## Impact of Overall Country Image and Product Country Image on International Supplier Performance

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#### **Abstract**

Extant COO studies have not yet investigated impact of multiple COO cues on supplier performance from the perspective of B2B buyers. Purchasing managers' international procurement decisions are likely to be based on multiple country criteria. This study seeks to understand the relative impact of overall country image and product country image on international suppliers' performance from B2B perspective. Data were collected using a web-based structured questionnaire. Conceptual model was developed with the constructs taken from the extant COO literature. Structural equation modeling was used as the data analysis technique. Statistical analysis found that overall country image is a valid second order construct. Study results show that overall country image influences product country image and higher product country image leads to higher international supplier performance. This study revealed that superior supplier image directly depends on product country image but indirectly depends on country's development level.

**Key words:** country image, product-country image, supplier performance, intermediate goods, B2B, COO relevance, purchasing managers.

#### Introduction

It is well established in the academic literature that country of origin (COO) influences consumers' product evaluations and purchase decisions (Balabanis & Diamantopoulos, 2011; Demirbag, Sahadev, & Mellahi, 2010). It is also evident that the overwhelming majority of published COO studies have investigated consumers as users of COO information, with few studies considering business-to-business (B2B) buyers' perceptions of COO (Andersen & Chao, 2003).

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From a broad understanding of the COO literature, there is currently a disconnect between traditional COO research and consumers' actual purchase behavior, perhaps explained by a research focus on consumers and the implicit assumption that consumers are free to exercise their COO preferences. In reality, consumers' choices are heavily constrained by the purchasing and procurement policies of retailers and purchasing/procurement managers. Such decisions fall squarely in the B2B domain — an area which has been almost ignored in the COO literature. Thus, while COO researchers focus on consumers' decision making, it can be argued that focusing on the B2B purchasing/procurement setting can provide greater insight.

Globalization has seen a change in production, highlighted by Ferdows (1997), who introduced the term 'Made in the world (MIW)' to describe the emerging geographical dispersion of production locations. Many products are no longer produced in one country; multinational organizations exploit value creation opportunities by using a globally scattered supply chain. Apple's iPhone is a case in point. Complete assembling of iPhones is done in China by Foxconn (a Taiwanese contract manufacturer) and later imported by Apple, USA at a factory gate price of \$194.04 (Gereffi & Lee, 2012). The total value adding input for iPhone4 is significantly dispersed around the globe as presented in Table 1.

Table 1: Sourcing countries by input price for Apple iPhone4

Country Name	Input price
USA	\$24.63
China	\$6.54 (only assembling; Gereffi & Lee, 2012)
South Korea	\$80.05 (display panels and memory chips; Keller 2010)
Japan	\$0.70
Germany	\$16.08
France	\$3.25
Rest of the world	\$62.79
Total (Factory gate price)	\$194.04

Source: OECD (2011, P. 40)

It is evident that the origin labeling statement(s) of the iPhone 4 do not enable a final user to be accurately informed about the whole COO story from the product to the package. Surprisingly, however, COO research is almost silent about the MIW concept. This paper seeks to add to the COO literature by investigating relative impact of multiple country facets on evaluations of international supplier performance. A further contribution is its focus on the important role of B2B buyers.

Perceptions of a country's image are typically complex (Cialdini, 2001, p. 7). According to (Martin & Eroglu, 1993, p. 193) country image can be described "as the total of all descriptive, inferential and informational beliefs one has about a particular country". In simple terms, quality, price, people, culture, economy, technology, politics, competence, interaction and feelings all contribute to the ways in which one can perceive a country. The short-cuts and abstractions of total country image together create a rounding-off effect for more detailed, in-depth information. The rounding off effect eliminates individual differences in and between people, organizations. This rounding off is widely accepted in the COO literature, but consumers' origin related knowledge is very limited (Liefeld, 1993; Samiee, Shimp, & Sharma, 2005, p. 392; Usunier, 2011). B2B buyers are commonly considered as 'better informed', 'policy-driven and rationalized' and have 'familiarity and experience' (Samiee, 1994) with supplier country. Recognition of country information is expected to be more accurate by B2B buyers because of their direct dealings and availability of the latest industry information. Quite surprisingly, B2B buyers as the most relevant group of respondents regarding contemporary international trade practices and country associations received insignificant attention in COO research.

In connection with this insignificant attention to B2B buyers, this paper seeks to investigate impact of country image on international supplier performance. Using multiple dimensions of country image in one study is unusual (Papadopoulos & Heslop, 2003, p. 425; Pappu, Quester, & Cooksey, 2007, p. 725) even in consumer centric studies and not tested before in B2B domain. This study also seeks to examine the direction of influence between COO constructs as according to 'flexible model' developed by Knight and Calantone (2000), another issue never investigated from B2B context. It is expected that the findings of this study will add value to existing COO literature by exploring these two issues not tested earlier from B2B buyers' perspective. Therefore, specific research question of this study are, i) Is there any impact of overall country image and product country image on international supplier performance? ii) Between the two country image constructs, which one plays more significant role on supplier performance according to the assessments of B2B buyers? iii) Do the dependent relationship of product country image on overall country image is statistically significant?

This paper is structured as follows. First the COO literature is discussed from B2B perspective and provides evidence of its significance compared to

consumer based studies. This section is followed by an outline of the conceptual framework and method used in this study. The results section is next, followed by discussion and implications and the final section discusses the study's limitations and avenues for possible future research.

## Country-of-origin (COO) Literature from the B2B Perspective

The dearth of COO focused B2B studies is well evidenced by the information presented in the Table 2. In one of the two major meta-analyses in the COO field, Peterson and Jolibert (1995, p. 891) reported that statistically significant COO effect size is 0.14 as a perception of purchase intention for consumer products and 0.32 for industrial products. In the other meta-analysis, Verlegh and Steenkamp (1999, pp. 536-537) found that the COO effect size is not significantly less for industrial products than for consumer products.

