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The level of influence of trust, commitment, cooperation, and power in the interorganizational relationships of Brazilian credit cooperatives

O nível de influência da confiança, do comprometimento, da cooperação e do poder no relacionamento interorganizacional de cooperativas de crédito Brasileiras

El nivel de influencia de la confianza, el compromiso, la cooperación y el poder en las relaciones interorganizacionales de cooperativas de crédito en Brasil

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Abstract

This article aims to analyze the level of influence of trust, commitment, cooperation, and power in the interrelationships of individual credit cooperatives and their central organization in Brazil. The quantitative and descriptive research was developed in unique credit unions linked to the Central Bank of Brazil and the Organization of Brazilian Cooperatives. The data were analyzed using structural equation modeling, with the estimation through partial least squares. The results obtained for the coefficients of determination (R^2) of the endogenous latent variables confirmed the assumptions found in the theoretical models of Morgan and Hunt (1994) and Coote, Forrest, and Tam (2003). Statistical significance was also found in the relationships between power and trust, commitment and cooperation, trust and commitment, trust and cooperation, and power and commitment. However, in this study the relationship between power and commitment characterized the significance and was positive between the individual credit cooperatives and their central organization. This is in line with the understanding that power is the solution to resolving conflicts. The research identifies how the constructs of trust, commitment, cooperation, and power show relevance to the alignment of relations between individual credit cooperatives and their central organization.
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Keywords: Commitment; Cooperation; Power; Relationship; Trust

Resumo

Este artigo tem como objetivo analisar o nível de influência da confiança, do comprometimento, da cooperação e do poder no relacionamento interorganizacional de cooperativas de crédito singulares e centrais brasileiras. A pesquisa quantitativa e descritiva, foi desenvolvida em cooperativas de crédito singulares vinculadas ao Banco Central do Brasil – BACEN e a Organização das Cooperativas Brasileiras – OCB. Os dados foram

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tratados por meio da Modelagem de Equações Estruturais (MEE), com aplicação do método de estimação dos mínimos quadrados parciais (*PLS-PM*). Os resultados obtidos nos coeficientes de determinação (R^2) das variáveis latentes endógenas, confirmaram os pressupostos encontrados nos modelos teóricos de Morgan e Hunt (1994) e Coote, Forrest e Tam (2003). Constatou-se, também significância estatística nas relações entre poder e confiança; comprometimento e cooperação; confiança e comprometimento; confiança e cooperação e poder e comprometimento. No entanto, neste estudo a relação entre poder e comprometimento caracteriza-se como significante e positiva entre as cooperativas de crédito singulares com suas centrais. Isso está em consonância com o entendimento de que o poder é a solução para buscar resolver conflitos. A pesquisa permite identificar o quanto os constructos confiança, comprometimento, cooperação e poder evidenciam aspectos relevantes para o alinhamento das relações entre as cooperativas de créditos singulares e suas centrais de crédito.

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Palavras-chave: Comprometimento; Confiança; Cooperação; Poder; Relacionamento

Resumen

El objetivo en este artículo es analizar el nivel de influencia de la confianza, el compromiso, la cooperación y el poder en las relaciones interorganizacionales de las cooperativas de crédito singulares y centrales en Brasil. Se llevó a cabo un estudio cuantitativo y descriptivo en cooperativas de crédito singulares vinculadas con el Banco Central de Brasil – BACEN y la Organización de Cooperativas Brasileñas – OCB. Se analizaron los datos por medio de modelos de ecuaciones estructurales, con la aplicación del método de estimación de mínimos cuadrados parciales (PLS-PM). Los resultados obtenidos en los coeficientes de determinación (R2) de las variables latentes endógenas confirmaron los supuestos que se encuentran en los modelos teóricos de Morgan y Hunt (1994) y Coote, Forrest y Tam (2003). Además, se encontró significación estadística en las relaciones entre poder y confianza; compromiso y cooperación; confianza y compromiso; confianza y cooperación y poder y compromiso. Sin embargo, la relación entre poder y compromiso se caracteriza por ser significativa y positiva para las cooperativas de crédito singulares y sus centrales. Ello está en consonancia con el entendimiento de que el poder es el recurso para la solución de conflictos. El estudio permite identificar cómo la confianza, el compromiso, la cooperación y el poder ponen en evidencia aspectos relevantes para la alineación de las relaciones entre las cooperativas de crédito singulares y sus centrales de crédito.

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Palabras clave: Compromiso; Confianza; Cooperación; Poder; Relación

Introduction

The trend of relationships based on trust, commitment, cooperation, and power among actors has been characterized as a means of producing value in transactions (either of information or resources), generating an efficient market economy, and generating and sustaining gains in competitive advantage (Ndubisi, 2011; Olave & Amato Neto, 2001; Palmatier, 2008).

The studies conducted by Ring and Van de Ven (1994) and Klein and Pereira (2014) analyzed the dynamics of interorganizational relationships from the point of view of the development of collaborative and cooperative processes — the latter of which is the subject of this work. Wegner and Padula (2010, p. 223) noted that "it is still a small number of studies that are concerned with the critical aspects of interorganizational cooperation, such as governance and management". Organizations that participate in cooperative relationships are considered to achieve better results than those that do not act in that way (Ambrose, Marshall, & Lynch, 2010; Castro, Bulgacov, & Hoffman, 2011).

Many of these organizations, in the face of factors such as uncertainty, need for flexibility, and the requirement to develop capabilities and other resources, have sought to be part of cooperative arrangements (Child & Faulkner, 1998). The understanding of factors that influence cooperative relationships, especially with respect to interorganizational relationship conflict, becomes a way to search for solutions and innovations in processes of interaction, such as those that occur in cooperatives and credit unions (Gianezini, 2010).

