



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

POWER AND SUPPLY CHAIN MANAGEMENT – INSIGHTS FROM RUSSIA

Vera Belaya* and Jon Henrich Hanf**

vera.belaya@vti.bund.de

*Johann Heinrich von Thünen-Institut (vTI), Federal Research Institute for Rural Areas, Forestry and Fisheries, Institute of Farm Economics, Bundesallee 50, 38116 Braunschweig, Germany

**University of Applied Sciences RheinMain, Research Institute Geisenheim, Von-Lade-Str. 1, 65366 Geisenheim, Germany



2011

*Vortrag anlässlich der 51. Jahrestagung der GEWISOLA
„Unternehmerische Landwirtschaft zwischen Marktanforderungen und
gesellschaftlichen Erwartungen“
Halle, 28. bis 30. September 2011*

POWER AND SUPPLY CHAIN MANAGEMENT – INSIGHTS FROM RUSSIA

Abstract

The research topic of power relationships has been receiving increasingly more attention lately. However, only a few scientific works have studied power in the context of supply chain management. In this regard, intriguing research questions arise of how to distinguish among and deal with negative and positive effects of power in order to avoid problems and use power as an effective tool for supply chain management appear to be an important one. An important challenge, therefore, is to find out what role power plays in supply chain networks and how it affects supply chain management with specific attention to coordination and cooperation, and whether power can be utilized as a tool to promote the overall supply chain effectiveness. Therefore, the aim of our work is to investigate the role of power in supply chain networks in order to work out a strategy that enables supply chain managers to select an effective mix of power mechanisms.

Keywords

Power, Agri-Food Supply Chains, Supply Chain Management, Russia

1. Introduction

Worldwide a group of global players with enormous power has emerged among manufacturers and retailers (LANG, 2003). When retailers as well as processors enter a new country they face the challenge to build up their procurement and distribution systems. In this context it is observable that they are taking their business models known from their home countries into the newly entered markets. Thus, one can say modern management concepts are exported. In this context of particular importance are value chains addressing management concepts such as supply chain and chain quality management concepts. International food retailers and manufacturers have been able to gain a leading position in supply chains. Such international food processing companies as Danone, Campina and Mars run their production facilities in Moscow suburbs and other large regions of the country. Most retailers and branded food processors after entering Russia introduce their business models in their work with local suppliers which proved to be successful in their home countries. Big branded processing companies and retailers are seen as supply chain captains, which coordinate their suppliers and set the process standards throughout the whole supply chain, and main gateway to consumers and gate-keepers between producer and consumer (JAP ET AL., 1999). Since imports of ready-for-consumption products keep decreasing and most foreign companies prefer to open their production in Russia in order to make products affordable for the large number of Russian consumers. But power does not solely belong to retailers and manufacturers, suppliers also may find themselves in the position to choose from retailers they want to deliver to.

In Russia suppliers traditionally are used to occupying a strong position in relationships with domestic retailers. The empirical findings of POPOVA AND SORENSEN (2001) demonstrate that Russian suppliers are in a stronger and more dominant position and have the upper hand in the negotiation of contracts with buyers. This fact is also supported by KOUCHTCH (2005) who discusses the evolution of industrial companies' relationships with suppliers and defines their trend of development in the view of transformation process relationships among Russian industrial companies and their suppliers. He notes that Russian suppliers' powerful position on the market is due to the supreme significance of the raw materials market. He states that Russian suppliers are used to working on the "suppliers' market" and, therefore, could be characterized as inflexible and unwilling to meet the requirements of industrial companies and adapt to their conditions. Moreover, ROBERTS (2005) reveals that one of the difficulties that Auchan has experienced when entering Russia was the uncooperative behaviour of Russian suppliers. Russian supplier companies facing the new reality struggle with foreign competitors coming to the local market and bringing modern supply chain management concepts (SHERESHEVA AND GRUZDEFF, 2007).

Among some of the reasons of suppliers' powerful position in Russia are weak enforcement of contracts, low transparency of legal system, and persisting corruption (TRETAK AND SHERESHEVA, 2004), insufficient quality of delivered goods (Struck and Strubenhoff, 2002), difficulties in obtaining supplies and raw materials (MCCARTHY ET AL., 1993), limited production capacity (SUBTIL, 2002), high entry barriers such as complicated registration procedures, real-estate related challenges in cities and inadequate infrastructure of some regions resulting in high logistics costs, as well as a lack of production know-how, lack of financing for farmers, and a supply chain characterized by distrust and absence of professionalism (TRETAK AND SHERESHEVA, 2004). Therefore, the question arises of how power can be used as a tool for managing agri-food supply chains in Russia. In the above described procurement systems and hence supply chain management the kernel question for the retailers is "how to get the suppliers to do what the retailer wants them to do". Thus, power is at the heart of all business-to-business relationships (COX, 2001). In fact, power can be considered one of the strongest and influential tools for supply chain management. However, in order to discuss the effects of power on supply chain management, one needs to be specific on the nature of the power and its origins.

The structure of our papers is as follows. First of all, we study power as a construct, examining its definition, its origins and types. Following this we develop a theoretical framework using systematic literature review about how each of the different mechanisms of power can affect coordination and cooperation issues in supply chain management and verify our hypothesis by conducting a survey in Russia. And finally we discuss possible managerial implications of using power among agri-food supply chain participants in Russia.

