Investigating the Links between the Use of Internet, Value Co-Creation and Customer Satisfaction in the Banking Sector

Vincenzo Formisano, Ylenia Cavacece, Andrea Moretta Tartaglione, Maria Fedele
Department of Economics and Law, University of Cassino and Southern Lazio (Italy)[1]
email *v.formisano@unicas.it, ylenia.cavacece@unicas.it, a.moretta@unicas.it, m.fedele@unicas.it*

Abstract

Purpose: Because of the 2007's financial crisis, the necessity of banks of (re)-building a strong dialogue with customers and improve their satisfaction is particularly felt. Marketing scholars respond to this challenge by encouraging value co-creation initiatives. The aim of this paper is to analyse the role of Internet banking in stimulating value co-creation processes and the consequent effects on customer satisfaction.
Methodology: Based on a literature review on Internet banking, value co-creation and customer satisfaction in the banking sector, the links between these variables are theoretically outlined and it is constructed an empirical model able to test them. The model is validated through a factorial analysis.
Findings: The results show how, by leveraging digital channels, real-time interactions and advanced advisory services can be implemented in order to stimulate clients to participate in the process and meet their own needs, thus affecting their satisfaction.
Practical implication: To practitioners, the study provides suggestions how to improve customer satisfaction by offering opportunities for clients to access services and products through Internet Technologies and encouraging them to be increasingly active in the co-creation process.
Originality and value: Although the literature on banking management is prolific of studies on Internet banking, value co-creation and customer satisfaction, these dimensions are often studied separately. This work provides a first useful input to investigate the links between these dimensions and to test them with an empirical analysis.

Keywords
Internet Banking; Value co-creation; Customer satisfaction; Banking sector; Factorial analysis

.

[1] This research was carried out within the "Osservatorio Etica, Finanza, Banca e Impresa", which is co-financed by Fondazione Roma and the University of Cassino and Southern Lazio

1. Introduction

Since the global financial crisis of 2007, the banking sector has experienced several challenges due to many companies and families that have failed to repay loans in addition to serious episodes of mismanagement.

The consequences of the crisis for the banks are not just financial; the crisis severely affected consumer behaviour (Hermann, 2009) causing an extraordinary decrease of consumers' confidence in the future (Solomon, 2009). The banking system was the one most affected by these changes in terms of relationships with consumers who attribute to the banks a dominant role in the eruption of the crisis. Banks need to (re)-build a strong dialogue with customers and regain their trust. The first step should be to abandon the restrictive, paternalistic practices of the past and become a partner that cares for the financial health of its customers helping them to become financially secure and confident.

The scientific community has shown great interest in these issues and several marketing scholars suggest overcoming the dominant company-centric approach to value creation in favour of co-creation mechanisms, tools and environments (Ramaswamy and Gouillart, 2010).

According to a value co-creation view, banks should create value with their customers through interactions, dialog and mutual involvement in order to obtain a reciprocal benefit. The principal benefit for the bank consists in increasing its knowledge on consumer behaviour thus addressing the services towards what the customer is directly asking for, so improving satisfaction.

The ICT evolution has significantly modified the way customers have access to the banking services transforming the nature of the relationship between bank and customers. Technologies like self-service devices, automated teller machines (ATM), Internet banking, and mobile banking, allow banks offering a wide range of service channels to its customers and instant solutions to their problems. In particular, Internet banking allows customers to conduct financial transactions, such as account transfers, paying bills, stock exchange transactions, and other financial services on a secure website offered by the financial institution (Lee and Chung, 2009; Martins et al., 2014), usually accessed via a laptop device or desktop PC (Shaikh and Karjaluoto, 2015). This new service channel enables customers to become more independent in managing their finances and savings, and in carrying out financial transactions thus actively participating in the creation and provision of the financial service according to a value co-creation logic. At the same time, Internet banking offers additional benefits to banks in terms of cost savings and cross-selling activity (Hoehle and Huff, 2012; Sharma and Govindaluri, 2014; Sharma et al., 2015; Al-Somali et al., 2009).

Moreover, several studies show that the Internet banking adoption has a positive impact on customer satisfaction (Toor et al., 2016; Rashidi and Mansoori, 2015; Worku et al., 2016).

Based on these considerations, we can state that new banking marketing strategies should involve three important factors: service innovation in terms of Internet banking, value co-creation and customer satisfaction. The aim of this paper is to analyse the links between these variables by answering to the following research questions:

RQ1: Does the use of Internet banking affect the customers' value co-creation behaviours?

RQ2: Does the use of Internet banking affect customer satisfaction?

RQ3: Do customers' value co-creation behaviours affect their satisfaction?

In this work, through a literary review, the links between Internet banking, value co-creation and customer satisfaction in the banking sector are theoretically outlined and then tested with an empirical analysis; based on the results, conclusions and practical implications are presented.

2. Literary review

2.1. Value co-creation and Internet banking

For several decades, the theories of bank marketing have considered the customer as being passive and the 'customer value' as the value that the customer generates for the bank, rather than the value banks can offer to their customers (Payne et al. 2000, p. 267).

