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The Rational Factors of Perceived Quality and Perceived Value as the Drivers of Customer Satisfaction and Brand Loyalty

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Abstract. This empirical study seeks to investigate which rational factors influence customer satisfaction and brand loyalty stronger. For the purpose of obtaining more accurate findings, the research limits to the common rational factors that influence customer satisfaction to brand loyalty, which is rational perceived quality and rational perceived value. We conduct SEM-PLS (Structural Equation Model-Partial Least Square) to analysis the field data to get the answer of the research question. The finding confirms that buyer’s brand loyalty is driven by customer satisfaction, meanwhile the satisfaction is driven by the rational quality aspects. Furthermore, the service dimensions of reliability and responsiveness are the stronger dimensions of perceived quality than tangible product quality; to conclude that services play a crucial role on the chemical industries. The empirical finding provides a basis for practitioners to manage the brand and the price in such a way as to optimize their profits.

Keywords: rational perceived quality, rational perceived value, customer satisfaction, brand loyalty

INTRODUCTION

Branding has a long empirical study in the marketing of consumer products and services, in the opposite conditions, industrial branding has been ignored for a long time (Elsäßer and Wirtz, 2017). Industrial branding study has received comparatively less attention in the empirical studies and academic literature, than consumer branding (Leek and Christodoulides, 2011). However, with the increase of global trade transactions, and competitions among firms across countries, the conditions of industrial trade have changed substantially (Elsäßer and Wirtz, 2017). The growth of B2B branding is continuously enhanced by the following drivers: globalization, hyper-competition, and commoditization (Kotler and Pfoertsch, 2006; Ohnemus, 2009; Cassia and Magno, 2012; Marquardt, 2013; Zhang et al., 2016).

With the ongoing commoditization of products, then learning about factors that influence industrial brand and brand equity outcomes becoming necessary (Marquardt, 2013). In respond to the increasing of commoditization, scholars and researchers took initiative to examine the specific challenges associates with brand development and brand equity enhancement (Nyadzayo et al., 2016). Moreover, past industrial branding studies encourage further studies about seller’s behaviors influencing industrial brand equity (Biedenbach et al., 2011). Past studies have differentiated B2B brand management from B2C brand management (Fetscherin and Heinrich, 2015), but in the last decade, research on B2B branding has taken place at an even broader level, including the chemical complex product in the B2B context (Biedenbach and Marell, 2010; Lindgreen et al., 2010; Chen et al., 2011; Juntunen et al., 2011; Leek and Christodoulides, 2012; Veloutsou and Taylor, 2012; Patel, 2014; Côríc and Jelić, 2015). The B2B brand is an identity that delivers a relevant, enduring, and credible promise of value associated with a product, service, and organization (Ward et al., 1999; Wise and Zednickova, 2009; Baumgarth, 2010; Leek and Christodoulides, 2011). A brand is defined in terms of name, sign, symbol, design, or a combination of them, which are intended to identify the product and/or services (Keller, 2013). In the chemical complex products industry, brand identity is indicated by the company’s name in the buyers’ perspective; buyers perceive corporate brands to be more important than product brands (Côríc and Jelić, 2015). Buyers perceive some corporations as having brand globalness (Alden et al., 2006; Chabowski et al., 2013), and some are well known as major players in the real business world.

Kata kunci: persepsi kualitas rasional, persepsi nilai rasional, kepuasan pelanggan, loyalitas merek
of chemical industries, such as BASF-Germany, Henkel-Germany, Dow Chemical-USA, Clariant-Switzerland, and Archroma-Switzerland.

B2B industries are increasingly concerned with customer satisfaction (Ferguson and Johnston, 2011), since customer satisfaction is a necessary condition for business sustainability (Youssef et al., 2018). On the opposite side, a dissatisfied customer might terminate the business relationship, and it is risky for company sustainability (Sashi, 2012); hence, customer loyalty becomes a critical issue in the industry. There was little attention paid to B2B branding in the past, but there has been a surge in the last decade, with various particular research areas, such as B2B brand equity (Baumgarth and Schmidt, 2010; Lindgreen et al., 2010; Persson, 2010), B2B brand value (Han and Sung, 2008), and global branding (Beverland et al., 2007; Chabowski et al., 2013).

