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Determinants of co-creation in banking services

Emerson Wagner Mainardes, Aridelmo Teixeira and Paula Cristina da Silveira Romano
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Abstract

Purpose – The purpose of this paper is to identify the factors that favor the activity of co-creation with customers in the banking sector. The way in which consumers co-create with banking organizations was also examined.

Design/methodology/approach – The “dialogue, access, risk and transparency” model was employed with the variables dialogue, access, risk assessment and transparency, as per Prahalad and Ramaswamy (2004). The final data sample accounted for 265 clients of a large Brazilian bank and multiple linear regression was used to analyze the data.

Findings – The results indicated a significant and positive association with access, risk assessment and transparency when the bank co-created with these clients. Dialogue did not appear significantly affect to the co-creative process between clients and the bank.

Research limitations/implications – The study was conducted with customers of only one major Brazilian bank. The authors recommend that the same study is conducted in other retail banks, investment banks and smaller banks, with a specialized focus. Limitations notwithstanding, the outstanding findings of this research relate to customer perceptions, which, it should be noted, do not necessarily reflect the totality of the relationship between client and bank.

Originality/value – Understanding co-creation in the banking sector is a new learning perspective on consumer behavior and interactions within the service production process. The justification and relevance of this study derive from the construction of this knowledge and the scarcity of empirical work in this area.

Keywords Satisfaction, Customer satisfaction, Co-creation, Banking services, Service and business practices

Paper type Research paper

1. Introduction

In a buying relationship, consumers are no longer getting merely a product/service, but an idea, satisfaction, gratifying a need or a wish. They want to meet their unique requirements (Udo et al., 2010). Companies are concerned about this phenomenon, mainly because of the substitutes. Therefore, the consequent success of their enterprises is distinguished by the choice of strategies that meet this new perspective. According to Udo et al. (2010), the challenge is, in addition to offering quality products, to meet the more sophisticated and demanding expectations of customers.

Prahalad and Ramaswamy (2000) argue that there is a need for this new type of consumer to design their own experiences and that companies must be prepared to meet such requirements. They point out the need for structural changes and significant investments. Vargo and Lusch (2004) add that collaboration between organizations and customers enables organizational learning and later adaptation in this context. It is necessary to understand, too, the factors relevant to the choice of particular products/services at the expense of others (Udo et al., 2010; Porto and Lima, 2015).

According to Prahalad and Ramaswamy (2004), the increase in the level of demand for these subjects is explained by the quick access to information through the network of contacts that they establish. The authors argue that this triggers a new conception of what is offered by companies so clients can acquire not only products or services but different consumer experiences.
Companies that are aware of the change in dynamic and desire customer satisfaction transform their business structures. They adopt new strategies that provide tighter integration with their customers through engagement mechanisms in the production process (Payne et al., 2008). For a better understanding of this new trend and the mechanisms involved, this study explores co-creation in companies. This concept proposes the construction of value to the product/service through this engagement (Vargo and Lusch, 2004). Co-creation of value has become a fundamental competitive paradigm for marketing (Saarijärvi et al., 2013), by breaking through the separation that previously existed between customers and firms and proposing interaction between them to develop business opportunities and long-term relationships (Galvagno and Dalli, 2014; Maciel and Camargo, 2016).

A group of mechanisms that are widely used to facilitate the participation of customers in the value-creation process allow them to make a choice between interacting more or less autonomously in consumption experiences. In this group, customers have the choice between managing and conducting their own experiences or not. When a firm stimulates this type of involvement of consumers, they tend to feel empowered by the valorization of their freedom to conduct the consumption experience. A traditional example of this type of practice is self-service (Prahalad and Ramaswamy, 2004), widely used in the delivery of banking services and for ticket sales, among others. Since some customers may not be motivated to use these mechanisms, it is up to organizations to design systems for interactions that offer a wide range of options for more independent interactions, but at the same time are simple enough not to confuse or overwhelm users and make it hard for them to assimilate the new opportunities for participation (Nuttavuthisit, 2010).

Considering this perspective of co-creation of value in the banking segment, the question to be answered is: What are the factors that favor co-creation by bank customers?

The objective of this work is to identify these factors and their contribution to consumers’ co-creation with banking organizations. Previous studies describe the concept of co-creation as beneficial to companies with regard to the positive influence on consumer perceptions (Bendapudi and Leone, 2003), the possibility of competitive advantage through innovation of products/services (Ramaswamy, 2008), the stimulus to the client to take part in the production chain and identify with the end-result (Mascarenhas et al., 2004), and even positive and differentiated perceptions of recovery services through the concept of co-creation (Dong et al., 2008).

Understanding co-creation in a specific industry, in this case the banking sector, is a new learning perspective on consumer behavior and interactions with the production process (Nyman, 2014). The justification and the relevance of this research consist of the construction of this knowledge and the scarcity of empirical research in the field. Specifically in the banking sector, the main contribution of this study is to advance knowledge about co-creation in this sector and identify the variables that affect co-creation in the relationship between banks and clients in the view of the latter. Based on these variables, it is possible to develop new theoretical formulations that instrumentalize marketing in the banking sector, as pointed out by Oliveira and von Hippel (2011) and Martovoy and Santos (2012). On a practical level, it is important to formulate management strategies aimed at in-depth understanding of customer behavior when faced with certain stimuli. It also enables the verification of effectiveness of certain service channels, providing a new vision and new attitudes regarding the proposed concept (Medberg and Heinonen, 2014).