Table 2: Representation of B2B samples in extant COO research

C41	D2D
Study source	B2B representation
Literature Review 1965-1997 (Al-	18 studies out of 99 presented in the
Sulaiti & Baker, 1998, pp. 179-199)	appendix
Literature Review 2000-2010	Only 6 studies (out of 114 reviewed)
(Magnusson & Westjohn, 2011, p. 303)	including COO in service
Maiden literature review on COO	Only 20 studies in B2B area
studies from industrial buyers'	(recognizing 200-300 COO studies in
perspective (Andersen & Chao, 2003, p.	consumer behavior area)
341)	

Among the B2B based COO studies, Nagashima (1970) is the most prominent as the first of its kind to consider the industrial buyer as the subject for COO study. Nagashima (1970) studied the perception of the 'Made in' image for products originating from the US, Japan, Germany, England and France. The study considered several factors of perceived differences, such as price and value, service and engineering, advertising and reputation, design and style and consumer profile. At the time of this study Japanese business people considered 'Made in Japan' as inexpensive, common and functional and associated Japanese products with poor workmanship. In comparison, US business buyers considered Japanese products to be inexpensive, technically advanced, mass-produced and globally distributed. Reporting the perceptual change in the 'Made in' image after eight years, (Nagashima, 1977) reported Japanese products were no longer considered inexpensive and unreliable.

Most noticeably, Japanese products were considered reliable and as reasonably priced as German products. Japanese products moved ahead of US products regarding workmanship but still fell behind German, English and French products. Significant improvements were found for Japanese products in the areas of technical advancement, mass production, and world-wide distribution. It is important to note that (Nagashima, 1970, 1977) are two important studies providing evidence of the dynamic nature of COO perception, which is a rare focus, despite its relevance to practice, in the COO literature.

White and Cundiff (1978) tested the psychological influence of price and country of manufacture on purchasing managers' perception of product quality. Their results showed that country of manufacture (COM) and perceived quality had a statistically significant relationship (p< .01) for all three products. The relationship between price and perceived quality was not statistically significant (p> .05) for all the products. The interaction effect between price and country of manufacture had no statistically significant relationship (p> .05) for the two product categories.

Ghymn (1983) used discriminant analysis to investigate the purchasing behavior of US import managers and revealed major determinants of their import decisions. He used two categories of variables, namely, product-oriented and service-oriented. All statistically significant contributors to the group differences were ranked according to a beta coefficient value that appears as price ( $\beta = .691$ ), timely delivery ( $\beta = .637$ ), dependability for long-term supply ( $\beta = .504$ ), transportation cost ( $\beta = .422$ ), quality ( $\beta = .384$ ), brand recognition ( $\beta = .351$ ) and ordering/shipping procedure ( $\beta = .247$ ). Using regression analysis, Kraft and Chung (1993) examined Korean purchasing agents' perceptions about US and Japanese products. In all three product categories (raw materials, finished materials, equipment and machinery), US product offer factors are rated significantly lower than Japan and most specifically on product quality and product information. Regression analysis results show that no significant predictors were identified for the dependent variable (percentage of imports) for Japan. Conversely, significant predictor variables were found for purchases from the US in all three product categories. In the case of percentage of raw materials imported from US (adjusted  $R^2 = .10$ ), exporter reputation is the only significant ( $\beta = .39$ ) predictor. Customer orientation ( $\beta = .58$ ) and product quality ( $\beta = .61$ ) were significant predictors of finished material imports from the US (adjusted  $R^2 = .42$ ). Regarding equipment and machinery imports (adjusted  $R^2 = .30$ ), customer orientation ( $\beta = .70$ ) and product information ( $\beta = .43$ ) were identified as significant predictors. It is important to note that in all three regression equations, factors related to exporter characteristics played a major predictive role.

By using multiple COO cues three studies (Chetty, Dzever, & Quester, 1999; Dzever & Quester, 1999; Quester, Dzever, & Chetty, 2000) examined the effect of COD and COA on the quality perceptions of purchasing agents in Australia and New Zealand. Chetty et al. (1999) found that COD and COA for machine tools and component parts from developed countries were ranked around an average score of 4; with newly industrialized countries around 3; and newly industrializing countries around 2.5 on a scale of 5. All the reported differences are significant at p< .05 level. According to (Dzever & Quester, 1999), quality perceptions were directly influenced by both COD and COA in a consistent fashion. Their results further indicated that most of the developed countries were highly ranked for both COD and COA in terms of the technology used, training provided and ease of operation/maintenance under both the categories of equipment and component parts. The majority of the newly industrialized and newly industrializing countries were ranked highly in terms of the space utilized under both the product categories and dimensions. In comparing the samples for both countries, Quester et al. (2000) reported that quality perceptions were directly affected by source country information for both Australian and New Zealand samples and the results were identical in terms of COD and COA. Moreover, the rankings for established industrialized countries were consistently higher than for their newly industrialized or newly industrializing counterparts. The results for correlation coefficients between each country and for each of the four quality indicator variables for machine tools showed similar significant correlations for both countries for technology, training and ease of operation/maintenance with regard to developed nations for COD and COA. However, significant correlations were identified for developing countries' COD and COA in terms of space utilized (for ease of installation or warehousing) from Australian, but not from New Zealand samples.