The classical brand equity concept is introduced and developed by Aaker (1996), with the content of brand awareness, brand associations, perceived quality, and brand loyalty. Although the brand equity concept, with four dimensions, are commonly applied in the consumer empirical studies, the application of brand equity concept in the industrial context is assumed by rational decision process, because of relatively small number of buyers (Kim and Hyun, 2011). The brand characteristic of high important is measurable and rational processes, as perceived quality that has an influence on brand equity output as, customer satisfaction and brand loyalty (Aaker, 1991). The impact of the perceived quality on customer satisfaction in the industrial context is due to the fact that buyers who satisfied with quality performance put the preference on the well perform brand, comparing to other brands with poor performance, more over buyers tend to be loyal customers (Taylor et al., 2007; Baumgarth and Binkelebank, 2011).

The main perceived dimensions of the B2B brand equity studies are perceived quality and brand loyalty (Bendixen et al., 2004; van Riel et al., 2005), whereas brand loyalty is proposed as the outcome of brand equity (van Riel et al., 2005). Taylor, Hunter, & Lindberg (2007) and Baumgarth and Binkelebank (2011) found that brand loyalty was the final construct in an endogenous causal chain. Although the link between customer satisfaction and brand loyalty is highly dependent on the industry and the presence of several other factors (Kumar et al., 2013), the causal relationship between customer satisfaction and brand loyalty, in the B2B context, is confirmed by past studies (Low and Blois, 2002; Da Silva and Alwi, 2006; Wise and Zednickova, 2009; Biedenbach et al., 2015).

The majority of past studies assume that the purchase process in the B2B context, is a rational decision (Kim and Hyun, 2011; Leek and Christodoulides, 2011), with the specific characters as predominantly involves industrial products and or services and firms, the business interaction is in more complex situations than simpler one, the crucial role of salespeople and more rational decision process than emotional (Grewal and Levy, 2009). This paper limits the analysis to a rational standpoint, in order to get the antecedent that has a stronger influence on customer satisfaction, which is either the rational brand quality or the rational perceived value. In the context of a chemical complex product, rational consideration will influence the final purchase decision; the feelings and emotional aspects toward a brand are less critical from the buyer’s perspective (Zablah et al., 2010; Ćorić and Jelić, 2015; Seyedghorban et al., 2016). Moreover, past surveys reveal that earning loyalty in the B2B context encourages a continuous shifting of perceived value (Michels and Dullweber, 2014).

Figure 1. The Proposed Model.

Source: processed by author

Past research was most likely carried out from the buyer’s perspective and less from the seller’s perspective (Cretu and Brodie, 2007; Zablah et al., 2010). This paper is carried out from the buyer’s perspective, and it also considers that the final purchase decision always comes from buyers or prospects. The past studies identify that the most benefits of industrial relationships are almost exclusively based in economics, such as quality aspects improvement (Priede, 2013; Quiros and Justino, 2013; Veldman and Gaalman, 2014), operating costs efficiency, reduction of transactions costs (Lyons et al., 1990). Thus, such functional benefits as economics and strategic advantages are enhancing company’s competitiveness and financial positions (Sweeney and Webb, 2007; Abdullah et al., 2009; Chi, 2010; Duh et al., 2012; Herzallah et al., 2014). Hence, it triggers such a research question, which rational factor does influence customer satisfaction and brand loyalty in the industrial context. Given the practical relevance of the examination object, the purpose of the paper is to fulfill the research gap and to have an examination of rational factors of both perceived quality and perceived value; to address this objective, authors do field research in the chemical emulsion market. Furthermore, the dimensionality of the rational perceived quality and perceived value is overriding importance in the B2B context and intended to provide the answer of the research gap by the authors.
The organization of the paper starts with introduction, contents of the research background, the purpose of the study, research gap and the contribution to the literature and business practices, also the literature review being relevant to the purpose of the study. The next section is the research method, contents of the sampling method, validation measurements, data analysis and assessment the proposed model. The subsequent section focuses on the result and discussions. In this section, authors discusses and analysis the findings, focuses on the examination of hypothesis and the proposed model, and the implication of the findings. The last section is conclusion and limitations, that concluding the finding of the empirical study, its limitations and further suggestions.

Rational perceived quality and customer satisfaction.