With the emergence of Service-Dominant logic (Vargo and Lusch, 2004; 2006), the value co-creation perspective has spread in marketing discipline. According to this logic, value is always co-created in interactions among providers and customers through the exchange of knowledge, skills and resources (Vargo and Lusch, 2004). The provider can only propose a value and provide a service as input for its realization (Flint, 2006), but value is always determined by the beneficiary as either "value-in-use" (Vargo and Lusch, 2004) or "value-in-context" (Vargo and Lusch, 2008).

The perspective of value co-creation shifts the focus to the customer, who participates actively in the service offered by the bank (Formisano et al., 2018). The customer participation in defining and creating the service allows banks to create a superior value (Prahalad and Ramaswamy, 2004a; 2004b; Payne et al., 2008; Formisano et al., 2012); literature provides several case studies of banks engaging customers in successful co-creation initiatives as an answer to the financial crisis (Mainardes et al., 2017). Many of the empirical findings acknowledge the importance of co-creation in supporting banks in recovering consumer confidence (Ramaswamy and Gouillart, 2010) and better overcoming the economic crisis (Preikschas et al., 2014).

However, the literature does not provide a clear managerial framework for banks on how to foster co-creative strategies. Moreover, only bank managers and chief executives have been involved the in the empirical studies creating a gap in the literature about the variables influencing consumers' behavior during co-creation in the banking sector.

Some marketing theories, such as Service Science (Maglio and Spohrer, 2008), recognize in technology platforms and ICT solutions the main enablers of consumers' co-creative behaviors.

Banks are among the leaders in offering opportunities for clients to access services through high technology without impairing quality with the convenience for the client of having fast services 24-hour available (Siddiqi, 2011). 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).

Apparently, solutions like Internet banking, by providing new ways for customers to connect with the bank without the direct contact with the staff, could make the relationships between bank and customers more distant and abstract, not allowing paths of value co-creation. Prahalad and Ramaswamy (2004b) state, on the contrary, that self-service practices, like those offered by Internet banking, facilitate the participation of customers in the value-creation process because they tend to feel empowered by the valorization of their freedom in conducting the consumption experience. According to Grönroos (2008, p. 288), value is customer-driven: "The customer is the one who controls the value creation process and may invite the service provider to join this process as a co-creator of value". For this reason, Nuttavuthisit (2010) suggests that organizations should design systems for more independent interactions as a first step for value co-creation. It is important that the consumer recognizes the benefit of using self-service to be motivated to take part in the process (Grönroos, 2008). Several studies demonstrate that, in order for a value co-creation to take place, it is not enough to invest in new technologies and ongoing improvements, but banks should use these technologies to stimulate the dialogue and better integrate consumers in the process (Prahalad and Ramaswamy, 2004b; Ballantyne and Varey, 2006; Hoyer et al., 2010).

Based on the literature, we suggest the following hypotheses:

$H_1$1: The Internet banking adoption has positive effects ($\beta>0$) on value co-creation.

$H_0$1: The Internet banking adoption has no effects ($\beta=0$) on value co-creation.

2.2. Customer satisfaction and Internet banking

Customer satisfaction can be defined as a positive disconfirmation between the perceived service and the expected service (Oliver, 1999). Bank customer satisfaction is regarded as banks fully meeting the customers' expectation (Bloemer et al., 1998) and also the positive feeling or attitude formed by bank customers after service, which expressly connects the various purchasing behavior (Jamal and Naser, 2002).

Generally, customer satisfaction in the banking sector is evaluated in five service quality dimensions: reliability, responsiveness, assurance, tangibles and empathy, according to the SERVQUAL model. However, Toor et al. (2016) state that, due to the increasing competition in the banking sector over the last few years, banks have focused on the Internet banking as the main tool to attain customer satisfaction; it is therefore necessary to consider the Internet banking adoption when evaluating customer satisfaction. Internet banking is an essential service in fulfilling customers' expectations and ensuring customer satisfaction.

Several studies show a significant and positive relation between Internet banking and customer satisfaction (Sharma and Maloviya, 2014; Kervin, 2014; Nimaco et al., 2013; Vasista, 2013; Sadeqi et al., 2014; Taleghani et al., 2014; Joseph and Stone, 2003).

Authors highlight different factors of Internet banking that lead to customer satisfaction. According to Liébana et al. (2013), accessibility, ease of use, trust and usefulness are the principal factors. Qureshi et al. (2008) identify four factors affecting customer satisfaction, which are the perceived usefulness, perceived ease of use, security and privacy provided by Internet banking. Rashidi and Mansoori (2015) find that Internet banking provides the customers with reduced costs and categorization of services and it is able to create and maintain a close relation between banks and their customers, which can ultimately lead to customer satisfaction. Worku et al. (2016) state that there is a significant relation between customers satisfaction and a 24-7 access possibility to bank accounts as well as the possibility of optimized control and monitoring on bank accounts. Kumbhar (2011) noted that Internet banking brings convenience, customer centricity, enhance service quality and cost effectiveness thus increasing customer satisfaction in banking services. Carse (1999) claims that the possibility for customers to manage their banking transactions at any time and location increases their satisfaction. According to Nupur (2010), instead, it is the possibility to access to a speedier, quicker and a dependable service that satisfies customers.