Credit cooperatives or credit unions – the objects of study in this research – can be construed as an association of organizations seeking, through mutual cooperation, better management of their financial resources through the benefits of collective ownership of profit, as is established in Brazil by Law 5.764, dated December 16, 1971 (Brazil, 2015).

A cooperative financial or credit organization provides assistance in the form of credit and the provision of banking services to its associates under favorable conditions (Franz & Azambuja, 2011). In Brazil, credit unions are equivalent to financial institutions and their functioning must be authorized and regulated by the Central Bank of Brazil (CBB, 2010). Credit unions are interorganizational networks that can be classified according to their size and goals.

There is a need to understand the relationship between cooperatives to establish actions that aim at building a relationship at the horizontal level of the network, in which there is reciprocity between the actors, the goal of common gains, and a strengthening of the precepts of the cooperatives (Winckler & Molinari, 2011). One of the reasons suggested by Fontes Filho, Maruci, and Oliveira (2008) for the reduced participation of associates

is a lack of trust in management and a lack of understanding of its importance.

New-generation cooperatives, the object of this study, are defined as a form of architecture that maintains the principles of the doctrine of cooperativism, bringing changes in property rights to induce cooperative organization to a higher level of economic efficiency, since the vision and the initial goal are the market (Bialoskorski Neto, 2004).

With the proposal of a multidimensional vision to expand the range of factors that influence the success of a network of cooperatives, the development of trust, commitment, and power through interaction between companies fosters cooperation and supports maintenance of the cooperative network (Ambrose et al., 2010; De Klerk, 2012; Ryu, Soonhu, & Chulmo, 2009).

The integration of trust and commitment in the interactions of cooperatives can impact financial results, showing a logic of exchange that saves time, facilitates agreements on integration, and leads to improvement actions, specifically in the relationships between cooperatives, thereby strengthening good governance practices (Arruda, 2014; Stecca, 2014; Theurl, 2005).

Business networks, according to Ritter, Wilkinson, and Johnston (2004), can be seen as a set of autonomous and isolated organizations that join together around shared values and shared interests, to the detriment of rigid hierarchical structures. However, it is necessary to focus on the relations of power and dependence in these networks, considered as a strong indication of the willingness of participants to cooperate with each other (Machado-da-Silva & Coser, 2006).

From the perspective of highlighting the different patterns of relationships with a focus on the network of credit cooperatives in Brazil, based on a multidimensional approach, the following question guides this research: *What is the level of influence of power, trust, commitment, and cooperation in the relationship of individual credit unions with central?*

To answer this question, the research aims to achieve a general objective: to analyze the level of influence of trust, commitment, cooperation, and power in the interorganizational relationships of individual credit unions and central.

The aspects to be addressed are discussions and reflections on the characteristics of interorganizational networks, cooperatives, and the social dimensions of their relationships, specifically in relation to the aspects of trust, commitment, cooperation, and power between organizations (Fynes, Voss, & Búrca, 2005; Lambert & Schwieterman, 2012).

Theoretical platform

Bibliographic research shows that several studies have been presented, such as those by Morgan and Hunt (1994) – considered a classic in the field of Business Management on the themes focused on in this work – and Coote, Forrest, and Tam (2003), who deepen understanding of that classic study with the aim of identifying the characteristics of successful relationships, and investigating the role of constructs such as trust, commitment, cooperation, and power in interorganizational relationships. In the current research, relevant aspects of each of these constructs are considered.

Trust refers to the extension of a relationship between trading partners, in which each of the parties realizes credibility and benevolence (Aurifeille & Medlin, 2009; Das & Teng, 2001). It exists when a party believes, or when there is credibility, in the integrity and reliability of their partner (Gulati & Sytch, 2008; Mayer, Davis, & Schoorman, 1995; McEvily, 2011; Seppänen, Blomqvist, & Sundqvist, 2007).

In pursuit of the fulfillment of expectations between organizations, trust establishes an increase in organizational trust (Cunha & Melo, 2006; Gulati & Nickerson, 2008), which describes the extension of a collective orientation with respect to a partner company (Dyer & Chu, 2003; McEvily, 2011). Acceptance of the social aspect becomes relevant to the development of trust in interorganizational relationships (Aurifeille & Medlin, 2009; Palmatier, 2008; Paterson, Maguire, & Al-Hakim, 2008).

Coote et al. (2003) proposed that the following constructs influence trust, classifying them as predecessors: communication, conflict, similarity, and even opportunistic behavior, as in the view of Morgan and Hunt (1994). Trust develops each interaction that is established (Fulmer & Gelfand, 2012). In studies conducted by Morgan and Hunt (1994) and De Klerk (2012), trust and commitment were found to directly and positively influence cooperation. In this sense, the following proposition can be established:

(P1) Trust directly and positively influences cooperation.

Commitment is built through the reasoning of mutual trust. Morgan and Hunt (1994) established a relationship between commitment and trust as the basis of cooperative behavior. According to these authors, commitment is the belief of one of the actors that the cooperative network that exists is so important that it is worthwhile striving to keep it (Krause, Handfield, & Tyler, 2007). In this sense, the partner will behave like the other and trust in that behavior (Ndubisi, 2011).