2. Co-creation – the concept

Faced with a new era in which access to information is facilitated by the use of technological means, people are transformed into active subjects able to modify their status quo. This can be perceived in different dimensions of their existence, such as personal and
professional relationships. There is an emerging need to interact in all situations that affect people and consequently to control the expected results (Prahalad and Ramaswamy, 2004).

According to Prahalad and Ramaswamy (2004), this scenario produces consumers who are sensitive to their own needs and are demanding in terms of choice. However, the significant number of possibilities offered by the market does not guarantee the satisfaction of such individuals, since they long for innovative experiences that can provide unique sensations.

Under this new logic of consumption, the concept of co-creation affects the relationship established between businesses and consumers. The definition of this concept is comprehensive, from product customization even to participation in the production process. To this end, companies “open their structures” to customer desires and wishes and enable customers to develop their own product, i.e., customization (Etgar, 2008). In the new model, the perception is on the consumer’s experience and the possibility of disruption and participation. The company shares with the consumer responsibility for the end-result (Prahalad and Ramaswamy, 2004).

Co-creation has been analyzed theoretically from various approaches: the service-dominant (S-D) logic approach (value becomes a joint function of the actions of providers and consumers and is therefore always co-created (Vargo and Lusch, 2008)); the service science logic approach (where co-creation happens when existing resources integrate with those available from a variety of service systems that can contribute to the system’s well-being (Vargo et al., 2008)); the service logic approach (the customer service logic relates to customers combining the resources provided by the firm with other resources in their everyday practices and their value-creating processes (Grönroos, 2008, 2011); other approaches (many-to-many marketing; new product and service development; postmodern approach to value co-creation – promising, see Galvagno and Dalli, 2014).

In light of these viewpoints, the concept of co-creation underpinning this investigation was the idea that organizations, consumers, and other stakeholders act together to co-create value in truly collaborative form (Vargo and Lusch, 2008). In this process, consumers appear as protagonists with organizations in the condition of active stakeholders and develop a direct interaction in the co-creation of value (Grönroos, 2011). Consumers and firms together manage and develop meanings for products and services (Ind and Coates, 2013), with consumers taking an active role in creating value for themselves and for the company (Galvagno and Dalli, 2014).

This concept follows the line of the S-D logic approach, which posits that organizations and consumers combine their respective resources, such as knowledge, technology, capital, time, and skills, to find attractive and integrative solutions to market needs (Cova et al., 2015), where the customer is an operating resource, like knowledge, rather than a resource operated by the company, like the product. Just as value was previously defined in terms of “value of exchange,” it is now perceived and co-created along with the customer, not simply incorporated in the product. Hence, it is defined in terms of “value in use” (Vargo and Lusch, 2004). In other words, it is not just co-production (where the clients not only produce the service together with the company, but create value for themselves) or interaction, personalization, customization, and service quality. Value co-creation encompasses all these aspects for the purpose of engaging consumers and generating mutual value for themselves and the company (Saarijärvi et al., 2013).

Etgar (2008) argues that co-creation offers the possibility of control and supervision on the part of stakeholders by providing improvements to organizational structures and this process involves the actual reading of customer preferences through constant research. The information obtained is analyzed, interpreted, and translated into production.

From another perspective, Ertimur (2008) argues that the possibility of interference goes beyond mere influence in the production steps, because the concept deepens cooperation between the consumer and the producer in either one step or the entire process from design.
to finished product. For Payne et al. (2008), co-creation is a process that occurs through various opportunities. They indicate that companies can co-create with their customers by means of products with advanced technology, by changes in the firm’s structure, or even through opportunities to change customer preferences.

Vargo and Lusch (2004) in their work on the dominant logic in service argue that co-creation is characterized by the active participation of the client; they “get their hands dirty.” This exchange allows a long-lasting relationship and benefits both parties. Grönroos (2008) stresses that companies do not impose co-creation of value on customers, but instead offer conditions for them to create their own value. The company thus is a facilitator for this new perspective.

In this process, there is transparency in the production of the product/service, establishing reciprocal trust between producer and customer (Prahalad and Ramaswamy, 2004). The individual consumer has a buying experience that transcends the traditional logic and acts as if s/he were part of the company staff (Vargo and Lusch, 2004).

Ertimur (2008) identifies the possibility of co-creation of value between consumers and businesses, using, for example, self-service channels: the use of ATMs, check-in for travel, food machines in hotels, among others. This can also include the processes by which clients draw their own product, such as the design of clothing for production or vehicle designs.

According to Mascarenhas et al. (2004), in co-creation customers are part of the productive chain and feel satisfied by perceiving their importance in the process. This feeling translates into return from the buyer to the company for a new experience that strengthens customer loyalty.

Bendapudi and Leone (2003) investigated the psychological implications of co-creation for customers. Two studies were conducted in colleges in the US and it was concluded that the quality of the results and satisfaction were influenced by customer participation. The authors cited, too, the shared responsibility with the individual in the case of service failure, different from the attitude of customers who are not involved in the process.

Another advantage of co-creation is recovery from flaws of products and services, according to Dong et al. (2008). This occurs when customers complain about an unsatisfactory experience and the company can thus correct the problem. This is possible through the dialogue and integration with the buyer established by co-creation, and helps attract and retain customers.

Co-creation and the banking market

Banks are among the leaders in offering opportunities for clients to access services and products through high technology. The relationship with the clients is shifting away from physical interaction at the bank branch to virtual interactive environments and applications (Martovoy and Santos, 2012). Clients are stimulated to participate in the process and meet their own needs. According to Grönroos (2008), the consumer must see the benefit of using self-service and thus be motivated to take part in the process.

