The Effect of Brand Performance and Industrial Brand Image on Brand loyalty in Liberalized Egyptian Energy Market

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Abstract

This paper aims to study the effect of brand associations on brand loyalty of Joint sector companies in liberalized Energy Market in Egypt. A model which examines the relationship between brand associations and brand loyalty is proposed to provide insights into key brand associations elements that allow private Egyptian supplier companies for successful industrial brand positioning and which in turn contribute to joint sector companies loyalty. A single cross-sectional descriptive research was employed. Data is collected via questionnaire using a representative sample of 300 personnel from the buying center in the joint sector who are involved in the purchase decision making of products and services, exploring their perceptions and feelings towards Egyptian private suppliers brands.Confirmatory factor analysis was used to test the scales validity, and to test the hypotheses of the research, structural equation modeling was used.The results showed that brand performance dimensions represented by product and service quality have a direct significant impact on brand loyalty. On the other hand, industrial brand image has partial impact on brand loyalty in which corporate social responsibility has no direct impact on brand loyalty while, innovation dimension only has a direct significant impact on brand loyalty.

The findings suggest that Private Egyptian supplier companies can differentiate their product and service offerings and establish strong corporate brands through brand associations. This research adds up to the industrial brand equity literature, which is mostly conceptual or qualitative and thus witness limited conclusive evidence particularly in terms of brand associations benefits and practical implications.

Keywords Liberalized Energy market, Industrial brand equity, Brand Associations, Brand performance, industrial brand image,Brand loyalty.

Paper type Research paper
1. Introduction

Business-to-business products differentiation is fading as firms competing just on pricing and personal relationships, as a result, decreasing companies' profits. As firms' adoption of the cost reduction policy such as technology and low-cost production, arouse the problem and allow for minor differentiation in such markets (Alwi et al. 2016). Thus, to face such fierce competition, suppliers shift to branding through applying strategies of differentiation to implement a sustained competitive advantage (Alwi et al. 2016). Brand equity research is featured by two approaches. First approach, where brand value is determined by customers evaluation of customer-based brand equity (product brand), the other approach, reflects financial evaluation by stakeholders of firm-based brand equity (corporate brand). The customer perspective is more essential for marketers for brand equity drivers understanding in various markets (Leek and Christodoulides, 2011). Thus, the current research framework builds upon Keller’s (2003) model of customer-based brand equity which prove the emotional attributes of industrial buyers existence toward a brand. Keller (1993) indicates that brand equity represents the brand knowledge differential effect upon the response of consumer to the marketing of the brand. Customer-based brand equity can be classified into rational and emotional brand evaluations (Leek and Christodoulides, 2011). Until now, several studies investigating branding in a business-to-business context focus on the customer-based brand equity model (Elsaber and Wirtz, 2017; Taylor et al., 2007; Van Riel et al., 2005).

However, most industrial branding cannot presents aspects at the brand corporate level as it address the brand at product level (Webster and Keller, 2004). In this respect, Mudambi et al. (1997) and Kuhn et al. (2008) frameworks includes the brand performance attributes, however, neither of them integrates the emotional attributes. As a result, brand associations in B2B context was formerly recognized as being purely rational. As such, previous studies over-reliance on performance attributes only doesn't completely explain the logic behind purchase decisions in business-to-business context (Mudambi et al., 1997). In this respect, a more integrative framework combining both rational and emotional attributes brand loyalty does not exist (Elsaber and Wirtz, 2017). Moreover, there exists a gap in the literature with respect to future-based and uncertain industrial products branding, in particular, hybrid offerings which incorporate aspects of both goods and services (Marquardt, 2013). Thus, industrial branding in the B2B context remains to a large extent a new area (Leek and Christodoulides, 2011). So far, most of branding research have been applied in consumer contexts (Alwi et al., 2016).

The context of the current study which is Liberalized Energy Market in Egypt is of particular interest, as recently, deregulation in energy market has opened previously monopolistic environments which in turn allow for free market competition (Hartmann and Ibanez, 2017).

In this respect, differentiation becomes an afterthought due to high levels of complexity and intangibility in such context in which customization is frequently low owing to two reasons;
first, the product (fuel) is the same with minimum variation in the quality and second, packaging is naturally not possible in oil and gas business. Hence, there is little differentiation in the manufactured products with little opportunity of becoming unique (Alwi et al. 2016).

In this respect, many energy companies are concentrating on branding, seeking to improve customer loyalty in which Energy brands with brand associations more pleasing to customers will have the capability to impose a premium price (Hartmann and Ibanez, 2007). In particular, the specific role of brand associations with respect to energy brands is still largely undetermined (Hartmann and Ibanez, 2007). Hence, energy managers in supplying firms need to identify brand associations dimensions that are suitable for brand successful positioning from a customer's perspective (Hartmann and Ibanez, 2007).

An exploratory study is conducted with members from buying center in customer companies operating in the joint sector in which the joint sector is chosen as it deals to a huge extent with various Private Egyptian Supplier companies competing under their area of specialization. Therefore, Private Egyptian Supplier companies is going to be evaluated by customers (members in the buying center responsible for making purchasing decisions) in the joint sector. In this respect, exploratory study findings reveals the lack of significant brand associations adopted by Private Egyptian Supplier companies and thus, these supplier companies faces a significant attrition rates due to their inability of to maintain industrial customer loyalty. Consequently, customer companies shift most of their pursuing decision to international companies that apply associations more pleasing to them which in turn harm the Egyptian Economy.

In this sense, based on previous studies in industrial brand equity and the exploratory study findings, a comprehensive model is developed which is build upon Keller's framework of customer-based brand equity in general, and in particular its brand associations dimensions to examine how brand performance (product quality and service quality) and industrial brand image (innovation and corporate social responsibility) classified under brand associations construct influence industrial customer loyalty in liberalized Energy Market in Egypt. Thus, the purpose of our paper is to "explore how do brand performance (tangible) and industrial brand image (intangible) associations of industrial brand influence industrial customers brand loyalty in liberalized Energy Market in Egypt".