Some authors underline the importance of Internet banking of being able to satisfy different market segments such as the demands of the electronic market (Balachandher et al., 2001) and the "un-banked customers" (Karjaluoto, 2002).

According to the relevant literature, we propose the following hypotheses:

$H_1$2: The Internet banking adoption has positive effects ($\beta>0$) on customer satisfaction.

$H_0$2: The Internet banking adoption has no effects ($\beta=0$) on customer satisfaction.

2.3. Value co-creation and customer satisfaction

Several authors state that by establishing value co-creation paths with customers, banks can attain a greater number of satisfied customers (Bloemer et al., 2002; Ting, 2006) and, consequently, gain a greater share of the financial market (Silver and Vegholm, 2009). Bendapudi and Leone (2003) investigated the psychological implications of co-creation for customers concluding that the quality of the results and satisfaction are influenced by customer participation

About the reasons under which value co-creation should increase customer satisfaction, the literature presents several theories.

First, according to Kuokkala et al. (2010), value co-creation helps to overcome the problem of asymmetric information in the context of financial transactions in which one party often does not know all that they need to know about the other party in order to make correct decisions (Mishkin, 1992, p. 116). Value co-creation improves the levels of mutual understanding (Binks and Ennew, 1997) with consequences like more appropriate financing terms and conditions, better quality of service and higher levels of customer satisfaction. These higher levels of satisfaction derive by the fact that by participating in the relationship with the bank, customers get a better understanding of how and why decisions are made, how services are delivered and they may be more aware of the constraints on the service provider in terms of what can and cannot be delivered (Kuokkala et al., 2010). On the other hand, banks acquire more information and understanding about customers' needs and can adapt to them the final service (Vargo and Lusch, 2004); but the extent to which a bank can meet its customer needs is heavily dependent on the willingness of the customer to provide appropriate information. This means that value co-creation must include joint problem definition and solving, co-constructing services to fit the customer’s needs, and continuous dialog (Prahalad and Ramaswamy, 2004a, p. 8).

Second, trough successful value co-creation processes, organizations can improve efficiency and efficacy producing positive effects on customer satisfaction (Prahalad and Ramaswamy, 2000; Moretta Tartaglione et al., 2018). Efficiency can be enhanced by cost-minimization deriving by the consumers’ input to service development that can replace employees’ work, and their virtually costless ideas can decrease the need for market research. Customer satisfaction increases if efficiency turns into cost savings for him/her. Efficacy can increase because, according to Hoyer et al. (2010), co-created services are usually characterized by a relevant commercial attractiveness and a defined differentiation in the market, generated by their high benefits and novelty. According to Etgar (2008), co-creation ensures the quality of the service offered by enabling control and supervision on the part of customers to meet their needs and expectations.

Other scholars trace the link between value co-creation and satisfaction in some psychological mechanisms of customers. For example, Franke et al. (2010, p. 125) introduce the effect “I designed it myself” to describe the value enhancement that customers attribute to a self-designed product/service derived solely by the fact that they feel like the creator of such product/service. In these cases, customer satisfaction is enhanced by customers’ feelings of pride due to their direct participation in the creation of a value (Franke and Schreier, 2010).

Heitmann et al. (2007), introduce the concept of “decision satisfaction” which is the satisfaction deriving from the purchasing decision process in itself. This type of satisfaction goes beyond the satisfaction with the final service but it is associated with the service development process. The more the consumer will be involved in this process and the more this kind of satisfaction will increase regardless of the result. When customers are satisfied with a co-created service, their satisfaction is higher because they perceive the efforts made in the co-creation process as a rewarding experience that goes beyond the self-evaluation of the service value (Franke and Schreier, 2010). Therefore, customers evaluate the process of co-creation based on the degree to which they are satisfied with their performance during co-creation, as well as satisfaction for participation in the provision of services (Bendapudi and Leone, 2003).

Based on these theories, we propose the following hypotheses:

$H_1$3: Value co-creation has positive effects ($\beta>0$) on customer satisfaction.

$H_0$3: Value co-creation has no effects ($\beta=0$) on customer satisfaction.

3. Method

This work is based on an empirical investigation conducted through a questionnaire composed by three measurement scales, described in Table 1.

Table 1. Questionnaire structure

Measurement scale	Subscales	N. items	Source
Internet Banking	- Intensity of Internet Banking Use (UIB) - Reasons for Internet Banking Use (RIB)	24	Authors' elaboration
Value co-creation	- Customer Participation Behavior (CPB) - Customer Citizenship Behavior (CCB)	29	Yi and Gong (2013)
Customer Satisfaction	- Satisfaction with Interactions with Personnel (SIP) - Satisfaction with Bank Services (SBS)	17	Sonne (1999); Geetika et al. (2008); Jham and Khan (2008)

Source: Authors' elaboration

The Internet Banking scale was created by the authors with the aim of measuring the intensity of use of online services and the strength of the reasons behind this use. The items were identified through interviews and discussions with three bank managers and fifteen bank customers.