In addition to the range of published empirical studies, some insightful studies have used personal interview data and, among them, two (Knight, Gao, Garrett, & Deans, 2008; Knight, Holdsworth, & Mather, 2007) are related to food products sourcing. Summarizing the inputs collected from 17

European informants, Knight et al. (2007) reported that quality in relation to price is the major concern; a country's price consciousness differentiates price-quality judgment. Cleanliness, a country's reputation for microbiological problems, regulation and external certification, reputation of government and corporate intermediaries are some major components in forming trust in relation to a supply source. Varied perceptions regarding the importance of COO are detected among the respondents. Product-specific country image is an accepted criterion for product sourcing as it is in consumer purchase decisions. In the other study conducted in China, Knight et al. (2008) reported price as the most frequently mentioned determinant; more particularly, value generated was more important than low cost, or better quality with lower price was more important. Imported food products carry higher social status and there is widespread mistrust in the Chinese production process. In particular, low social trust in China means that Chinese consumers rely on brand origin when assessing imported products as superior to locally manufactured products.

Another interview-based study specifically focused on sourcing from low cost emerging economies (Oke, Maltz, & Christiansen, 2009), found that cost was the primary driver of global sourcing for B2B buyers, and cost reduction was the key consideration for choosing suppliers from developing countries. More generally, these findings give weight to the view that the estimates of the impact of COO require multiple country aspects to capture the specific significance of different country cues.

The country-related abstraction is very multidimensional and widely conceived (natural landscape, climate, competence, people, political situations, country description, product evaluation, geo-cultural, socio-economy, conative component, people personality, product beliefs, economic, technological) as reported by Roth and Diamantopoulos (2009, p. 727) in the recent literature review on country image construct. In setting the basic COO domain from more wider view point the same study (Roth & Diamantopoulos, 2009, p. 727) identified three definitional domains named as country image, product-country image, and country-related product image. Another definitional domain is suggested by Heslop and Papadopoulos (1993, p. 61) through an eight country consumer survey; their COO definition is two dimensional, also incorporating product and country. Pappu et al. (2007) termed these two dimensions as "macro" and "micro" country image, where micro country image is related to specific product categories.

In addition, it has been observed that considering both dimensions in one study is unusual (Papadopoulos & Heslop, 2003, p. 425; Pappu et al., 2007, p. 725) in extant COO studies. Therefore, the current study includes two dimensions (macro and micro) of COO in capturing country aspects, a conceptual setting never comprehended in B2B-centric COO studies. These two dimensions are more popularly known as overall country image (CI) and product-country image (PCI). The CI or macro country image is associated with the development level of a country that is evidenced by the sub dimensions (economic, technological, and government) used in Pappu et al. (2007). In COO studies, it is well evidenced that B2B buyers clearly distinguished product quality image of developed and developing countries (Ahmed, d'Astous, & El Adraoui, 1994; Chetty et al., 1999; Dzever & Quester, 1999; Quester et al., 2000). In addition, PCI has been evidenced as an important predictor of product quality in specific product categories (Knight et al., 2008; Knight et al., 2007). Regarding CI, clear distinction between developed and developing countries is well evidenced from B2B perspective as reflected in Knight et al. (2008), "For products from developed countries, consumers tend to believe they are good ...They don't really care if they are from the US, Canada, or Germany". As a consequence, importance of both concepts (CI and PCI) in capturing country influence on B2B buyers is supported by empirical evidences.

Another important issue investigated in previous consumer-centric COO research is that of the sequential direction of influence while using CI and PCI as COO constructs. Earlier models that tested direction between CI and PCI are 'halo model' and 'summary construct' model proposed by Han (1989). According to Han (1989), country image influence sequence of 'halo model' is  $CI \rightarrow PCI \rightarrow$  attitude; and of 'summary construct model' is  $PCI \rightarrow CI \rightarrow$  attitude. In the year 2000, Knight and Calantone proposed and tested the 'flexible model' that added another relationship  $CI \rightarrow$  attitude (CI directly influence attitude) along with  $CI \rightarrow PCI \rightarrow$  attitude. Ironically, this country image influence sequence has never been tested in B2B domain despite the fact that B2B buyers are major decision makers of COO as evidenced in the introduction part of this paper. Therefore, the current study examines the 'flexible model' by Knight and Calantone (2000) from B2B perspective in an effort to make an addition to existing literature.

Flexible model sequence of influence

CI

PCI

Attitude

Table 3: Country image influence structure in flexible model

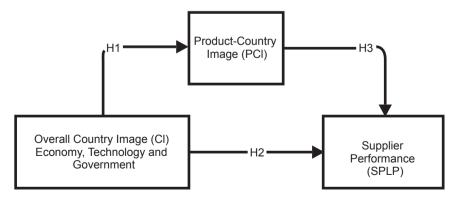
CI = Overall country image; PCI = Product-country image/product beliefs/product attributes; Attitude = Buyer attitude/purchase intention/product evaluation/behavioral intention.

The proposed model of the current study is based on the cognitive component of attitude theory, and the evaluative outcome construct is international supplier performance (SPLP) which indicates that, according to the flexible model the paths of influence are  $CI \rightarrow PCI$ ,  $CI \rightarrow SPLP$ , and  $PCI \rightarrow SPLP$ .

### The Conceptual Framework

As B2B buyers have a "rich cognitive structure regarding country effects" and a "wealth of experience and information" (Samiee, 1994, p. 591), it is expected that they are more "rational and informed" (Ahmed et al., 1994). Moreover, B2B buyers tend to have greater familiarity with a country of origin's product and country image (Askegaard & Ger, 1997, p. 14). For measuring the variables, this study uses a linear compensatory multi-attribute attitude model which has been used extensively as an instrument for collecting and gathering data on attitudes (Ajzen & Fishbein, 1977; Bradley, 2001; Fishbein, 1975; Ryan & Bonfield, 1980; Sampson & Harris, 1970).