2. Theoretical background

2.1 Power in Supply Chains

Most definitions of power within studies on supply chains marketing channels are based on the definition by EL-ANSARY AND STERN (1972), who define power as 'the ability of a channel member to control the decision variables in the marketing strategy of another member in a given channel at a different level of distribution'(p. 47). Power in supply chains is defined as 'the ability of a firm to own and control critical assets in markets and supply chains that allow it to sustain its ability to appropriate and accumulate value for itself by constantly leveraging its customers, competitors and suppliers' (COX ET AL., 2002, p. 3). HU AND SHEU (2005) view power in terms of a strategy-influencing source that is oriented from one channel member to another (p. 448). As a result, power is viewed as an effectively applied means to gain certain objectives by utilizing influence strategies, once the power over another firm was attained (HU AND SHEU, 2003; PAYAN AND MCFARLAND, 2005). An examination of all of these definitions of power from different perspectives allows us to conclude that power generally refers to the ability, capacity or potential to get others do something; to command, influence, determine or control the behaviors, intentions, decisions or actions of others in the pursuit of one's own goals or interests against their will.

FRENCH AND RAVEN (1959) AND RAVEN AND KRUGLANSKI (1970) identified six types of power: coercive, legitimate, referent, expert, informational and reward power. Coercive power enables an individual to punish others. In the supply chain network context, it reflects the fear of a network member to be punished if it fails to comply with the requirements of the focal company. Legitimate power stems from a legitimate right to influence and an obligation to accept this influence. In this case, a focal actor is recognized in the eyes of the network members as having a right to make specific decisions. Referent power depends on an ability to be attractive to others and depends on the charisma and interpersonal skills of the power holder. In the supply chain context this power is observed when network actors want to join a network. Expert power is derived from the skills or special knowledge of a particular subject. Within a supply chain network, the expert power of a focal company can be achieved if the network actors believe that it possesses a special knowledge which is valuable to them. Informational power stems from the ability to explicate up-to-date information and to demonstrate the logic of suggested actions. If a focal company has new

information about consumer demands, it can use it to persuade suppliers to deliver their products and become a part of a network. Reward power depends on the ability of the power holder to offer rewards to others. If a focal company has access to resources which are valuable for other network actors, it can make these network actors perform in a desired way.

2.2. Cooperation vs. Coordination within Supply Chain Management

The main two areas of interest when talking about supply chain management are cooperation and coordination. Even though both cooperation and coordination are equally important most often they are researched apart. Problems of cooperation arise from conflicts of interest. For the supply chain to work more efficiently, all parties involved - from raw material suppliers to consumers and every touch-point in between - will need to work more collaboratively and invest in technology that enables them to more easily share accurate product information.

Cooperation within the supply chain network is based on individual motivation of its actors. It is resolved by aligning interests through formal mechanisms such as contracting (where possible) (WILLIAMSON, 1975). Informal mechanisms such as identification and embeddedness may also serve to align interests (GRANOVETTER, 1985; GULATI, 1995; GULATI AND SYTCH, 2005; KOGUT AND ZANDER, 1996). One can say that collaboration on the level of supply chain networks is claimed to yield significant improvements in multiple performance areas: it is believed to reduce costs, to increase quality, to improve delivery, to augment flexibility, to cut procurement cost and lead time, and to stimulate innovativeness. Since cooperation is not always purely voluntary, powerful retailers have a major impact on how collaboration is practiced along the chain. Some supply chain actors may be forced to participate; others are not fully supportive of the idea to cooperate or desire more influence or support in the collaboration process. There appears to be a spectrum of collaborative relationships between forced participation and equal matching. Ideally the relationship should be based on equal matching (KAMPSTRA ET AL., 2006). That is why the focal actor managing the whole supply chain network should use its power to align the interests of individual entities and stimulate active cooperation among the actors.

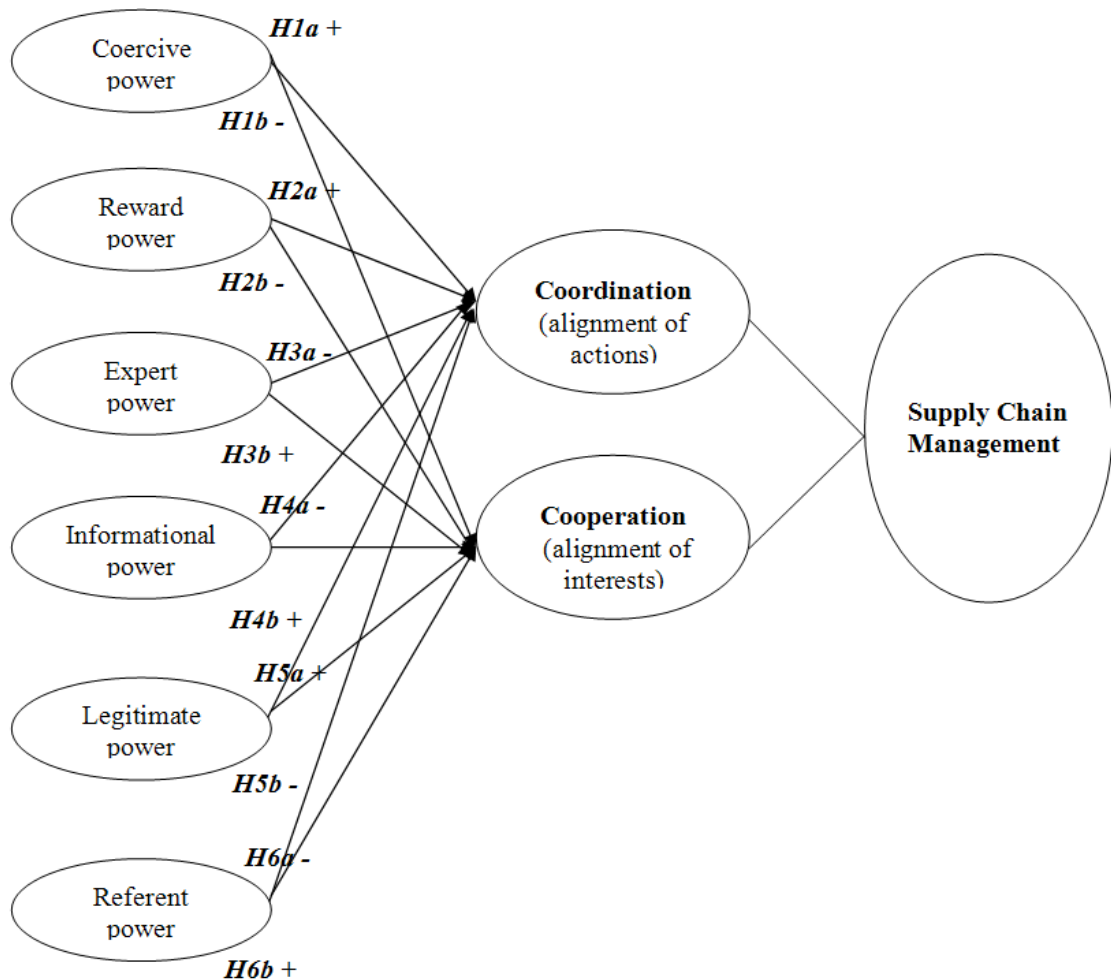
Solving problems of cooperation, however, does not automatically help to achieve coordination (GULATI AND SINGH, 1998). A supply chain network requires a great deal of coordination among the partners and these can only be efficiently aligned by a sophisticated management concept (BOGASCHEWSKY, 1995). Whereas cooperation problems are rooted in motivation, coordination problems arise due to the limitations of participating actors that hinder them from possessing comprehensive knowledge of how others will behave in situations of interdependence. Problems of coordination emerge due to the lack of shared and accurate knowledge about the decision rules that others are likely to use and how one's own actions are interdependent with those of others (GEANAKOPOLOS, 1992; MILGROM AND ROBERTS, 1992). Coordination problems are situations in which one does not know which decision aligns best with other decisions in the chain or network. Various solutions for coordination problems have been formulated in a two-party context, like setting prices or quantities (income rights), organization/centralization (decision rights), regular meetings, installing information and communication technologies. In case of coordination problems, solution mechanisms have to aim to enhance shared and accurate knowledge about the decision rules that others are likely to use and how one's own actions are interdependent with those of the others (GULATI ET AL. 2005).