This B2B branding paper refers to the conventional view being that the industrial decision process is rational and focus on the functional aspects, moreover has no place for emotional dimensions (Leek and Christodoulides, 2012); transferring to this paper, the relationship between buyers and a specific brand is determined by rational evaluations, like product quality, service quality, and price. Industrial tangible products, as well as industrial services, are often complicated in nature (van Riel et al., 2005; Alexander et al., 2009; Persson, 2010; Al-Kwifii and McNaughton, 2013); past studies find the importance of product quality, product safety, and services like on-time delivery, technical support, as well as accessibility and availability (Lam et al., 2011; Ingelsson et al., 2012; Kim et al., 2012; Leavengood et al., 2014; Ćorić and Jelić, 2015). These factors contribute to the buying decision process. In the past study, Ohnemus (2009) finds that industrial branding encourages buyer’s confidence level in the purchase decisions, generates competitive advantage, raises entry barriers to competitors, creates point of differentiations from products quality, influences buyer’s perceptions, leads to the better financial performance of the firms, which all lead to a sustainability competitive advantage through building a strong and positive brand perception among all actors involved in the purchasing process, as well as among all stakeholders as: investors, employees partners, suppliers, competitors, regulators, community, banker or financial services.

Chemical industry is defined as an industrial process that involve chemical products to produce chemical related useful products, therefore there will be a chemical material transformation into new products (Jilcha and Kitaw, 2014). A chemical emulsion is a complex product that owns a point of differentiation among the brands. Aside from their specific functional benefits, recently chemical products have had to comply with technical, safety, and environmental compliments ( Bansal and Roth, 2000; Jilcha and Kitaw, 2014; Kianpour et al., 2014). Transferring to the chemical emulsion industries, buyers shall evaluate the technical, safety, and application performance of the product, whereas the evaluation always refers to the parameter standards at the customer side (Teixeira-Quirós et al., 2010; Dahlgaard-Park, 2012). The rational evaluation process is transparent from the early stage of the buying decision process. The overall perceived quality is the result of expectations, previous experiences, and what customers believe about the brand (Boulding et al., 1993).

Perceived quality is a driving force behind B2B brand loyalty (Bendixen et al., 2004; McQuiston, 2004). Tangible attributes of the product drive the customers’ perspectives of perceived quality as functional product, and intangible attributes of the firm as service quality performance (Alvarez and Galera, 2001; Green, 2012; Ingelsson et al., 2012; Gimenez-Espín et al., 2013). Perceived quality is the customers’ functional judgments about a product’s superiority (Zeithaml, 1988; Fotopoulos and Psomas, 2009; Kassaw, 2013; Veldman and Gaalman, 2014); moreover, the superiority of a given brand is commonly related to product attributes and intangible factors. Concerning the functional aspects, BASF, the largest chemical corporation in the world, has long been aware of its responsibility to the environment and humanity and declared its support for the global initiative of responsible care; refer to the eco-efficiency analysis, there will be the following essential pre-conditions: the customer benefits from the use of green products that are environmentally friendly and have zero risks on the health of people (Shomnard et al., 2003; Kianpour et al., 2014). Besides the functional benefits of the chemical complex product in the application performance, green products have been more regulated recently because of the rules of ISO 14040ff (Kapitan et al., 2018). This condition applies to the chemical emulsion industry also such that the product needs to meet some specific SHE standard requirements in terms of free formaldehyde and toxic materials levels.

In the chemical complex industry, for emulsion products, tangible attributes are indicated by both functional benefits, as well as health and safety added value. The attributes of a product positively influence customer satisfaction (Da Silva and Alwi, 2006; Tanninen et al., 2010). Service quality is reflected by reliability and responsiveness, together with product quality, and they both develop the basis for competitive advantage (Alvarez and Galera, 2001; Samudro et al., 2018a). Service quality positively influences customer satisfaction (Bei and Chiao, 2001; Samudro et al., 2018a; Susanti et al., 2019a; Susanti et al., 2020). Aaker (1991) states that service quality dimensions include reliability, responsiveness, and competence, whereas these dimensions can have a decisive influence on customer satisfaction and brand loyalty. This paper adapts Aaker's service dimensions, but excludes competence, since it can be redundant with reliability indicators. Elsäßer and Wirtz (2017) found that rational brand quality positively influences customer satisfaction, meanwhile The American Customer Satisfaction Index shows that perceived quality has a positive effect on customer satisfaction (Fornell et al., 1996). Askarzad and Babakhani (2015) applied the European Customer Satisfaction Index (ECSI), in a B2B context, and found that perceived quality had a positive influence on customer satisfaction. Basically, satisfaction is characterized as an affective expression or feeling state that is driven by perceived performance, moreover the performance evaluation steps are cognitive and rational processes. In more details, buyers do comparison about their expectations to their experiences with a particular offering; satisfaction happens while experiences meet to or over the expectations (Brock et al., 2010).
From the conceptual description, it leads us to the following hypothesis:

