

Measuring the Convergence between Management and Leadership in the Banking System by Applying a Cluster Analysis

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Abstract

The purpose of this article is to provide a comparative analysis of the two concepts that are at the basis of the organizational culture of the banking system, management respectively leadership. In order to establish similarities or dissimilarities between the two terms, we have analyzed the coefficients of similitude between the compared elements, respectively: concept, attribute, functions, policies during post-crisis periods, opinions regarding elements of organizational culture, responsibilities within the organization, decisions, means utilized in order to influence the organizational culture, which have later been detailed into 67 sub-elements. Based on this data utilizing a cluster analysis we have grouped the above criteria depending on the similar or particular mode in which the two tested concepts discriminate one another, and we have calculated the convergence coefficient both at the individual and overall level. The general convergence coefficient indicates to us a high degree of similitude between the two concepts at the level of the banking system and the analysis of the proximity matrix has indicated which are the criteria that ensure the highest degree of similitude between management and leadership.

Keywords: management, leadership, convergence, cluster analysis, attribute, policies functions.

JEL classification: M12, M14, E50

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1. Introduction

Recent preoccupations found within the specialized literature place the two concepts of leadership and management within a comparative space, with the purpose of establishing the differences and similarities that characterize them.

Thus, some researchers consider that the terms leadership and management are synonyms. A study conducted by Szabo and Reber (2007, p. 128) relates the fact that no clear differences exist between the two terms. The conclusion of the study, which is based on a semi-structured interview, shows that a leader can also be a good manager if he has professional competencies.

Popa (2005, p. 176) considers that the terms leadership and management are often used to refer to the same thing even, yet despite this in reality they differ greatly. The author shows that although they possess many common traits, they are based on the same institutional structures and systems and have the same goal namely improving performance, conceptually they are different.

In addition, Owen *et al.* (2006, p. 62) have documented the fact that a confusion continues to persist between the two concepts of leadership and management, the two being used often randomly, however the term management being used primarily. This fact is visible also within the banking system where managers are perceived as being people preoccupied with targets, risk management and who perceive the organizational culture as a task to be implemented, even though in order to realize this there is a need for human resources and for training them in decision making by establishing interpersonal relations. The similarity between the two terms is, however, more and more visible in organizations that undergo major changes, such as the banking system. Owen *et al.*, (2006, p. 72) have also pointed out which are the steps to follow in order for managers to transition into becoming leaders. A prime aspect had in mind especially communication with subordinates. A secondary aspect consisted in the development of procedures and of an environment that is control-friendly, followed by a reliance on intuition and risk assumption. The transition from target realizations to the creation of values is another important aspect, just as the transition from outmoded methods of leadership towards an attachment and a heightened degree of trust in coworkers from within the organization, is another.

All these aspects are necessary within banking organizations if we keep in mind how important are the new relationships that are created between structures and the organizational culture and which obligate a manager to develop his own leadership potential.

In addition the study conducted the study conducted by Holmberg and Akerblom (2007, p. 56) concludes that the manager is a person that formally responsible for group work, the concept of the manger being associated with professional abilities, administrative and social competences. Those interviewed in this empirical study have referred to the social competences of managers utilizing notions such as empathy, correctness, friendship, trust and respect with respect to their interaction with the members of the organization, while leaders are

characterized as being: respectable, enthusiastic, holistic, visionary, good communicators or agents of change.

In an increasingly competitive and dynamic environment, as is the banking system, such a study is opportune and relevant, seeing that analyzing leadership strategies is paramount. The segment that follows sums up an overview of the specialized literature, followed by the segment on the methodology used in the research. The analysis of the data is followed by the segment that presents the results. The conclusions, research limitations and premises for future research are included in the final segment.

2. Research methodology

As a research methodology we have used the cluster analysis starting off from the classification of some entities (observations, objects, etc.) into classes (groups) that are characterized by a high degree of similarity.

As a result of the descriptive classification we have obtained the groups of elements, clusters, identified classes. The result is that the essential issue in determining (identifying) the clusters is that of specifying proximity (closeness, similitude) and how these are determined. What is evident is that proximity is a notion that is dependent on the real issue researched. In this sense we have used the proximity matrix.

Since they can be applied on the same data structures, the methods for descriptive classification are complementary to the methods of fractional analysis. The methods of classification are of a nature that is rather algorithmic: the classes appear as a result of set of operations done recursively or repetitively, the mathematics implied is relatively elementary.