In order to be able to achieve successful performance of the chain it is necessary to coordinate this whole system, as well facilitate intensive collaboration between enterprises for the improvement of all internal and external material, information and finance flows. These two tasks can be fulfilled within successful supply chain management concepts using power as a tool for achieving compliance on the part of the power target.

2.3. Effects of Power on Cooperation and Coordination

In the context of supply chains, research has shown that the role of power is crucial in that through its interactions with other elements of the relationship atmosphere, it can seriously impede cooperation (COX, 2001; TOKATLI, 2007; YAQUB, 2009). On the other hand, BACHMANN (2001) states that power can be seen as a mechanism for coordinating social interactions efficiently and for allowing relatively stable relationships to develop between cooperating social actors.

Figure 1. Theoretical model



Substantive literature has found that coercive power led to an undesirable cooperative relationship (BROWN ET AL., 1995; MALONI AND BENTON, 2000; BENTON AND MALONI, 2005). The use of coercive power may have a negative effect in the sense that the weaker parties may lose interest in the relationship. However, some authors see coercive power having a positive effect in promoting coordination and development of stable relationships (STERN AND E1-ANSARY, 1992; BACHMANN, 2001).

Within a supply chain network, the perceived use of coercive power will positively affect coordination (H1a) and negatively affect cooperation (H1b).

Assuming that reward power is perceived as having an element of coercion to it, reward power will have a positive effect on coordination, since both reward and punishment provoke rapid changes in behavior (DICKINSON, 2001). But reward power also provides extrinsic motivation, which drives to comply with the requirements, in order to achieve favorable outcomes (ZHAO ET AL., 2008) and to create harmonious and enduring interorganizational exchange relationships (GASKI, 1986).

Within a supply chain network, the perceived use of reward power will positively affect coordination (H2a) and negatively affect cooperation (H2b).

ETGAR (1976) states that an expert power source may be less effective as it is less flexible and is often viewed as unrelated to specific performance by channel members. Its effectiveness may also decline over time. However, when expert power is perceived as positive when solicited and given. Offering free advice through an agency and advisory staff as part of project implementation is seen to be a valuable incentive for the power target to get involved in the project (DAVIES ET AL., 2004).

Within a supply chain network, the perceived use of expert power will negatively affect coordination (H3a) and positively affect cooperation (H3b).

The fact that information is shared and exchanged may be convincing for power targets, since power holder makes it voluntarily. However, PAYAN AND MCFARLAND (2005) found that information exchange has a lower likelihood of compliance with the requirements of the power holder due to being the most unfocused of the influence strategies. Therefore, information exchange lacks specificity as to what needs to be done. The specific action that the power target wants the power source to undertake remains clouded.

Within a supply chain network, the perceived use of information power will negatively affect coordination (H4a) and positively affect cooperation (H4b).

Effective coordination of exchange relationships has been observed as a positive effect of legitimate power, as the distribution of power becomes legitimate over time (FRAZIER AND ANTIA, 1995; KALAFATIS, 2000), and a more standardized business format is applied, such as contracts (MOHR ET AL., 1996; LUSCH AND BROWN, 1996; JAP AND GANESAN, 2000). However, the capacity to take legal action, especially to impose legal sanctions, could be perceived as a punishment (GASKI, 1986).

Within a supply chain network, the perceived use of legitimate power will positively affect coordination (H5a) and negatively affect cooperation (H5b).

Referent power was ranked highest amongst other power bases in connection to satisfaction (LEE AND LOW, 2008). As cooperation has been found to go hand in hand with satisfaction (GASKI, 1984; DAPIRAN AND HOGARTH-SCOTT, 2003), we suppose that the use of referent power will foster the development of cooperation. However, referent power might not be sufficient to motivate the power target to the implementation of certain tasks, since it does not represent an explicit statement of the desired behaviour.

