as the country wines that are priced significantly lower than their premium counterparts (Bartlett, 2009), these expectations may not match reality.

When the COO creates one expectation and varying price levels create another, it is unclear how consumers are influenced by both in the choices that they make. Furthermore, when the risk of purchasing a dangerous product is present consumers seek to alleviate that risk by using multiple cues to determine quality, or in this case authenticity. This study contributes to the literature on COO by examining COI and varying price levels simultaneously. We create a scenario where a low-priced product originates from a country with a positive COI and a high-priced product originates from a country with a negative COI. The price levels do not match the COI but consumers must evaluate both and determine the likelihood that the product is counterfeit. Consumers must also make choices in terms of the quantity of each product that they would purchase given the conflict between price and COI. In other words, consumers must draw inferences from the varying price levels and the COI.

Conceptual framework

A positive COI is built, in part, on the consumer's assessment of products from the COO (Parameswaran and Pisharodi, 1994). If the consumer has a positive experience with that country, or if their knowledge of products from that country is positive, then the country COI is enhanced (Parameswaran and Pisharodi, 1994). Prior work has done well to establish

that a country's legal and socioeconomic conditions can affect the economic development within it (Gould and Gruben, 1996). If the environment has a strong regulatory component, then product quality is enhanced, which translates into a better standard of product for the consumer (Majid and Bapuji, 2012) and, in turn, enhances the COI. We argue that a positive COI indicates a standard of quality for products and can serve as an attribute that helps consumers to distinguish risky or illegal products from legitimate ones.

The choice between a potentially risky (and illegal) product and a legitimate product represents an asymmetry in the marketplace wherein the manufacturer knows which product is legitimate, but the consumer does not (Grossman and Shapiro, 1988a). Consumers are wary of purchasing the risky product, so they rely on signals that can be used to distinguish good products from bad (Grossman and Shapiro, 1988a). The signal is a form of distinguishing good from bad because bad sellers such as those that sell poorly made products cannot afford the cost of providing the signal (Kirmani and Rao, 2000). For example, consumers who are wary of purchasing from an overseas seller may use the length of warranty as a means to differentiate good sellers from bad (Kirmani and Rao, 2000). The warranty information provides a signal for the consumer, who then goes on to infer that a disreputable seller is unlikely to offer a good warranty for fear that consumers will actually use it (Kirmani and Rao, 2000).

Though often implied but not explicitly stated, the COO may act as a signal that consumers can use to distinguish a risky product from a safe one. Countries enact laws that impose a cost on manufacturers, which may inhibit the ability of disreputable manufacturers to operate in that country. A country such as Switzerland enforces strict laws on intellectual property (IP) rights, imposing large penalties on any manufacturer that violates those laws (World Intellectual Property Organization, 2013). If a manufacturer sought to produce goods that violated IP laws, they may opt to produce their goods in a country that does not impose (or enforce) large penalties on those who violate the IP laws. In other words, a positive COO image may create expectations that an illegal product would unlikely be manufactured in that country.

Furthermore, according to signaling theory, the costs that are used to differentiate between good and bad manufacturers are incurred by the good manufacturers because they can afford to bear those costs (Kirmani and Rao, 2000). Legitimate manufacturers that benefit by signaling quality can absorb the cost of manufacturing in the regulatory and economic environment because they can recoup these costs by charging higher prices. A consumer may be willing to pay more for wine from France than from Australia because of the strict manufacturing classifications that France upholds across its wine-making industry (Bartlett, 2009).

In our framework, we argue that the COI and perceptions of quality work simultaneously; that is, quality products improve the COI, and the COI creates perceptions of quality. The positive signal (the COI) in turn creates a positive expectation for consumers of products from the COO, and these expectations translate into an implicit promise that product quality will align with those expectations (Rhee and Haunschild, 2006).

Prior work has shown that positive expectations may not be beneficial for the firm when the actual product does not meet those expectations (Rhee and Haunschild, 2006). When a consumer expects a quality product, but the reality does not meet these expectations, then, based on the expectancy-violation framework introduced by Burgoon and Poire (1993) and supported empirically by Rhee and Haunschild (2006), products with positive reputations have the most to lose. In our context, the COO creates expectations, but varying price levels leave open the possibility that these expectations will be violated.

Q2

Research context

We use the global market for counterfeit products as the research context for our study. According to statistics on goods seized, over 1.5 billion euros worth of goods were seized by

authorities within the European Union between 2012 and 2013 (European Commission – Taxation and Customs Union, 2014). In the USA almost $1.1 billion worth of goods was seized by customs authorities in the same period (US Department of Homeland Security, 2013). The counterfeit markets cover a wide variety of products, from designer sunglasses to medicines, with products originating from over 50 nations (US Department of Homeland Security, 2013).