K-Means Cluster

The algorithm consists of the initially random fixing of class centers (the number of classes is preset) and then the steps are repeated:

ANOVA table – the ANOVA table is displayed for each variable, considering the clusters as factors. The large F values show the variables that contribute the most to the cluster structure;

The SPSS results in the case of the K-Means Cluster

The exit depends on the options selected in the dialogue procedures, the listed tables the complete case are presented in what follows. An illustrative classification has been made utilizing the SPSS Employee Data test file.

The initial centers of clusters are chosen randomly, as many clusters as are indicated in the main dialogue. The center coordinates are presented within the space of variables. Modifications that appear during the iterative process are systematized in the following frame, presenting the modifications that appear in the center coordinates.

A rather orientative look at the separation of clusters after each variable considered is contained in the ANOVA table. Since the classification process itself searches for the best possible differentiation of clusters, all the F tests lead to the

rejection of the hypothesis of equality of cluster averages. The value of the F statistic can however be interpreted in the sense that the variables that have larger values associated to them assure a more pronounced differentiation. A final table shows how many elements are classified in each cluster. The affiliation of the observations (cases) to the clusters and distance to the center of the class can be saved and are created as new variables.

3. Measuring the convergence between management and leadership

The analysis had in mind first and foremost the determination of the similarities or differences between the two notions that are at the basis of the organizational culture of the banking system, specifically: management vs. leadership.

In order to establish the similarities or differences between the two terms, we have proposed to analyze the similitude coefficients, which are extremely utilized in measuring the relationship of similitude. In order to reach the established objective, our research has undergone several steps, presented below, thus:

Establishing some representative indications for the two terms, indicators that were later detailed in several sub-elements in order to assure a coverage of as many aspects as possible which the researchers had in mind. The compared elements were: concept, attribute, functions, post-crisis policies, opinions regarding the elements of organizational cultures, responsibilities within the organization, decisions, paths used in order to influence organizational cultures;

Providing a value to each sub-element that is compared. Thus, we have set the value 0 – to those elements that differ completely, 0.3 – to those elements that differ significantly, 0.7 – to elements that are significantly similar; 1 – to elements that are completely similar, in order to then calculate for each element a similitude coefficient. In Table 2 we can observe the elements and sub-elements subjected to comparison, as well as the similarities and differences for each element compared. In addition, we have also calculated a general convergence coefficient for the comparison management vs leadership within the banking system. The general convergence coefficient is 0.64, which indicates to us a high level of convergence between the two concepts at the level of the banking system.

Table 1 Compared elements and details regarding existing similarities/differences

Elements subjected to comparison	Sub-elements compared	Complete convergence	Significant convergence	Significant difference	Complete difference
		1	0,7	0,3	0
Concept	(1) the art of leading	X			
	(2) planning, organizing and coordination of material, human and financial resources			X	

Elements subjected to comparison	Sub-elements compared	Complete convergence	Significant convergence	Significant difference	Complete difference
		1	0,7	0,3	0
	(3) maximizing profit while maintaining an acceptable risk level				X
	(4) changing and transforming the organizational culture	X			
	(5) the influence exerted on the members of the organization in order to reach goals		X		
	(6) abandoning old ideas, concept, methods and determining new directions in development		X		
Attributes	(7) vision	X			
	(8) courage			X	
	(9) assuming responsibilities	X			
	(10) integrity, tenacity	X			
	(11) emotional stability			X	
	(12) modesty, charisma			X	
	(13) professional abilities			X	
	(14) administrative competences				X
	(15) social competences	X			
	(16) openness to knowledge	X			
	(17) control, domination				X
	(18) organizing, leading	X			
	(19) interpersonal relations		X		
	(20) abilities to make decisions		X		
	(21) competences in resolving conflicts		X		
Responsibilities within the organization	(22) establishing and realizing objectives		X		
	(23) a new vision of change	X			
	(24) knowledge of organizational culture	X			
	(25) hierarchy of actions	X			
	(26) stimulating employees to think in a new fashion, to be creative and receptive to new things	X			
	(27) emotional attachment to employees				X
Functions	(28) of planning	X			