Figure 1: Conceptual framework based on flexible model (developed from B2B perspective)



The current study includes two widely accepted constructs of COO, overall country image (CI) and product-country image (PCI) in measuring country effect. CI is operationalized through the 'macro country image' scale refined and validated as a second-order construct by (Pappu et al., 2007), which was originally developed by Martin and Eroglu (1993). In capturing country image, Heslop and Papadopoulos (1993, p. 61) reported two dimensions, product and country, out of the findings from a large research project involving consumer surveys in eight countries from North America and Europe. Therefore, the use of both dimensions (country image and product-country image) avoids the limitation of using only one dimension, as is typical of the majority of COO studies (Pappu et al., 2007, p. 728). The list of constructs is presented in Table 4.

Constructs in first-order model Constructs in Source second-order model Adapted from Pappu Overall country i) Economy (ECO) image (CI) ii) Technology (TCH) et al. (2007) iii) Government (GOV) Product-country image (PCI) Product-country Adopted from Maher and Carter (2011) image (PCI) Supplier performance (SPLP) Supplier Most reported performance variables from multiple studies (SPLP)

**Table 4: List of constructs and respective sources** 

The outcome construct, 'supplier performance' ('SPLP' hereafter) has been used in previous studies in the wider perspective of purchasing, but not in COO studies. A review of supplier performance measures used in extant studies has been made (see Table 5). This study measure the SPLP construct as incorporating product quality performance, delivery performance, and

Table 5: Variables reported in past literature for measuring supplier performance

Study	Considered variables
Olsen and Ellram (1997, p.	Performance factors: Delivery, quality, price.
106)	
Ho, Xu, and Dey (2010, p.	The most popular criterion for evaluating and
21)Literature review of 78	selecting most appropriate supplier as reported in the
journal articles from 2000	percentage of articles reviewed: Quality (87.18%),
to 2008	delivery (82.05%), price/cost (80.77%).

price performance for measure simplification and in accordance with expert (experts associated to the questionnaire development) advice.

#### **Research Hypotheses**

 $H_I$ : Overall country image (CI) is positively related to product-country image (PCI).

 $H_I$  is proposed based on flexible model of Knight and Calantone (2000) that shows the relationships sequence as follows: CI  $\rightarrow$  product belief  $\rightarrow$  attitudes. The results of Knight and Calantone's (2000) study show that the CI  $\rightarrow$  PCI path consistently achieved high coefficients in both low and high knowledge conditions. As the current study considers B2B buyers as the high knowledge condition buyers, the findings of the flexible model allow the testing of the hypothesis that CI positively influences PCI. In addition, other research findings (Diamantopoulos, Schlegelmilch, & Palihawadana, 2011, p. 518; Roth & Romeo, 1992) have substantiated this relationship.

 $H_2$ : Overall country image (CI) is positively related to supplier performance (SPLP).

According to the results reported by Knight and Calantone (2000), the flexible model substantiates a statistically significant relationship from country image to attitude. Moreover, Peterson and Jolibert (1995, p. 891) found in their meta-analysis, that the effect size (though very small) of country image on purchase intention is statistically significant. Such evidence of country image relationship with a positive behavioral outcome variable supports the proposition that overall country image is positively related to judgments of that country's supplier performance. The flexible model of Knight and Calantone (2000) shows two statistically significant directional relationships originating from overall country image. One, already discussed, as directing to PCI and another toward attitude, operationalized as purchase intention. The other is directed from country image to purchase intention. Laroche, Papadopoulos, Heslop, and Mourali (2005, p. 108) reported a statistically significant and moderately strong relationship between country image and purchase intention for both the samples from Japan ( $\beta$  = .41, p < .05) and Sweden ( $\beta$  = .33, p < .05) but an insignificant relationship between these two constructs was reported by Diamantopoulos et al. (2011, p. 518) Based on the mixed results regarding the relationship significance, the current study proposes the hypothesis with caution.  $H_3$ : Product-country image (PCI) is positively related to supplier performance (SPLP).

Similar mixed results were observed for the relationship between PCI and the common consequential constructs in COO, such as purchase evaluation or purchase intention. Parameswaran and Pisharodi (2002) found statistically significant and strong relationships ( $\beta$ =.55) between specific PCI and purchase intention for all the categories studied. In comparison, the flexible model (Knight & Calantone, 2000) demonstrated mixed results regarding the hypothesized positive relationship from PCI to purchase intention. This relationship was statistically insignificant in case of high knowledge level students from Japan and low knowledge level households from Japan. In other cases the flexible model showed a significant relationship between these two constructs. The significant relationship was found between PCI and purchase intention from both the countries' samples in the study conducted by Laroche et al. (2005, p. 108). Conversely, Diamantopoulos et al. (2011, p. 518) found no significant relationship between these two constructs. Once again the mixed results suggest that the hypothesis is proposed with caution.

# Study Focus, Survey Respondents, Survey Country and Product Category

This study uses an online survey questionnaire designed using Qualtrics survey software and the survey was administered online to professional purchasing managers in Australia by Research Now. The online panel provider companies maintain databases of respondents based on their professional, personal, industry affiliations etc. In addition, the authenticity of the respondents is regularly checked by the company and randomly by government regulators. This study specifically asked for B2B panels from Australia, who are making purchase decisions for raw materials and component parts. Several panel provider companies have been communicated for panels required for this study and only one was maintaining panel of B2B purchase managers purchasing raw materials and component parts.

B2B buyers in Australia feel very comfortable in communicating online to save their time and are very quick in responding emails. It is also associated with their work life efficiency. Online responding also allows to handle greater geographical dispersion of Australia and to give all geographical locations similar chance to respond. In addition, there are some control used

by the researchers as monitoring the total time to respond the questionnaire, disqualifying long pause in answering, pattern analysis of answering, inconsistent demographic information etc.