We draw on the work of Zaichkowsky (2006) to conceptualize counterfeits as an imitation of the real version. In our context, counterfeits are not direct copies because a direct copy implies that the product is the same in composition and quality as the original version (Zaichkowsky, 2006). Rather, a counterfeit is an imitation of the original version, but with a lower standard of composition and no similar expectation of quality (Zaichkowsky, 2006). For example, counterfeit drugs may portray themselves as the original version, but they do not contain the same ingredients as the original version. In line with the work of Grossman and Shapiro (1988b), the counterfeit drugs would be referred to as "deceptive counterfeit goods" because they attempt to portray themselves as the legitimate versions. These products attempt to portray themselves as legitimate versions by representing as close to the legitimate product as possible both in design and price. The motivation for doing so is based on the premise that if consumers knew that the goods were counterfeit they would not purchase them, counterfeit drugs fall under this category (Grossman and Shapiro, 1988a). In contrast to deceptive counterfeit goods are non-deceptive counterfeit goods which make very little attempt to conceal their true identity because consumers may actively seek these goods as low cost alternatives to the legitimate versions (Wilcox *et al.*, 2009). For example, consumers may buy luxury handbags at several hundred dollars less than the actual price because they prefer the illusion of owning the product rather than paying full price for the actual product (Wilcox *et al.*, 2009).

Recent research has done well to explore the impact that counterfeit goods can have on brand relationships (Commuri, 2009) and show how brand perceptions may motivate consumers to purchase counterfeit goods (Wilcox *et al.*, 2009). However, counterfeit goods are not simply embodiments of luxury brands. They can also be functional goods, such as movies and pharmaceuticals. Our study focuses on deceptive counterfeits such as pharmaceuticals that have the potential to cause significant harm to the consumer and because of this consumers actively try to avoid purchasing these products (Aldhous, 2005).

It is well known that price can be used as a cue to cast suspicion on counterfeits (see e.g. Grossman and Shapiro, 1988a, b), wherein an unexpected low price can serve to warn the consumer of a possible counterfeit. Research has shown that COO functions as yet another cue. "Made in" labels that show unexpected origins can also evoke suspicions of counterfeits. (see e.g. Chakraborty and Allred, 1996) This paper argues that COO effects play an enhanced role with respect to consumer choice when consumers first become wary of purchasing a counterfeit product because of its low price. We test this proposition in a high-risk setting – the purchase of a malaria medicine.

The presence of high-risk counterfeit goods in the marketplace often captures the attention of government agencies, who seek to protect consumers, and of the media, which seeks to inform. In recent years, a trend has emerged to alert the public as to the origin of these counterfeit goods so consumers can avoid purchasing the counterfeit versions of the products. As part of this investigation, a scan of news reports was first conducted between September 2010 and October 2010. During this time period, media reports of counterfeit goods published in mainstream media outlets in the USA were analyzed, and indications of the goods' COO (outside the USA) were then recorded.

Only unique reports were counted within the analysis; therefore, news articles from several different outlets but reporting on the same incident were counted only once. Over the course of the 61-day period, no less than 42 news stories revealed incidents of counterfeit goods.

Of the 42 news reports, 30 (i.e. approximately 71 percent of the total number) indicated the country where the goods originated. This high level of reporting is to be expected since a large majority of counterfeit goods are seized by customs authorities upon arrival in the destination country.

Hypotheses development

Our hypotheses reflect the perceptions consumers form and the choices they make when they receive information on the COO and they in turn seek to avoid the purchase of a high-risk product. We test these hypotheses in a high-risk setting – the purchase of a malaria medicine. In this study, high-risk products are represented by counterfeit drugs, and price variations are represented by a price of $6 for a low-priced item and $15 for a higher priced item. Our rationale for choosing these two price points will be explained during our discussion of the methodology used.

COO and counterfeits

When counterfeit products originate from a country that also produces legitimate products, a scenario emerges in which consumers must differentiate the legitimate from the counterfeit. In the majority of cases, this assessment can be made simply by relying on price, since lower priced items are more likely to be counterfeit than their higher priced alternatives (Chakraborty and Allred, 1997). However, a question remains as to whether the mere existence of a counterfeit product can harm consumers' perception of the higher-priced good. The reluctance of legitimate manufacturers to produce pharmaceuticals in India would indicate that this is the case (Lakshmi, 2010). An abundance of counterfeit drugs in India has led to a reluctance on the part of legitimate manufacturers to introduce their new drugs into the Indian marketplace for fear that their product too will be perceived as counterfeit (Lakshmi, 2010).

To answer the above question – "Can the existence of a counterfeit product harm consumers' perception of the legitimate article?" – we turn our attention to the country image to gain some useful insights. The extensive literature on the effects of COO tells us that consumers' impressions of a particular country can influence their opinion on a product from that country (Bilkey and Nes, 1982; Johansson and Nebenzahl, 1986; Chao, 1993; Han, 1989; Haubl, 1996; Diamantopoulos *et al.*, 2011). The COO effect can vary from positive to negative. Further, the causality is reciprocal – a country's products can also color how consumers view the country itself. Thus, if the product experience is negative, then attitudes toward similar products from the producing country will be negative as well (Haubl, 1996).

Papadopoulos and Heslop (2002) argue that, through a halo-construct mechanism, consumers form beliefs about a country through their interaction with products, people, and images from that country. This effect in turn creates expectations for products manufactured within that country (Johansson *et al.*, 1994). It is reasonable to expect that higher priced goods stand to benefit from these associations and will be less likely to be perceived as counterfeit than will their lower priced alternatives. Consumers have an expectation that goods that are manufactured in a positively perceived country will have a high price to begin with, which creates an expectation that the higher priced good is likely to be of exceptional quality (Haubl, 1996). In contrast, when a country is perceived negatively, consumers may naturally expect lower priced products from that COO.