Elements subjected to comparison	Sub-elements compared	Complete convergence	Significant convergence	Significant difference	Complete difference
		1	0,7	0,3	0
	(29) of organizing	X			
	(30) of training	X			
	(31) of foresight		X		
	(32) of evaluation		X		
	(33) of coordination		X		
	(34) of control				X
	(35) of motivation			X	
	(36) of change		X		
Decisions	(37) strategic	X			
	(38) tactics and currents	X			
	(39) regarding motivation			X	
	(40) regarding quality	X			
	(41) regarding establishing objectives		X		
	(42) regarding risk management				X
Adopted ways of influencing organizational culture.	(43) assuming responsibilities for sustaining sought after cultures	X			
	(44) application of methods for motivating members			X	
	(45) identifying values and principles and transmitting them to members of the organization	X			
	(46) promoting behavior that is established by the code of conduct	X			
	(47) applying methods of social and professional integration		X		
	(48) establishing the policies, strategies, methods and norms for risk management			X	
	(49) evaluating social, cultural, economic, demographic and juridical factors	X			
Post-crisis policies	(50) evaluating crisis effects	X			
	(51) elaborating strategies and policies for reducing risk		X		
	(52) reducing the negative impact on human resources		X		

Elements subjected to comparison	Sub-elements compared	Complete convergence	Significant convergence	Significant difference	Complete difference
		1	0,7	0,3	0
	(53) long or short term actions				X
	(54) narrow or wide focus				X
	(55) emotional impact on people			X	
	(56) maintaining the values, ideals of the organizational culture	X			
	(57) building a community of collaboration	X			
	(58) self-sacrifice				X
Opinions regarding the elements of the organizational culture	(59) storytelling, habits, practices, rites, symbols	X			
	(60) systems of control, organizational control, power structures			X	
	(61) degree of inter-dependency of employees depending on competencies and responsibilities		X		
	(62) degree of risk tolerance				X
	(63) method of encouraging of innovation and creativity			X	
	(64) type of conflicts and the mode of tolerating and resolving them		X		
	(65) socializing and the desire for adaptation of employees to the organizational culture	X			
	(66) models and theories of inter-cultural communication	X			
	(67) mode of establishing loyalty of members towards the values of the organization			X	

Table 2. Similitude coefficients

Indicator Case (sample)	Compatibility coefficient	Concept	Attribute		Responsibilities within the organization		Functions		Decisions		Methods used to influence organizational cultures		Post-crisis policies		Opinions regarding elements of organizational cultures		Similitude coefficient	
			Attribution value	Similitude Number	Attribution value	Similitude Number	Attribution value	Similitude Number	Attribution value	Similitude Number	Attribution value	Similitude Number	Attribution value	Similitude Number				
Management/Leadership	1	2	0.617	6	0.624	4	0.783	3	0.678	3	0.667	4	0.757	3	0.522	3	0.589	0,643
	0.7	2		3	0	1		4	1	1	1	1	2	2		2		
	0.3	1		4	0	0		1	1	1	2	2		1	3	3		
	0	1		2	1	1		1	1	1	0	0		3	1	1		

Source: Author's projection

Later we conducted based on the information acquired a K-Means Cluster analysis, with the help of which we have grouped the elements subjected to comparison into clusters in order to obtain certain additional aspects with regards to existing similarities between management and leadership at the level of the banking system, a detailed analysis in what follows.

The gathered data have been grouped depending on eight criteria: Concept; Attribute; Functions; Post-crisis policies; Opinions regarding elements of organizational culture; Responsibilities within the organization; Decisions; Ways used to influence organizational cultures.

These eight criteria constitute the cases that will be grouped in relation to the values of variables of convergence – divergence (complete convergence, partial convergence, partial divergence and total divergence) and are reproduced in Figure 1 below, thus:

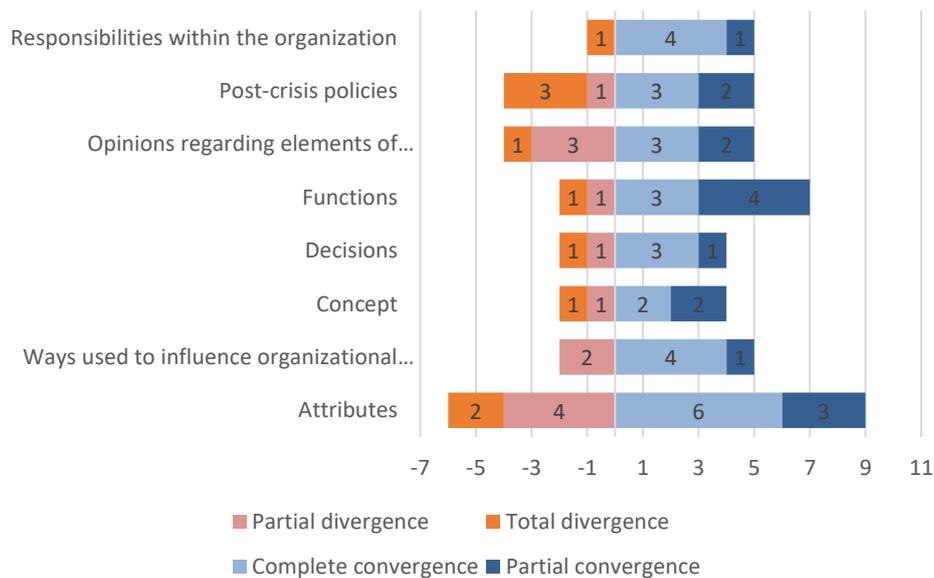


Figure1. Convergence/divergence regarding compared elements
Source: Author's projection

From the point of view of the standardization of values, in the sense of a possibility for comparison, we've used percentages calculated from the totality of references for each criterion as in Figure 2 below, thus:

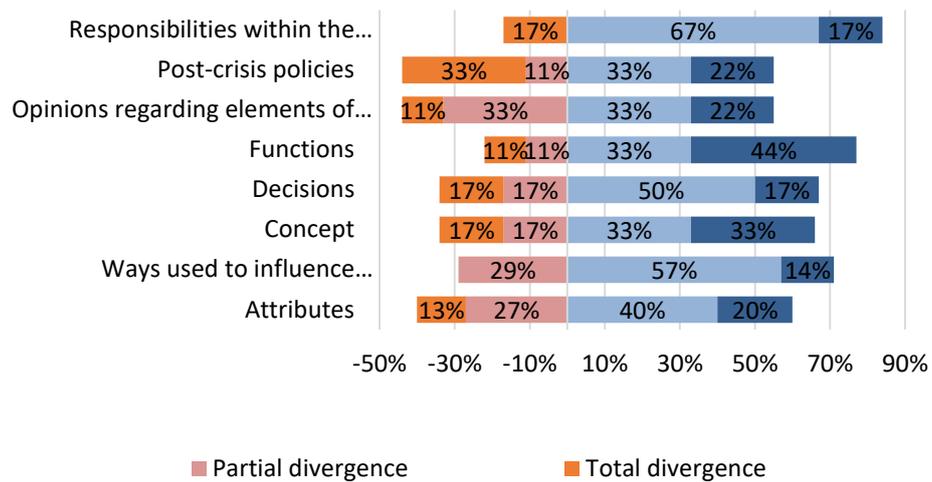


Figure 2 Percentage linked to each element

Source: Author's projection

The cluster analysis helped us better group up the above criteria in regards to the similar or particular mode through which one discriminates between the two tested concepts, leadership and management. Practically, we have created classes of elements that are similar in the establishment of similarities or dissimilarities between leadership and management.

Keeping in mind that between the four variables that are newly calculated a functional relationship exists (their sum is 100%), one of the four variables can be dropped. On the other hand, in order to better illustrate the centers of the clusters, we have decided to keep all four, without affecting the grouping.

Due to the low number of criteria, we have chosen a clustering into two classes. The initial cluster, made up of the grouping of the two closest elements, indicates the following values:

Table 3. Initial cluster

	Initial Cluster Centers	
	Cluster 1	Cluster 2
Complete convergence	33%	67%
Partial convergence	44%	17%
Partial divergence	11%	0%
Complete divergence	11%	17%

Source: Author's projection

As can be observed, initially the two clusters are defined through:

- A greater degree of partial convergence, in the case of the first cluster;
- A major degree of total convergence, in the case of the second.

Therefore, clustering indicates to us a first group, of the elements/criteria that indicate a relative similarity (a greater degree of partial convergence) between the two basic notions, and another group, of the elements that indicate a greater similitude between these notions.