H1. Rational perceived quality, which is reflected by three dimensions, as well as the latent construct of the second order, capture the following three dimensions, namely, product quality, reliability, and responsiveness, which have a significantly positive influence on customer satisfaction.

**Rational perceived value and customer satisfaction.**

This paper analysis brand loyalty and satisfaction antecedents from a functional standpoint as good service performance and benefit-cost comparisons. The classical paradigm of perceived value conceives the construct as a multidimensional construct with benefits as, economic and social, and other sacrifices as, time, effort, price, risks and convenience. However, the analysis with perceived value construct tends to concentrate on economic utility and rational points (Callarisa Fiol et al., 2009). The calculation of total cost from the customer viewpoint is also a highlight; beside the functional benefits, a customer is also concerned with cost-saving (Shonnard et al., 2003; Ambec and Lanoie, 2008; Samudro et al., 2018b). From the value stand-point, the objective of low cost is done by the proper utilization of materials through an efficient process (Salinger et al., 2002; Reimann et al., 2010); even Jung et al. (2009) confirms that the high quality of chemical products result in term of cost reduction, therefore the selling price of the chemical product should be low and contributes to the cost efficiency at buyer’s side. The challenge is reducing material and operational cost at buyer’s production process with maintaining quality aspects (Chung et al., 2010; Herzallah et al., 2014).

In the industrial market, understanding customer loyalty can sometimes be elusive; moreover, it relates to the continuous shifting of perceived value (Chen et al., 2011; Chen and Su, 2011; Michels and Dullweber, 2014). The concept of perceived value focuses on the quality-price relationship (Monroe and Chapman, 1987; Leischning and Enke, 2011; Vera, 2015), and it leads to the value concept as a cognitive trade-off between perceived quality and sacrifice (Dodds et al., 1991; Ulaga and Chacour, 2001). Value is based on the trade-off and intuitive calculation, what to give versus what to get (Zauner et al., 2015). To conclude, from the unidimensional perspective and cognitive aspects, customers behave rationally in order to maximize the utility of the choices (Sánchez-Fernández and Iniesta-Bonillo, 2009). In this paper, the authors determine to use a definition of perceived value as the consumer’s overall assessment of the utility of a product based on what is received and what is give. The economic and rational analysis is done by comparing benefits and sacrifices (Callarisa Fiol et al., 2009). Some past studies tend to focus on perceived value in terms of savings (Anderson et al., 2006; Samudro et al., 2018b); on the other hand, perceived value can be measured as superior product quality and/or service performance (Ulaga and Chacour, 2001; Vera, 2015).

For chemical complex products, such as emulsions, the benefits are the functional performance, all technical parameters, performance during and after chemical application, and technical service performance. On the other hand, the customer also calculates the total cost (Shonnard et al., 2003); in the chemical emulsion industry, customers evaluate the cost based on the selling price. When referring to the ECSI (European Customer Satisfaction Index) model, perceived value has a positive effect on customer satisfaction. The model of ACSI (American Customer Satisfaction Index) also confirms the relationship between perceived value and customer satisfaction, where perceived value influences customer satisfaction positively. Other past studies identify the same positive correlations (Ulaga and Eggert, 2006; Woisetschläger et al., 2011; Mackevičiūtė, 2013; Susanti et al., 2019a; Susanti et al., 2019b). The conceptualization of rational perceived value and customer satisfaction leads us to the hypothesis as below.

H2. Rational perceived value, a latent construct of the first order, has a significantly positive influence on customer satisfaction.