Hence, problem statement can be stated as follows: "What is the role of brand associations in reducing attrition rates, achieving successful positioning and brand differentiation to maintain customer loyalty in liberalized Energy market in Egypt?"

In this respect, the research has three main objectives:
1. To investigate how private Egyptian suppliers in liberalized Energy Market can maintain customer loyalty through specific brand associations (functional and emotional) positioning.
2. To investigate the impact of brand performance (product and service quality) on loyalty.
3. Examine the impact of industrial brand image (innovation and corporate social responsibility and) on customer loyalty.

Based on "The Social exchange theory" we hypothesize that brand performance and industrial brand image (brand associations) are antecedents of industrial customer loyalty, in which hypotheses on their direct effect is presented, and important implications for managers in the liberalized Energy Market is introduced. The hypothesized model is tested on a representative sample of 300 members in the buying center from joint sector companies occupying positions of (engineers, accountants, geologists) who are involved in the purchase decision making of products and services and exploring their perceptions and feelings towards Egyptian private suppliers brands in liberalized Energy Market. The paper is organized as follows. First, a literature review is presented. Then, the paper develops the model based on the literature review. Next, the hypotheses empirical test is presented. Data collection and analysis for hypotheses testing is introduced. This is proceeded by discussion of research results. Finally, limitations and future study directions are presented.

2. Literature Review

Brand equity concept was developed originally in B2C market in which the same concepts of branding are probably to be applied in business to business context (Zhang et al. 2015). Therefore, many studies in several business contexts also depends on brand equity concepts developed in the literature of B2C marketing (Elsaber and Wirtz, 2017; Kuhn, Alpert, & Pope, 2008; Zhang et al. 2015).

Industrial brand equity is defined as "customer/buyer perception of the overall industrial brand image, created through brand associations" (Bendixen et al., 2004; Michell et al., 2001). More specifically, brand associations is associated with brand information in the mind of customers either positive or negative which is linked to the brain memory node (Sasmita and Suki, 2015). In this sense, Kim and Hyun (2011) indicated that brand associations have direct influence on the overall value of brand equity.

Studies investigated the industrial brand equity antecedents. For example, Van Riel et al. (2005) in Specialty chemical context suggests a model that differentiate between corporate brand equity and product brand equity, and examine their antecedents. Findings show that the main antecedents of product quality and brand loyalty is distribution and value for the money while the antecedents of perceived service quality, corporate image and brand loyalty are personnel and promotion. Additionally, corporate image positively influence brand loyalty.

Also, Cretu and Brodie (2007) in hair salons context, examine the relationships between antecedents and dimensions of brand equity. Results show that price impact loyalty of customer, directly and indirectly via customer value. The image of the brand have indirect impact on customer loyalty through service and product quality. Also, it has a direct impact on customer value. Whereas, corporate image has a direct impact on both of them. Roberts and Merrilees (2007) examine the
relationships between brand equity dimensions and their antecedents in a market of mall tenant contract. The brand trust and repurchase intention reflects brand equity dimensions, while associations of service quality, mall center responsive behavior, and empowerment to tenants represents their antecedents. The brand attitude of consumer's toward mall is suggested as a mediating variable between brand equity dimensions and their antecedents. Structural model results show that customer behavior response directly influence trust and intention of repurchase while service quality has indirectly impact both of them through consumers brand attitude to the mall.

Biedenbach and Marell (2010) examine experience of consumer's influence on awareness of brand, brand associations, quality perceived and loyalty of the brand, in which a hierarchical effect among the four dependent constructs is confirmed. Baumgarth and Binckebanck (2011) examined the sales force and classic marketing instruments on perception of brand, strength of brand and loyalty to the brand. Also, Leischnig and Enke (2011) examined the relationship between perceptions of the brand and responses of customer in a business-to-business context.

However, the aforementioned studies (Baumgarth and Binckebanck, 2011; Biedenbach and Marell, 2010; Cretu and Brodie, 2007; Leischnig and Enke, 2011; Roberts and Merrilees, 2007; Van Riel et al., 2005) which examine brand equity dimensions antecedents did not consider the separation between rational and emotional elements.

Other studies examines the consequences and interrelationships among brand equity dimensions. For example, Taylor et al. (2007) examine the relationships between brand equity dimensions as well as relationships among dimensions of brand equity and their consequences in professional liability insurance service. Brand equity in their model involves brand value, perceived quality, brand uniqueness, brand attitude and brand satisfaction and loyalty. Brand equity overall value is represented their consequence. Chen et al. (2011) examined the impact of service and product quality, awareness of brand, loyalty to the brand and country-of-origin on brand equity. Results reveals perceived service quality and country-of-origin insignificance. Chen and Su (2012) tested the influence of information services, country-of-manufacture, service personnel, value of product on brand loyalty and brand equity. However, the distinctive nature of industrial brand and the separation of brand associations elements is not considered in the aforementioned studies (Chen et al. 2011; Chen and Su 2012; Taylor et al. 2007).