Within a supply chain network, the perceived use of referent power will negatively affect coordination (H6a) and positively affect cooperation (H6b).

3. Empirical findings

3.1 Data, sample, method

To answer our research questions we obtained a database of all foreign companies and its outlets registered in Russia, operating in the area of wholesale and retail trade of food and beverage products and in the area of production and processing of food and beverage products from The Chamber of Commerce and Industry of the Russian Federation. Under the term „foreign companies“ are understood all companies which have a share of foreign capital in them, as well as franchisee companies and all other companies operating under the foreign brand. Using the contact details of companies from this list we were able to conduct successfully 97 telephone semi-structured in-depth interviews from the 31st of March till the 17th of June 2010 about relationships of international food retail and processing companies with their buyers in Russia. We made a thorough selection of the interviewees which were chosen according to their leading positions in order to effectively gather relevant information (BLANKERTZ 1998; MERKENS 2000; PATTON 1990). Specifically, we employed an expert (concentration) sampling (FRITSCH 2007; PATTON 1990). The interviewees were first informed about the interviews via email. After receiving their consent, the calls were given at the time appointed by the interviewees.

We deliberately have chosen Russia since many foreign companies have invested in the last years in this competitive market. As brands are of major importance many of them ‘imported their chain management concepts’ from their western European home countries. At the same time it can be observed that Russian manufacturers and retailers are copying these approaches. This creates the

particular situation that out of strategic thoughts supply chains and their management should be and are being ‘designed’ by the brand owners (chain captains) that cover the whole food chain.

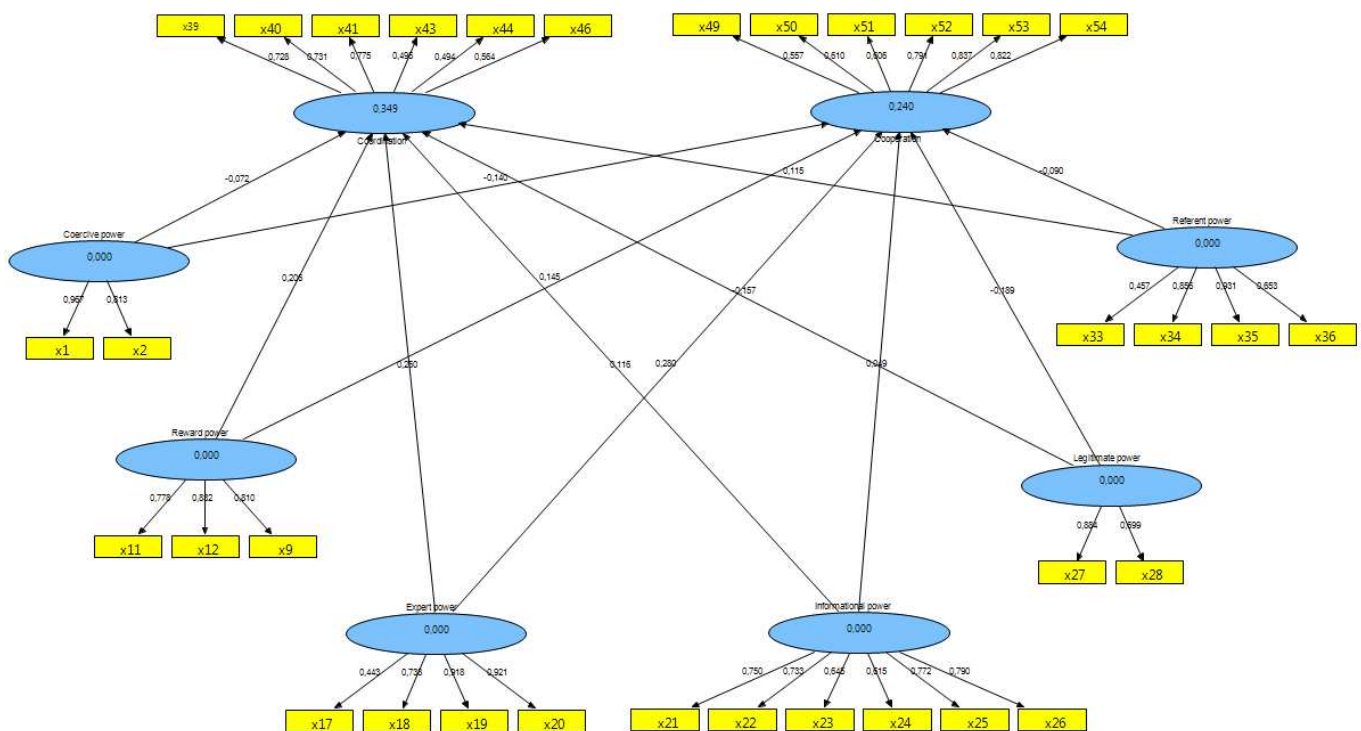
Among the interviewed companies were 3 types of companies: processors (89), retailers (5) and wholesalers (3). The interviewed respondents chose only one supply chain, with respect to which they were reporting. In our sample we had 13 different supply chains. The most frequent of them were dairy products (15,5%), vegetable products and plant oils (13,4%), sweets and confectionary products (11,3%) and bread and pastry products (11,3%). The interviews were conducted with companies representing 27 countries of origin. The top 5 in the list were Germany (21), the US (18), the Netherlands (8), France (8) and Italy (5). The interviews lasted between 10 to 45 minutes. In order to increase the homogeneity of the sample we considered only the 89 processors in our model and studied their relationships with regard to buyers (retailers and wholesalers).