In line with previous research (Chakraborty and Allred, 1997), it is likely that the lower priced product will be perceived as more likely to be counterfeit; however, the perceptions toward the higher priced product may suffer the most when consumers become aware that the country exports counterfeit versions of the product as well. We draw on the expectancy-violation framework to support this assertion.

Quality expectations can be viewed as an implicit promise from a producer to its potential customers to produce goods with a quality level commensurate with reputation and product expectations (Rhee and Haunschild, 2006). Given this status, the better a country's image, the greater the extent to which poorly made products will be viewed as a breach of that implicit promise (Rhee and Haunschild, 2006). This expectation has been referred to as the expectancy-violation effect (Burgoon and Poire, 1993). Consumers will react more strongly to actions that violate their previous expectations, provided those expectations were high (Rhee and Haunschild, 2006).

These expectations are developed based on the COO, and a low-priced product from a country with a positive image violates this expectation. Consumers expect that higher end products will come from countries with a positive COO, and that lower end products will originate from countries with a negative COO (Johansson *et al.*, 1994). Under a scenario where consumers must distinguish between an authentic and a counterfeit product, the consumer may use a combination of price and COO to discern the product's nature. Previous literature has done well to demonstrate that lower-priced products are more likely to be perceived as counterfeit (Chakraborty and Allred, 1997), and our analysis extends this argument by considering the COO cue as well. If consumers are given two prices for a product made from a country with a positive COO image, it seems plausible that the lower priced version would violate the consumer's expectations of that country. Low-priced products from a country with a positive image are more likely to be perceived as counterfeit compared to low-priced products from a country with a negative image. Stated formally:

H1a. Lower priced products from countries with a positive image are more likely to be perceived as counterfeit than are lower priced products from countries with a negative image.

Alternatively, higher priced products are already less likely to be perceived as counterfeit. When we consider the added effect of the COO, we anticipate that the country image will further decrease the likelihood, depending on consumers' perceptions of the country. In other words, a high-priced product will be seen as less likely to be counterfeit than will a low-priced product, but when the consumer includes the COO in the assessment, then a positively perceived country will reinforce the consumer's sense that the product is not counterfeit:

H1b. Higher priced products from countries with a positive image are less likely to be perceived as counterfeit than are higher priced products from countries with a negative image.

Following their assessment of the perceived likelihood of the product being counterfeit, consumers will then make choices to avoid purchasing a high-risk, counterfeit good. Based on the earlier hypotheses regarding the role of country image when choosing between two uniquely priced goods, one of which is suspected of being counterfeit, we propose a similar argument that consumers will be more willing to purchase the higher priced good if it originates from a country with a positive COI. If consumers had a choice between products that originated from a country perceived positively and a country perceived negatively we argue that they will show preferences (as measured by the quantity purchased) for products that originate from a country perceived positively. Stated formally:

H2a. Consumers are more likely to choose a greater quantity of the higher priced product if it originates from a country that has a positive image than if the higher priced product originates from a country with a negative image.

Conversely, consumers may be skeptical about purchasing a higher priced, high-risk good from a country with a low COI when the threat of purchasing a counterfeit good is present.

We refer back to our earlier argument using the expectancy-violation framework (Burgoon and Poire, 1993; Rhee and Haunschild, 2006). Consumers expect higher priced products to come from countries with a positive image and lower priced products to come from a country with negative image. We expect that consumers would be hesitant to purchase lower priced products from a country such as Switzerland because they expect only higher priced products to come from this country. At the same time, it is conceivable that lower priced products from a country such as India may be legitimate. Therefore, if they had to purchase lower priced products from India or Switzerland, we would find no net effect from COI:

H2b. Consumers are no more likely to choose a greater quantity of the lower-priced product if it originates from a country that is perceived negatively than if the lower-priced product originates from a country that is perceived positively.

Methodology

Study 1

We employed an experimental approach using a total of 226 participants to test the proposed hypotheses. In all, 63 participants took part in the pre-test and 163 took part in the actual study. The participants were undergraduate students at a large southeastern university in the USA, and they were given course credit in return for their participation. Although the use of student samples has previously been cited as a limitation of studies on international business phenomena because students are not representative of the larger population (Bello *et al.*, 2009), prior work on counterfeit goods has found that those in the age demographic of undergraduate students are more likely to have exposure to counterfeit goods compared to those in higher age brackets (Tom *et al.*, 1998). Hence, the use of student samples in the present study extends beyond a matter of simple convenience.

In our study, we manipulated perceived risk, price, and COO. To manipulate perceived risk, we used a product category that was viewed as having high levels of perceived risk – that is, pharmaceuticals. Informed by the work of Kaplan *et al.* (1974), we conducted a pre-test with 63 participants to measure perceptions of risk for different products, based on a seven-point Likert scale ($\alpha = 0.81$). We found that counterfeit pharmaceuticals had the highest level of perceived risk ($M = 4.09$, SD = 1.34) in our pre-test, and this category was therefore chosen to represent a product that had high perceived risk.