For the value co-creation measurement, the "Customer value co-creation behavior scale" (Yi and Gong, 2013) was selected. This scale conforms to a third-order factor model that ties customer value co-creation behaviour to two distinct dimensions: participation and citizenship. Each of these dimensions comprises four sub-dimensions: information seeking, information sharing, responsible behavior, and personal interaction in the case of customer participation, and feedback, advocacy, helping, and tolerance with respect to customer citizenship.

The scale for customer satisfaction was created by selecting items related to the satisfaction with interactions with personnel and the satisfaction with bank services from several scales (Sonne, 1999; Geetika et al., 2008; Jham and Khan, 2008). Some of the most common scales to measure customer satisfaction in banks, such as the SERVQUAL model (Parasuraman et al., 1988) and the SERVPERF (Cronin and Taylor, 1992), have not been considered suitable for this research because they are focused also on tangible aspects that are the least influenced by the use of online services and value co-creation. Jham and Khan (2008, p. 35) define customer satisfaction as "a multi-dimensional construct, which has been conceptualized as a prerequisite for building relationships and is generally described as the full meeting of one’s expectations, and is the feeling or attitude of a customer towards a product or service after it has been used”. The authors further add that customer satisfaction has three dimensions: satisfactory interaction with personnel, satisfaction with the core service, and satisfaction with the organization. According to Sonne (1999), in the case of consultant and professional services, like those of banks, customer satisfaction is mostly influenced by the perceived competence of the personnel, the technical reliability demonstrated and by the way the customer is treated during the service provision. The work of Geetika et al. (2008) helps to evaluate the customer satisfaction related to Internet banking as it shows how users of e-baking give utmost importance to excellent services.

The questionnaire was administered in June 2018 through Google Forms to the customers of three banks in the Centre of Italy by email or WhatsApp. Participants responded to each item using a 5-point Likert scale.

To test the validity of each scale an Exploratory Factor Analysis was conducted. To determine unidimensionality of the subscales, inter-item correlations were calculated and Principal Components Analysis (PCA) was used to explore the structure of the questionnaire. Internal consistency reliability was tested by the use of the Cronbach’s alpha coefficient. Finally, to test the correlations between the variables, the Pearson correlation coefficient between each subscale was calculated.

4. Results

A total of 269 responses were obtained, of which 262 were valid. The characteristics of respondents are described in Table 2.

Table 2. Sample characteristics

Age		**Levels of education**		**Profession**	
18-30	39%	Primary education	0%	Executive/Official	7,6%
31-50	37,5%	Lower secondary education	1,5%	Entrepreneur	9,5%
51-70	19,7%	Upper secondary education	29%	Independent contractor	19,3%
+ 70	3,8%	First stage of tertiary education	50,8%	Unemployed	1,5%
Sex		Second stage of tertiary education	18,7%	Civil servant	11,4%
Male	52,1%			Employee	25%
Female	47,9%			Student	12,5%
				Housewife	3%
				Pensioner	5,3%
				Other	4,9%

In the first section of the questionnaire, information on the type and duration of the relationship with the bank was collected (Table 3). In the case of relationships with several banks, it was specified that the questionnaire should be answered by thinking of the bank considered as the main bank.

Table 3. Relationship with the Bank

Type of relationship		Length of the relationship	
Personal	79,5%	<5 years	33,7%
Business	4,2%	5-10 years	29,9%
Both	16,3%	>10 years	36,4%
Contemporary relationships with other banks		**Corporate relationship with the bank**	
Yes	30,4%	Yes	11,8%
No	69,6%	No	88,2%

Subsequently, information on the use of Internet banking was collected (Table 4). 70,5% of respondents said they prefer remote channels such as telephone and Internet to use banking services. More than 90% of the sample regularly uses Internet banking mainly for both consultative operations and transactions (51,3%). While 9,5% of the sample declared that they had never used Internet banking.

Table 4. Internet banking use

Preferences for service provision	
I prefer physical branches	29,5%
I prefer remote channels	70,5%
Use of Internet banking	
Yes, for consultative operations	20,5%
Yes, for transactions	18,6%
Yes, for consultative operations and transactions	51,3%
No, never	9,5%

Respondents who declared not to use Internet banking have been invited to indicate the reasons against its use. As shown in Table 5, as the main reasons against the use of Internet banking, respondents affirmed that they do not need it, do not know how you use it and prefer to address directly the banking staff.

Table 5. Reasons against Internet banking

Reasons against the use of Internet banking (9,5% of the sample)	
I don’t need it	26,9%
It is not secure	0%
I don’t know how to use it	23,1%
It is too complicated	3,8%
My bank does not provide the service	0%
I do not have a personal computer or an internet connection	7,7%
I prefer to address directly the staff	30,8%
For another reason	7,7%

Analysing the socio-demographic profile of those who do not use Internet banking (Table 6), it emerges that the majority are women with upper secondary or first stage of tertiary education (79,2%).