Afterwards, the analysis continues by obtaining the proximity matrix, the matrix used to identify the degree of similarity between the analyzed criteria, keeping in mind the variables that stood at the basis of clustering. Therefore, the proximity matrix have indicated the distance between the elements (in our case, the criteria), a distance that is calculated in a Euclidian manner. It is a symmetrical matrix, the values being similar in relation to the main diagonal.

The interpretation is done depending on distance, thus the smaller the distance, the closer the two criteria are, a similarity in regards to the way in which the two basic notions, management and leadership, are differentiated. On the other hand, the greater the distance, the more this criterion discriminates the two notions in a particular manner.

The analysis of the matrix proximity between the eight criteria have indicated to us the fact that one of the criteria (Responsibilities within the organization) is furthest from all the other criteria, which means that, in relation to this criteria, we have a different distribution of the references in regards to the rest of the criteria (observable also graphically). On the other hand, the criteria of Concept and Attribute have the smallest distance from one another, which means that they have a relatively common distribution of the four cluster variables.

Table 4. Proximity matrix

Proximity Matrix								
Case	Squared Euclidean Distance							
	1	2	3	4	5	6	7	8
1: <u>Concept</u>	-	.033	.019	.043	.043	.167	.056	.135
2: <u>Attributes</u>	.033	-	.089	.069	.010	.144	.022	.051
3: <u>Functions</u>	.019	.089	-	.099	.099	.204	.111	.190
4: <u>Post-crisis policies</u>	.043	.069	.099	-	.099	.154	.062	.205
5: <u>Opinions of elements of the organizational culture</u>	.043	.010	.099	.099	-	.228	.062	.078
6: <u>Responsabilities within the organization</u>	.167	.144	.204	.154	.228	-	.056	.119
7: <u>Decisions</u>	.056	.022	.111	.062	.062	.056	-	.048
8: <u>Means used to influence the cultural organization</u>	.135	.051	.190	.205	.078	.119	.048	-

Source: Author's projection

Thus, the grouping algorithm has been created based on distances, measured in a Euclidian manner, between elements and cluster centers, virtual points that define each cluster. After uniting two close items and forming a center cluster a recalculation of distances between the new cluster and the other elements

comes up. The grouping is produced successively, by calculating the distance between the pair (center, the closest element to the center) and the rest of the elements, afterwards the nearest is attached to the pair, until all the clusters are complete.

The result of the analysis has been the following configuration of clusters, presented in Table 6. In addition it should be mentioned that the interpretation is conducted depending on the distance between criteria and the centers of clusters, which practically indicates to us the link between criteria and cluster. Thus, the smaller the distance, the stronger the link.

Table 5. Configuration of clusters

Cluster Membership			
Case Number	Criterion	Cluster	Distance
1	Concept	1	,060
2	Attributes	1	,127
3	Functions	1	,192
4	Post-crisis policies	1	,195
5	Opinions of elements of the organizational culture	1	,161
6	Responsibilities within the organization	2	,183
7	Decisions	2	,098
8	Means used to influence the organizational culture	2	,176

Source: Author's projection

From the above results, one can observe that the first cluster includes five criteria, thus:

- Concept, this elements being the closest criteria to the center of the first cluster;
- Attributes;
- Functions;
- Post-crisis policies;
- Opinions of elements of the organizational culture.

On the other hand, the second cluster includes three clusters, thus:

- Decisions, the closest criteria to the center of the second cluster;
- Means used to influence the organizational culture;
- Responsibilities within the organization.

As can be seen, if the first cluster includes criteria that focus more on the description, notional dimension, the second cluster includes criteria that have in mind rather the action side. The final centers of the clusters are presented in Table 7 below, thus:

Table 6. Final cluster

	Final Cluster Centers	
	Cluster	
	1	2
Complete convergence	35%	58%
Partial convergence	28%	16%
Partial divergence	20%	15%
Total divergence	17%	11%

Source: Author's projection

Therefore, the movement of the first center has been done mainly through a rise in the complete convergence value, to the detriment of partial convergence, while, in the case of the second center, by diminishing the value of complete convergence, basically in order to increase the value of partial convergence. In other words, the initial clusters are corrected, towards an optimal state that best corresponds to the distance between elements and the center.

The ANOVA analysis, afferent to the cluster analysis through which the average variables, which assure the grouping, are compared, intra and inter-clusters, is applied in order to identify which are the variables that provide us with the best differentiation of the criteria into classes. In our case, ANOVA indicates the fact that the variable Complete convergence is the one that assures the best differentiation of clusters ($F=34.733$, $\text{sig} < .001$), while partial divergence does not show a very significant discrimination.