In this sector there is growing concern for offering fast services without impairing quality, with perhaps the chief convenience for the client being 24-hour availability (Siddiqi, 2011). As stated by Verhoef et al. (2009), new technologies, products and services stimulate the emergence of new demands. The speed of access to information and differentiated products and services over the internet generates greater expectations among clients.

A novelty that arises in one part of the world can be easily accessed in any other part of the world and can be desired by any individual.

Oliveira and von Hippel (2011) relate the level of user demand for quality of banking services with the possibility of co-creation in banks. For the authors, banking services are particularly subject to this new, more demanding, client profile, and point out that to a great extent the new services offered by banks emerge from the individual needs of clients, thus characterizing constant sharing of ideas and co-creation of value in this sector.
According to Medberg and Heinonen (2014), these new forms of relationship and engagement with clients, by means of direct contact with the organization, have a positive impact on firms’ financial performance. This benefit is related to reduction of operating costs and increased return on investments.

For Devlin (2001), this change in the way of relating with clients has increased competitiveness in the banking sector. These changes in demands for excellence by clients require banks to adapt quickly, because when one bank offers a new or improved service to clients, soon the competitors follow suit and offer the same advantage or even better ones. Therefore, co-creation appears to be the best way to retain clients, by nurturing stronger loyalty from the experience of participation.

According to Martovoy and Santos (2012), co-creation represents innovation and improvement in the services offered by banks, causing them to encourage their clients to be increasingly active in the co-creation process, by offering advantages such as lower charges, easier credit approval and others. Customers who are engaged tend to be more committed to their bank.

To summarized, it can be seen that co-creation of value in the banking sector is a subject that requires more research. Although some studies – such as those mentioned – have indicated the relevance of co-creation of value for bank marketing, much still needs to be better understood, especially from the point of view of clients. There is a need for a deeper understanding of the co-creation process to strengthen the engagement of clients with a given bank. The aim of this paper is to shed further light on the theme.

Dialogue, access, risk and transparency (DART) model and co-creation

Etgar (2008) highlights the importance of understanding the variables that contribute to the differential perception of co-creation and its positive influence on consumer behavior, and how they encourage co-creation with a company, consequently differentiating its new position from its former position.

Since the emergence of the concept, various authors have tried to identify what underpins the co-creation process in companies. These studies, such as Payne et al. (2008), Vargo and Lusch (2004) and Silva et al. (2015), have identified some conditions for this process in the relationship between firms and their customers.

Besides these, Prahalad and Ramaswamy (2004) investigated the factors related to co-creation. They examined the transformation of customers, and from analyzing the organizational environment of some companies, established four positive variables analogous to the concept: dialogue, access, risk assessment and transparency. They called this conceptual model DART. It enables companies to measure the co-creation level with their customers. Companies must have these essential conditions to foster integration with these individuals. The constructs that form the DART model can be summarized as follows: dialogue implies interactivity, deep engagement and the ability and willingness to act on both sides (the firm and the consumer must become equal and joint problem solvers); access begins with information and tools that promote dialogue; risk assessment relates to businesses informing the customer about the full risks of co-creating; and transparency relates to information symmetry between the firm and the consumer. Combining the building blocks of transparency, dialogue, risk assessment and access enables companies to better engage customers and employees (Prahalad and Ramaswamy, 2004), which reiterates the importance of operationalizing co-creation. That construct favors the development of a sustainable competitive edge in the banking sector, because engagement of clients and employees deepens the relationship between the sides and tends to make clients more loyal. In a setting where services are increasingly similar, since it is relatively easy to copy the innovation of rivals, having clients who are engaged and active participants in the process of delivering the service is a fundamental competitive advantage.
The DART has been used in other studies to investigate the dynamics of co-creation in a wide range of sectors. Spina et al. (2012), for example, tried to identify the potential of the phenomenon in temporary shops in Italy, represented by a short-term collaborative environment to strengthen the brand. They found that this relationship establishes intense and transparent sharing of information between customers and company. The companies analyzed reached the desired level of co-creation with their customers in a short interval.

Based on the DART model, some studies have been conducted to validate it and test its efficacy. Albinsson et al. (2011, 2016) tested the effectiveness of this model and formulated a range of 23 items able to measure the co-creative customer option. The authors conducted a survey of 327 undergraduate students at two US business schools and found a positive correlation between these four variables regarding the concept of co-creation, thus validating the model proposed by Prahalad and Ramaswamy (2004).

Likewise, Mazur and Zaborek (2014) tested the model among 440 mid-level managers from various companies based on 30 indicators, finalizing the study with 17. The main finding was that the DART model needs to include other variables to be validated, and the simplistic relation of Prahalad and Ramaswamy (2004) cannot be totally explained by their scale.

Although other scales exist, such as those of Yi and Gong (2013), Karpen et al. (2015) and Taghizadeh et al. (2016), the scale of Albinsson et al. (2011, 2016) has been tested the most and is the most faithful to the propositions of Prahalad and Ramaswamy (2004). Since a large part of the co-creation literature follows the S-D logic approach, including this study, it was natural for us to choose the scale put forward by Prahalad and Ramaswamy (2004) and validated by Albinsson et al. (2011, 2016).

In defense of the limitations that may be perceived in this paper, we should state that it is in alignment with the model formulated by Prahalad and Ramaswamy (2004) and the scale proposed by Albinsson et al. (2011, 2016).

3. Formulation of hypotheses
In the DART model, dialogue is identified as a necessary element for real engagement between customers and businesses. Prahalad and Ramaswamy (2004) argue that consumers need to be heard much more and they need to be understood. This understanding happens when there is empathy, i.e. when the company stands in the place of the consumer and vice versa.