Table 6. Characteristics of those who do not use Internet banking

Age		**Levels of education**		**Profession**	
18-30	28%	Primary education	0%	Entrepreneur	4%
31-50	24%	Lower secondary education	4,2%	Independent contractor	4%
51-70	40%	Upper secondary education	29,2%	Unemployed	8%
+ 70	8%	First stage of tertiary education	50%	Civil servant	16%
Sex		Second stage of tertiary education	16,6%	Employee	20%
Male	20,8%			Student	28%
Female	79,2%			Housewife	12%
				Pensioner	8%

Who responded not to use Internet banking was sent directly to the compilation of the value co-creation section, skipping the section of the questionnaire related to the measurement of the Internet banking use.

4.1. Factor Analysis and Hypotheses Test

According to the results of factor analysis (Table 7), Kaiser-Meyer-Olkin score (.841<KMO<.942) and Bartlett's test of sphericity ($p < 0.001$) show the adequacy of the sample size for each subscale and satisfy the requirements for carrying out a Principal Component Analysis (Hair et al., 2005).

Table 7. Factor analysis

		Internet Banking		**Value co-creation**		**Customer Satisfaction**	
		UIB	**RIB**	**CPB**	**CCB**	**SIP**	**SBS**
Kaiser-Meyer-Olkin of sampling adequacy (KMO)		**,854**	**,919**	**,912**	**,841**	**,919**	**,942**
Bartlett's Test of Sphericity	Approx. Chi-square	1778,750	1318,723	3097,401	1941,603	1544,609	2034,113
	Df	105	36	120	78	28	36
	Sig.	,000	,000	,000	,000	,000	,000

A Principal Components Analysis was used to identify an empirically derived set of subscales. The factor structure was then rotated using the Varimax method. Factor loadings (the correlations of items with the factors) >0.50 were considered significant and were used to define factors. From the analysis, it emerged that all the items were significant.

In terms of reliability analysis results, Cronbach's Alpha values for each subscale are >0,7 and present high values included in a range from 0,895 to 0,951 showing a high reliability of the factors (Table 8).

Table 8. Reliability analysis

	Internet Banking		Value co-creation		Customer Satisfaction	
	UIB	**RIB**	**CPB**	**CCB**	**SIP**	**SBS**
N. Items	15	9	16	13	8	9
Cronbach's alpha	**,913**	**,903**	**,912**	**,895**	**,937**	**,951**
Cronbach's alpha based on standardized items	,913	,917	,923	,894	,937	,952

By calculating the Pearson Correlation coefficient between each dimension, it emerges a significant and positive correlation between each other, albeit with low or moderate values (Table 9).

Particularly, correlations between the intensity of use of internet banking (UIB) and value co-creation (CPB and CCB) and customer satisfaction (SIP and SBS) show low values, while the reasons for using internet banking (RIB) seem to be more correlated (with moderate values) to co-creation and satisfaction.

Instead, the correlations between all the dimensions of value co-creation and consumer satisfaction are stronger (r>0,5).

Table 9. Pearson correlation

		UIB	RIB	CPB	CCB	SIP	SBS
UIB	**Pearson correlation**	**1**	**,504******	**,320****	**,198****	**,245****	**,201****
	Sig. (2-tailed)		,000	,000	,002	,000	,002
RIB	**Pearson correlation**	**,504****	**1**	**,409****	**,311****	**,401****	**,444****
	Sig. (2-tailed)	,000		,000	,000	,000	,000
CPB	**Pearson correlation**	**,320****	**,409****	**1**	**,560****	**,543****	**,505****
	Sig. (2-tailed)	,000	,000		,000	,000	,000
CCB	**Pearson correlation**	**,198****	**,311****	**,560****	**1**	**,531****	**,531****
	Sig. (2-tailed)	,002	,000	,000		,000	,000
SIP	**Pearson correlation**	**,245****	**,401****	**,543****	**,531****	**1**	**,616****
	Sig. (2-tailed)	,000	,000	,000	,000		,000
SBS	**Pearson correlation**	**,201****	**,444****	**,505****	**,531****	**,616****	**1**
	Sig. (2-tailed)	,002	,000	,000	,000	,000	

**. Correlation is significant at the 0,01 level (2-tailed).

For the value co-creation and customer satisfaction scales, the difference between the statistical average of the values of those who use the Internet banking and those who do not use it have been calculated in order to better assess the influence of Internet banking on value co-creation and customer satisfaction (Table 10).

Table 10. Statistical average differences

	Internet banking	No internet banking	Differences
CPB	3,9659	3,3925	0,5734
CCB	3,4644	2,7957	0,6687
SIP	3,9607	3,4219	0,5388
SBS	4,0051	3,1557	0,8494

The results show that those who use Internet banking present higher average values both in the value co-creation and satisfaction dimensions, confirming previous analyses. In particular, Internet banking seems to exert a greater positive influence on the Customer Citizenship Behaviour and on the Satisfaction with Bank Services.

5. Conclusions and practical implications

During the last decade, the banking sector has experienced several challenges due to the financial crisis, the evolution of ICT, changes in consumers' behaviors and growing competition. Banks need to rethink their managerial and marketing policies in order to regain the trust of their customers and build stronger and more stable relationships with them.