**Customer satisfaction and brand loyalty.**

After the conceptualizing of rational perceived quality and rational perceived value, this sub-section will describe the conceptualization behind the relationship between customer satisfaction and brand loyalty. In the empirical study, Brock et al. (2010) identify satisfaction as the degree to which the level of buyer’s fulfilment is pleasant or unpleasant. Brand loyalty is the most used brand equity outcome in the B2B branding context, and it is the final endogenous in the model (van Riel et al., 2005; Baumgarth and Binckebanck, 2011; Ramaseshan et al., 2013). Brand loyalty is the final objective located at the top of the pyramid at Keller’s Customer Based Brand Equity model with customer satisfaction as its foundation and antecedent; this revised CBBE model applies to the chemical market (Ćorić and Jelić, 2015). Henning-Thurau and Klee (1997) find customer satisfaction as the central determinant of customer loyalty. This research explores the rational source of influence on customer satisfaction since satisfaction leads to brand loyalty. In this paper, the author consistent with prior literature in terms of defining customer loyalty as a buyer’s intent to repurchase from a given supplier (Oliver, 1999). Hence, we use the term brand loyalty instead of customer loyalty, because of the buyer’s concern with both quality and brand. Da Silva and Alwi (2006) and Biedenbach et al. (2015) find the causal relationship between customer satisfaction and brand loyalty. Some past B2B relationship studies find a positive correlation between satisfaction and loyalty (Hong and Goo, 2004; Lam et al., 2004; Callarisa Fiol et al., 2009; Samudro et al., 2018b; Samudro, Sumarwan, Simanjuntak, and E.Z. Yusuf, 2019; Samudro, Sumarwan, Simanjuntak, and E.Z.. Yusuf, 2019). This conceptual background leads us to form the following hypothesis:

H3. Customer satisfaction, a latent construct of the first order, has a significant positive influence on brand loyalty.

Based on the conceptual background, the authors propose an initial model that has four constructs: rational perceived quality, rational perceived value, customer satisfaction, and brand loyalty. The rational brand quality is
reflected by product quality, reliability, and responsiveness, and together with rational perceived value, it has a positive correlation with customer satisfaction. Customer satisfaction is the intermediate variable before reaching the final endogenous latent variable of brand loyalty.

**RESEARCH METHOD**

The initial model is developed based on past research studies, and authors refer to the past literature and journals; briefly, the research design is a conclusive descriptive and quantitative analysis. The authors created questionnaires by first consulting experts and business practitioners. The pre-test is addressed to 30 potential industrial buyers with the purpose of ensuring the validity of each construct and clarity of each question (Carmine and Zeller, 1979). The authors designed the questionnaires using a five-point Likert scale, ranging from ‘very much disagree’ to ‘very much agree’, with six variables to be measured: product quality, reliability, responsiveness, rational perceived value, customer satisfaction, and brand loyalty. The survey was conducted from January 7th until April 30th, 2019, through face-to-face interviews, whereas the participants were requested to refer to all branded emulsions (as many as four brand products) they had consumed in the past three years.

Chemical industries are appreciable because of the wide spectrum of its application, every elements of the world composed of chemical substances. Chemical emulsion has a broad application also and plays the role as either the main raw material, or supporting material. The chemical emulsion market in the surveyed region consists of a number of buyers, which is factories that are processing chemical emulsion in the production process. The survey locations are spread out in Java provinces: Banten, Jakarta, West Java, Mid Java and East Java, since the industries – coating, paper, textile, printing, wood panel, furniture and putty - are concentrated in Java island. Authors select companies that consume chemical emulsion in some different industries hence the sampling method is purposely sampling; the samples selection and decision are based on the various industries with the objective to get the generalization of the findings. Company’s size and status (foreign investment and domestic/local company) are also considered. The company’s size is based on the volume, which is in term of monthly tonnage consumption; the large buyers are those that can place an order up to even 50 tons above in monthly order, meanwhile the medium-small buyers place an order below 50 tons per month. Moreover, the combine of domestic or local companies and multinational buyers are purposely to get a broader spectrum of collected data, considering that both company’s type – local and multinational – have a different management style in taking purchase decision process. Authors send the interview permit to the director as person in charge in the company. Based on our permit letter, the director assigns people to be our respondents. The respondents are the people who are familiar with the chemical emulsion, with an involvement of the chemical emulsion purchase in the minimum of 3 years, such as: production manager, R&D head, purchasing manager and even director. Those respondents are information rich, are expected to be able to provide useful information, respond all questions, share the decision process and even explain about the evaluation process towards the emulsion suppliers from the brand stand points.