In the view of Dahmane, Allah, and Abderrezak (2015), the presence of commitment in trade cultivates the trust shared between the parties entered into the relationship. The continuity of relationships over time motivates organizations to work together in pursuit of goals and mutual benefits for the members of the relationship (Principe, Dagger, & O'Sullivan, 2010; Ruyter, Milford, & Lemmink, 2001; Van Vuuren, Roberts-Lombard, & Van Tonder, 2012; Wagner & Rydstrom, 2001).

In the view of Ellram (1991), a partnership, as in a cooperative, must be built on a strong commitment between the parties. It is feasible to assume that trust and commitment are positively associated, where as trust is one assumption of the existence of commitment (Morgan & Hunt, 1994; Walter, Müller, Helfert, & Ritter, 2003).

The model proposed by Coote et al. (2003), in turn, investigates the background of impairment related to trust, which mediates the effects of the quality of communication, conflict, and similarity in compromise; similar to the suggestions made

by Morgan and Hunt (1994). In this sense, we can infer the following proposition:

(P2) Trust directly and positively influences commitment.

Commitment emerges in the relationship when there is a high level of trust, as well as a social environment that allows for the encouragement of cooperation and may facilitate interactions and constructive actions (Goodman & Dion, 2001). Some authors, such as Coughlan and Coghlan (2002) and Palmatier (2008), have argued that there is a positive relationship between commitment and cooperation. Thus, the following is proposed:

(P3) Commitment directly and positively influences cooperation.

Based on the literature on relationships in interorganizational networks, there is evidence of some dimensions of the variable of cooperation. For the present study, cooperation is treated as a variable resulting from trust, commitment, and power (discussed in the next section); thus, cooperation is considered a variable (Mahama, 2006; Morgan & Hunt, 1994).

Cooperation is the basic dimension of horizontal networks, in which companies are independent but are part of a network for specific activities, such as creating new markets, social action, and research. Cooperation is the axis of social development and economic competitiveness, which is reflected in the formation of interorganizational networks (Balestrin & Vargas, 2004).

In the view of Brito, Brito, and Hashiba (2014, p. 953), "cooperation refers to the joint activity between partners to achieve goals mutually compatible which would otherwise be unfeasible or costly." The authors argued that behaviors and goals are fundamental to definition of the concept, considered as a multidimensional phenomenon.

As Castro et al. (2011, p. 38) stated, "the cooperation may represent a strategy for achieving organizational goals, due to its instrumental value, that is, consider the degree to which a given connection could contribute to the achievement of organizational goals." In context, that instrumental value is the degree to which a given connection could contribute to the achievement of organizational goals. Understanding of cooperation establishes the presumption of approaches of trust and commitment as the background to an interorganizational relationship (Brass, Galaskiewicz, Greeve, & Tsai, 2004; Oliver & Ebers, 1998).

Power is always present in relations of exchange. In the view of Foucault (2001), power is a dynamic reality that helps human beings to express their freedom with responsibility. The dependence or interdependence of parties on their trading partners creates differences in power, where the exchange is designed for the future (Nicholls & Huybrechts, 2014; Sambasivan, Phaik, Mohamed, & Leong 2011).

Zaheer, Gözübüyük, and Tome (2010) stated that power is a relevant variable for the birth, development, decline, and termination of interorganizational networks. It can be understood as an aspect of the actual interaction among social actors that can predict the dynamics of these cooperative relationships (Knoke, 1994).

Power is a relevant variable that enables us to understand the movements of relationships in which there are cooperative actions and actions arising from individual interests (Zaheer et al., 2010). According to Silva, Melo, and Marra (2014), in a study of a financial institution akin to that focused on in the present research, power does not refer to a specific source and is not a matter of force or coercion, but permeates all of social life, and is exercised in an infinite variety of positions.

According to Morgan and Hunt (1994), power is treated as coercive, by means of a relation between coercion, authority, and influence. However, in the context of cooperative networks, power is understood as gears that move the coordination mechanisms of the interorganizational relationship (Bachmann, 2001). In this context, propositions regarding power are established:

(P4) Power directly and positively influences trust.
(P5) Power directly and positively influences commitment.

Based on the assumptions above, inferences regarding relationships between the constructs of trust, commitment, and cooperation and interorganizational relations of power were assessed. This enabled construction of the conceptual model used in the research. This is detailed in the following section, which addresses the methodological aspects of the research.

Research methodology

This section discusses the methodological aspects of the research.

Classification of research

The quantitative and descriptive study performed in this research were conducted through an intersectional (cross-sectional) survey; that is, the results depict the situation at a certain moment. This research was carried out between November 2014 and January 2015. Following the logic of Babbie (1999), the survey was developed for credit unions linked to the CBB (2010) and the Organization of Brazilian Cooperatives (OBC, 2015), and field research was chosen due to the fact that the research is rooted in social sciences and field research is appropriate for descriptive studies (Oppenheim, 2001).

The applied model seeks to confirm the impact of the latent variables trust, commitment, cooperation and power (Coote et al., 2003; Morgan & Hunt, 1994) of individual credit unions with central. In this context, it is established that the latent variable "power" refers to an exogenous construct, since there are other variables that exert an effect on it. Trust, commitment, and cooperation are considered to be endogenous constructs, because they receive the influence of other variables present in the model.

The object of study (population and sample)

This research was made possible due to the accessibility and support of the OBC and the Brazilian Network of Researchers of Cooperativism. The population of this study is composed of

1.154 individual credit unions in Brazil with supervision of the Department for Monitoring the Financial System of the CBB (2010), in which around 91% of credit unions are linked to the OBC.