Studies examining the rational and emotional factors evaluation by industrial buyers for industrial goods was made by Jensen and Klastrup (2008) in which they identify rational factors as (service quality, product quality and price) and emotional factors including (promise, differentiation, credibility and trust). Findings indicated the emotional factors existence in industrial brand equity. Also, Kuhn et al. (2008) adapted the Keller's (2003) pyramid of customer-based brand equity and confirmed the presence of emotional feelings regarding industrial buyers toward a brand. Consistent with this, Cassia and Magno (2012) examined the emotional hedonic antecedents contribution ver-
sus rational functional antecedents with respect to preferences of industrial buyers. In addition, Alwi et al. (2016) examine tangible and intangible associations and their impact on brand loyalty and commitment of industrial buyers. Their Results indicated that brand image directly affect brand trust. Based on the aforementioned discussion. However, these studies (Cassia and Magno, 2012; Jensen and Klastrup, 2008; Kuhn et al., 2008) did not assign a recognized emotional factors (Elsaber and Wirtz, 2017). Also, Alwi et al (2016) examine industrial image in its general term and did not examine dimensions underlying it individually.

Thus, the aforementioned studies stress the importance of emotional brand attributes to be taken into consideration in industrial branding context (Kuhn et al. 2008). In this sense, industrial brands that communicates only rational values fail to accept the reality that both performance and imagery attributes contribute to the purchase decision making in B2B (Johansen, 2009). In particular, brand associations role in liberalized energy brands is still to a large extent undetermined (Hartmann and Ibanez, 2007). For example, Johansen (2009) conducts a qualitative study applied on biomass heating plant industry, the study classify brand associations into brand performance (price, quality, reliability, innovative performance and service) and imagery related associations (trust, ease of doing business, competence, references, aesthetics and environmental initiatives). The study ends up with brand associations classification into category points of parity (innovative performance, quality products, environmental initiatives, competence and references) and category point of difference (reliability, ease of doing business and trust).

In a similar context, Hartmann and Ibanez (2007) study analyses associations of brand and the switching costs influence on satisfaction and loyalty of customer in liberalized energy markets. However, brand associations have not been classified in their study but determined in more general terms such as: value-added services, technical service quality and service process quality, innovation and dynamism, environmental and social commitment, trust and price. Findings reveals positive effects of service process quality and social and environmental commitment on loyalty via customer satisfaction.

Based upon the aforementioned discussion, there is a need for the development of empirical model that comprises brand associations dimensions under each of (brand performance and brand image) in Liberalized Energy Market. In this respect, Leek and Christodoulides (2011) indicated the importance of identifying buyers brand perceptions in B2B context and the significance of the rational and emotional elements that will allow marketers to deliver a more effective message. Thus, the present research is designed to fill these gaps by contributing to existing literature through examining the role of brand associations (brand performance and industrial brand image) on industrial buyers’ brand loyalty in liberalized Energy market context which is characterized by hybrid offering (products and services). The cornerstone of this research is the means end theory which is applied to the present study industry to determine brand equity sources. In marketing literature, the means end theory was pre-
sented by Gutman (1982) and aims to explain purchasing behavior as a means for satisfying various levels of needs. The most essential principles about the means end theory as indicated by (Johansen, 2009) can be summarized as follows; first, consumers search for alternatives that provide either consequences which are positive or avoid negative consequences. Second, consequences can be either rational or emotional. Third, between both alternatives the consumer will select the alternative which is more likely to avoid risks or provide benefits associated with his or her most essential values.

3. Research framework and hypotheses

The current research framework is based on customer-based brand equity model developed by Keller’s (2003) which prove the presence of emotional associations regarding industrial buyers toward a brand. In this sense, section 3.1 conceptualizes constructs under brand performance and their impact on loyalty, whereas, section 3.2 conceptualizes constructs under industrial brand image and their impact on loyalty.

3.1. The effect of brand performance on brand loyalty

Brand performance in the present study is conceptualized as tangible, functional and rational brand attributes in which brand performance is measured by product and service quality dimensions. With respect to product quality, Ulaga (2003) define product quality as “the extent to which the supplier's product meets the customer's specification”. Alwi et al., (2016) in B2B context measure product quality as the extent to which company product br-and is a; reliable, durable, consistent in quality and is synonym to high quality product in overall. In B2B context, Carter and Cater (2010) study results show that quality of product affects loyalty.

Another important brand performance dimension is service quality. In the context of liberalized energy market , Hartmann and Ibanez (2007) noted that service quality associations are viewed as a critical element of the brand’s promise in which Gronroos (1984) defines service quality as “the result of the perceptions of what they get (technical service quality) and how they get it (service process quality)”. In this respect, Hartmann and Ibanez (2007) mentioned that technical quality of service reflects both energy supply (core service technical quality), i.e. energy supply reliability, and (peripheral services technical quality), i.e. information about energy saving, maintenance, adaptable contracts, etc. On the other hand, Perceived service process, reflects employee interaction with customers, e.g. promptness of service, politeness, courtesy, etc.

In a service context, several studies findings reveals a positive relationship between quality of service and loyalty (Bidenbach et al. 2011; Giovanis et al. 2014; Rasheed and Abadi, 2014). In a business context, many studies support the direct positive relationship between quality of service and loyalty (Kim and Hyun, 2011; Van Riel et al., 2005).

Hence, it is hypothesized that:

H1: Product quality is positively associated with loyalty

H2: Service quality is positively associated with loyalty
3.2. The effect of industrial brand image on brand loyalty

Brand image is more critical in situations where differentiation of product is complex based upon tangible attributes, industrial brand image is concerned with the overall attitude or intangible (emotional) attributes of the brand which is essential as it guide firms in positioning its brand to be able to achieve sustainable differential advantage particularly in the B2B context (Alwi et al. 2016). Industrial brand image in the present study is measured by innovation and corporate social responsibility.

With regard to innovation dimension, Alwi et al. (2016) mentioned that innovation allow firms to detect brand differentiation in their branding strategies thus, innovation capability allow firms to build brand equity (loyalty) through providing differentiated product or service offerings, communicating corporate image that is attractive to customers and designing appealing marketing program (Zhang et al. 2015). He and Wong (2004) define innovation as the capability to; introduces a new generation of brands, expand ranges of current product, open up new markets, improve current product quality and decrease production costs. Foroudi et al. (2016) study results indicated that innovation capabilities enhances the impact of complex demographics on loyalty.