According to Ballantyne and Varey (2006), this communication establishes trust and identifies the desires and needs of consumers, knowledge which is then transferred to production. The quality of this relationship is achieved over time via mutual learning. Dialogue brings many benefits to the company, since it allows the customer to gain knowledge about the available structures and resources for better service.

Another point concerning dialogue is that it is possible to innovate and create, both in the preparation of the product and in problem-solving (Hoyer et al., 2010). The possibility of the active voice of the customer in this process adds value to the product or service offered (Vargo and Lusch, 2008; Marinkovic and Obradovic, 2015). Therefore, we formulated the following hypothesis:

**H1.** Dialogue positively influences the possibility of co-creation by customers of banks.

Prahalad and Ramaswamy (2004) determined another important element of co-creation: customer access to information about the production process and company resources. This element allows for partnership with the customer through facilitatory tools. The authors illustrate this with the case of clients who, through internet network access, track the progress of their orders without having to go to the factory.

According to Sawhney et al. (2005), the optimization of these tools through investments and new technologies contributes to an efficient collaborative environment because it enables true interactivity between the customer and the company. There is a greater range
(of access) in the involvement of these individuals in the process. Therefore, we also formulated the following hypothesis:

**H2.** Access positively influences the possibility of co-creation by customers of banks.

According to Prahalad and Ramaswamy (2004), the consumer through dialogue requires access to information that is relevant to participation in the production process, thus realizing a degree of freedom to choose what suits her/him best. However, according to the authors, this subject is concerned, too, with the probability of the risks of consumer decisions and to this end assesses the possible downsides to co-creating with the company.

For consumers, knowledge of risks reduces uncertainties about choices, since they feel knowledgeable about all the process variables, and not only the benefits (Kashif et al., 2015). The management of this information is valuable for better customer relationships with the company, thus ensuring the reliability of those involved (Garbarino and Strahilevitz, 2004). In this respect, we formulated the following hypothesis:

**H3.** Risk assessment positively influences the possibility of co-creation by customers of banks.

Prahalad and Ramaswamy (2004) present transparency in relationships as the last factor of their model. Critique of risks only happens effectively when information is objective and transparent. Vargo and Lusch (2008) defend the basic premise through their S-D logic, excluding the asymmetry of information between consumers and businesses, since the cooperation established by co-creation requires equal access to information.

For Ballantyne and Varey (2006), the client, as regards dialogue with the company, needs a degree of fair reciprocity, that is to say, what is shared must be exposed with the same clarity as what the consumer has posited to the organization. Garbarino and Strahilevitz (2004) point out that the transparency of information, when facilitated by access, provides an advantage to the company. Transparency allows the participation of both parties and enables an interactive environment. Given these arguments, we formulated the following hypothesis:

**H4.** Transparency positively influences the possibility of co-creation by customers of banks.

The hypotheses are depicted in Figure 1, which shows dialogue, access, risk assessment and transparency as positive influences on the co-creation process.

### 4. Methodology

Given the purpose of this paper, this study was quantitative, descriptive and cross-sectional in its approach. The survey method was employed, which is characterized by searching for specific information from a predetermined group. This choice was justified by the reduction in the variability of the results and also to ensure the verification of the assumptions made (Malhotra, 2008).

The population was represented by customers using banking services regularly, thus maintaining a steady relationship with a major Brazilian bank. This limitation is justified by the level of knowledge of respondents about the organization and the tools available for co-creation. According to Creswell (2013), the population should be consistent with the proposed objectives to ensure the effectiveness of the investigation.

The sample used was non-probabilistic, so any customer chosen at random that met the basic requirements could take the survey. According to the definition of Malhotra (2008), this procedure resembles a lottery and allows for easier understanding of the collected data. The final sample was 265 respondents, questioned from December 2013 to January 2014.

Data were collected through online questionnaires sent to the customer database of the bank and shared on social networks to ensure the greatest number of respondents.
The questions were closed and in two parts. The first four questions described the respondent’s profile in terms of age, gender, education and length of relationship with the bank. The others were based on Albinsson’s et al.’s (2011, 2016) model, who devised 23 statements to measure the constructs of dialogue, access, risk assessment and transparency.

On this scale, the dialogue construct is measured based on nine statements, which cover the relationship between the respondent and the company, as well as the initiative of the contact between them and also the availability of channels to improve services (Albinsson et al., 2011, 2016). Our intention was to identify whether the direct contact established by banks is a relevant factor in the customer’s co-creation process.

With respect to the access construct, the model of Albinsson et al. (2011, 2016) proposes three statements on the possibility of choosing receipt of services in different ways. The authors also questioned the facility of access in the perception of the respondents. In the present study, we used these statements to measure whether this facility and variety in receiving a service are matters that contribute to co-creation of bank customers.

On the matter of risk assessment, the model of Albinsson et al. (2011, 2016) contains seven statements, to check whether the supply and quality of information offered to customers indeed have a direct reflection on the possibility of customers to co-create with the bank when acquiring a product/service. The idea is to understand whether more knowledge of the potential complications and losses of a transaction are important for the risk perception of customers.

Regarding the transparency construct, Albinsson et al. (2011, 2016) define four statements to measure the existence of clarity of information in the relationship between company and customers. By measuring these four constructs involving customers, Prahalad and Ramaswamy (2004) state it is possible to evaluate the level of value co-creation of value.