According to the CBB (2010), cooperative societies can be classified as:

(a) individual cooperatives, or first degree, providing services directly to members;
(b) central cooperatives and federations of cooperatives or second degree, consisting of individual cooperatives which aim to provide, in greater or lesser extent, economic and support services for the interest of affiliates, by integrating and directing their activities and facilitating the reciprocal use of services; and
(c) Confederation of cooperatives, or third degree, formed of central and federations of cooperatives and which aim to guide and coordinate the activities of affiliates, in cases where the figure of the enterprises transcends the ability or convenience of the operation of central or federations of cooperatives. According to Arruda (2014, p. 72), "when it comes to cooperatives, it is thought to be members and companies that operate in a network of businesses".

The understanding is that the relationship between individual cooperatives and central occurs differently in a relationship dyad between the customer and the service provider. Specifically, credit unions are financial institutions established in the form of a cooperative society, which provide financial services to their members, providing billing services, and maintaining custody of receipts and payments on behalf of third parties, under an agreement with the public financial institutions and private companies in the country, in addition to other specific operations and tasks laid down in the legislation (CBB, 2010).

Following our identification of credit unions to consider in this study, we calculated the sample size, as suggested by Faul, Erdfelder, Lang, and Buchner (2007), by means of applying G*Power (version 3.1.9.2) (Erdfelder, Faul, & Buchner, 1996). Considering the afore mentioned population used within this study, we obtained a return rate of 12.7% for the questionnaires sent, yielding a sample size of 146 individual credit unions participating in the research. These represented all the regions of Brazil.

Following a review, as suggested by Henseler, Ringle and Sinkovics (2009), Hair, Sarstedt, Ringle, and Mena (2012), Wong (2013), and Ringle, Silva and Bido (2014), we evaluated the statistical significance of the loads of the indicators' reflective sensor (model for measuring reflection), as well as the significance of the relations between the constructs (structural model).

The criterion used was the *t*-test. According to Ringle et al. (2014), *t*-values above 1.96 indicate a significance level of less than 0.05 ($p \leq 0.05$), which shows that the constructs have correlations and/or weightings that are acceptable. In this way, the structural model is adjusted, enabling, through an assessment of significance between the relationships, acceptance the propositions set out in the development of the study (Hair, Black, Babin, & Tathan, 2009).

Table 1
Scale of indicators.

Latent variables	Indicators of constructs
Power relations	V33_RCONT: We have mutual understanding on how to deal with disagreements. V35_CONFLICT: There are few significant differences with the Central. V40_POWER: We hope that none of the parties makes demands that might be harmful to the other. V51_POWER: In the relationship with the leader of Central, there are no threats of any kind.
Interorganizational trust	V52_CINTERP: The leader of Central keeps promises the combined with fidelity. V53_CINTERP: The conduct of the leader gives us trust. V54_CINTERP: The leader of Central is honest and fair. V55_CINTERP: The leader of Central has a high degree of integrity. V56_CINTERP: The personal consultation is guiding relationship management of Central with the cooperative.
Interorganizational commitment	V8_COMP: We hope to continue working with Central for a long time. V10_COMP: We believe that the relationship with Central will be profitable in the long term. V11_COMP: We believe there is a commitment by both parties. V59_VLCOMP: The leader of Central makes it clear that unethical behavior is not tolerated. V60_VLCOMP: Central undertakes formal agreements ethically.
Interorganizational cooperation	V41_COOP: We have developed means to foster learning processes with our experiences. V42_COOP: We seek to share resources and expertise for risk reduction. V43_COOP: We promote the transfer of technology and/or innovations between the parties. V44_COOP: We exchange successful and failure experiences.

Source: Compiled by the authors.

Research instrument for data collection

Following a review of the literature, we selected the theoretical models of Morgan and Hunt (1994) and Coote et al. (2003) for use in this research, since these models establish constructs, variables, and their indicators to underpin the development of the research instrument. The data were collected through a structured questionnaire, sent to credit unions, which allowed us to obtain information in a short time, facilitating more rapid tabulation of data compared to other instruments (Selltiz, Wrightsman, & Cook, 2005).

The survey instrument was composed of ten closed questions to address the indicators of theoretical models, taking as a premise the indicators of trust, commitment, cooperation, and

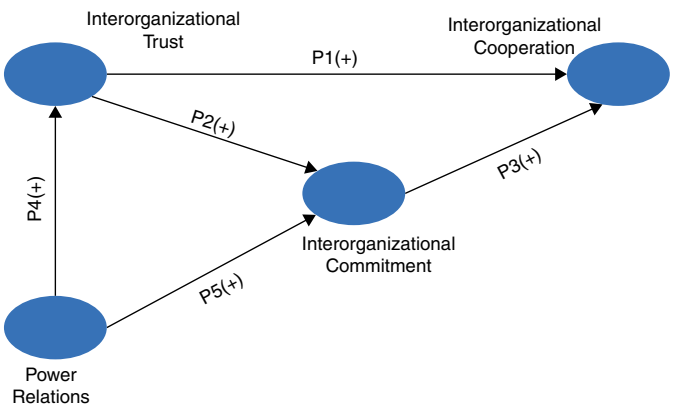

Fig. 1. Structural model – research design.
Source: Compiled by the authors via SmartPls 3.1.9 (2015).

power, comprising a total of 18 indicators following exclusion of sensor indicators with lower correlations (Table 1).

We chose to use a Likert scale with ten options for the answers, in which the research target was directors of credit unions. As Malhotra (2011) stated, the Likert scale has advantages including ease of construction and application, ease of understanding by respondents, and suitability for both remote and personal interviews.