Marketing scholars propose to overcome these challenges by stimulating paths of value co-creation with customers, offering innovative services through the Internet and increasing customer satisfaction.

This paper aims to analyze the links between these dimensions, filling a gap in the literature and trying to offer useful suggestions to the bank managers for the development of comprehensive strategies that are not focused just on one or another variable. In fact, as highlighted by the results of this work, the three dimensions (Internet banking, value co-creation and customer satisfaction) are positively and significantly correlated with each other, albeit with moderate values. According to the results of the empirical investigation, all the alternative hypotheses of this study can be accepted, that is: (1) the Internet banking adoption has positive effects ($\beta>0$) on value co-creation; (2) the Internet banking adoption has positive effects ($\beta>0$) on customer satisfaction; (3) value co-creation has positive effects ($\beta>0$) on customer satisfaction. Therefore, when strategies are developed, these variables should not be considered separately, but the effects that could be generated on a variable should be taken into account when intervening on the others.

In practical terms, this means that when bank managers decide to implement Internet banking services, they must focus on those aspects of e-services that have a greater impact on customer satisfaction and that are able to create an online space that fosters participation and dialogue with the customers to stimulate them to co-create value. In the elaboration of value co-creation policies, on the other hand, managers must focus on those services and characteristics of Internet banking that are more suitable for co-creative practices, and they must try to exploit each occasion of co-creation with customers to increase their satisfaction. Finally, if the bank's aim is to increase customer satisfaction, bank managers must consider both value co-creation and Internet banking as useful tools to achieve this goal.

The results of strategies based simultaneously on all three factors, will be able to create stronger and lasting relationships with customers, exploit the exchange of competences and resources with them to reduce costs, increase knowledge and offer best services.

This paper is based on an exploratory factor analysis conducted to validate the model but, in light of the results, further analyses are needed to deepen the understanding of the links between the variables investigated with a confirmatory factor analysis.

References

Al-Somali S.A., Gholami R., Clegg B. (2009). "An investigation into the acceptance of online banking in Saudi Arabia", *Technovation*, 29(2): 130-141.

Balachandher K.G., Vaithilingam S., Ismail N., Prasad R. (2001). "Electronic banking in Malaysia: Note on evolution of service and consumer reactions", *Electronic banking*: 135-147.

Ballantyne D., Varey R.J. (2006). "Creating value-in-use through marketing interaction: the exchange logic of relating, communicating and knowing", *Marketing Theory*, 6(3): 335-348.

Bendapudi N., Leone R.P. (2003). "Psychological implications of customer participation in co-production", *Journal of Marketing*, 67(1): 14-28.

Binks M.R., Ennew C.T. (1997). "Smaller Businesses and Relationship Banking: The Impact of Participative Behavior", *Entrepreneurship: Theory and Practice:* 83-92.

Bloemer J., Brijs T., Swinnen G., Vanhoof K. (2002). "Identifying latently dissatisfied customers and measures for dissatisfaction management", *International Journal of Bank Marketing*, 20(1): 27-37.

Bloemer J., de Ruyter K., Peeters P. (1998). "Investigating drivers of bank loyalty: the complex relationship between image, service quality and satisfaction", *International Journal of Bank Marketing*, 16(7): 276-286.

Carse H.T. (1999). "The effect of information technology on banking services: Economic review", *Federal Reserve bank of Richmond*, 77: 16-28.

Cronin J., Taylor S. (1992). "Measuring Service Quality: A Reexamination and Extension," *Journal of Marketing*, 58.

Etgar M. (2008). "A descriptive model of the consumer co-production process," *Journal of the Academy of Marketing Science*, 36 (1): 97-108.

Flint D.J. (2006) "Innovation, symbolic interaction and customer valuing: thoughts stemming from a service-dominant logic of marketing", *Marketing Theory*, 6(3): 349–362.

Formisano V., Fedele M., Calabrese M. (2018). "The strategic priorities in the materiality matrix of the banking enterprise", *The TQM Journal*, 30: 1-25.

Formisano V., Russo G., Lombardi R. (2012). "A Service-Dominant Logic for Banking Services", *Mercati e Competitività*, 81-93.