In order to test our model, we used the Partial Least Squares (PLS) technique for Structural Equation Modeling (Wold, 1982). Our decision to use the PLS technique was based on the fact that, in contrast to other SEM techniques such as LISREL, the PLS path modeling avoids small sample size problems and can be used to estimate very complex models with many latent and manifest variables. For model testing, the SmartPLS software 2.0.1 (RINGLE ET AL., 2005) was used.

3.2 Results of the model assessment

According to Hair et al. (1998), an item is considered insignificant and removed from the model if its factor loading is less than 0.4. The remaining indicators represent more than 50% of the share of the variance of each indicator in respect to the corresponding latent variable and can be considered as the most reliable. In our case the measurement model is a reflective one and should be assessed according to its reliability and validity. The respective criteria are presented in the following tables.

Figure 2. Graphical representation of the model in SmartPLS



Cronbach’s α is a measure of internal consistency and must not be lower than 0.6. In our case all variables except for *Legitimate power* have their Cronbach’s α within the borders of the advised number. Unfortunately, the measure of Cronbach’s α for *Legitimate power* is 0,442 which is

slightly lower than 0.6. In spite of this fact, the composite reliability is achieved for this variable as it is done for all the other variables. The composite reliability index is more reliable in assessing convergent validity because it takes into account the relative weights of the various indicators in a latent construct while Cronbach's α assumes equal weights (GYAU AND SPILLER, 2009).

Table 1. Results of the assessment of the measurement model

Latent variables	Cronbach's α	Composite Reliability	AVE
Coercive power	0,778146	0,886624	0,797551
Reward power	0,734671	0,848309	0,651028
Expert power	0,821133	0,853335	0,608071
Informational power	0,824309	0,865199	0,518871
Legitimate power	0,441932	0,774371	0,634991
Referent power	0,753124	0,826240	0,558718
Coordination	0,719619	0,802739	0,412268
Cooperation	0,809357	0,858112	0,508580

The composite reliability is a measure of internal consistency and must not be lower than 0.6. In our case it is even better, since it is over 0.7. The average variance extracted should be higher than 0.5. The variable which does not quite correspond with this rule is *Coordination*. The measure of AVE for this construct is slightly lower and equals 0,412. AVE value means that a latent variable is able to explain more than half of the variance of its indicators on average. Usually R^2 values of 0.67, 0.33, and 0.19 can be regarded as substantial, moderate, and weak, respectively (CHIN, 1998). In the model the constructs *Coordination* and *Cooperation* have the value of R^2 0,349 and 0,240 respectively, which represents moderate assessment and considering the complexity of the research model indicates a good fit.

Table 2. Correlations of the latent variables and the AVE square roots

	CP ¹	COOP	COOR	EP	IP	LP	RFP	RWP
CP	0,893057							
COOP	-0,285831	0,713148						
COOR	-0,247836	0,586470	0,642081					
EP	-0,109092	0,365623	0,471225	0,779789				
IP	-0,056617	0,264067	0,417253	0,679879	0,720327			
LP	0,487454	-0,273312	-0,269026	-0,091556	-0,004559	0,796863		
RFP	-0,148703	0,117118	0,332269	0,335626	0,396946	-0,275824	0,747474	
RWP	-0,229546	0,297968	0,387390	0,347849	0,359489	-0,100979	0,144692	0,806863

¹ CP - Coercive power; RWP - Reward power; EP - Expert power; IP - Informational power; LP - Legitimate power; RFP - Referent power; COOR – Coordination; COOP - Cooperation

The next step is to evaluate the fit of the structural (inner) model. In order to do that it is necessary to assess discriminant validity by comparing the square root of the AVE with the correlation between the construct and the other constructs. The square root of the AVE should be higher than the correlation between the constructs (GYAU AND SPILLER, 2009). Table 2 indicates the results of this comparison. Besides, the positive sign of the correlation coefficient (r) indicates that the construct experiencing the influence of the respective construct increases in case the respective construct increases. If the sign is negative, it means that the increase of the first construct causes the decrease of the construct at influence.

Another way to assess the structural model is to multiply the beta (path) coefficients (b) and correlation coefficients (r) of each latent variable. There were t-values lower than the recommended value of 1.65: 1,404294; 0,854755; 0,395257; 0,977993; 1,554594; 0,932041. By convention, the level of significance is set at a low standard of significance at the 5 per cent point. Therefore, all results which fail to reach this level cannot be regarded in the analysis, since the contribution of the constructs is statistically insignificant.

Table 3. Results of the assessment of the structural model

Hypotheses	Constructs	t-statistics	Beta (path) coefficients (b)	Correlation coefficient (r)	b*r
<i>H1a</i>	Coercive power → Coordination	1,404294	-0,071880	-0,247836	0,007
<i>H1b</i>	Coercive power → Cooperation	0,854755	-0,140466	-0,285831	0,013
<i>H2a</i>	Reward power → Coordination	2,475669	0,206322***	0,387390	0,073
<i>H2b</i>	Reward power → Cooperation	1,718411	0,144823**	0,297968	0,031
<i>H3a</i>	Expert power → Coordination	2,089951	0,259702***	0,471225	0,100
<i>H3b</i>	Expert power → Cooperation	2,480495	0,279639***	0,365623	0,065
<i>H4a</i>	Informational power → Coordination	0,977993	0,116006	0,417253	0,064
<i>H4b</i>	Informational power → Cooperation	0,395257	0,048864	0,264067	0,013
<i>H5a</i>	Legitimate power → Coordination	1,907987	-0,157075**	-0,269026	0,021
<i>H5b</i>	Legitimate power → Cooperation	1,741467	-0,189265**	-0,273312	0,020
<i>H6a</i>	Referent power → Coordination	1,554594	0,115192	0,332269	0,038
<i>H6b</i>	Referent power → Cooperation	0,932041	-0,090178	0,117118	-0,008

Further information about the confirmation or rejection of hypotheses is presented in table 4. According to the results six out of twelve hypotheses (*H2a*, *H2b*, *H3a*, *H3b*, *H5a*, *H5b*) were significant and seven out of twelve hypotheses (*H1a*, *H2b*, *H3a*, *H4a*, *H5a*, *H6a*, *H6b*) did not have the expected sign.