With reference to the associations memberships data, authors pick up relevant industries to get involved in the research. Based on the initial response of the potential respondents, some companies are relatively reluctant to the interview and reject the interview permit proposal. Hence, authors are able to distribute 124 questionnaires, but after completing the interviews and survey, a total of 96 valid samples from a total of 124 collected questionnaires (response rate: 77.40%) are ready to be further analysed in order to measure the model and path relationships. The survey is done by face to face interview and the interview

<table>
<thead>
<tr>
<th>Table 1. Demographic Data</th>
<th>Quantity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School graduate</td>
<td>4</td>
<td>5.9%</td>
</tr>
<tr>
<td>Diploma degree</td>
<td>6</td>
<td>8.8%</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>52</td>
<td>76.5%</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>4</td>
<td>5.9%</td>
</tr>
<tr>
<td>Doctorate degree</td>
<td>2</td>
<td>2.0%</td>
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<tr>
<td><strong>Gender</strong></td>
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<td></td>
</tr>
<tr>
<td>Female</td>
<td>8</td>
<td>12.0%</td>
</tr>
<tr>
<td>Male</td>
<td>60</td>
<td>88.0%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
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</tr>
<tr>
<td>25-35 years old</td>
<td>16</td>
<td>23.5%</td>
</tr>
<tr>
<td>36-45 years old</td>
<td>32</td>
<td>47.1%</td>
</tr>
<tr>
<td>46-55 years old</td>
<td>14</td>
<td>20.6%</td>
</tr>
<tr>
<td>&gt; 55 years old</td>
<td>6</td>
<td>8.8%</td>
</tr>
<tr>
<td><strong>Working experience</strong></td>
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<td></td>
</tr>
<tr>
<td>&lt; 5 years</td>
<td>10</td>
<td>14.7%</td>
</tr>
<tr>
<td>5-10 years</td>
<td>26</td>
<td>38.2%</td>
</tr>
<tr>
<td>11-15 years</td>
<td>6</td>
<td>8.8%</td>
</tr>
<tr>
<td>&gt; 15 years</td>
<td>26</td>
<td>38.2%</td>
</tr>
<tr>
<td><strong>Position</strong></td>
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<td></td>
</tr>
<tr>
<td>Director / GM</td>
<td>12</td>
<td>35.3%</td>
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<tr>
<td>Owner</td>
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<tr>
<td>Purchasing Manager</td>
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<td>17.6%</td>
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<tr>
<td>Production Manager</td>
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<td>8.8%</td>
</tr>
<tr>
<td>R &amp; D Manager</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: processed by author

SEM (Structural Equation Model) is a statistical model that seeks to estimate the relationship between multiple variables (Hair et al., 2010). In this research, the authors employ the PLS-SEM (Partial Least Square-Structural Equation Model) statistical technique to estimate the path correlation and hypotheses, since the samples are limited; the field data is processed by PLS 2.0 version-software. PLS can produce a reliable output for a limited sample
size as low as twenty (Chin, 1998; Chin and Newstead, 1999). The PLS analysis starts with the assessment of the measurement model or the outer model (Hair et al., 2010). The outer model includes reliability and validity (Ramayah et al., 2011). Reliability is a construct’s quality that requires

Table 2. Reflective measurement models – Internal Consistency Reliability: Cronbach’s Alpha and Composite Reliability

<table>
<thead>
<tr>
<th>Variable</th>
<th>Composite Reliability</th>
<th>Cronbach’s Alpha</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rational Brand Quality</td>
<td>0.58</td>
<td>0.652</td>
<td></td>
</tr>
<tr>
<td>Product Quality</td>
<td>0.930</td>
<td>0.687</td>
<td>0.765</td>
</tr>
<tr>
<td>Reliability</td>
<td>0.967</td>
<td>0.862</td>
<td>0.871</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>0.951</td>
<td>0.936</td>
<td>0.892</td>
</tr>
<tr>
<td>Rational Perceived Value</td>
<td>0.919</td>
<td>0.883</td>
<td></td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>0.948</td>
<td>0.931</td>
<td>0.830</td>
</tr>
<tr>
<td>Brand Loyalty</td>
<td>0.915</td>
<td>0.886</td>
<td>0.685</td>
</tr>
</tbody>
</table>