The study concentrated on international purchasing (Motwani & Ahuja, 2000) that can be synonymous to import sourcing (Swamidass, 1993), global sourcing (Kotabe, Murray, & Javalgi, 1998), worldwide sourcing (Monczka & Trent, 1992), international procurement (Scully & Fawcett, 1994) and so on. Note also that the study did not ask respondents about local or home country sourcing, which is the dominant focus of the extant COO literature, and which could be expected to reveal strong home country bias. Rather the focus of the current study is on COO effects in international procurement (excluding local procurement).

The survey country Australia plays an important part in the global economy; no less in relation to its imports. Regarding global imports, Australia ranked 18<sup>th</sup>(*Trade at a Glance*, 2013, p. 14), contributing 1.5% of global imports, remaining behind countries like, Brazil, Taiwan, Thailand, Turkey, Switzerland, Malaysia, Indonesia, Austria, and Sweden.

The product category of the current study is 'raw materials and components'. By investigating trade of 'raw materials and components' or intermediate goods, this study also aligns with an obvious reality of global trade in recent times. Additionally, no previous B2B focused COO studies explicitly addressed intermediate goods as a product category. The exponential growth of the global supply chain not only covers finished goods but also components and sub-assemblies (Gereffi & Lee, 2012, p. 25), which has given rise to the global trade in intermediate goods. In 2009, global exports of intermediate goods exceeded the export values of final goods plus capital goods, representing 51% of non-fuel merchandise exports (WTO & IDE-JETRO, 2011, p. 81). Therefore, a shift has occurred from 'trade in goods' to 'trade in value added' and 'trade in tasks' (OECD, 2011; WTO & IDE-JETRO, 2011).

## The Questionnaire, Data Collection Procedure and Sample Characteristics

Data were collected using a standard self-completion questionnaire. Purchasing managers were asked to rate their major existing foreign supplier's country on the country image (CI) and product-country image (PCI) issues specified earlier in the conceptual framework. Before rating the

country-related scale items, the respondents were asked to write the country name of their major supplier in an open ended space. Next, respondents were asked to rate the respective supplier's performance based on scale items. In addition, some organizational and personal classification information was asked. Although all the items in the questionnaire were taken from previously used scales, five experts (three purchasing managers and two academics) checked the items for measurement appropriateness, language simplicity and their ability to be easily understood. In the overall country image or CI construct, nine country image variables were used in the final analysis based on those variables used by Pappu et al. (2007). Here, political stability of the government (Maltz, Carter, & Maltz, 2011) was included because it is considered important by purchasing managers and this item replaced previously used item 'civilian government'. All the nine items were measured by a 7-point Likert-type scale ranging from highest (7) to lowest (1).

Regarding the product-country image or PCI construct, five items used by Maher and Carter (2011) was taken with re-phrasing to capture the product-specific country image. The 7-point Likert-type scale used for the five scale items ranged from highest (7) to lowest (1) under the statement 'rate the product category you have purchased from this country based on the following issues'. Three items for measuring supplier performance or SPLP were also measured with a 7-point Likert-type scale ranging from excellent performance (7) to poor performance (1).

Data were collected from the online panel members provided by commercial panel provider company, Research Now and who were from all around Australia. Respondents were filtered using two screening questions: "are you significantly involved in making international purchase decisions?" and "are you involved in purchasing intermediate goods (e.g. non-fuel raw materials, parts and components for industrial use) from foreign suppliers?" Because organizational purchasing decisions are often a group decision (Andersen & Chao, 2003), the amount of involvement was considered and both questions were asked about international purchasing. In the final survey 1863 panel members were requested to participate in the survey and, following the screening questions, 293 completed questionnaires were received, giving a 15.7% response rate. Among the 293 responses, 276 were found usable for analysis. Sample characteristics of the respondents are presented in Table 6.

	8 1		
Gender	Highest level of	Experience in	Type of materials
	completed education	purchasing	purchased
		profession	
Male:	Doctoral degrees 2.5	Less than 10 years:	Raw materials:
62.7		38.8	39.5
Female:	Master's degree: 29	10 to 20 years: 43.8	Components and
37.3	Bachelor	More than 20 years:	parts 60.5
	honours/Graduate	17.4	_
	certificate/ Graduate		
	diploma: 22.1		
	Bachelor degree: 20.7		
	Advanced		
	diploma/Associate degree:		
	9.8		
	Diploma: 10.1		
	High school: 8.3		

**Table 6: Demographic profile of respondents** 

Note: All values are in percentage

#### **Study Results**

First order measurement model: The conceptual model of the study was tested with covariance-based Structural Equation Modeling (SEM), using the two-step process suggested by Anderson and Gerbing (1988). Consequently, assessment of fit and the validity of two key tests (measurement model and structural model) need to be established. The conceptual model consists of five first-order constructs. Initial estimation considered 17 measured variables under five constructs. Factor loadings (.5 or higher and ideally .7; Hair, Black, Babin, & Anderson, 2010, p. 709) and standardized residuals, (close to 4; Hair et al., 2010, p. 725) of the variables were examined and two variables were excluded (see Table 8). Model fit of the 15 item confirmatory factor analysis (CFA) was assessed using multiple indices. As suggested by (Hair et al., 2010, p. 672), at least one absolute (RMSEA, SRMR, Normed  $\lambda^2$ ) and one incremental index (CFI, TLI, NFI, RNI) need to be used along with  $\lambda^2$  value and associated degrees of freedom (df). Researchers suggest flexibility in evaluating fit indices considering model complexity (Hair et al., 2010, p. 673; Sharma, Mukherjee, Kumar, & Dillon, 2005, p. 941). In this vein, (Hair et al., 2010, p. 672) indicated liberal cut-off values for the model consisting of less than 30 but more than 12 observed variables and sample size of more than 250. Based on the specifications regarding fit indices, the CFA model of this study (15 measured variables and sample size of 276) fits the data well.