Franke N., Schreier M. (2010). “Why Customers Value Self-Designed Products: The Importance of Process Effort and Enjoyment”, *Journal of Product Innovation Management*, 27: 1020–1031.
Franke N., Schreier M., Kaiser U. (2010). “The “I Designed It Myself” Effect in Mass Customization”, *Management Science*, 56(1): 125-140.
Geetika, N. Tanuj, Ashwini U. (2008), “Internet banking in India: Issues and prospects”, *Journal of Bank Management* VII(2): 47-61.
Grönroos C. (2008). "Service logic revisited: who creates value? And who co-creates?", *European Business Review*, 20(4): 298 – 314.
Hair J., Babin B., Money A., Samouel P. (2005). *Fundamentos de métodos de pesquisa em administração*. Bookman Companhia Ed.
Heitmann M., Lehmann D.R., Herrmann A. (2007). “Choice Goal Attainment and Decision and Consumption Satisfaction”, *Journal of Marketing Research*, 44 (2): 234-250.
Hermann S. (2009). ‘The crisis and customer behaviour: eight quick solutions’, *Journal of Customer Behaviour’*, 8(2): 177-186.
Hoehle H., Huff S. (2012). “Advancing task-technology fit theory: a formative measurement approach to determining task-channel fit for electronic banking channels”, in Hart, D.N. and Gregor, S.D. (Eds), *Information Systems Foundations: Theory Building in Information Systems*, ANU E Press, Canberra, pp. 133-169.
Hoyer W.D., Chandy R., Dorotic M., Krafft M., Singh S.S. (2010). “Consumer cocreation in new product development”, *Journal of Service Research*, 13(3): 283-296.
Hoyer W.D., Chandy R., Dorotic M., Krafft M., Singh S.S. (2010). “Consumer co-creation in new product development”. *Journal of service research*, 13(3): 283 – 296.
Jamal A., Naser K. (2002). “Customer satisfaction and retail banking: An assessment of some of the key antecedents of customer satisfaction in retail banking”, *International Journal of Bank Marketing*, 20(4):146-160.
Jham, V., Khan K.M. (2008) “Determinants of performance in retail banking: Perspectives of customer satisfaction and relationship marketing”, *Singapore Management Review*, 30(2): 35-45.
Joseph M., Stone G. (2003). “An empirical evaluation of bank customer perceptions of the impacts of technology on service delivery in the banking sector”, *International Journal of retail and distribution management*, 31: 190-202.
Karjaluoto H., Mattila M., Pento T. (2002). “Factors underlying attitude formation towards online internet banking in Finland”, *International Journal of Bank Marketing*, 20(6): 261-272.
Kervin E.B. (2014). “Customer satisfaction and loyalty among internet banking users of Philippine National Bank in Batangas city”, *Asia Pacific Journal of Multidisciplinary Research*, 2(2): 41-48.
Kumbhar V.M. (2011). “Factors affecting customer satisfaction: Some evidence from Indian banks” *Romania Knowledge Management Research & Practice*, 3: 1-14.
Kuokkala H.R., Mäenpää I., Uusitalo O. (2010). “The ingredients of customer value in banking services: Defining the needs of small and medium sized enterprises”, in *Proceedings of Peer-Reviewed Symposium 2010, Annual Symposium fo the Financial Services Institute*, September 9-11, 2010, St John's University, New York, USA (pp. 1-8)
Laukkanen T., Lauronen J. (2005) “Consumer value creation in mobile banking services”, *International Journal of Mobile Communications*, 3(4).

Lee K.C., Chung N. (2009). “Understanding factors affecting trust in and satisfaction with mobile banking in Korea: a modified DeLone and McLean’s model perspective”, *Interacting with Computers*, 21(5-6): 385-392.

Liébana C., Muñoz L., Rejón G. (2013). “The determinants of satisfaction with e-banking”, *Industrial Management & Data System*s, 113(5): 750 - 767.

Maglio P.P., Spohrer J. (2008). “Fundamentals of service science”, *Journal of the Academy of Marketing Science*, 36(1): 18-20.

Mainardes E.W., Teixeira A., da Silveira P.C. (2017). “Determinants of co-creation in banking services”, *International Journal of Bank Marketing*, 35(2): 187-204.

Martins C., Oliveira T., Popovič A. (2014). “Understanding the internet banking adoption: a unified theory of acceptance and use of technology and perceived risk application”, *International Journal of Information Management*, 34(1): 1-13.

Martovoy A., Santos J. (2012). “Co-creation and co-profiting in financial services”, *International Journal of Entrepreneurship and Innovation Management 1*, 16(1-2): 114-135.

Mishkin F. S. (1992). “Anatomy of a financial crisis”, *Journal of Evolutionary Economics*, 2(2): 115-130.

Moghadam S., Norozi A.A., Jamshedpur M.J., Rostami A. (2014). “Identification and study of fctors affecting loyalty leading electronic banking service users (private banking)”, *Journal of Information Technology Management*, 6(2): 266-251.

Moretta Tartaglione A., Cavacece Y., Cassia F., Russo G. (2018) "The excellence of patient-centered healthcare: Investigating the links between empowerment, co-creation and satisfaction", *The TQM Journal*, 30(2): 153-167.

Nimako S.G., Gyamfi N.K., Wandaogou A.M.M. (2013). “Customer satisfaction with internet banking service quality in the Ghanaian banking industry”, *International Journal of Scientific & Technology Research*, 2(7): 165-175.

Nupur J.M. (2010). “E-banking and customer’ satisfaction in Bangladesh: an analysis”, *International Review of Business Research Papers*, 6: 145-156.

Nuttavuthisit K. (2010). “If you can’t beat them, let them join: the development of strategies to foster consumers’ co-creative practices”, *Business Horizons*, 53(3): 315-324.

Oliver R.L. (1999). “Whence Consumer Loyalty?”, *Journal of Marketing*, 63: 33-44.