Corporate social responsibility (CSR) association reflects the activities and status of the company regarding its social obligation. It has appeared as a key strategic instrument for differentiation achievement (Fatma et al. 2016). Moreover, Hartmann and Ibanez (2007) noted that offering green energy products witness a pivotal importance worldwide in energy markets (Hartmann and Ibanez, 2007). Furthermore, Arikan and Guner (2013) indicated that the socially responsible behavior perception reinforce commitment toward the firm in which customers are more motivated to purchase products from firms participating in corporate social responsibility (CSR) aspects as these efforts are valued highly by customers and thus augments customers loyalty toward the firm. In this sense, Fatma et al. (2016) study findings applied in Retail banks in India reveals that CSR associations have indirect impact on loyalty of the brand via brand identifications. Hence, based on the above illustration, we posit that:

H3: Innovation is positively associated with loyalty

H4: Corporate social responsibility influences loyalty

Based upon the above discussion, relationships between the research variables are presented in Figure (1) below;
4. Research Methodology

The research adopt a mixed design (Exploratory and descriptive research design). First, an exploratory study is conducted with members from buying center in customer companies operating in the joint sector. Second, descriptive research design is conducted.

4.1. Exploratory research

An exploratory research was conducted in which five customer companies working in the joint sector were selected to be the subject of the exploratory phase by interviewing total of twenty personnel from the buying center of those companies (ten engineers, five accountants and five geologists). This stage was taken in order to explore the context of the study, to identify relevant brand associations in such context, the extent to which brand associations attributes found in the literature are also taken into consideration by members in the buying center and whether there are other associations to be proposed by them and also to explore new associations identified by members from buying center. The main findings of the exploratory research reveals the following:

First, the joint sector deals to a huge extent with various private Energy suppliers companies competing under their area of specialization. Therefore, the joint sector companies (customer companies) is going to be the focus of our study. In this respect, the Egyptian private (liberalized) supplier companies is going to be evaluated by customer companies in the joint sector specialized in oil and gas exploration. Also, exploratory study findings reveals that the buying center group in the joint sector companies (customer companies) involves personnel from various departments; drilling and exploration, operations management, purchasing, contract and finance department.

Second, technical personnel in the buying center focus mainly on evaluating determinants of product and service quality in which they represent both of them as (performance attributes). For instance, continuance maintenance with respect to supplies (equipment, devices, buildings, ----). Also, they foster quality standards for both product and services. Third, members in the buying center prefer suppliers perceived as having "corporate social responsibility" who use waste efficient-
ly in a way that don't pollute the environment. Also, they prefer those suppliers who can serve new markets and thus perceived as (innovative) as such when any sudden unexpected problem encountered, the supplier company should be innovative enough to handle it.

4.2. The population and sample

The sampling unit involves members in the buying center who are responsible for purchase decision making in which these members involves; engineers, geologists and accountants in various purchasing, drilling, operations, contracts and finance departments operating in the joint sector companies. According to the (Egyptian General Petroleum Corporation, 2018) the number of Egyptian Energy companies operating in the joint sector is 41 operating in Cairo, Giza and Alexandria with members in the buying center in each company consists of 20 or more persons based on the type of purchase so, population average is 1,025 member in the buying centers. A sample of 300 is taken as according to Hair et al. (2010, P.637) a minimum sample size of 300 is appropriate for models with seven or fewer constructs.

The sample of 300 members in the buying center is collected from thirteen companies in the joint sector as the Egyptian General Petroleum Corporation (EGPC) approval was restricted to fifteen companies operating in Cairo and Alexandria in which members in the buying center in thirteen companies cooperate in completing the questionnaire while only two companies refuse to cooperate despite the approval letter obtained from EGPC directed to them. The reason is that such sector is a very sensitive sector to obtain information from it in which the researcher is obligated to fill the questionnaire under the EGPC permission through an approval letter obtained from EGPC directed to specified joint sector companies identified by the EGPC.

In this respect, a convenience non probability sample is used taking into consideration the percentage of specialization for engineers, accountants and geologists in which all data are collected offline from buying center members in various departments (drilling, production, finance, contracts and purchasing). Only 235 members in the buying center from thirteen companies in the joint sector represents a response rate of 78 percent. A total of 109 responses (46.4 percent) could be assigned to accountants, whereas, 90 responses (38.3 percent) came from engineers. While, a total of 36 responses (15.3 percent) came from geologists.

4.3. The measures

Brand performance is represented by two constructs product and service quality. Product quality was assessed by three items selected from Van Riel et al., (2005) in addition to some modifications were made to product quality measurement based on pilot study to fit the current research context under study. While, service quality items in the present study were adapted from Hartmann and Ibanez (2007) in addition to the development of some measures developed during pilot study. On the other hand, industrial brand image represented by innovation and corporate social responsibility in which innovation was assessed by four items adapted from He and Wong (2004).Wh-
ile, corporate social responsibility in the present study was measured using four items adapted from Maignan et al. (1999). And loyalty items were adapted from scale items of Han and Sung (2008). In this respect, Appendix (1) presents the definitions of the research variables adopted in the current study, illustrating how the variables are measured (operationalized). It also, lists the scale items and clarifies the reference sources of these items. Also, Appendix (2) includes the distributed questionnaire.