Malhotra (2008) also emphasizes the importance of model improvement through the inclusion of other issues to provide more information about the researched problem. To this end, a question dependent on measurement of the influence of these constructs in the
co-creation of customers is posed. The dependent question was thus presented to the respondent: I reckon the bank offers every possible opportunity so I can have a service made suitable for my need. The choice for this question followed the guidelines by Albinsson et al. (2011, 2016) and Yi and Gong (2013).

Both suggest for the co-creation concept to be converted into a statement which assesses respondent’s perception in relation to co-creation opportunities offered by the company. In this case, we used the concept by Vargo and Lusch (2008), and later expanded by Grönroos (2011), as presented in the literature review. Thus, we can measure whether the respondent acknowledges co-creation possibilities provided by the company, as well as enabling the assessment of which co-creation factors are associated by such perception.

Therefore, our questionnaire contained 28 questions adapted to the study group context. A five-point Likert scale was used to measure the relationship of the variables. Malhotra (2008) claims this technique is of great value because of its ease of application and understanding by the respondents.

The questionnaire was administered first to 15 bank customers to test their understanding. This pre-test resulted in some changes. Creswell (2013) emphasizes the importance of this step for a positive outcome.

The analysis of the collected data was divided into the following parts: descriptive analysis of the mean and standard deviation of the responses and a multiple linear regression, involving measuring the association of independent variables with a dependent variable (Malhotra, 2008). They were used to analyze the relationship between dialogue, access, risk assessment and transparency as independent variables, with co-creation as the dependent variable.

5. Data analysis

Sample characterization

The sample for this paper employed 265 respondents, of which, the most of the respondents were male (60.38 percent). In relation to age (42.44 percent between 26 and 35 years, 22.64 percent between 36 and 45 years) and level of education (44.15 percent university graduate, 32.08 percent graduate study, e.g. diploma or certificate), there is variability of respondents in relation to these two characteristics, making the sample valid for checking our objective (Malhotra, 2008).

With regard to the relationship characterization, most individuals questioned (50.57 percent) maintained a relationship with their bank for over seven years, thus contributing to a deeper view of the relationship established between the individual and the company. According to Malhotra (2008), specific characterization of those selected is required to ensure elimination of bias in the selection and validity of the respondent group. The sample profile data described therefore represent the typical customer.

Descriptive analysis

The analysis of the results of the statements involved descriptive assessment of the respondents’ answers. Table I shows the mean, standard deviation and percentage of agreement and disagreement for each statement. This analysis was carried out before the verification of the model at work and enabled characterizing the distribution of the data (Malhotra, 2008).

The information presented in Table I demonstrates the perceptions of respondents about the co-creative process in their bank. From the results, it is clear that dialogue revealed the possibility that risk assessment and transparency in relationships are variables not well perceived by many respondents, since the average response was between “I disagree” and “I do not agree or disagree.” This insight can also be found in the measurement of agreement and disagreement for each sentence.
However, for the access construct, the average response demonstrates a more positive sentiment, i.e. there is a somewhat positive perception of receiving the service with the choice of individual options, with a mean of 3.31 found between “I do not agree or disagree” and “I agree.” This statistic is confirmed also by the percentage of agreement, with about 50 percent confirming the various available ways to access bank services.

For the dialogue construct, this result may be seen as reflecting the impartiality of the bank as regards respecting the process of contacting clients. According to Hoyer et al. (2010) and Vargo and Lusch (2008), communication between the client and the company represents a perceived gap and a service improvement (opportunity). However, in this study, the average of 2.4 suggests that with this construct the relationship with the bank is affected, since a better way to serve these individuals had not yet been found.

In a more detailed analysis of the statement of this concept, a slightly better score was evident for two items related to communication channels, where the averages were 3.15 and 3.07. These values may demonstrate the facility of the respective channels to receive ideas for improvements and the positive perception about the tools used by the bank. However, in all other respects the results suggest that these channels cannot be used properly or even incentivized for use. This reinforces Prahalad and Ramaswamy’s (2004) argument about fostering dialogue among stakeholders and the effect this can have on the positive perception(s) of customers.