Table 3. Reflective measurement model-Indicator validity and convergent validity: Outer loadings, t-value and AVE

Table 4. Reflective measurement models – Discriminant validity: Cross loadings

RESULT AND DISCUSSION

This empirical study began with the aim of investigating which rational factors have a stronger influence on customer satisfaction and brand loyalty, with the particular focus being on rational perceived quality and rational perceived value. How price sensitive is the buyer towards the phenomenon captured by a construct, whether it is unique, or if it is not represented by the other constructs in the model. This discriminant validity is evaluated by measuring the cross-loadings among the constructs (Hair et al., 2013). To purposefully achieve discriminant validity, the loadings of the construct must be high in themselves and low on other constructs (Vinzi et al., 2010). Table 4 depicts the detailed correlation between all the indicator items toward each construct. The results reveal that all the detailed indicators are high in its construct and low in other constructs, which means that it achieves discriminant validity.
product quality? This research question derives and verifies a comprehensive model that includes rational perceived quality, the rational perceived value, customer satisfaction, and brand loyalty, in a B2B setting. The authors developed an uncomplicated model by combining exogenous latent variables of both the rational perceived quality and the rational perceived value, with the brand equity outcomes of customer satisfaction and brand loyalty. Rational perceived quality is identified as a reflective latent construct of second order, capturing three dimensions: product quality, reliability, and responsiveness. In this initial model, the authors place three hypotheses, and table 5 depicts the hypotheses testing results.

From the path estimate results, rational perceived quality has a significant positive influence on customer satisfaction (0.804, t-value: 24.435), and it has a relatively stronger influence than rational perceived value does (0.141, t-value: 3.977). The first and main finding supports hypothesis 1 and hypothesis 2. This result confirms the importance of rational perceived quality from the customer or prospect perspective. Path coefficients are at least 0.20 or ideally 0.30 and above in order to be considered meaningful (Chin, 1998). With reference to the path value of the rational perceived value to customer satisfaction 0.141, it indicates low significance of price from the buyer's standpoint or a weak influence of rational perceived value on customer satisfaction. The finding explains the profitability of chemical industries because it indicates price inelasticity, which boosts a customer's willingness to pay a higher price. The first and main finding supports past study whereas the perceived brand quality leading to superior perceived value (Vera, 2015). The justification of the first finding is that the existing customers consistently evaluate chemical emulsion products and services performance as the top priority, with price evaluation being the second step. From the buyer’s standpoint, they consider the business risks at their end product; if the end product fails because of the chemical material, it will contribute a negative effect on their brand in the long run. Besides, there will be monetary risks as the financial claim due to returning the product, along with unexpected warehouse expenses. To conclude, unless products fail or have brand damage, customers will keep their relationship with the brand. Major chemical emulsion industries imply a high price/performance strategy in response to the superiority of rational perceived quality toward rational perceived value; the conclusion supports the past brand management perspective about the necessity of quality aspects in industrial context (Ulaga and Chacour, 2001).

The implication of the first finding is the importance of quality development on the seller’s side. The research & development has become a relevant department, and the company should focus on product and service continuity improvement, in order to sustain business among fierce competition. If buyers switch from chemical emulsion products to other alternatives, there will be business and technical risks. Therefore, buyers depend on the existing brand in term of quality aspect. The seller shall lead product and service performance with the quality improvement program, it leads the seller to win the fierce competition. Considering the better performance of quality aspect and switching risks, the seller tends to address a premium price and a better profit on the sales deal; however, buyers usually respond to this opportunistic motivation. To counter the possibility of an opportunistic motivation on the part of the seller to increase the selling price to an unreasonable level, one common practice is to set a price formulation. This price formulation binds both parties to commit to the commercial agreement. The finding supports previous studies about the positive effect of rational perceived quality on customer satisfaction (Bei and Chiao, 2001; Da Silva and Alwi, 2006).