4.4. Data analysis and results

Descriptive statistics were done for all demographics variables. Sample characteristics with respect to specialization and company activity are shown in table (4.1)

<table>
<thead>
<tr>
<th>Sample Description</th>
<th>Frequency</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- position:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accountant</td>
<td>109</td>
<td>46.4</td>
</tr>
<tr>
<td>Engineer</td>
<td>90</td>
<td>38.3</td>
</tr>
<tr>
<td>geology</td>
<td>36</td>
<td>15.3</td>
</tr>
<tr>
<td>2- Company activity:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>petroleum company</td>
<td>72</td>
<td>34.4</td>
</tr>
<tr>
<td>Gas company</td>
<td>5</td>
<td>2.4</td>
</tr>
<tr>
<td>petroleum and gas company</td>
<td>132</td>
<td>63.2</td>
</tr>
</tbody>
</table>

As can be seen from table (1) almost half of the sample are accountants, this means that accountants are more involved in the purchase decision making process as they are more knowledgeable in such area and thus represent the majority of the buying center. As well as, most of the sample are from petroleum and gas companies. This reflects the new trend focus in the joint sector. Also, table (4.2) shows the sample classified by specialization and managerial level.

<table>
<thead>
<tr>
<th>Sample classified by specialization and managerial level</th>
<th>Accountants</th>
<th>Engineers</th>
<th>Geologists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper-level management</td>
<td>20</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>Middle-level management</td>
<td>33</td>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td>Lower-level management</td>
<td>56</td>
<td>49</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>109</strong></td>
<td><strong>90</strong></td>
<td><strong>36</strong></td>
</tr>
</tbody>
</table>

In order to test the proposed relationships depicted in figure (1), Structure Equation Modelling (SEM) has been adopted. Using Smart PLS v3.2.7, Confirmatory Factor Analysis (CFA) and Structure Model were tested (Ringle et al., 2015) using Bootstrapping procedure with 5000 subsamples...
Table (4.3) CFA results

<table>
<thead>
<tr>
<th>Construct</th>
<th>Inner VIF Values to Loyalty</th>
<th>Construct validity</th>
<th>Construct reliability</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Discriminant validity</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average Variance Extracted (AVE)</td>
<td>Corporate Social responsibility</td>
<td>Innovation</td>
</tr>
<tr>
<td>Corporate social responsibility</td>
<td>2.529</td>
<td>0.706</td>
<td>0.840</td>
<td>0.863</td>
</tr>
<tr>
<td>Innovation</td>
<td>1.505</td>
<td>0.751</td>
<td>0.479</td>
<td>0.867</td>
</tr>
<tr>
<td>Loyalty</td>
<td>0.787</td>
<td>0.508</td>
<td>0.477</td>
<td>0.887</td>
</tr>
<tr>
<td>Product quality</td>
<td>2.963</td>
<td>0.781</td>
<td>0.657</td>
<td>0.537</td>
</tr>
<tr>
<td>Service quality</td>
<td>4.182</td>
<td>0.683</td>
<td>0.774</td>
<td>0.555</td>
</tr>
</tbody>
</table>

After CFA was deployed, research tested the structural model as seen in figure (2). Table (4.4) illustrates the results of hypotheses testing.

Figure (2): measurement model
Table (4.4) hypotheses testing results

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Beta</th>
<th>T Statistics</th>
<th>P Values</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 Product quality -&gt; Loyalty</td>
<td>0.197</td>
<td>2.589</td>
<td>0.010</td>
<td>Accepted **</td>
</tr>
<tr>
<td>H2 Service quality -&gt; Loyalty</td>
<td>0.336</td>
<td>3.372</td>
<td>0.001</td>
<td>Accepted ***</td>
</tr>
<tr>
<td>H3 Innovation -&gt; Loyalty</td>
<td>0.166</td>
<td>2.455</td>
<td>0.014</td>
<td>Accepted *</td>
</tr>
<tr>
<td>H4 Corporate social responsibil-</td>
<td>0.039</td>
<td>0.480</td>
<td>0.631</td>
<td>Not supported</td>
</tr>
</tbody>
</table>

* Significance level is 95%, P value < 0.05, t value ±1.96
** Significance level is 99%, P value < 0.01, t value ±2.58
*** Significance level is 99.9%, P value < 0.001, t value ±3.21

As can be seen from table (4.4), H2 is significantly supported with confidence level 99.9%. H1 is significantly supported with confidence level 99%. H3 is significantly supported with confidence level 95%. While, H4 is not supported with confidence level 95%.

5. Discussion

H1 which stated that "product quality is positively associated with loyalty" is supported (t= 2.589, p= 0.010) which is consistent with previous research in other industries in B2B context. For example, Alwi et al. (2016) study findings reveals that service quality category-zed under brand performance influences loyalty. In Malaysia service sector (banking, insurance and telecommunication industry) the results of Rasheed and Abadi (2014) study shows that service quality improvement increase customer loyalty among various services subscribers. Giovanis et al.(2014) study results show that service quality has a positive impact on loyalty of the customer.

H3, which stated "Innovation is positively associated with loyalty" is also supported (t= 2.455, p= 0.014) which is consistent with Alwi et al. (2016) study findings which reveals that innovativeness classified under industrial brand image is a strong driver for brand loyalty.

H4, which stated "Corporate social Responsibility positively influences loyalty" is not supported which contradicts with Arikan and Guner (2013) study applied in Turkish b-ank context in which their study findings reveals that corporate social responsibility positively influence loyalty.
6. Theoretical and managerial implications

The present research theoretical importance lies in the following points:

First; the present study contributes to branding knowledge within industrial context as such area still lags far behind our branding knowledge in consumer context as most of research discussions have been developed in consumer context (Marquardt, 2013). Second, most of B2B brand equity research is conducted in the Western context which make their generalization to the east buying context suspicious (Alwi et al., 2016). Third, the branding of future-based and uncertain industrial products in particular, hybrid offerings that involves both goods and services needs further research examination (Marquardt, 2013). In particular, prior research in industrial branding concentrate on manufacturing goods while business services are rather ignored (Geigenmuller and Outland, 2012). Fourth; studies examining the client loyalty antecedents in the business to business context is still relatively few and needs further examination (Janita and Miranda, 2013). Fifth, the separation between rational and emotional factors in the present study responds to the call of research by Leek and Christodoulides (2011) who indicated the importance of determining how buyers in B2B context perceive branding and the significance of the rational and emotional elements that will allow marketers to deliver a more effective message. More specifically, the specific role of brand associations with respect to energy brands is still largely undetermined (Hartmann and Ibanez, 2007). Thus, our paper fills these gaps.