Our country manipulation contained two different countries: India and Switzerland. We chose two countries because both have previously been linked with the production of counterfeit medicines (European Commission – Taxation and Customs Union, 2007). We measured country image for India and Switzerland using an assessment developed by Laroche *et al.* (2005), and we found that participants had a significantly higher positive image of Switzerland vs India (M_Switzerland = 5.65 vs M_India = 4.58, $F(1, 45) = 5.29$, $p < 0.01$).

In a further pre-test, we evaluated whether consumers would view the following products as more likely to be counterfeit if they originated from India (higher COI) vs Switzerland (lower COI): running shoes, computers, pharmaceuticals, cosmetics, DVDs, and watches. We used a single-item, seven-point Likert measure, anchored by "very unlikely" to "likely," to measure the likelihood of each of these products being counterfeit if they originated from the two countries. With the exception of cosmetics, which indicated no significant differences between the two countries, all product categories were rated as more likely to be counterfeit if they originated from India vs Switzerland.

We manipulated price by having two different price points, \$15 and \$6. We chose these dollar values because we wanted to emphasize that one item was significantly higher priced than the other. Before the study began, we held a discussion with 12 seminar participants

from an undergraduate course in international business. The participants were given the experimental scenario and told that two price points had to be chosen that would persuade consumers to choose one product over another. Based on the discussion, a concern arose that if the prices were too different, they would be considered different versions of the same product. In further discussions, participants agreed on the $6 and $15 because these options led to perceptions that the products were still largely the same but had somewhat different prices. We wanted to avoid the scenario where consumers would attribute the price differences to two different products, and our discussions indicated that this was the case.

Procedure. Our study design involved a three-cell (COO: Switzerland vs India vs no country) between subjects by two-cell (price: $15 vs $6) within subjects experimental design for a total of three unique cells. Each participant purchased either from India, Switzerland, or no country, and each participant chose between $15 and $6 versions of the product in question. There were no participants that purchased from more than one country, thus each group was independent of each other. The participants were randomly divided into the three country conditions. Cell sizes ranged from 52 to 57 participants per cell, for a total of 163 participants.

The participants were asked to read a BBC news story that alerted consumers to the presence of counterfeit drugs from Switzerland, India, or no country, depending upon which cell the participant was placed in. The news story was taken from an actual article written by the BBC on February 3, 2009, but was slightly modified to specify that the counterfeit drugs were anti-malarials and that the COO was either Switzerland or India, or there was no mention of any country. Participants were asked to rate the story's credibility using a four-item scale assessing credibility ($\alpha = 0.86$). On average, the participants in the pre-test gave it a rank of 5.34 on a seven-point Likert scale.

Following the rating, the participants were given a hypothetical scenario where they were told they were travelling in Asia, and they needed to purchase some anti-malarial medication while on their trip. They were told they had $35 to spend on this medicine, which could be purchased in either of two stores in the same shopping area. One store was selling the medicine for $15, while the other was selling it for $6. Participants were also told that one, both, or neither of the versions could be counterfeit, and it was up to them to determine the likelihood that either could be counterfeit and to purchase as much as they wished to, subject to their income constraints. The only stipulation apart from the income constraint was that the participant must purchase at least one unit of the anti-malarial medicine.

Before making their choices, participants were asked to state their personal degree of assumed probability that each version of the product, the $15 medicine and the $6 medicine, was counterfeit. Finally, depending on which cell the participant had been assigned to, the participant was told that both versions of the medicine were from Switzerland, or they were told they were from India, or there was no mention of COO. It should be noted that we used fictitious names for the retailers and no brand names for the medicines in order to mitigate potential confounding effects of cues other than price or COO.

Results study 1

We conducted a one-way ANOVA to test *H1a* and *H1b*. *H1a* proposed that lower priced products from a country with a positive image (Switzerland) are more likely to be perceived as counterfeit than lower priced products from a country with a negative image (India). Specifically, consumers will attach a higher probability of the $6 medicine being counterfeit if it is from Switzerland than if it is from India because of differing expectations that they have of those two countries. We found the difference for $6 drugs to be significant between countries ($F(1, 82) = 13.60$, $p < 0.01$, $M\_\text{Swiss} = 71.90$ vs $M\_\text{India} = 58.29$), and thus, *H1a* was supported.

Alternatively, in support of *H1b* the reverse pattern occurred for the $15 counterfeit goods. *H1b* stated that higher priced goods from a country with a positive image were less likely to be perceived as counterfeit than lower priced goods from a country with negative image. We found that consumers perceived the $15 medicine from India as more likely to be counterfeit (M_India = 43.52) than the similar medicine from Switzerland (M_Swiss = 26.76). Furthermore, in order to check the robustness of our findings, we compared them with the "no-country" condition and found a similar interaction between the no-country condition and India ($F(1, 92) = 6.83$, $p < 0.05$) to that between India and Switzerland. When no COO was mentioned, the probabilities of the $15 version and $6 version were 68.7 and 30.07 percent, respectively, which was similar to the probabilities given for the medicine from Switzerland. For a summary of these findings, see Figure 1.

H2a proposed that when consumers suspect they may be purchasing high-risk counterfeit goods and are given a choice between two different prices for the same product, their consumption choices will vary based on the COI. We proposed that consumers would more likely to purchase a greater quantity of the more expensive medicine if it originated from Switzerland than if it was from India. This hypothesis was not supported ($F(1, 84) = 0.18$, $p = 0.91$, M_Swiss = 1.32 vs M_India = 1.27).