The second finding of the research is the stronger influence of service dimensions, reliability (0.934, t-value 156.795) and responsiveness (0.944, t-value 203.774), compared with tangible product quality (0.875, t-value 75.507), in terms of their relationship with customer satisfaction. The justification of the finding is most likely the importance of the reliability and responsiveness of the chemical emulsion need. Considering that the chemical emulsion is a tailor-made product, the technical expertise and fast response during application become crucial to the success of the chemical emulsion application. This second finding supports the past concept of the perception of the global brand, whereas the brand’s credibility is confirmed by its expertise and trustworthiness (Erdem et al., 2006). The field survey is addressed to various industries in a different company’s size; the chemical emulsion market has a specific character of strong tailor made - chemical application, even in the same industry, seller needs to adjust chemical formulation to purposely meet to the specific technical standard of buyer. Hence, chemical industry need to have a very strong technical expertise team; the internal collaboration among research and development team, production team, quality control team, chemical emulsion applicator and sales team are necessary to ensure the company’s goal accomplished, which is a perfect chemical application out put in the buyer’s side.

The justification of the second finding is most likely due to the complicated usage of the chemical emulsion by respondents, in particular is in term of chemical application. Every chemical emulsion market has a different engineering process, chemical material parameter, supporting facility and technology standard, as well as human capabilities. These different various variables in the buyer’s side are encourage and challenge chemical industries to solve buyer’s unique need; the expertise at seller’s team is a crucial thing and even as a key successful of business sustainability. The implication of the second finding is necessary for the seller to focus on technical expertise enhancement and technical service readiness as confirmed by past studies (Marquardt, 2013; Petersen and Kumar, 2015; Leckie et al., 2016) and product application improvement. However, we could observe that the tangible chemical product is as crucial as technical services. Together with technical service skills and fast response,
it is essential to improve the chemical product formulation consistently. Although the price is less meaningful in the final purchase decision process, the chemical industry needs to ensure that it takes the lead, in terms of both the chemical product formulation and application. To conclude, the technical service, in particular the chemical product's application performance and fast response, are more critical than the tangible chemical product. Meanwhile, as the predicted customer satisfaction has a positive effect on brand loyalty (0.828, t-value 63.074), the findings support the past studies (Da Silva and Alwi, 2006; Biedenbach et al., 2015), therefore hypothesis three is accepted.

CONCLUSION

The conclusion of the paper is that the rational perceived quality has a stronger positive influence on customer satisfaction than the rational perceived value does, furthermore, customer satisfaction will influence brand loyalty.
The structural model involves the squared multiple correlations (R2) of the dependent variable, and its purpose is to examine the explanatory power of the model. The R2 customer satisfaction of 82.99% is explained by the independent latent variables: rational perceived quality and rational perceived value, moreover, is confirmed by stronger influence of rational perceived quality on customer satisfaction than perceived value does. The R2 result demonstrates the substantial power of customer satisfaction, which implies that the sources of customer satisfaction are both rational factors of perceived quality and perceived value, those are confirmed as substantial drivers and antecedents; furthermore, the R2 brand loyalty of 68.50% is explained by customer satisfaction construct, and demonstrated a moderate driver (Janadari et al., 2016). All in all, the result of R2 concludes the robustness of the developed model.

Although the paper contributes a strong explanatory content of structural model, the results are subject to some limitations. For instance, authors find it difficult to have a further study about brand perceptions based on global brand, which is produced by multinational companies and local brand, which is product by local companies, due to limited collected data. This limitation implies to the generalization of buyer’s perception towards brand in the model, or even disregards the precision potency of path correlation output. Multinational companies, that produces global brand and local companies have a different management style; with the limited data, the model analysis is assumed by the same purchase decision process between multinational and local companies.

Meanwhile, as the customer satisfaction and brand loyalty study are considered the first one by combining rational perceived quality and rational perceived value, authors do propose future study by taking other constructs into account as, brand awareness and brand associations. In the case of the business prospects, although the purchasing decision process in the industrial markets is often through rational and calculative consideration, in some cases, there could be a possibility that the decision is also partially influenced by emotional aspects. For instance, if the buyer has no experience of dealing with the seller before, or it is a new product for them, then the brand image might be beneficial in the purchase decision-making process (Leek and Christodoulides, 2011). Combining rational factors and emotional factors, in particular brand awareness and brand image, could be an interesting model to be explored in the industrial context; Authors suggest to have a further study by examining emotional aspects in the industrial purchase decision process. Authors also recommend replication studies in other B2B industries setting, especially in the commodity products. Finally, as the survey is conducted in Indonesia only, the authors strongly recommend replications studies at other countries with different culture for the generalization of the results.

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