Table 4. Hypotheses confirmation or rejection

Hypotheses	Expected sign	Obtained sign	Statistical significance	Supported/Not supported
<i>H1a</i>	+	-	insignificant	not supported
<i>H1b</i>	-	-	insignificant	supported
<i>H2a</i>	+	+	significant	supported
<i>H2b</i>	-	+	significant	not supported
<i>H3a</i>	-	+	significant	not supported
<i>H3b</i>	+	+	significant	supported
<i>H4a</i>	-	+	insignificant	not supported
<i>H4b</i>	+	+	insignificant	supported
<i>H5a</i>	+	-	significant	not supported
<i>H5b</i>	-	-	significant	supported
<i>H6a</i>	-	+	insignificant	not supported
<i>H6b</i>	+	-	insignificant	not supported

In case the values are significant and the signs are positive, the model provides the empirical support of hypothesized effects. Therefore, these hypotheses were supported in our model. Therefore, we can conclude that six out of twelve hypotheses were rejected because of their low statistical significance. The remaining hypotheses which showed a significant value were checked for their sign. Three hypotheses showed a significant value and were supported (*H2a*, *H3b*, *H5b*) and three showed a significant value and were not supported (*H2b*, *H3a*, *H5a*). The discussion of results and managerial implications are presented in the following sections.

4. Discussion of results

In spite of our expectation that coercive power should have the positive effect on coordination and alignment of actions due to its commanding nature it turned out that in our sample coercive power was having negative effects both on coordination and cooperation. The strength of the effect was approximately equal with a little stronger effect on cooperation. It means that in spite of our argumentation and expectation for coercive power to play a positive role as a coordination mechanism in the supply chain, it has indeed negative effects on both areas of the supply chain. The negative signs of correlation coefficients in Table 3 tell us that by increasing the use of coercive power the degree of fulfillments of tasks of coordination and cooperation will decrease. Therefore, we would advise not to use this kind of power in the agri-food supply chain in Russia.

According to our assumptions reward power should have a negative effect on cooperation and a positive effect on coordination. We motivated this statement by the fact that reward power is similar to coercive power in its nature. It is based on the principles of extrinsic motivation and does not contribute to the long-term intrinsic motivation for the alignment of interests of supply chain participants. In our sample reward power turned out to have positive effect on coordination and cooperation. The effect on coordination is a little stronger than on cooperation. Therefore, the increase of the use of reward power will cause the improvement of coordination on the supply chain. We supposed that reward power would have a negative effect on cooperation since it has no effect on extrinsic motivation of the buyers. But in this case reward power has positive effect, which in comparison to the suppliers' sample could be attributed to the nature of the relationships of processors with buyers. Therefore, it is highly recommended to apply reward power mechanisms for coordination and for cooperation in relationships with buyers.

Expert and informational power have approximately the same results with respect to the rejection and confirmation of the assumed hypotheses. We assumed that the effect of these kinds of power on coordination should be negative, since the mechanisms of these kinds of power are relatively weak with respect to the extrinsic motivation and coordination of activities. We supposed that these kinds of power are more suitable for the achievement of cooperation among supply chain actors and alignment of interests. Despite our assumptions both of these kinds of power showed positive effect on both coordination and cooperation. The effect of expert power tends to be generally a little stronger than that of informational power. The positive effect of these two kinds of power on cooperation is approximately equal and corresponds with the assumed hypotheses. Therefore, the effects of expert and informational power are very highly advisable, since they bring positive effects on both coordination and cooperation.

The effect of legitimate power in supply chain relationships is negative on both coordination and cooperation with approximately equal strength. Therefore, similar as the effect of coercive power, this kind of power has mostly negative effect in the management of supply chains. For this reason, we would not recommend using this kind of power as a priority management mechanism just like in case of coercive power.

Referent power turned out to have positive effect on both coordination and cooperation, which is much unexpected. We assumed that due to the insufficient extrinsic motivation for actions of supply chain members, this kind of power may only be used for indirect stimulation of members. Surprisingly enough it has a positive effect on coordination. The positive signs of correlation coefficients indicate that the increase of the use of this kind of power will only improve coordination in the supply chain considerably. This kind of power turned out to be powerful enough to motivate the actions of supply chain members in Russian agri-food business. As for the effect on cooperation we observe a slight negative effect. We have no plausible explanation for this effect, since we expected this effect to be positive. However, there are some effects in our model which should be treated with some caution; since they have unreliable (values of less than 1.5 % are not making significant contribution to their respective latent variables). This rule does apply in the case with referent power and its effect on cooperation.

5. Managerial implications and conclusions

For managerial implication this means that the actors gaining power from other parties must know that these actors still have some power that can be used opportunistically. Thus, knowing these sources can help to work out strategies how to deal with this behaviour. Furthermore, using power does not always imply that coercive actions have to be taken. Instead knowing that power also esteems from the ability to give rewards might lead to a change in behaviour enhancing cooperation. This is particularly valuable because chain management is both the alignment of actions but also the one of interests. We do not specifically suggest which combination of power mechanisms is appropriate, but we advise supply chain managers to be very cautious in choosing the appropriate power mechanism and adjust it to the problem setting and strategic goals.