Table7. ANOVA analysis

	Cluster		Error		F	Sig.
	Mean Square	Df	Mean Square	Df		
Complete convergence	,102	1	,003	6	34,733	,001
Partial convergence	,030	1	,007	6	4,112	,089
Partial divergence	,004	1	,013	6	,309	,598
Total divergence	,007	1	,009	6	,757	,418

Source: Author's projection

In other words, the complete convergence factor is the most important one in the grouping of criteria in the two categories (clusters). Summing up the above, the clustering of the criteria used in the analysis is done especially on the basis of the degree of convergence, complete or partial. In other words, a set of criteria were obtained which indicate a similarity between the two tested concepts.

4. Conclusions and premises for future research

From everything that has been previously presented what results is that organizations need both managers and leaders in order to carry out their established strategies and objectives. The present study has strengthened the idea according to which within the banking system a good manager must also have the abilities of a leader.

Thanks to the analysis conducted one can observe a high degree of similarity between the concepts of management and leadership at the level of the banking system, a fact that is otherwise not at all surprising considering the origin of the concepts. On the other hand, one should also keep in mind the opinions of many researchers that, as we have shown above, have identified major differences between the two concepts.

Among the elements analyzed, responsibilities within the organization determines the greatest similarities between the two concepts, at the opposite end being post-crisis policies.

The proximity of the two concepts is given by the need to adapt to changes within the banking system which lead to an increase in the responsibilities of both managers and leaders with regards to the establishment and realization of the objectives imposed upon the new corporation, the knowledge of organizational culture, the establishing a hierarchy of actions and the encouraging of employees to be more creative and receptive to novelty.

In a post-crisis period, the policies of managers, an aspect proven by the present research, differs significantly from the strategy of leaders. Managers quickly focus on short-term actions of restructuring, without considering the emotional impact upon human resources, they establish strategies that reduce the negative effects of the crisis, without self-sacrifice. At the opposite end there are the leaders who adopt long-term actions that protect human resources from possible restructurings, who are determined to sacrifice themselves in order to maintain the present structure of the organizations.

As we can see from the analysis conducted, we have identified two representative clusters, the first being made up of the following elements: Concept, Attribute, Functions, Post-war policies, Opinions of the elements of the organizational culture, and the second cluster is made up of: Responsibilities within the organization, Decisions, Means used to influence the organizational culture. The closeness between managers and leaders is determined by the descriptive dimension (the first cluster) that provides them with a good understanding of the notions of concept, attributes, functions, policies, etc., assuring them a preparation and specialization for dealing with change within the banking system. The art of leading the members of the organization towards reaching their goals, determining them to abandon old ideas, concepts, methods and having them focus on new directions of development presupposes a summing up of attributes (such as: courage, integrity, tenacity, openness to knowledge, interpersonal relations, social competences for organizing and leading) for both managers and leaders.

With respect to the second cluster, the stress is placed on the side of action. This permits a transformation of the issues into plans of action, training employees to establish, carry out objectives encouraging and promoting a new vision of change. Tactical, current and strategic decisions are of equal interest to both managers and leaders. But the changes undergone within the banking system necessitate a new vision of the organization, knowledge of the organizational cultures, an assuming of responsibilities for the maintenance of the desired culture, the identification of values and principles, the transmission of these to the members of the organization, the application of methods of social and professional integration, an evaluation of social, cultural, economic and demographic factors.

We can conclude that as banking processes are digitized and decisions standardized, one feels the need for a change in how one thinks of and understands the behavior of those around, including managers, in other words there is a need for leadership. The transition from management to leadership is done, without our realizing it, through the need to change how we think, how we see the organization we carry out our activities in and how we stimulate personal development, however the proximity between the two concepts remains evident.

Among the limits of the present study we recall the small number of studies analyzed. On the other hand, the analyzed studies are considered central to the field, therefore the conclusions that have resulted are relevant. In regards to premises for future research we wish to conduct an empirical study that might identify the similarities and dissimilarities between the two analyzed concepts, at the level of the banking sector within the European Union. We consider in this opportune sense analyzing and evaluating the impact of the cultural factor on the similarities and differences that reside between them.

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