Our final hypothesis (*H2b*) advanced the argument that consumers would not choose a greater quantity of the lower priced item if it originated from a negatively perceived country (India) vs a positively perceived country (Switzerland). Our results indicate that *H2b* was not supported. The relationship in *H2a* was, in fact, reversed, and consumers chose more of the low-priced products from India ($F(1, 84) = 4.45$, $p < 0.05$, M_Swiss = 0.5 vs M_India = 1.36). The disconnect between COI and price suggested that the low-priced medicine from Switzerland was more likely counterfeit than the low-priced medicine from India. The interaction between country and price was significant but the opposite of the high-priced case (Figure 2).

It should be noted that familiarity with the COO was tested for and accounted for in our study. Previous work has found that the more familiar consumers are with a country, the more likely they are to have positive associations of it (Han, 1989). To rule out the possibility of country familiarity confounding our results, we included a single-item measure to gauge participants' familiarity with either India or Switzerland. An analysis of variance found no significant differences between the groups in terms of country familiarity, and a regression

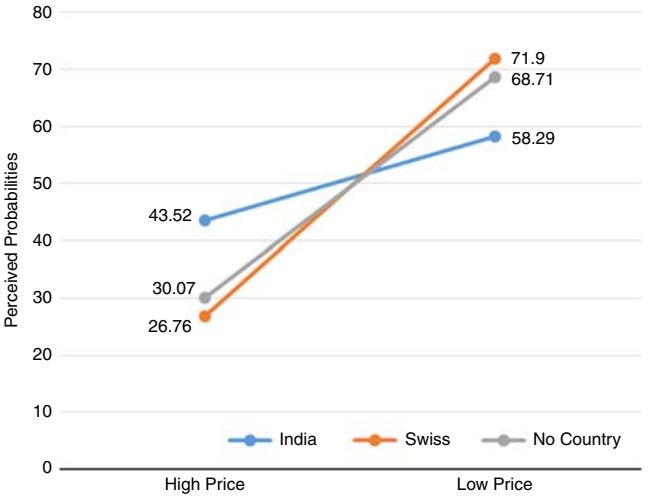

Figure 1.
Probabilities of counterfeit products (USA sample)

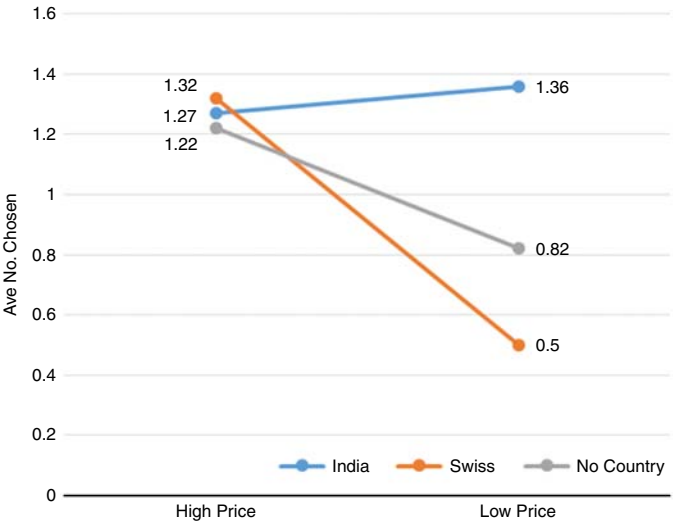

Figure 2.
Number of drugs chosen (USA sample)

analysis revealed that familiarity was not significantly related to COO perceptions ($F = 1.38$, $p = 0.17$). Therefore, familiarity with one of the countries used in this study was not significantly related to our findings.

Study 2

Our previous study only allowed us to infer how US consumers would react to a violation of their COI expectations for another country. We have not yet examined how consumers react when products from their own country are found to be hazardous. Additionally, we have not examined how consumers from a country where low-priced products and counterfeit goods are a regular occurrence use the COO cue. The findings from Study 1 would be enhanced if we could demonstrate that consumers from the COO also use the COI as a signal to differentiate between products. Consumers from India have accumulated knowledge on products that originate from India, and their expectations may differ from the expectations of a non-Indian. For example, American consumers may view Indian goods as low quality because they are inexpensive. Indian consumers, however, regularly see lower priced goods in the market and thus may not attribute low prices to low quality (Jin *et al.*, 2006). Additionally, consumers in India may be less likely to question the authenticity of low-priced products because low-priced products may be more prevalent than in other places (Harris, 2015).

In order to test the robustness of our study, we replicated our study in India with an Indian sample. A total of 134 students were recruited from a large research university in the Indian state of Bihar. The students were offered a 300 Indian Rupee coupon for Flipkart in exchange for their participation in the study. The design of the study was exactly the same as in Study 1 with one exception. We used a different measure of country image than Study 1. The COI measure developed by Laroche *et al.* (2005) was not developed to test perceptions of consumers toward their own country. We replaced our original measure with a measure created by Jin *et al.* (2006) that was developed to measure the perceptions of Indian consumers toward products from India.