In order to manage supply chain networks successfully the knowledge of different power sources is essential. The examples of such power differentiation could also be found in the food Russian retail landscape. If retailer gets supplier to do what supplier would not otherwise have done, in this case retailer possesses the means which possibly threaten or make supplier to act in the way which is favorable for retailer. If both actors have an unequal opportunity to achieve their goals and pursue their interests, so the retailer has a greater capacity to achieve his goals than supplier has. In particular, managers should be aware of the fact that power may have different effects on coordination and cooperation depending on its source. Power is not necessarily negative. Depending on the origin of power it may have different effects on cooperation and coordination. It can destroy a cooperative relationship or help solving problems of coordination and aligning actions. The knowledge about these effects should be skillfully used for effective management of supply chain networks.

Depending on which source the power originates from, its effect may be completely different. It can destroy a cooperative relationship or help solving problems of coordination and aligning actions. The knowledge about these effects should be skillfully used for effective supply chain management. The 'stick or carrot' method (coercive or reward power) might have superb effects on coordination, since it provides extrinsic motivation to comply with the requirements in order to achieve favorable outcomes, but its overuse might hamper cooperation. On the other hand, other non-coercive power types (legitimate, expert power, informational and referent power) might be more appropriate to facilitate cooperation but less effective for coordination, since are less likely to be used in targeting a specific behaviour or performance, though could provide intrinsic motivation and alignment of interests. When solving coordination and cooperation problems, managers need to assess the costliness of the chosen power based on the available source. Our recommendations can help managers to understand different interactions of these factors, and to design their management practices to successfully manage supply chain networks.

5. References

- BACHMANN, R. (2001): Trust, Power and Control in Trans-Organizational Relations, *Organization Studies*, Vol. 22 (2), p. 337-365.
- BENTON, W.C., M. MALONI (2005). The influence of power driven buyer/seller relationships on supply chain satisfaction. *Journal of Operations Management*, 23 (1), 1-22.
- BLANKERTZ, L. (1998). The value and practicality of deliberate sampling for heterogeneity: A critical multiplist perspective. *American Journal of Evaluation*, 19 (3), pp. 307–324.
- BOGASCHEWSKY, R. (1995). Vertikale Kooperationen - Erklärungsansätze der Transaktionskostentheorie und des Beziehungsmarketing, in: Kaas, K. P. (Hrsg.): *Kontrakte, Geschäftsbeziehungen, Netzwerke: Marketing und neue Institutionenökonomik*, Düsseldorf, Frankfurt am Main 1995, pp. 159-177.
- BROWN, J.R., LUSCH, R.F., AND NICHOLSON, C.Y. (1995). "Power and Relationship Commitment: Their Impact on Marketing Channel Member Performance", *Journal of Retailing*, Volume 71(4), pp. 363-392
- CHIN, W.W. (1998): The partial least squares approach to structural equation modeling, in: MARCOULIDES, G.A. (ed.): *Modern Methods for Business Research*, Lawrence Erlbaum Associates, Mahwah, NJ, pp. 295-358.
- COX, A., IRELAND, P., LONSDALE, CH., SANDERSON, J. AND WATSON, G. (2002). *Supply Chains, Markets and Power. Mapping buyer and supplier power regimes*. Routledge studies in Business Organization and Networks.
- COX, A. (2001). Understanding Buyer and Supplier Power: A Framework for Procurement and Supply Competence, *Journal of Supply Chain Management*, Spring, Vol. 37, p.8.
- DAPIRAN G P AND S HOGARTH-SCOTT (2003). Are co-operation and trust being confused with power? An analysis of food retailing in Australia and the UK, *International Journal of Retail & Distribution Management*, Volume 31(5), pp. 256-267.

- DAVIES, B., BLACKSTOCK, K., BROWN K., SHANNON, P. (2004). Challenges in creating local agri-environmental cooperation action amongst farmers and other stakeholders, Final Report of Scottish Executive Environment and Rural Affairs Department, Aberdeen, UK.
- DICKINSON, D. (2001). The carrot vs. the stick in work team motivation. *Exper. Econ.* 4, pp. 107-124.
- EL-ANSARY, A.L. AND STERN, L.W. (1972). Power measurement in the distribution channel, *Journal of Marketing Research*, Vol. 9 (1), pp. 47-52.
- ETGAR, M. (1976). Channel Domination and Countervailing Power in Distribution Channels, *Journal of Marketing Research*, 13 (August), pp. 254-262.
- FRAZIER, G.L. AND ANTIA, K.D. (1995). Exchange relationships and interfirm power in channels of distribution. *Journal of the Academy of Marketing Science*, 23, pp. 321-326.
- FRENCH, J.R.P. AND RAVEN, B. (1959). The bases of social power, in Cartwright, D. (Eds), *Studies in Social Power*, University of Michigan Press, Ann Arbor, MI, pp.150-167.
- GASKI, J.F. (1986). The theory of power and conflict in channels of distribution, *Journal of Marketing*, Vol. 48 (3), pp. 9-29.
- GASKI, J. (1984). The Theory of Power and Conflict in Channels of Distribution, *Journal of Marketing*, Vol. 48, No. 3, (Summer, 1984), pp. 9-29.
- GEANAKOPOLOS, J. (1992). Common knowledge. *Journal of Economic Perspectives* 6 (4), pp. 53-83.
- GRANOVETTER, M. (1985). Economic action and social structure: the problem of embeddedness. *American Journal of Sociology*, Vol. 91, pp. 481-510.
- GULATI, R. (1995). Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances, *Academy of Management Journal*, 38, pp. 85-112.
- GULATI R AND SINGH H. (1998). The architecture of cooperation: managing coordination costs and appropriation concerns in strategic alliances. *Administrative Science Quarterly*, 43, pp. 781-794.
- GULATI, R. AND SYTCH, M. (2005). Exploring the effects of organizational interdependence on performance: the role of embeddedness and power. Working paper, Kellogg School of Management, Northwestern University.
- GULATI, R., LAWRENCE, P.R. AND PURANAM, P. (2005). Adaptation in vertical relationships: Beyond incentive conflicts. *Strategic Management Journal*, Vol. 26, pp. 415-440.
- HU, TUNG-LAI AND JIUH-BIING SHEU (2003), A Fuzzy-based Customer Classification Method for Advanced Demand-Responsive Logistical Distribution Operations, *Fuzzy Sets and Systems*, Vol. 139, pp.431-450.
- HU, TUNG-LAI AND JIUH-BIING SHEU (2005). Relationships of Channel Power, Noncoercive Influencing Strategies, Climate, and Solidarity: A Real Case Study of the Taiwanese PDA Industry, *Industrial Marketing Management*, 34 (5), pp. 447-461.
- JAP, S.D. AND GANESAN S. (2000). Control Mechanisms and the Relationship Life Cycle: Implications for Safeguarding Specific Investments and Developing Commitment, *Journal of Marketing Research*, Vol. 37, No. 2. (May, 2000), pp. 227-245.
- JAP, S.D., MANOLIS, CH. AND B.A.WEITZ (1999). Relationship Quality and Buyer - Seller Interactions in Channels of Distribution, *Journal of Business Research* 46, pp.303-313.
- KALAFATIS, S.P. (2000). Buyer – seller relationships along channels of distribution. *Industrial Marketing Management*, 31, pp. 215-228.
- KAMPSTRA, R.P., ASHAYERI, J. AND J.L. GATTORNA (2006). Realities of supply chain collaboration, *The International Journal of Logistics Management*, Volume 17, Issue: 3, pp. 312-330.
- KOGUT, B. AND U. ZANDER (1996). What firms do. Coordination, identity and learning, *Organization Science*, Vol. 7, pp.502-518.
- KOUCHTCH, S. P. (2005). Evolution of Industrial Companies' Relationships with Suppliers, *Russian Management Journal*, Issue 2, pp. 3-23.
- LANG, T. (2003). Food industrialization and food power: Implications for food governance. *Development Policy Review*, 21(5-6), pp. 555-568.