GoF	Calculated value	Threshold value
Measures		
$\lambda^2 (df)$	187.26 (77)	
Sig.	.000	Significant p-value expected (Hair et al., 2010, p. 672)
Normed $\lambda^2$	2.43	3 or less associated with better fitting models (Hair et al., 2010, p. 668)
CFI	.96	.92 or better for acceptable model fit (Hair et al., 2010, p. 672);
TLI	.94	.92 or better for acceptable model fit (Hair et al., 2010, p. 672)
RMSEA	.072	.051–.08 suggests acceptable model fit to data (Browne, Cudeck, & Bollen, 1993; Jöreskog, 1993)

Table 7: First-order CFA model fit indices

In comparison, the null model ( $\lambda^2 = 2570.47$ ; df = 105;  $\lambda^2/df = 24.48$ ; RMSEA = .292) in which the correlations among the latent constructs are constrained to zero shows a significantly worse fit ( $\Delta \lambda^2 = 85.11$ ;  $\Delta df = 1$ ; p < .001).

First-order measurement model validity: One important assessment of construct validity includes measurement relationships between observed variables and constructs (Hair et al., 2010, p. 707). The first-order measurement model consists of five constructs: economy (ECO); technology (TCH), government (GOV), product-country image (PCI); and supplier performance (SPLP). The measurement model estimates of standardized item loadings exceeded the suggested threshold (at least .5 and ideally .7; Hair et al., 2010, p. 708). Among the 15 item loadings only one is in the .5 range and the remaining are above .7 (see Table 8). Moreover, all the item loadings are significant at .001 level (see Table 8), which is also considered as a minimum requirement by Anderson and Gerbing (1988). In addition, high item loadings on intended constructs show convincing evidence of convergent validity (Fornell & Larcker, 1981).

The study computed average variance extracted (AVE) and composite reliability (CR) as an estimate of reliability of all measurement scales (Chin, 1998; Fornell & Larcker, 1981). All the AVE estimates are above cut off value .5 (Fornell & Larcker, 1981) and all the CR estimates are well above .7, (indicate good reliability; Hair et al., 2010, p. 710). So both the measures (AVE and CR, see Table 8) explain adequate reliability and convergent validity (Chin, 1998; Fornell & Larcker, 1981) of the constructs.

Table 8: Factor loadings of the supplier country and supplier performance variables (CFA model)

	/
Economy (ECO)	Standardized
CR: 0.84; AVE: 0.65	loadings (t value)
Standard of living	.95 (12.69)*
Welfare concentration of government	.70 (14.21)*
Cost of labor	.72 (NE)
Technology (TCH)	
CR: 0.89; AVE: 0.72	
Level of economic development of the country	.83 (15.90)*
Level of industrialization	.88 (17.04)*
Level of technological research	.83 (NE)
Government (GOV)	
CR: 0.80; AVE: 0.67	
Freedom of market forces	76 (NE)
Political stability	.87 (13.20)*
Democratic practices in forming government	Variable excluded
Product-Country Image (PCI)	Standardised
CR: 0.87; AVE: 0.62	loadings (t value)
Technological advancement in country's product	.80 (NE)
Aesthetics and design image of country's product	.74 (14.52)*
Value for money perception of country's product	.79 (12.97)*
Reliability and desired performance length perceived about country's product	.83 (12.38)*
Country's workmanship image	Variable excluded
Supplier Performance (SPLP)	
CR: 0.78; AVE: 0.55	
Product quality performance	.81 (8.02)*
Delivery performance	.86 (8.04)*
Price performance	.51 (NE)
	~

<sup>\*</sup> Significant at .001 level.NE = Not estimated as loading set to fixed value 1.

To demonstrate discriminant validity, the rigorous test (Hair et al., 2010, p. 710) is that the square root of AVE should be higher than inter-construct correlations (Fornell & Larcker, 1981). All constructs (Table 9) show evidence of discriminant validity according to the Fornell and Larcker (1981) specification. Therefore, based on satisfactory first-order CFA model validity, model estimation could now move toward a higher-order measurement and structural model.

**PCI TCH ECO** GOV **SPLP PCI** .79 **TCH** .73 .85 **ECO** .80 .62 .66 GOV .75 .74 .73 .82 **SPLP** .61 .42 .38 .48 .74 .87 CR .89 .84 .80 .78 .65 AVE .62 .72 .67 .55

Table 9: Composite reliability, AVE estimates and inter-construct correlation matrix

Note: Square root of AVE on the diagonal

Common method bias and non-response bias: Common method variance (variance attributed to the measurement method) is a potential problem in behavioral research (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003, p. 879). One important reason for encountering this problem is that data are collected at one point in time using the same method (Podsakoff et al., 2003). the study used Harman (1967) one factor test to assess the model for common method bias. The one factor CFA model resulted in  $\lambda^2$  value 662.23 with df 87 that indicates the fit of one factor model is significantly worse ( $\Delta\lambda^2 = 474.97$ ,  $\Delta df = 10$ , p < .001). This result indicates that common method variance does not pose a serious threat in explaining the measurement model results.

Data were also tested for non-response bias by analyzing early and late respondents (Armstrong & Overton, 1977) for significant differences. The sample of early 25% respondents and late 25% respondents was used to perform a *t*-test for mean difference. Mean values for early respondents (ER) and late respondents (LR) and respective *t*-value is reported in Table 10. As *t*-values of ER and LR for all the constructs are well below 1.96, non-response bias can be considered as not a major problem for data analysis.