We asked 28 Indian consumers for their perceptions of products that originated from India. We also asked a separate group of 28 Indian consumers their perceptions of products that originated from Switzerland. Our results revealed that Indian consumers had a

significantly higher positive image of products from Switzerland than they did of India (M_Switzerland = 5.59 vs M_India = 4.52, $F(1, 55) = 20.90$, $p < 0.001$).

The remaining 77 participants were divided into three groups and were asked to read the same BBC article as those in Study 1. One version of the story stated that the counterfeit drugs originated from India, a second version stated that the drugs originated from Switzerland, a third version did not state a COO. We tested the credibility of the story among our sample; there were no group level differences revealed, and on average the participants gave the story a rank of 5.10 out of seven points. After rating the credibility of the story, each participant then stated their personal degree of assumed probability that each version (the \$15 and the \$6 version) were counterfeit. Following their statement of probabilities, the participants then chose quantities of the \$15 and the \$6 medicine to purchase given their budget constraints. Lastly, participants were asked to complete the CETSCALE measure so that we could measure their level of ethnocentrism toward India.

Results study 2

We conducted a one-way ANOVA to compare the perceived probabilities of the \$6 drug from Indian vs the \$6 drug from Switzerland. Similar to Study 1, we found the difference for \$6 drugs to be significant between countries ($F(1, 51) = 5.33$, $p < 0.05$, M_Swiss = 58.17 vs M_India = 48.00). A similar analysis was conducted for the \$15 drug from both countries; again significant differences between countries were revealed ($F(1, 51) = 4.15$, $p < 0.05$, M_Swiss = 27.23 vs M_India = 40.00). We controlled for each participant's level of ethnocentrism and found that it was not a significant factor in either analysis. For a summary of these findings, please see Figure 3.

We next compared the choices that participants made between \$15 versions of the product and \$6 versions of the product from either India or Switzerland. No significant differences between countries were revealed in terms of the number of \$15 drugs chosen ($F(1, 56) = 0.19$, $p = 0.66$, M_Swiss = 1.13 vs M_India = 1.26). We tested for differences between the number of \$6 Indian versions of the drug vs the \$6 Swiss versions of the drug. In study 1, we found that participants chose more units of the \$6 drug from India; the results from Study 2 mirrored these results. We found that participants chose significantly more of the \$6 versions from India than they did from Switzerland ($F(1, 56) = 3.02$, $p < 0.05$, M_Swiss = 1.5 vs M_India = 2.19). Consumer ethnocentrism was controlled for in both comparisons and again it was found to be a non-significant factor (Figure 4).

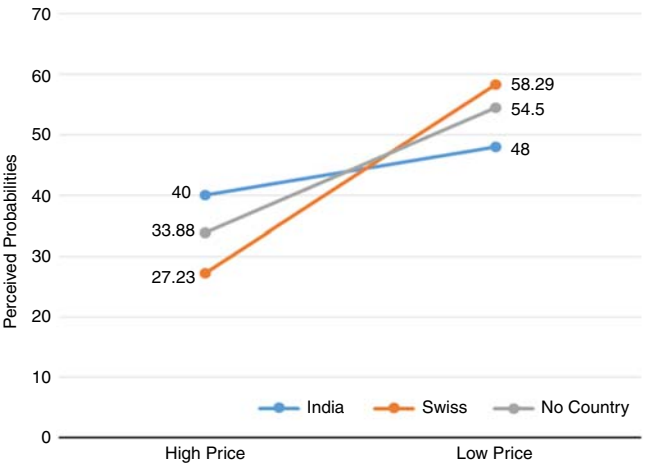

Figure 3.
Probabilities of counterfeit products (Indian sample)

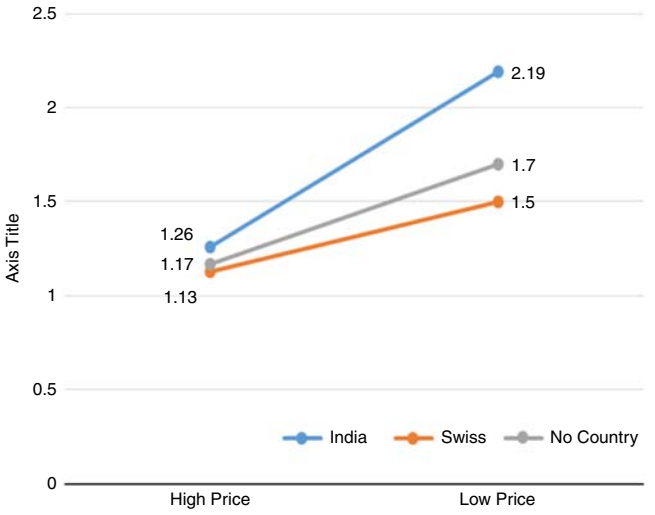

Figure 4.
Number of drugs chosen (Indian sample)

Summary of results

The results from both studies revealed that consumers perceived the lower priced drug more likely to be counterfeit if it originated from a country perceived positively. Both of our studies also revealed that if the higher priced product originated from a country perceived positively then it was less likely to be perceived as counterfeit compared to a country perceived negatively. We further explored consumer perceptions by comparing the results from Study 1 to Study 2. No significant differences were found in terms of perceptions for the \$15 drug between the two samples. For the \$6 drug from Switzerland, participants from the US. placed a significantly greater probability on the drug being counterfeit than participants from India ($F(1, 65) = 7.73$, $p < 0.01$, US. sample = 71.90 vs India sample = 58.17). The same pattern was revealed for the \$6 drug from India, the US sample perceived the \$6 drug as more likely to be counterfeit than the Indian sample ($F(1, 67) = (F(1, 65) = 3.63$, $p < 0.05$, US sample = 58.29 vs Indian sample = 48.00). This indicates that the effects we found may be reduced by the knowledge one has of their home country.