From managerial perspective, senior management of private supplier companies in liberalized Energy Market may consider the following; First, strategies of marketing for industrial brands shall be built around the rational and emotional attributes as our research has proved this explanation by revealing that both brand performance and industrial brand image are essential for decision makers in B2B purchases. managers should give priority to product and service quality associations to ensure that these brand performance associations are met in their product and service delivery. Second, managers must not ignore the supplementary roles of emotional factors in industrial branding. Incorporating the emotional elements into the marketing plan will allow to strengthen the business-to-business brands (Alwi et al. 2016). Consequently, a strong brand image allow suppliers to; set premium prices, have a lower elasticity of price, have a barrier to competition and expand life of the brand (Alwi et al. 2016). Thus, suppliers have to stop focusing only on customers’ functional benefits and try to build measures aiming at tracking emotional benefits evaluated by customer.

7. Limitations

There are three main limitations to this research. First, the Egyptian General Petroleum Corporation (EGPC) approval was restricted to fifteen companies in the joint sector so, in case of examining members in the buying center opinions in the remaining companies in the joint sector, other association may be considered but this depends on the Egyptian General Petro-
leum Corporation (EGPC) permission as such sector is a sensitive sector for the researcher to select customer companies in the joint sector to do research with, it depends on EGPC approval letter directed to companies specified by them.

Second, private Egyptian Supplier companies competing in liberalized Energy market context, constitutes one of the industries featured by its hybrid future based and uncertain offerings. Thus, exploring other contexts characterized by these features shall be interesting.

Third, this study relies on industrial customer perceptions however, the use of a single source approach presents limitations associated with having one-way perceptual measures to represent a two-way relational exchanges.

8. Future research

The limitations above do not discredit the results of the study. But, they invite further research on the subject to focus on the following areas;

First, future research can explore the other brand associations impact on brand equity outcomes (brand loyalty) from customer perspective for the purpose of developing strong industrial brands. From this vein, other associations that can influence brand equity outcomes in the liberalized Energy Market shall be examined.

Second, future research needs to consider the buying behavior differences among market segments (Kim and H-yun, 2011). Third, studying the role of brand associations in other business contexts shall be highly informative. Fourth, future research needs to extends this study to explore both the upstream (supplier) and downstream (customer) sides as suggested by (Marquardt, 2013).

References


37. Kim J.H. and Hyun Y.J. (2011), "A model to investigate the influence of marketing-mix efforts and corporate image on brand equity in the IT software sector", Industrial Market-


of Services Marketing 21 (4), 241 – 252.
57. Webster F.E. and Keller K.L. (20-04), "A roadmap for branding in industrial markets", BRAND MAN-
Appendix (1)

Appendix (1) presents the definitions of the research variables adopted in the current study, illustrating how the variables are measured (operationalized). It also, lists the scale items and clarifies the reference sources of these items.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Operational definition</th>
<th>Measures</th>
<th>Sources of measures</th>
</tr>
</thead>
</table>
| **Product quality**| Product quality is defined as the extent to which supplier product provided (Whether manufactured domestically or viewed as an agent of a global company) is characterized by; a high quality product, excellent development lead time, its dependency and consistency. | **Product quality** (Whether manufactured domestically or viewed as an agent of a global company)  
**Brand(X…………..)** is:  
1. A high quality product  
2. Excellent in its development lead time  
3. A dependable product and consistent product | Adapted from: Van Riel et al. (2005). |
| **Service Quality**| Service quality in the present study is defined as the result of the perceptions of what customers get “technical service quality” and how they get it “functional service quality or service process quality”. In the case of energy brands, “technical service quality” refers to both the energy supply (technical quality of core service), i.e. reliability of the energy supplies, and (technical quality of peripheral services), i.e. maintenance, information on energy saving, adapted contracts, etc……. | **Brand (X…………..):**  
1. Gives priority to avoid the following technical problems (damage in pipes used, bad weather, rocky layer appearance through drilling process, others --------------------- -).  
2. Provides adequate consultation about how to save energy, safety procedures, percentage of radiation, etc…….  
3. Offers regular control and maintenance of its installations, equipment, machines, etc………….  
4. Service is reinstalled shortly in case of supply interruptions.  
5. Offers adequate information about anticipated supply interruptions (due to maintenance, etc…….).  
6. Offers flexible contracts, adapted to client’s specific needs.  
7. Does not commit billing errors.  
8. Provides Prompt customer service .  
9. Resolve Customer requests promptly. | The first three items are adapted from Hartmann and Ibanez (2007) in addition to modifications of the measure developed during pilot study.  
The last six items are adapted from Hartmann and Ibanez (2007) |
## Innovation

Innovation is defined as the extent to which innovative brands allow the supplier company to: introduce a new generation of brands, to extend current product ranges, to open up new markets, to improve existing product quality and to reduce production costs.

<table>
<thead>
<tr>
<th>Brand (X:------------)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Innovation encompasses introducing a new generation of brands.</td>
</tr>
<tr>
<td>2. Innovation has opened up new markets.</td>
</tr>
<tr>
<td>3. Innovation has improved existing product quality.</td>
</tr>
<tr>
<td>4. Innovation has reduced production costs.</td>
</tr>
<tr>
<td>5. Innovation has extended current product range through innovation in manufacturing stages, which eventually led in turn into innovation in the design and manufacture of drilling and production equipments, pressure vessels, -----------</td>
</tr>
</tbody>
</table>

The first five items are adapted from He and Wong (2004)

The last item is adapted from He and Wong (2004) in addition to modifications to the measure developed during pilot study.