Table 10: Results of t-test for significant differences between ER and LR

Constructs	ER	LR	<i>t</i> -value
ECO	4.156	4.093	.333
TCH	4.612	4.653	.157
GOV	4.256	4.180	.513
PCI	4.922	4.787	.944
SPLP	4.706	4.633	.535

Second-order measurement model: The second-order CFA model includes one second-order construct and two first-order constructs. The second-order construct is overall country image (CI) including ECO, TCH, and GOV as first-order constructs. The CI construct was operationalized in similar fashion to the construct in the source study (Pappu et al., 2007). The product-country image (PCI) and supplier performance (SPLP) constructs remain as first-order constructs in the second-order CFA model. The second-order CFA model fits the data well according to the threshold values of fit indices specified earlier [ $\lambda^2(df) = 191.53$  (81), Normed  $\lambda^2 = 2.37$ , CFI = .96, TLI = .94, RMSEA = .070].

Second-order measurement model validity: Item loadings (see Table 11) of the second-order constructs are substantially higher than the ideal threshold value .7 (Hair et al., 2010, p. 708). Additionally, the *t*-values of all the item loadings are significant at the .001 level (see Table 11). The item loadings of the first-order constructs changed minimally at fractional level and were not reported again. AVE and CR estimates for the second-order constructs convincingly exceeded the threshold value (AVE > .5, CR > .7). Considering all the constructs of the second order CFA model, AVE, and CR values there is substantial evidence of convergent validity.

Regarding discriminant validity, inter-construct correlations and square root of AVE estimates for the three constructs were examined. The results (see Table 12) indicated little deviation from the (Fornell & Larcker, 1981) specification. Therefore, the pairwise  $\lambda^2$  difference test (Anderson & Gerbing, 1988, p. 416; Bagozzi & Phillips, 1982, p. 476; Farrell, 2010, p. 325; Jöreskog, 1971) was employed. Both the pairs of constructs passed the discriminant validity test with significant  $\lambda^2$  differences (see Table 13). Consequently, the discriminant validity of second-order CFA model was established.

Table 11: Standardized loadings of second-order factors

Overall Country Image (CI)	Variable code	Standardized
CR: 0.88; AVE: 0.73		loadings (t value)
Economy	ECO	.78 (8.53)*
Technology	TCH	.84 (10.40)*
Government	GOV	.91 (NE)

<sup>\*</sup> Significant at .001 level.NE = Not estimated as loading set to fixed value 1.

	second-order CFA model			
		PCI	SPLP	CI
	PCI	.79		
	SPLP	.61	.74	
_	CI	.83	.50	.85
	CR	.87	.78	.88
	AVE	63	55	73

Table 12: CR, AVE estimates and inter-construct correlation matrix of second-order CFA model

Table 13: Pairwise Chi-square difference test for discriminant validity

Pair of Constructs	Constrained model		Unconstrained 1	model
	$\lambda^2$	df	$\lambda^2$	df
PCI <b>←→</b> CI	197.30**	82	191.53	81

<sup>\*\*</sup> Significant at .025 level

Second-order structural model: As the measurement model provided sufficient evidence of construct validity, the structural relationships can now be estimated. Fit indices of all the structural model and the second-order measurement model are the same and therefore, the insignificant  $\Delta\lambda^2$  value between CFA model and structural model strongly evidences adequate structural model fit (Hair et al., 2010, p. 738).

#### Hypotheses testing

As predicted in  $H_1$ , there is a strong positive relationship from CI to PCI ( $\beta$  = .83, t = 9.91, p < .001): $H_1$  is thus *supported*. However, the relationship between CI and SPLP ( $H_2$ ) is *not supported* as the relationship is not statistically significant ( $\beta$  = .001, t = .008, p = .99). The  $\beta$  value and t-statistic for  $H_2$  is so negligible that there is no significant influence of CI on SPLP. Evidence of the strong positive relationship between PCI and SPLP ( $H_3$ ) is detected ( $\beta$  = .61, t = 3.78, p < .001) that means PCI has strong positive impact on SPLP.

Table 14: Structural model results

Constructs/Paths	Hypotheses	Standardized path coefficients ( <i>t</i> -value)
CI →PCI	$H_1$	.83(9.91*)
$CI \rightarrow SPLP$	$H_2$	.001 (.008)
PCI →SPLP	$H_3$	.61 (3.78*)
$R^2$ : SPLP		.38
R <sup>2</sup> : PCI		.69

<sup>\*</sup> indicates p < .001

As can be seen on Table 14, the results show that the model explains 38% of variance in the outcome variable SPLP, which is contributed by PCI. In addition, Overall country image (CI) contributes 69% of the variability in PCI.

### **Results Summary**

In the results of this study, the impact of overall country image (CI) on product-country image (PCI) is statistically significant with high magnitude. Therefore, it can be suggested that purchasing managers consider that higher development level of a country (high CI) leads to achieve high product-country image (high PCI). Again, the study results show that development level of a country does not have any direct influence on international supplier performance. Rather, high product-country image leads a country's supplier to be superior in the mind of purchasing managers.