In terms of the number of drugs chosen, there were no differences in the \$15 drugs chosen between the two samples. However, we found that the Indian participants chose significantly more of the \$6 versions under both scenarios. Indian consumers chose significantly more of the \$6 drug from Switzerland than American consumers did ($F(1, 46) = 2.96$, $p < 0.05$, US sample = 0.5 vs Indian sample = 1.5). They also chose more of the \$6 drug from India than American consumers did ($F(1, 46) = 9.98$, $p < 0.01$, US sample = 1.36 vs Indian sample = 2.19).

These combined results reveal that price and COO were salient cues for participants in the US and in India, but the Indian participants rated the likelihood that the \$6 drug was counterfeit lower than the US sample. They also chose more of the \$6 drugs than their American counterparts. This is not surprising given that India is a low cost economy where many goods are sold at a price lower than they would be sold in other economies. The results indicate that price may not be as strong an indicator of authenticity as it is in certain markets. In both studies participants rated the Indian versions more likely to be counterfeit which indicates that even in the consumer's home market COO remains a salient signal to differentiate between authentic and counterfeit products. We summarized all of the results in Table I.

Country of origin	COO: India Price: $15	COO: Switzerland Price $15	Significant differences	COO: India Price: $6	COO: Switzerland Price $6	Significant differences
	Probabilities			Probabilities		
US sample	43.52	26.76	Yes*	58.29	71.9	Yes**
India sample	40	27.23	Yes*	48	58.17	Yes*
	Number chosen			Number chosen		
US sample	1.27	1.32	None	1.36	0.5	Yes*
India sample	1.26	1.13	None	2.19	1.5	Yes*

Table I.
Summary of results

Notes: *,**Significant at the level of $p < 0.05$ and $p < 0.01$, respectively

Discussion

The debate over the relevance of the COO has valid arguments, both for and against. Opponents argue that the COO is simply not a relevant feature in consumers' decision-making processes (Samiee *et al.*, 2005). However, when a product crisis occurs, especially one that concerns products manufactured abroad, the media is quick to point toward the COO as a factor linked to the manufacture of the harmful products (Bapuji, 2011). To illustrate this point, we cited the example of toys manufactured in China using lead-based paint and the subsequent negative attention given to their COO. Through a scan of media reports, our study found that this was also the case with counterfeit goods. While we agree that, in regular purchases, the COO may not be a salient factor that consumers use to evaluate the product, the potential for harm that arises in the case of a poorly made or counterfeit product will make the COO salient to consumers who seek to avoid purchasing a sub-par product.

Previous research has demonstrated the important role that price and COO can play in consumer expectations of product performance (Johansson *et al.*, 1994; Haubl, 1996), as well as the impact that these perceptions may have on choosing to purchase or not purchase products from certain countries (Beamish and Bapuji, 2008). Our study advances this research by linking the COI with positive and negative inferences. A positive COI can harm perceptions toward lower priced products; this was the case when American consumers evaluated low-priced products from Switzerland, and this also happened when consumers from India (a low cost economy) evaluated the same goods from Switzerland. The effect was lessened for the Indian consumers, but they still considered the lower price drugs from Switzerland more likely to be counterfeit than the lower priced ones from their own country.

A negative COI can harm perceptions toward higher priced products because consumers may expect low-priced products to originate from the country. This was the case when both Indian and US consumers evaluated the higher priced drugs from India.

The results, unexpected from previous research, suggest that consumers actually are more willing to buy more of a low-priced medicine originating from India than a similar low-priced medicine originating from Switzerland. This finding reveals that a positive image can harm perceptions of low-priced products that originate from that country. This is because the positive COO creates consumer expectations and the low price violates those expectations which then increases the perceived probabilities that such a low-priced product is counterfeit. The finding is a fairly novel one because it reveals that a positive image can harm perceptions of low-priced products that originate from that country. In reality, the lower priced product may be legitimate, but the positive COO taints consumer perceptions toward it and increases the perceived probabilities that these products are counterfeit. Conversely, when high-priced products originate from a country that has a positive image, then this situation is congruent with expectations toward that country, and consumers perceive that these products are less likely to be counterfeit than if consumer expectations

had been violated. Expectations were violated when high-priced products originated from a country that was perceived negatively, and consumers gave these products a higher probability of being counterfeit, which supports *H1b*.