According to Malhotra (2011, p. 256), "the pre-test respondents should be similar to the real survey, in terms of fundamental characteristics, familiarity with the subject and attitudes and behaviors of interest." From the first version of the data collection instrument, we conducted a pre-test through interviews with experts in credit unions, for adaptation and validation of the survey instrument. The final version was sent to the respondents electronically, by e-mail list provided by Organization of Brazilian Cooperatives (OBC), with a letter of introduction and a link to the questions, made available by the website SurveyMonkey® (2015).

Statistical treatment of the data

Achieving the research aims and answering the research question required the use of multivariate analysis with the estimation of multiple relations of dependence interrelated through structural equation modeling – SEM (Hair et al., 2009). As Brei and Liberali Neto (2006) pointed out, in order to test whether the items used to measure the constructs have reached acceptable levels of reliability and validity logic, confirmatory factor analysis is conducted, supported by the partial least squares (PLS) method of estimation.

The above outlines the conceptual (structural) model that directs the basis of the constructs for the variables trust, commitment, cooperation, and power of credit unions with power. The structural model shown in Fig. 1 seeks to establish the level of influence of the relational dimensions of trust, commitment and cooperation, and interorganizational relations of power, in terms of the adequacy of the theoretical models of Morgan and Hunt (1994) and Coote et al. (2003), in the context of cooperative networks of credit.

Items P1–P5 shown in Fig. 1 refer to the conceptual propositions outlined in section "Theoretical platform" on the theoretical foundation. It should be noted that the directions of connection between the dimensions of the relationship outlined in Fig. 1 are latent variables with reflective characteristics. Evaluation of the conceptual model was conducted in two main stages: initially through validation of the measurement model and subsequently validation of the structural model.

The statistical tests used in this study were: (1) calculation of the size of the minimum sample; (2) SEM by PLS; (3) analysis of average variance extracted (AVE); (4) tests of discriminant validity; (5) tests of internal consistency and composite reliability; (6) *t*-test; (7) evaluation of the coefficients of determination (R^2); (8) effect size (f^2); (9) predictive validity (Q^2); and (10) adherence to the model or goodness of fit (GoF) (Ringle et al., 2014).

Description and analysis of the results

Structural equation modeling – SEM

Considering the model to be tested, for a PLS measurement model one should consider the construct with more predictors, with arrows coming. In this case, there are two constructs: commitment and cooperation, which have two arrows (Fig. 1). Thus, adopting the recommendations of Hair, Kohli, Ringle and Sarstedt (2014), with a medium effect size (f^2) of 0.15 and a test power of 0.80, the minimum sample size would be 52 respondents (post hoc); this is lower than the sample in this study, which comprised 146 respondents.

Evaluation of the measurement model

For data analysis, we used SmartPLS 3.1.9 (Ringle, Wende, & Becker, 2015). The initial analysis of the model, using all the items from the questionnaire, showed no convergent validity (AVE < 0.5) or discriminant validity based on the criterion of Fornell and Larcker (1981), with the square roots of AVE less than the correlations between constructs. This observation led to adjustment of the model, with the exception of reflective sensor indicators with lower correlations, which were commitment (V58, V57, V7), trust (V45), cooperation (V29, V28), and power (V20, V31).

Fig. 2 shows the adjusted model with the factor loadings of the measurement model and the structural model. Thus, based on the suggestion of Hair et al. (2014), as factor loadings were higher than 0.60 the measurement model was considered acceptable. Nevertheless, for the loadings of the structural model (latent variables), a different assessment was used. From the data presented in Fig. 2, it can be suggested that the most intense structural relationship is between power relations and organizational trust.

It can be observed from Fig. 2 that the measurement model shows the values of the correlations among the observed variables (indicators) and the latent variables (constructs), indicating acceptable convergent validity ($\lambda < 0.5$) after adjustments to the model. In turn, the coefficient of determination (R^2) is evidenced in the ovals. As outlined by Cohen (1988), for the

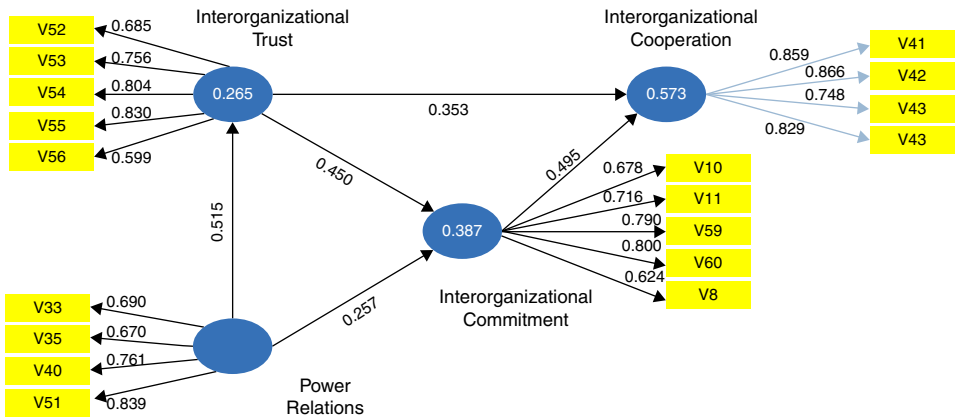

Fig. 2. Measurement model adjusted with exclusions.
Source: Compiled by the authors via SmartPls 3.1.9 (2015).

area of Social Sciences, the coefficient of determination (R^2) can be rated for effect according to the following R^2: 2% = small, 13% = medium, and 26% = large.