## Corporate social respond

Corporate social responsibility is defined as the extent to which supplier is concerned with: local community, environment protection, buyer benefits and actively participating in social initiatives.

<table>
<thead>
<tr>
<th>Brand (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Is very concerned with local community.</td>
</tr>
<tr>
<td>2) Is very concerned with environment protection.</td>
</tr>
<tr>
<td>3) Is very concerned with buyers’ benefits.</td>
</tr>
<tr>
<td>4) Actively participates in social initiatives.</td>
</tr>
</tbody>
</table>

Corporate social responsibility items were adapted from the scale items of Maignan et al. (1999).

## Loyalty

Loyalty in the present study is defined as the extent to which customer company intends to keep buying the brand, will not buy other brand despite other brand(s) are having trade promotions (a sale) and will defend the brand from negative comment.

<table>
<thead>
<tr>
<th>Brand (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. We intend to keep buying the brand (X).</td>
</tr>
<tr>
<td>2. We will not buy other brand than brand (X) despite other brand(s) are having trade promotions.</td>
</tr>
<tr>
<td>3. We will defend the brand (X) from negative comment.</td>
</tr>
</tbody>
</table>

Loyalty items were adapted from the scale items of Han and Sung (2008).
Appendix (2)

جامعة القاهرة
كليّة التجارة
قسم إدارة الأعمال

العلاقة بين الانطباعات الذهنية والولاء للعلامة التجارية:
دراسة تطبيقية على السوق الحر للطاقة في مصر

السيد الاستاذ الفاضل: ........................................

تحية طيبة وبعد...

تقوم الباحثة بعداد البحث للحصول على درجة الدكتوراه في إدارة الأعمال في مجال "العلاقة بين الانطباعات الذهنية والولاء للعلامة التجارية: دراسة تطبيقية على السوق الحر للطاقة في مصر".

والفاحثة تشكركم مسبقًا على حسن تعاونكم معها، وكما تعلمون أن قيمة أي استبيان تمثل بمعدل استجابة عالية، لذلك ارجو مشاركتكم وسوف تحقق اجابةكم بالسرعة الكاملة كما أنها سوف تستخدم فقط لأغراض البحث العلمي. وتفضّلوا سبيلناكم بقبول فائق الاحترام، ... 

الباحثة. سارة أسامة عبد الرحمن
مدرس مساعد بقسم إدارة الأعمال - "قسم اللغة الإنجليزية"
كلية التجارة - جامعة القاهرة

ملحوظة: سيتم استخدام البيانات لأغراض البحث العلمي فقط
الجزء الأول: معلومات عن الشركة الموردة

الرجاء العلم ان الشركة الموردة في الاستبيان تشير الى المورد المفضل ماعن العلم ان تكون شركة مصرية خاصة وليست شركة حكومية او دولية وبالطبع هذه الشركة مسجلة لدى الهيئة العامة للبترول، وللتسهيل على سiadتكم مرفق بالاستبيان قائمة بأسماء بعض الشركات المصرية الخاصة المسجلة لدى الهيئة العامة للبترول.

وفقاً لذلك تشير الشركة الموردة (X) في الاستبيان إلى الشركة المصرية الخاصة المفضلة لدى سiadتكم والتي يتم اختيارها من القائمة المرفقة.

نرجو من سiadتكم وضع علامة صح تحت درجة الموافقة التي تعبر عن رأيكم في كل عبارة.

(5) - تعكس أعلى مستوى من الموافقة "موافقة تماماً"
(4) - تعكس درجة "موافق" 
(3) - تعكس درجة "محايد" 
(2) - تعكس درجة "غير موافق" 
(1) - تعكس درجة "غير موافق تماماً"
## جودة المنتج

<table>
<thead>
<tr>
<th>العبارات</th>
<th>موافق تماماً (5)</th>
<th>موافق (4)</th>
<th>محايد (3)</th>
<th>غير موافق تمامًا (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>منتجات الاعلامة التجارية (سواء كانت مصنوعة محليًا أو وكيل الشركة أو وحدة توزيعها)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. تتسم بالجودة العالمية.

2. المصلة الزمنية لتطويرها ممتازة.

3. تتسم بالانساق في الجودة وبالتالي يمكن الاعتماد عليها.

## جودة الخدمة

<table>
<thead>
<tr>
<th>العبارات</th>
<th>موافق تماماً (5)</th>
<th>موافق (4)</th>
<th>محايد (3)</th>
<th>غير موافق تمامًا (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>الشركة المورد (X) تقوم بتحقيق الخدمة اللازمة، وتساعدها في الوصول إلى اهتمامها</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. الشركة المورد (X) تعطي الأولوية لتفادي المشاكل الفنية الثالثة (توفير المرافق المستخدمة، سوء الأحوال الجوية، وجود طبقة صخرية عند الحفر، أخرى).---------------------------------------------------------------

2. في حالة حدوث المشاكل الفنية السابقة، يتم إعادة تقديم الخدمة في فترة وجيزة.

3. تقدم الشركة الموردة (X) معلومات وافية عن القطاع المتوقع لإمداداتها (نظرًا للاعمال الصيانة، العناصر الخ).

4. تقدّم الشركة الموردة (X) استشارات كافية حول كيفية توفير الطاقة وإجراءات السلامة، نسبة الإشعاعات الخ.

5. تعمل الشركة المورد (X) على المرافق المتنوعة، مباني، وغيرها، جميعها مرتبطة، متوفرة، قابلة للوصول، ودقيقة جداً.