<table>
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<tr>
<th>Items</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Agree (%)</th>
<th>Disagree (%)</th>
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<td>0.9257</td>
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<td>Communication regarding suggestions for improvement</td>
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<td>1.1370</td>
<td>14.72</td>
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<td>2.2491</td>
<td>1.1374</td>
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<td>62.64</td>
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<td>Use of multiple communication channels</td>
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<td>1.2791</td>
<td>44.53</td>
<td>30.19</td>
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<td>1.1232</td>
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<tr>
<td>Opportunities to share ideas</td>
<td>265</td>
<td>2.0491</td>
<td>1.0701</td>
<td>11.32</td>
<td>68.68</td>
</tr>
<tr>
<td>Easy to communicate ideas about services offered</td>
<td>265</td>
<td>2.283</td>
<td>1.1311</td>
<td>15.47</td>
<td>56.98</td>
</tr>
<tr>
<td>Variable: access</td>
<td>265</td>
<td>3.312</td>
<td>1.1137</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ways to receive the service offered</td>
<td>265</td>
<td>3.3434</td>
<td>1.3339</td>
<td>52.08</td>
<td>24.91</td>
</tr>
<tr>
<td>Choice of how to receive the service offered</td>
<td>265</td>
<td>3.2264</td>
<td>1.2559</td>
<td>49.43</td>
<td>26.79</td>
</tr>
<tr>
<td>Facility to receive the chosen service, when, where and how</td>
<td>265</td>
<td>3.366</td>
<td>1.2635</td>
<td>55.85</td>
<td>23.77</td>
</tr>
<tr>
<td>Variable: risk assessment</td>
<td>265</td>
<td>2.5023</td>
<td>1.0329</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehensive information on the risks and benefits</td>
<td>265</td>
<td>2.5623</td>
<td>1.1794</td>
<td>23.77</td>
<td>46.79</td>
</tr>
<tr>
<td>Receive comprehensive information about the risks and benefits</td>
<td>265</td>
<td>2.483</td>
<td>1.1905</td>
<td>23.40</td>
<td>52.83</td>
</tr>
<tr>
<td>Full information on all risks</td>
<td>265</td>
<td>2.4226</td>
<td>1.1849</td>
<td>22.26</td>
<td>56.98</td>
</tr>
<tr>
<td>Availability of tools for decision to participate in the preparation of the product</td>
<td>265</td>
<td>2.6679</td>
<td>1.1819</td>
<td>26.04</td>
<td>44.91</td>
</tr>
<tr>
<td>Clarity about the positive and negative factors of the service offered</td>
<td>265</td>
<td>2.483</td>
<td>1.1384</td>
<td>21.13</td>
<td>53.21</td>
</tr>
<tr>
<td>Incentive to meet the associated risks</td>
<td>265</td>
<td>2.3434</td>
<td>1.1108</td>
<td>17.74</td>
<td>58.87</td>
</tr>
<tr>
<td>Informed decision-making about the risks</td>
<td>265</td>
<td>2.5547</td>
<td>1.1538</td>
<td>22.26</td>
<td>47.55</td>
</tr>
<tr>
<td>Variable: transparency</td>
<td>265</td>
<td>2.4868</td>
<td>1.0107</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full disclosure of information</td>
<td>265</td>
<td>2.5057</td>
<td>1.1285</td>
<td>21.13</td>
<td>50.94</td>
</tr>
<tr>
<td>Free access to information</td>
<td>265</td>
<td>2.5396</td>
<td>1.1707</td>
<td>21.51</td>
<td>47.92</td>
</tr>
<tr>
<td>Partnership and sharing information</td>
<td>265</td>
<td>2.3472</td>
<td>1.1416</td>
<td>16.60</td>
<td>57.36</td>
</tr>
<tr>
<td>Full disclosure of information on costs and prices</td>
<td>265</td>
<td>2.5547</td>
<td>1.2754</td>
<td>26.42</td>
<td>50.19</td>
</tr>
<tr>
<td>Offer all possible options for the customer to develop the service itself, suited to the needs (co-creation)</td>
<td>265</td>
<td>2.6755</td>
<td>1.1743</td>
<td>25.66</td>
<td>44.15</td>
</tr>
</tbody>
</table>

**Source:** Scale proposed by Albinsson et al. (2011) and adapted for this table
Mukherjee and Nath (2003) state that these channels should lead to truth, thus ensuring reliability. This process, according to the authors, is long and demands careful attention for positive results. There should also be a structure and technology which enable the effective use of information gathered while avoiding possible negative perceptions about this relationship.

In this context, banks and other companies must always seek new ways to interact with individuals in order to ensure clear communication between them and consequently create positive perceptions about the services provided. However, because of security issues, there are limitations on direct contact with customers in banks, which may impair the interaction with respect to this variable (Oliveira and von Hippel, 2011).

For risk assessment, the low level of responses can be accounted for by the quality of information provided by the studied bank at the time of service. It is reasonable that the bank, from the point of view of the respondents, cannot be completely candid with its information or describe the true risks of each service. The lowest average of affirmation for this construct is related to the incentive from the company (2.34), i.e. respondents do not feel encouraged to learn the risks, which according to Payne et al. (2008), has a direct impact on the loyalty of these people.

Regarding the transparency construct, the responses demonstrated that it is not well perceived by customers. This is explained by the difficulty of ensuring equal access to certain information, because banks’ provision of a service requires full knowledge of the client in order to ensure best practice. However, what is not perceived by the same customer is reciprocity regarding the exchange of information, which was verified earlier in the risk assessment. Ballantyne and Varey (2006) point out that this reciprocity is directly linked to trust, which is impaired in the absence of transparency by the company.

With regard to access, the results can be interpreted through the range of (access) options offered by the bank to satisfy customer service needs. The values are not extreme. However, they demonstrate that respondents can recognize the tools for accessing services. Sawhney et al. (2005) point to this as the beginning of real interactivity between customer and company.

Analysis of the standard deviation of the responses showed the possibility of a lack of consensus among respondents, because of the high values, between 1.0 and 1.7. However, when measuring the percentage of agreement and disagreement in the sample one can see that in fact there is a larger group which disagrees with most other statements. Malhotra (2008) points out that standard deviation as a measure of dispersion can change the consensus of responses and distance of the obtained result from the reality of the population. Hence, there is a need for further study regarding the variables that favor co-creation in more homogeneous samples.

**Regression analysis**

The third part of this analysis is evaluation of the proposed model in Figure 1 by multiple linear regression. According to Malhotra (2008), this analysis should follow a sequence of steps in order to ensure a consistent result. First, the following tests for validation were carried out: ANOVA, which resulted in a significant, i.e. valid model; the Kolmogorov-Smirnov test, which supported the normal distribution of the residues, and the Durbin-Watson test (1.927), which indicated it absence of autocorrelation.

Subsequently, the model was measured to find the coefficients and their respective significance, as shown in Table II.