Fig. 2 shows that all coefficients of determination are above 26%, indicating that the observed variables have a large effect on the latent variables. The path coefficients (Γ) for the linear regression of the latent variables are moderately rising, suggesting that there are causal relations between power, trust, commitment, and cooperation. Table 2 shows the results obtained with the adjusted model, which correspond to the referential parameters of convergent validity (AVE > 0.50) and reliability (composite reliability and internal consistency – Cronbach's alpha > 0.70).

The results show that the adjusted model has convergent validity and reliability (Hair et al., 2014). The results obtained with quality adjustment listed in Table 2 consider the roots of AVE for evaluation of discriminant validity.

As shown in Table 3, the adjusted model shows the square roots of the average variance extracted (AVE) for the constructs of commitment, trust, cooperation, and relations of power that are larger than the correlations with other constructs. In this sense, the results at the level of the constructs provide discriminant validity according to the criterion of Fornell and Larcker (1981), indicating that the latent variables are independent of one another (Hair et al., 2014). Note also that the convergent validity, reliability, and discriminant validity of the models for measuring reflective indicators were initiated in the analysis and validation of the structural model.

Assessment of the structural model

Following the review, as suggested by Henseler et al. (2009), Wong (2013), Hair et al. (2014), and Ringle et al. (2014), we evaluated the statistical significance of the loads of reflective sensor indicators (model for measuring reflection), as well as the significance of the relations between the constructs (structural model). The criterion used was the *t*-test.

Fig. 3 shows the results obtained from the process of bootstrapping, considering the parameters of individual changes and resampling 146 cases, indicating that all relations of the structural elements (endogenous and latent variable), or the relations of the measurement model, are above the minimum level specified.

Fig. 3 shows the values of the *t*-test for the three constructs and their respective variables. In all cases, these are larger than 1.96 ($p \leq 0.05$); thus, all of these relations are significant, leading to acceptance of the propositions, as shown in Table 4.

The statistical significance found in the relations led to acceptance of the propositions, as shown in Table 4, based on evaluation of the coefficients of determination (R^2). According to Henseler, Ringle and Sinkovics (2009), one of the main assessments of a structural model comprises evaluation of the R^2 of the latent variables. As Ringle et al. (2014, p. 65) stated, "The R^2 measures the portion of the variance of the endogenous variables, which is explained by the structural model and indicate the quality of the adjusted model". The R^2 results obtained in the model show the following:

(1) The R^2 presented in Fig. 3 for interorganizational trust indicates that 26.5% of the variance in this construct is explained by the construct of power relations.
(2) The R^2 presented in Fig. 3 for interorganizational commitment indicates that 38.7% of the variance in this construct is explained by the constructs of trust and power relations.
(3) The R^2 presented in Fig. 3 for cooperation indicates that 57.3% of the variance of this construct was explained by the constructs of trust and commitment.

The R^2 of the endogenous latent variables of trust (26.5%), commitment (38.7%), and cooperation (57.3%) were adequate, with a large coefficient of determination (as Cohen (1988) stated for the area of Social Sciences, R^2 values indicated the following effect sizes: 2% = small, 13% = average, and 26% = large). The path coefficients or regression coefficients (β) between the constructs (Fig. 2) indicated that the variation of a unit in power relations implies a significant variation of 0.515 in interorganizational trust, as well as a variation of less intensity of the order of 0.257 in interorganizational commitment.

We analyzed the predictive relevance and overall effect of the model using Stone–Geisser's Q^2 and Cohen's f^2 (Henseler et al.,

Table 2
Convergent validity and reliability of the adjusted model.

Construct	AVE	Composite reliability	Cronbach's alpha
Interorganizational commitment	0.525	0.846	0.773
Interorganizational trust	0.547	0.856	0.789
Interorganizational cooperation	0.683	0.896	0.844
Power relations	0.552	0.830	0.726
Reference values	AVE > 0.50	0.70	0.70

Source: Compiled by the authors via SmartPls 3.1.9 (2015).

Table 3
Discriminant validity – adjusted model.

Construct	Interorganizational commitment	Interorganizational trust	Interorganizational cooperation	Relations power
Interorganizational commitment	**0.725**			
Interorganizational trust	0.582	**0.739**		
Interorganizational cooperation	0.700	0.641	**0.827**	
Power relations	0.488	0.515	0.523	**0.743**

Source: Compiled by the authors via SmartPls 3.1.9 (2015).
Note: Diagonal (yellow) shows the values of the square roots of the AVE.

2009; Ringle et al., 2014; Wong, 2013). As Henseler et al. (2009) stated, both indicators can be obtained through the Blindfolding module of SmartPls.

The reference values for Stone–Geisser's Q^2 are 0.02 (small effect), 0.15 (medium effect), and 0.35 (large effect), indicating how an exogenous latent variable contributes to the R^2 value of the endogenous latent variable (Wong, 2013, p. 27). However, for Henseler et al. (2009) and Ringle et al. (2014), obtaining values of Q^2 larger than zero may indicate the existence of relevance or quality.

To conclude the assessment of the structural model, it was necessary to evaluate the adherence of the model; thus, a GoF test was applied to the score of the overall quality of the adjusted model. For a model in which all constructs are reflective, Tenenhaus, Vinzi, Chatelin and Lauro (2005) proposed a GoF index, that is basically the geometric mean (the square root of the product of two indicators) between the average R^2 (adequacy of the structural model) and the weighted average of the AVE (adequacy of the measurement model). Wetzels, Odekerken-Schröder, and Van Oppen (2009) suggested a value of 0.36 as appropriate for the field of Social Sciences.