## **Discussion and Implications**

The current study supports the previous literature that relies on attitude theory in arguing that B2B buyers are more rational than consumers. The study results, as received post purchase opinion, depict the reality that international supplier performance does not depend on country's development level but on country's product country image. However, as this is a survey-based study, it is more likely to capture rational and verbally-expressed country associations than emotionally-held COO aspects (Boddy, 2005; Koll, Von Wallpach, & Kreuzer, 2010). The study also avoids the pitfalls of the majority of COO studies, which ask for perceived country image associations. Assessing the existing supplier company and its associated country characteristics are likely to be well known to B2B buyers. Moreover, B2B buyers' opinions regarding their familiar industry and product categories do not require them to imagine hypothetical scenarios. Therefore, by using a research instrument that captures rational aspects and a respondent group who answers questions based on realworld experience, the study avoids some elements of previous COO research in which it has been criticized for its "lack of realistic managerial relevance"; "consumers' impoverished origin knowledge base"; "explaining more of the variance than reality" (Samiee, 2011); "lack of familiarity"; "uninformed responses" (Usunier & Cestre, 2008); etc. In addition, this study contributes to the COO literature by adopting multiple COO images, an aspect that has been suggested by COO scholars to be incorporated (Chattalas, Kramer, & Takada, 2008; Dinnie, 2004; Hsieh, Pan, & Setiono, 2004; Peterson & Jolibert, 1995; Verlegh & Steenkamp, 1999).

With regard to the direction of country image influence, the study provides evidence that the direction from overall country image (CI) leads to product-country image (PCI) and consequently higher PCI leads higher supplier performance.

This study incorporates the prominence of the global supply chain and the reality of 'Made in the world (MIW)' that has eventually transformed the trade of intermediate goods as a significant part of global purchasing. Therefore, this study's focus on raw materials and component parts reflects the opinion related to current trade practices. In purchasing raw materials and component parts, B2B buyers need to work more closely with suppliers as the quality and performance of final products ultimately depends on the quality of raw materials and component parts. The significance of product-country image (PCI) on supplier performance (SPLP) in the purchase of raw materials and component parts is noteworthy. No previous study used multiple country constructs in assessing B2B buyers' international supplier evaluation. Such evidence signifies that the raw materials and component parts play crucial role in determining the quality of final products.

Overall country image (CI) is measured by country economy, country technology and country government: when CI is high, this means that the country is a developed country. According to the study results (CI  $\rightarrow$  PCI  $\rightarrow$ SPLP), developed countries normally have a higher product-country image (PCI) which leads to higher supplier performance (SPLP). This finding is easily acceptable based on numerous COO studies that have provided evidence of the high quality bias of B2B buyers (Ahmed et al., 1994; Chetty et al., 1999; Dzever & Quester, 1999; Insch, 2003; Quester et al., 2000) with regard to developed country products. Again, the insignificant relationship between overall country image (CI) and supplier performance (SPLP) indicates that the developed country image alone is not enough to generate superior supplier performance: rather, the findings indicate that only a developed country with a high product-country image can generate higher supplier performance. For example, with regard to industrial chemicals imports, developed countries will be preferred by the buyers: if the USA and Germany are the options, Germany has the higher PCI for chemicals and a German supplier generates higher supplier performance. Therefore, this study has revealed the crucial role of the PCI construct over the country's development image in B2Bcentric COO research.

This finding also answers an important question of the most recent COO meta-analysis "is macro country image (overall country image) more or less influential than micro country image (product-country image)?" (Magnusson & Westjohn, 2011, p. 307).

In connection with this, the study also provides evidence of the statistical significance of the relationship from product-country image (PCI)  $\rightarrow$  overall country image (CI). However, the path from overall country image (CI) > supplier performance (SPLP) is not statistically significant. From one perspective, the direction from PCI  $\rightarrow$  CI cannot be true for the highly familiar and more knowledgeable respondent group because a country's high PCI does not lead a B2B buyer to perceive the country as a developed country (high CI). For instance, a B2B buyer interested in buying high quality cotton must know the name, Egyptian cotton, but being familiar with this high quality cotton as a raw material (high PCI) will not lead him/her to consider that Egypt has a high CI: if it did, this would mean that Egypt is a developed country. Moreover, a B2B buyer at least knows the current state of Egypt and those B2B buyers who purchase cotton from Egypt are even more aware of its current state. Therefore, the more usual direction is that a developed country normally produces high quality products to satisfy the high living standards of its citizens and thus their PCI will usually be high (CI  $\rightarrow$  PCI).

A country's PCI is strongly associated with a particular industry's strength or competitiveness. Gaining substantial advantage from a country's PCI requires coordinated efforts from industry participants and government. Domestic rivalry within industry plays a vital role in gaining national competitiveness according to the determinants of national competitiveness (Porter, 1990). This phenomenon of within-industry rivalry is a prerequisite for the development of PCI. However, the COO facet 'PCI' is rarely applied in addressing national competitiveness in COO research. For example, if Sony was the only electronics company in Japan, people would not necessarily associate Japan with electronics; however, when companies that collectively belong to a particular industry originating from one country deliver consistently high performance, the product's origin country gains a high PCI. Moreover, the involvement of government with industry complements PCI and enhances global positioning. This has implications for government policy makers.

#### **Limitations and Future Research**

As with any study, the present study has limitations. First, the extant research suggested the use of cognitive, affective and conative components of attitude theory, while this study captured only the cognitive component because this study was not undertaking a preference study where emotion plays an important role. There is scope in future research to accommodate several attitudinal components of country image. Second, the model testing took place only in Australia because of resource limitations. Future studies can use this model and extend the findings of this study by including multinational samples and can test cross country validation of this model. In addition, the model can also be tested for specific industry segments. By accommodating more generalized scale items used in previous studies and some refinements in this study this model may be used in different industry classes with minor changes. Future research in this area should take into consideration the effect of demographic variables on international supplier performance, which was not considered here. The respondents were representative of purchasing managers working in Australia, but the inclusion of managers in the survey was not purely random, but was random within selected panels. Therefore, more randomly selected members could have different views to those included through panels. Fourthly, international supplier performance from COO perspective can be enriched by including other product or supplier related cues.

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