According to the data in Table II, the access, risk assessment and transparency constructs were significant because they showed a $F$-value and $p$-value less than the significance level of 0.05, indicating an influence of these variables on the perception of co-creation in 64.4 percent (adjusted $R^2$). Therefore, this study supports $H2-H4$ as positive...
<table>
<thead>
<tr>
<th>Model</th>
<th></th>
<th>R</th>
<th>R²</th>
<th>Adjusted R²</th>
<th>SE estimate</th>
<th>Variance</th>
<th>Variance F</th>
<th>F-value</th>
<th>Colinearity of statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>−0.009</td>
<td>0.146</td>
<td>−0.064</td>
<td>0.949</td>
<td>−0.287</td>
<td>0.279</td>
<td>0.463</td>
<td>2.159</td>
</tr>
<tr>
<td></td>
<td>Dialogue</td>
<td>0.111</td>
<td>0.068</td>
<td>0.088</td>
<td>1.629</td>
<td>0.104</td>
<td>−0.246</td>
<td>0.060</td>
<td>0.463</td>
</tr>
<tr>
<td></td>
<td>Access</td>
<td>0.146</td>
<td>0.049</td>
<td>0.139</td>
<td>3.008</td>
<td>0.003</td>
<td>0.242</td>
<td>0.110</td>
<td>1.581</td>
</tr>
<tr>
<td></td>
<td>Risk</td>
<td>0.502</td>
<td>0.082</td>
<td>0.441</td>
<td>6.143</td>
<td>0.000</td>
<td>0.663</td>
<td>0.261</td>
<td>3.833</td>
</tr>
<tr>
<td></td>
<td>Transparency</td>
<td>0.272</td>
<td>0.081</td>
<td>0.234</td>
<td>3.379</td>
<td>0.001</td>
<td>0.431</td>
<td>0.124</td>
<td>3.570</td>
</tr>
</tbody>
</table>

Note: *Dependent variable: co-creation
influences regarding the contribution of these constructs to co-creation, with particular
regard to addressing problems posed by this work and reinforcement of the DART model.

Contrary to what was proposed by Prahalad and Ramaswamy (2004), the dialogue construct
was not significant ($p$-value greater than 0.05), and the $\alpha$ value as 0.104, providing evidence that
this variable does not positively or negatively influence the choice of users in co-creating with
the bank studied. Therefore, $H1$ was rejected at 1 percent of significance (0.000).

Another analysis checked the coefficient of determination (adjusted $R^2$) for model
explanation and behavior of the variables, as observed in our analysis.

In our analysis, significant variables explain 64.4 percent of co-creation. This result is
considered representative, considering that the higher $R^2$ is, the greater the intensity of the
construct’s association (Malhotra, 2008). However, this figure also indicates that other
variables are needed to account for 100 percent of the model, and the identification of these
other constructs suggestion further studies are needed.

6. Discussion of results

Prahalad and Ramaswamy (2004) saw the constructs dialogue, access, risk assessment and
transparency as basic elements that enable the customer to co-create with the company,
i.e. fundamental elements for change from the traditional model of value creation. However,
in this study of the banking sector, this statement was not concurrent with the variable
dialogue, which obtained statistically non-significant values from the model.

The result for the data obtained regarding the dialogue variable, can indicate that
customers of bank services perhaps do not demand active contact from the bank to
expose their ideas and suggestions for improvements to feel that they are part of the
process, or that they do not perceive the contact made as a differential in the relationship.
Traditionally, there has been little dialogue with consumers in the Brazilian banking
market, so it might be that they perceive dialogue as not being relevant for creation of value
for themselves. In other words, in Brazilian culture related to financial services, dialogue is
not something routine. It is possible that the customers themselves demonstrate little
interest in engaging in dialogue, instead acting passively to lack of contact, and seeing value
in other aspects, such as transparency, access and risk assessment.

This fact can be explained by the difficulty of banking companies, especially large ones
with many customers, to open up their facilities to their customers and seek, by exchanging
information, to improve their products. It could also be explained by the lack of effective
channels for this exchange. The problem with this result is the fact that dialogue is
intimately linked to the concept of trust, as shown by Prahalad and Ramaswamy (2004) and

According to Vargo and Lusch (2008) and Hoyer et al. (2010), this concept establishes a
positive relationship, and therefore the greater the contact between customer and company,
the greater the trust, interactivity and creativity to improve the provision of the service.
According to Garbarino and Strahilevitz (2004), this situation is exacerbated by the
complexity of banking transactions.

According to Etgar (2008), co-creation enables control and supervision on the part of
customers to meet their needs and expectations, and ensures the quality of the service
offered. The results demonstrate that the use of banking services may lead to lost
opportunities for improving organizational structures and in turn to failure to capture
individual (customer) preferences through integrated contact.

The figures produced on this subject (to date) also suggest the possibility of reversal of
the (negative) situation by way of suggestive stimulus on behalf of the bank and through
dialogue and investments in new technologies for communication, i.e. as a means of
communicating suggestions, and highlighting improvements, allowing for integration of
this subject into their processes (Sawhney et al., 2005).
As observed by Prahalad and Ramaswamy (2004), Ballantyne and Varey (2006) and Hoyer et al. (2010) regarding the benefits of contact between firms and customers, banks should invest not only in new communication technologies and ongoing improvements, but also to stimulate dialogue, to better integrate consumers in the process. This can be a competitive advantage sought by Brazilian banks, in a setting of strong rivalry.

With regard to access, risk assessment and transparency, the data show consistency with the literature. In this study, positive associations were identified with facilitated access to customer services, risk assessment (of offered functions) and transparency of information provided, thus reinforcing the positive influence of the dynamics of co-creation as proposed by Prahalad and Ramaswamy (2004) and supporting the assumptions related to these constructs.