The size of the effect measured by Cohen's f^2 is able to evaluate the "magnitude or the strength of relationships among the latent variables" (Wong, 2013, p. 26). The results obtained through the Blindfolding module of SmartPls are shown in Table 5.

Table 5 shows that validation of the structural model based on the relevance predictor (Q^2), which indicates the model's accuracy, as well as assessing how "useful" each construct is for the adjustment of the model (f^2), indicates that interorganizational cooperation (38.5%) has a significant impact on the structural model. This demonstrates the adequacy of the structural model, as the proposed conceptual framework has an index of adhesion of 48.3% (GoF).

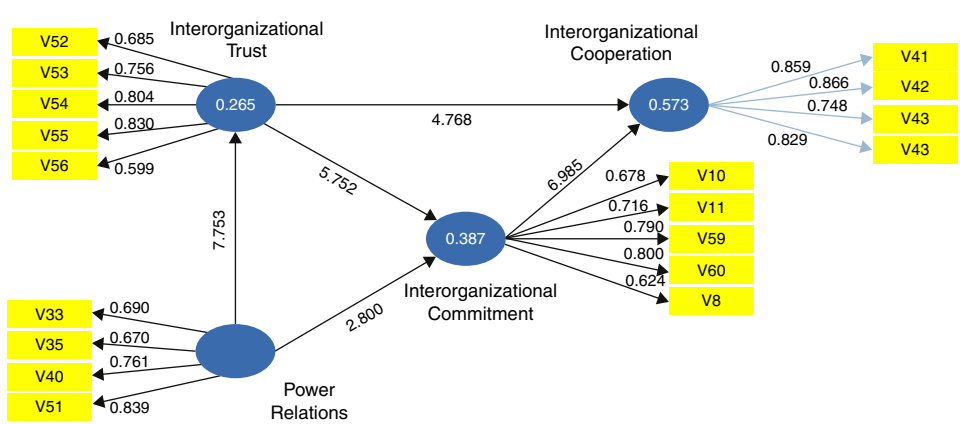

Fig. 3. *T*-test values indicating significance of the reflective indicators and relationships between the constructs.
Source: Compiled by the authors via SmartPls 3.1.9 (2015).

Table 4
Validation of the propositions of the theoretical models.

Constructs	Propositions of the theoretical models	Evaluation	Conclusion
Interorganizational trust	P1: Trust directly and positively influences cooperation.	$T = 4.768$ Positive sign	Proposition accepted
	P2: Trust directly and positively influences commitment.	$T = 5.752$ Positive sign	Proposition accepted
Interorganizational commitment	P3: Commitment directly and positively influences cooperation.	$T = 6.985$ Positive sign	Proposition accepted
Power relations	P4: Power directly and positively influences trust.	$T = 7.733$ Positive sign	Proposition accepted
	P5: Power directly and positively influences commitment.	$T = 2.80$ Positive sign	Proposition accepted

Source: Compiled by the authors.

Table 5
Predictive relevance (Q^2), total effect (f^2), and adherence to the model (GoF).

Construct	Q^2	F^2	GoF
Interorganizational commitment	0.281	0.190	0.483
Interorganizational trust	0.314	0.138	
Interorganizational cooperation	0.461	0.385	
Power relations	0.254	0.000	
Reference values	$Q^2 > 0$	$F^2 = 0.02$, small $F^2 = 0.15$, medium $F^2 = 0.35$, large	0.36

Source: Compiled by the authors via SmartPls 3.1.9 (2015).

Conclusions

To achieve the objectives of the current study, conceptual models designed based on the constructs of trust, commitment, cooperation, and power relations were used as a basis for guiding research in the light of the theoretical constructs of Morgan and Hunt (1994) and Coote et al. (2003).

The results were generated viathe integration of theoretical models (trust, commitment, cooperation, and power), resulting in confirmation of the constructs in the network of individual credit unions investigated and demonstrating that the latent variables of trust, commitment, and cooperation positively influence the relationship between individual credit unions with their central.

This allows for a relationship that establishes more than information sharing, positioning in a structure or network of relationships in which actions are defined and possibilities delimited, and thus leading to the emergence of environments that are structured in an organized and integrated fashion (White, Owen-Smith, Moody, & Powell, 2004).

As Cook and Chaddad (2004) stated, the principles of the cooperative system advocate cooperative societies based on democratic management by associates, as a guarantee that the results of the activities carried out provide a return to their members and enhancement of the associates and their working conditions, and adhere tothe values of solidarity, concern for the community, autonomy, and independence.

In particular, credit cooperatives or credit unions are deemed to be strategic networks, as Desrochers and Fischer (2005) suggested, and to represent a movement toward the creation of hybrid systems of governance (Arruda, 2014). One of the aspects of the strengthening of cooperative relationships, which seek to achieve strategic goals, involves motivating factors such as trust, commitment, cooperation, and power (Huang & Wilkinson, 2013; Serigati & Azevedo, 2013; Stecca, 2014).

The performance of sparse way, can be characterized in as leaders and technicians which are divided between groups according to opposition or situation, promoting integration, failed at all levels, both horizontal and vertical, as well as different patterns of relationships. These relationships have the ability to create distinct processes of information sharing of knowledge and resources, depend on the perception of the company within the network. In this sense, understanding the relationship between credit unions can establish actions of an integrated relationship in the horizontal and vertical level network, strengthening the principles of cooperativism.

In this sense, in response to the question *What is the level of influence of power, trust, commitment, and cooperation in the relationship of credit unions with power*?, within the interorganizational relationship of individual credit unions and central, the main dimensions of cooperation, trust, and commitment can be observed, in which power influences trust, at the expense of commitment, in a significant way.