Parasuraman A., Zeithaml V.A., Berry L. (1988). "SERVQUAL: a multiple-item scale for measuring customer perceptions of service quality", *Journal of Retailing*, 64: 12-40.

Payn A., Holt S., Frow P. (2000). “Integrating employee, customer and shareholder value through an enterprise performance model: an opportunity for financial services”, *International Journal of Bank Marketing*, 18(6): 258-273.

Payne A.F., Storbacka K., Frow P. (2008). “Managing the co-creation of value”, *Journal of the Academy of Marketing Science*, 36: 83-96.

Pousttchi K., Schurig M. (2004). “Assessment of today’s mobile banking applications from the view of customer requirements”, *Proceedings of the 37th Annual Hawaii International Conference on System Sciences. IEEE*, pp. 1-10.

Prahalad C.K., Ramaswamy V. (2000). "Co-opting Customer Competence." *Harvard Business Review*, 78(1): 79-87.

Prahalad C.K., Ramaswamy V. (2004a). “Co-creation experiences: the next practice in value creation”, *Journal of Interactive Marketing*, 18(3): 5-14.

Prahalad C.K., Ramaswamy V. (2004b). “Co-creating unique value with customers”, *Strategy & Leadership*, 32(3): 4-9.

Preikschas M.W., Cabanelas P., Rüdiger K. (2014). “Fighting Against the Economic Crisis: Innovation in B-to-B Markets Through Co-creation”. In: Rüdiger K., M.P. Ortiz, and A. Blanco González eds. *Entrepreneurship, Innovation and Economic Crisis*. Berlin: Springer, pp. 31-40.

Ramaswamy V., Gouillart F.G. (2010). "Building the Co-Creative Enterprise." *Harvard Business Review*, 88 (10):100-109.

Rashidi E., Mansoori E. (2015). “Discussing the effects of internet banking on customer satisfaction”, *Indian Journal of Fundamental and Applied Life Sciences*, 5(S2): 182-187.

Shaikh A.A., Karjaluoto H. (2015). “Mobile banking adoption: a literature review”, *Telematics and Informatics*, 32(1): 129-142.

Sharma G., Malviya S. (2014). “Internet banking service quality and its impact on customer satisfaction in Indore district of Madhya Pradesh”, *International Journal of Business and Management Invention*, 3(3): 1-6.

Sharma S.K., Govindaluri S.M. (2014). “Internet banking adoption in India: structural equation modeling approach”, *Journal of Indian Business Research*, 6(2): 155-169.

Sharma, S.K., Govindaluri, S.M. and Al Balushi, S.M. (2015). “Predicting determinants of Internet banking adoption: a two-staged regression-neural network approach”, *Management Research Review*, 38(7): 750-766.

Siddiqi K.O. (2011). “Interrelations between service quality attributes, customer satisfaction and customer loyalty in the retail banking sector in Bangladesh”, *International Journal of Business and Management*, 6(3): 12.

Silver L., Vegholm F. (2009). “The dyadic bank - SME relationship - Customer adaptation in interaction, role and organization” *Journal of Small Business and Enterprise Development*, 16(4): 615−627.

Solomon M. (2009). *Consumer behaviour, buying, having & being*. USA: Pearson Education Inc.

Sonne A.M. (1999). “Determinants of customer satisfaction with professional services: A study of consultant services”, *Journal of Marketing*, 41(2): 159-171.

Taleghani M., Mona S., Fallah (2014). “Electronic banking services to increase the level of satisfaction and loyalty of customers”, *in proceedings of the National Conference of Modern Management Science*, Gorgan Wise Jorjani Non-profit Institution of Higher Education.

Toor A., Hunain M., Hussain T., Ali S., Shahid A. (2016). “The Impact of E-Banking on Customer Satisfaction: Evidence from Banking Sector of Pakistan”, *Journal of Business Administration Research*, 5(2): 27-40.

Vargo S.L., Lusch R.F. (2004). “Evolving to a new dominant logic for marketing”, *Journal of marketing*, 68(1): 1-17.

Vargo S.L., Lusch R.F. (2006). “Service dominant logic: what it is, what it is not, and what it might be”, in Lusch, R.F. and Vargo, S.L. (eds), *The Service-Dominant Logic of Marketing: Dialog, Debate and Directions,* Armonk: M. E. Sharpe, pp. 43-56.

Vargo S.L., Lusch R.F. (2008). “Service-Dominant Logic: Continuing the Evolution”. *Journal of the Academy of Marketing Science*, 36(1): 1-10.

Vasista T. (2013). “The Effect of Internet Banking Service Quality on Customer Satisfaction in Riyadh, Saudi Arabia”, *Journal of Business Administration,* 2(3): 112-136.

Worku G., Tilahun A., Tafa M.A. (2016). “The Impact of Electronic Banking on Customers ’ Satisfaction in Ethiopian Banking Industry (The Case of Customers of Dashen and Wogagen Banks in Gondar City)”, *Journal of Business & Financial Affairs,* 5(2): 1-18.

Yi Y., Gong T. (2013). “Customer value co-creation behavior: scale development and validation”, *Journal of Business Research*, 66(9): 1279-1284.