As noted by Sawhney et al. (2005), the existence of facilitatory tools provides positive results for a company. However, the average of the responses shows that the bank in this study should invest more in technology, thus allowing better use of information related to customers and a clearer picture of their needs.

It should be noted also, as per Prahalad and Ramaswamy (2004), that loyal relationships established between customer and company are perceived as being associated with the transparency of information and the consequential possibilities of risk assessment. In the studied bank, this relationship was also significant for the model, occurring through a reciprocal exchange between customers and company.

However, the bank does not have all the information considered still relevant to its customers for the procurement of services. As Vargo and Lusch (2008) argue, this information asymmetry may affect the association made through the stance (or positioning) of the company, contributing to dissatisfaction on the part of customers.

Finally, for bank marketing our findings add to knowledge on customer behavior, as well as shedding light on how the use of new forms of response truly reflect customers’ identification with their bank, making them more satisfied with this relationship. This study indicates the importance of access, risk assessment and transparency to the co-creation of value between banks and their customers, which can lead to engagement and retention. It also shows that the dialogue variable is possibly not relevant to clients in the Brazilian bank market, this being a contribution of this study. This result can be seen in two ways: either dialogue is not important and the engagement of customers can be achieved through access, risk assessment and transparency; or dialogue is not practiced by Brazilian banks, so that starting this process can create a sustainable competitive advantage for banks that build that dialogue. In short, the validation of three of the four constructs of co-creation of value in the banking sector is a contribution to bank marketing, an area where studies of co-creation are still scarce.

7. Conclusions
This study aimed to identify the factors that favor co-creation in banking companies. To this end, four hypotheses were tested in relation to the DART model formulated by Prahalad and Ramaswamy (2004), which defines as the independent variables of co-creation dialogue, access, risk assessment and transparency. The idea was to determine if in fact the presence of these items in the organizational environment contributed to differentiated customer relationships, promoting co-creation.

The results suggest a link between three of the four variables and the concept itself, and that the existence of these three items enables customers to experience different interactions in the production process for the acquisition of the service. For these individuals, having access to possibilities to assess the risks of available information and experience a transparent relationship is more than a product or service, it meets a specific consumer demand for involvement in the process. This finding reinforces the findings of Etgar (2008), Vargo and Lusch (2008) and Ballantyne and Varey (2006), who demonstrated the increasing exigency of customers.
This study also pointed out the need to identify other variables that fully explain the model proposed by Prahalad and Ramaswamy (2004), which Malhotra (2008) defined by relevant questions to understand what actually influences value co-creation. The findings also show the practical difficulty of the company to implement the factors studied in its structure, as is the case of dialogue, which presented a low index of concordance according to the respondents’ perceptions. This evidence can be explained by what Hoyer et al. (2010) and Vargo and Lusch (2008) indicate is the difficulty of companies in the banking sector to fully open their structures to their customers.

Therefore, this study provides a new perspective on co-creation for the marketing literature in banking. The test of the DART model in banking environments offers a new vision of the factors which actually affect customers regarding their interaction with the production process. It emphasizes, too, as an input recommendation, identifying the validity of the scale proposed by Albinsson et al. (2011, 2016) to respond to the problems of this investigation, a scale that has been shown to be effective in view of the results obtained. Without doubt, the main contribution of this study is to indicate three constructs that favor the engagement of clients in the banking sector. Since this is a theme little explored in bank marketing, this study makes an important contribution by demonstrating that value co-creation is a useful concept for this area, and can lead to new ways of doing business between banks and their customers. The theories of bank marketing still view the customer as being passive, and usually subject to the actions of managers. The perspective of value co-creation of value shifts the focus of company-customer relations to the customer, who participates actively in the service offered by the bank.

This study also has practical contributions, since it enables banking organizations to identify potential weaknesses and consequently implement improvements to establish greater interaction with their customers. As Prahalad and Ramaswamy (2004) argued, this is a necessary starting-point from which to meet the needs of the consumer. The development of the constructs that form value co-creation, namely, access, risk assessment and transparency, can give a bank a sustainable competitive advantage in a market where differentiation is increasingly difficult. Developing these aspects will tend to engage customers better, and can assure strong future cash flow. In turn, dialogue can be a future competitive edge if customers perceive this as adding value in their relationship with the bank. On the other hand, customers seem not to be affected by this construct, so it is not an impediment to engagement of clients by Brazilian banks.

Finally, as one of the limitations of the study, it is based on a customer set of one large Brazilian bank only. Replication of the investigation is recommended for other retail banks, as well as applied research in investment banks and smaller banks, which have a specific focus. Another limitation was the use of non-probability sampling, which does not allow for generalizations. However, the present study presents relevant evidence of co-creation in the banking sector. In spite of these limitations, a research highlight was the measurement of customer perceptions, which, it must be stated, did not necessarily represent all that actually occurs between the bank and its customers. In this case, an in-depth study is recommended to see how the bank fosters co-creation with customers.

As regards future lines of research, a first suggestion is to investigate other variables that can foster co-creation between banks and their customers. Measuring co-creation from the perspective of the bank could be useful for comparison with the results found here. In addition, extending the search to other financial organizations could help unravel the phenomenon of co-creation. It would also be interesting to investigate in depth the role of dialogue in engagement of customers. The construction of more precise models of value co-creation in the banking sector can be an important contribution. This could involve development of a specific scale to measure this co-creation in the banking sector, since the existing model does not exactly reflect the perceptions of customers.
References


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