Our final two hypotheses examined consumer choices once consumers became aware of the COO. Prior criticisms of COO research state that it focuses primarily on consumer perceptions but not on their actual consumption behaviors. We attempted to shed light on the consumption decision by using a choice scenario wherein consumers were required to use their judgment based on both price and COO and then chose accordingly so they would avoid purchasing the high-risk, counterfeit goods. The interaction between price, COI and probability of counterfeit showed striking results. When given a choice between two high-priced drugs from India and Switzerland, consumer from the US and India chose the one from Switzerland, more likely authentic. By contrast, when given a choice of a low-priced drug from India or Switzerland, consumers from both of our sample countries chose the cheaper drug from India rather than the one from Switzerland. This is a consequence of the perception that a low-priced drug from Switzerland is more likely counterfeit than a low-priced drug from India. Interestingly this was also the view held by the Indian sample toward products form their own country. Buyers' counterfeit judgments are influenced by a divergence between COI and price, not just a low price.

Theoretical contribution

The majority of prior research on the COO heuristic maintains a positive relationship between the country image and the product (Han, 1989; Haubl, 1996; Laroche *et al.*, 2005). However, this relationship can be violated, and our research demonstrates that this violation can occur when counterfeit drugs are thought to originate from certain countries. When the violation occurs, it is unclear what the resulting impact would be on consumer perceptions toward the product and subsequent choices. Our work informs these instances by revealing that the conflict (i.e. between consumers' perception of the COO and their expectations toward the product) raises questions about the product and can thus reduce consumption. We capture this conflict by first increasing concerns of a harmful product and then examining low-priced products from a country with a positive image and high-priced products from a country with a negative image.

In both instances, the expectations of the products do not match the expectations for the products that are produced. When this violation occurs, a positive COI can become a liability, which also alludes to the possibility of a negative COI becoming an asset. Consumers indicate preferences for higher priced goods from a country with a positive COI vs a country with a negative COI. Alternatively, they prefer lower priced goods from a country with a negative COI vs a country with a positive COI. For example, under conditions where consumers are fearful of purchasing counterfeit versions of the product, higher priced versions from a country with a negative COI would suffer, even if these products were legitimate versions.

Managerial and policy implications

The findings from this paper deliver several implications for practitioners and policy makers alike. A country that has a positive image may produce both lower priced and higher priced goods, and our results reveal that when the authenticity of those is questioned, questions arise about the lower priced product. Firms are consistently exploring justifiable methods to increase prices (Campbell, 1999), the presence of counterfeit goods in the market may provide the impetus for firms from a country perceived positive to increase the price of products so as to enhance perceptions of quality.

From a managerial perspective, when counterfeiting becomes a significant concern within a dangerous product category, firms can use this problem to increase their prices.

Conversely, products that are manufactured in countries with a positive image run the risk of sparking consumers' damaged perceptions toward their lower priced goods. This situation poses a dilemma, as firms often seek to exploit low costs by manufacturing in developing countries, yet, by developing their products in such countries, the manufacturing firms may fall victim to the effects of the counterfeit products that also originate from these markets.

It appears that, for firms manufacturing high-risk products, it may be wise to consider a mixed strategy, such as that advised by Chao (1993), where firms divide the country of design from the country of manufacture and make salient the country of design to minimize the impact of any negative COO effects. Furthermore, for high-risk products, such as counterfeit drugs, the consumption of such products produces negative externalities that can affect an entire population. Generally, if counterfeit drugs are sold on the market, they are sold at a price that falls below that of their legitimate alternatives (Aldhous, 2005). Our study reveals, however, that consumers are less likely to view a cheaper drug as counterfeit and will be more likely to purchase it compared to its more expensive alternative if it comes from a country that has a negative COI.

Counterfeit drugs often contain little or no active ingredients. Thus, when consumers take them to help combat a virus, for example, there is a chance that the virus will overpower the small dose of the active ingredient, thus creating a more powerful disease (Aldhous, 2005). Furthermore, firms that attempt to produce high-priced items in countries that have negative COI may see the value of their products decline if a lower priced version of the product becomes available and the consumer (mistakenly) suspects that the legitimate products may be counterfeit. This scenario creates a dilemma for manufacturers that seek to take advantage of a low-cost economy, but who worry that by doing so, they may decrease the perceived value of their products.

Limitations and future work

Our study was limited to one product and two countries. In order to succinctly demonstrate the impact of high levels of perceived risk, we used only one product. However, the scope of counterfeit products that exist in the marketplace is much wider than is represented by this one product and also presents different degrees of risk, depending on the product's intended usage. A counterfeit purse, for example, may be perceived as high risk if the consumer perceives that the purse will break when they are at a formal event and thus lead to embarrassment. Conversely, the same product may be seen as low risk if the purse is intended merely to be a souvenir. This variation in risk was not captured within our study.

Our study presented a simple model tested with an experimental methodology. One possible extension would be to examine COI effects when the consumer can choose multiple products that originate from multiple countries, such as in the auto industry, as alluded to by Rhee and Haunschild (2006). We hope our work encourages additional research in quasi-experimental settings where COI expectations are violated.

Conclusion

Consumers may not think of the COO when they purchase branded goods such as cars or electronics. For the consumer, the COO may simply not stand out as a prominent or differentiating attribute. However, depending on the product and the issue, COO can sometimes represent a significant factor, as evidenced by the recent case of lead-painted toys manufactured in China. When the COO becomes salient, its impact on consumers' product perceptions and choices depends on whether the product violates the consumer's pre-existing expectations of the country. When these expectations are violated, a positive COI can become a liability.

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