With respect to the general objective of analyzing the level of influence of trust, commitment, cooperation, and power in relationships between credit unions in Brazil, a relationship was noted between cooperatives and central, so that the dimensions are identified at different levels, depending on the size of the effect (f^2).

The results obtained for the coefficient of determination (R^2) of the endogenous latent variables confirmed the assumptions found in the theoretical models. These were as follows: cooperation $R^2 = 0.573$, commitment $R^2 = 0.387$, and trust $R^2 = 0.265$. Statistical significance was also observed in the relations between power and trust ($t = 7.753$), commitment and cooperation ($t = 6.985$), trust and commitment ($t = 5.752$), trust and cooperation ($t = 4.768$), and power and commitment ($t = 2.80$).

In order to validate the theoretical models that form the basis of this study, it is necessary to carry out a comparative analysis

of each construct validated by the theoretical model. The interrelationship between power and trust in the model of Morgan and Hunt (1994) recommends that the power relation has a negative influence on trust; that is, that one party no longer relies on another if the latter pushes them to do something that they do not want to do (Nicholls & Huybrechts, 2014).

However, our result of $t = 7.753$, with a positive sign, indicates that the relationship between the constructs of power and trust is significant and positive (P4). A probable explanation for this lies in the conception of power as relations of domination in an unknown environment. However, power and trust in the context of credit unions, characterized as a horizontal network, enable coordination of expectations and the actions of the negotiating parties (Bachmann, 2001; Schilke & Cook, 2013). In the view of Hingley (2005), there is a gap in the literature regarding the role of power and domination in interorganizational relationships.

In terms of the relation between power and commitment, the theoretical model of Morgan and Hunt (1994) established a significant and negative relationship. However, in this study this relation is characterized as significant and positive (P2), with $t = 2.80$, in which power influences involvement in a positive way among credit unions and their central.

Therefore, exercising the unique power of credit unions provides greater involvement in the relationship with the central cooperative, in line with Giglio, Pugliesi, and Silva's (2012) understanding of the relation of power with involvement, where in the solution is to involve rules and norms in order to resolve conflicts.

In the view of Foucault (1997), institutions exercise power and discipline through the standardization of procedures and constant vigilance, characterized as instruments for integration and cohesion. This favors involvement with the operational structure of credit unions in terms of carrying out activities, together with leadership to promote dialog with the credit bureaus (Martins & Paz, 2000; Mintzberg, 1983).

In the model posited by Coote et al. (2003), which focuses on trust and commitment, the authors argued that the effect of trust on compromise is attenuated, to the point of not being significant; however, Morgan and Hunt (1994) confirmed a significant and positive relationship. In the current study, it was found that trust directly and positively influenced commitment (P2), with $t = 5.752$. Thus, there is a convergence between the model of Morgan and Hunt (1994) and the current study.

In relation to the context of credit unions, analyzing the statement in the scenario of credit unions, according to Stecca (2014, p. 116), "the cooperative posture to clearly explain its rules and socialize your goals, making the purposes of the organization known and assumed by the group, relates to the feeling of to commit." Thus, the variable of trust implies a readiness to compromise and for individual credit unions to cooperate, based on the understanding that the actors that make up the network choose to substantiate their relationships on trust, assuming that other parties will behave as expected (Hagen & Choe, 1998).

Cooperatives can translate into a more coherent means of collaborating and cooperating (Olave & Amato Neto, 2001). This research enabled us to identify how the constructs of trust, commitment, and power in interorganizational relationships relate to the alignment of relations between credit cooperatives and credit bureaus. Therefore, in a manner similar to that of Ambrose et al. (2010), this study provides an analysis that allows us to understand the characteristics of interorganizational relationships and the key factors that contribute to their improvement, among the network of cooperatives studied.

From the establishment of cooperative relationships, trust and cooperation occur simultaneously with competition, being influenced by the type of structure formed in the network (Balestrin & Vargas, 2004). Analysis of the formation of cooperative networks between companies is premised on the understanding of commitment, having as focus the differentiation of firms, the interdependence of interorganizational networks (Sambasivan et al., 2011), and flexibility, interpreted as the ability to adapt to the environment (Amato Neto & Amato, 2009; Palmatier, 2008; Serigati & Azevedo, 2013; Verschoore & Balestrin, 2008).

Future studies can consider the latent variables of trust, commitment, cooperation, and power as mediators of other variables, such as similarity, communication, information sharing, contractual relations, social relationships, adaptability, conflict, interpersonal and organizational trust, problem solving, shared values, and opportunistic behavior, which are not addressed in this study. Another suggestion for future work could be to rebuild the model via the incorporation of constructs of endogenous measures, such as income generation, social inclusion, and quality of life.

Another relevant aspect for future work pertains tothe need for a broad approach to the levels that make up the network of credit unions, involving the main stakeholders of the network as well as the involvement of other people in the same network, in addition to considering replication of the data collection instrument used in this research via the involvement of other respondents in cooperatives or application toother segments of cooperatives, such as output, consumption, and education.

Therefore, from these considerations relevant in terms conceptual and methodological, it is considered that this study contributes to a understanding the inter-relationships in a business network. This study has not highlighted the contribution of public agents, which could also be analyzed in future work.

Studies with a focus on interorganizational relationships regarding trust, commitment, cooperation, and power, as well as the impact of these on the interorganizational relationships of companies that operate in business networks, may also provide contributions that would assist in strengthening and maintaining long-term relationships, improving business network relationships in segments of the economy other than credit unions.

Conflicts of interest

The authors declare no conflicts of interest.

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