6. تгрم الشركة الموردة (X) عقود مثالية، تتفق مع الاحتياجات المحددة للعمل.

7. لا تقوم الشركة المورد (X) بارتكاب الأخطاء في الفواتير الموردة.

8. تقدم الشركة الموردة (X) خدمة العملاء الفورية.

9. يتم حل متطلبات العملاء بشكل فوري.
الابتكار

<table>
<thead>
<tr>
<th>الرجوع</th>
<th>موافق تمامًا (6)</th>
<th>موافق (4)</th>
<th>محدد (3)</th>
<th>غير موافق تمامًا (1)</th>
<th>غير موافق (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>يمثل الابتكار لدى الشركة المورد (X) في تقديم جيل جديد من المنتجات في مجال تصميم وتصنيع أدوات الحفر، معدادات الانتاج، أوِّعية الضغط.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>ساهم الابتكار لدى الشركة المورد (X) في فتح أسواق جديدة لها</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>ساهم الابتكار لدى الشركة المورد (X) في تحسين جودة منتجاتها الحالية</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>ساعد الابتكار لدى الشركة المورد (X) على تخفيف تكاليف إنتاجها</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

المستند الاجتماعي

<table>
<thead>
<tr>
<th>الرجوع</th>
<th>موافق تمامًا (6)</th>
<th>موافق (4)</th>
<th>محدد (3)</th>
<th>غير موافق تمامًا (1)</th>
<th>غير موافق (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>تهتم الشركة المورد (X) بالمجتمع المحلي بشدة</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>تهتم الشركة المورد (X) بحماية البيئة</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>تهتم الشركة المورد (X) بمكافحة العملاء</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>تشارك الشركة المورد (X) بشبات في المبادرات الاجتماعية</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

الولاء للعلامة التجارية

<table>
<thead>
<tr>
<th>الرجوع</th>
<th>موافق تمامًا (5)</th>
<th>موافق (4)</th>
<th>محدد (3)</th>
<th>غير موافق تمامًا (1)</th>
<th>غير موافق (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>نمو الاستمرار في الشراء من الشركة المورد (X)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>لا نمو الشراء من شركة مورد أخرى غير الشركة المورد (X)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>استفادة من الشركة المورد (X) في حالة وجود اراء سلبية عنها</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25
الجزء الثاني: بيانات عن الشركة

1. وما هو نوع نشاط الشركة؟
   ( ) شركة نفط وغاز
   ( ) شركة نفط

2. ما هي الأسباب الأخرى التي قد تدفع سيادتك للاستعداد للتعامل مع الشركات المصرية الخاصة

بيان بأسماء بعض الشركات المصرية الخاصة المسجلة لدى الهيئة العامة للبترول

1. شركة بيكو انيرجي
2. شركة غارب لحفول البترول
3. شركة الهرم للبترول
4. شركة بيكو اويل
5. شركة سيبيسا
6. شركة أعمال البترول والخدمات البترولية
7. شركة دريكيل لتنمية حقول البترول
8. شركة البحر الاحمر للخدمات البترولية
9. شركة صحراء الخدمات البترولية (ساسكو)
10. شركة PMS للخدمات البترولية
11. شركة ترودجت للخدمات البترولية
12. شركة مرادف للمشروعات البحرية
13. الشركة الوطنية للخدمات البترولية
14. شركة ايجل للخدمات البترولية
15. شركة هاي تك بيبت
16. شركة اوليد ان جاز سيرفيس
17. شركة اي بي جي للبترول
18. شركة البلت للخدمات البترولية والهندسية
19. شركة جبل غارب للخدمات البترولية
20. شركة دويل تك مصر - مصرف تكنولوجيا البترول
21. شركة تراخت خدمات حقول النفط
22. شركة أمو خدمات البترول وخدمات حقول البترول
23. شركة ساكسون إيجيبت للخدمات البترولية
24. شركة بي بي اي تكنولوجيا سيرفيس ميدل ايست ليمتد
25. شركة ساسكو للخدمات البترولية (دي بي إس)
26. شركة تكنولوجيا أبار النفط (أس دي أب)
27. شركة جيسيكو
28. شركة مصر المتحدة للخدمات البترولية
29. شركة نيو ماستر للخدمات البترولية
30. شركة تراست بينبوليم سيرفيس
31. شركة تنمية البترول
32. شركة اوليد ان جاز سيرفيس
33. الشركة المصرية لخدمات الغاز
34. شركة بتروزون
35. شركة ايك فري زون

26
Appendix (3)

A list incorporating the responding 13 companies operating in the joint sector is listed below:

<table>
<thead>
<tr>
<th>1</th>
<th>شركة بتروشهد للبترول</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>شركة بتروأمير للبترول</td>
</tr>
<tr>
<td>3</td>
<td>شركة عجيبة للبترول</td>
</tr>
<tr>
<td>4</td>
<td>شركة بترون خليج السويس &quot;جابكو&quot;</td>
</tr>
<tr>
<td>5</td>
<td>شركة خالدة للبترول</td>
</tr>
<tr>
<td>6</td>
<td>شركة برج العرب للبترول</td>
</tr>
<tr>
<td>7</td>
<td>شركة الواحة للبترول</td>
</tr>
<tr>
<td>8</td>
<td>شركة أمل للبترول</td>
</tr>
<tr>
<td>9</td>
<td>شركة السويس للزيت &quot;سوكو&quot;</td>
</tr>
<tr>
<td>10</td>
<td>شركة العلمين للبترول</td>
</tr>
<tr>
<td>11</td>
<td>شركة قارون للبترول</td>
</tr>
<tr>
<td>12</td>
<td>شركة شقير للبترول</td>
</tr>
</tbody>
</table>