- LEE, K.L. AND G.T. LOW (2008). The Exercise of Social Power and the Effect of Ethnicity: Evidence from Malaysian's Industrial Companies, *International Business Research*, Vol. 1, No. 2, pp.53-65.
- LUSCH, R.F. AND BROWN, J.R. (1996). Interdependency, Contracting, and Relational Behavior in Marketing Channels, *Journal of Marketing*, 60 (October), pp. 19-38.
- MALONI, M.J. AND W.C. BENTON (2000). Power Influences in the Supply Chain, *Journal of Business Logistics*, Vol. 21, No. 1, pp. 49-73.
- MCCARTHY, D.J., PUFFER, S.M. AND P.J. SIMMONDS (1993). Riding the Russian roller coaster: US firms' recent experience and future plans in the former USSR. *California Management Review*, 36(1), pp.99-115.
- MERKENS, H. (2000). Auswahlverfahren, Sampling, Fallkonstruktion. In *Qualitative Forschung—Ein Handbuch*, eds. U. Flick, E. von Kardorff, and I. Steinke. Reinbek bei Hamburg, Germany: Rowohlt.
- MILGROM, P. AND ROBERTS, J. (1992). Motivation: Contracts, Information and Incentives. In „Economics, Organization and Management“. Prentice Hall, pp. 154-159.
- MOHR, J.J.; FISHER, R.J.; NEVIN, J. R. (1996). Collaborative Communication in Interfirm Relationships: Moderating Effects of Integration and Control, *Journal of Marketing*, Vol. 60, No. 3. (Jul., 1996), pp. 103-115.
- PAYAN, J.M. AND MCFARLAND, R.G. (2005). Decomposing Influence Strategies: Argument Structure and Dependence as Determinants of the Effectiveness of Influence Strategies in Gaining Channel Member Compliance, *Journal of Marketing*, Vol. 69 (July 2005), pp.66-79.
- PATTON, M.Q. (1990). *Qualitative evaluation and research methods*. 2nd ed. Newbury Park, CA: Sage.
- POPOVA, J. AND SORENSON, O. (2001). Management of Relations between Suppliers and Buyers: The Case of Russia, *Journal of East-West Business*, Volume 6, Issue 4, pp.35-60.
- RAVEN, B.H. AND KRUGLANSKI, A.W. (1970). Control and power, in Swingle, P. (Eds), *The Structure of Conflict*, Academic, New York, NY, pp. 69-109.
- ROBERTS, G.H. (2005). Auchan's entry into Russia: prospects and research implications, *International Journal of Retail & Distribution Management*, 33 (1), pp.49-68.
- SHERESHEVA, M. AND GRUZDEFF, A. (2007). Building relationships by a high-tech startup: What are the first steps and the main problems, Paper presented at the 23rd Annual IMP Conference in Manchester, Great Britain, 2007
- STERN, L.W. AND EI-ANSARY, A.I. (1992). *Marketing channels*. (4th ed.). Englewood Cliffs, NJ: Prentice-Hall.
- STRUCK, M. AND STRUBENHOFF, H.-W. (2002). Russian agriculture in 2002 - observations, potentials, tendencies, barriers. Report of GFA Terra Systems GmbH, Hamburg.
- SUBTIL, M.-P. (2002), Les moscovites découvrent les hypermarchés, *Le Monde*, 16 December.
- TOKATLI, N. (2007). Asymmetrical power relations and upgrading among suppliers of global clothing brands: Hugo Boss in Turkey, *Journal of Economic Geography* 7 (2007) pp. 67–92.
- TRETYAK, O. AND SHERESHEVA M. (2004). Developing Relationships with Suppliers in Russia: A network perspective, Paper presented at the 20th IMP conference in Copenhagen, 2004.
- WILLIAMSON, O.E. (1975). *Markets and hierarchies: Analysis and antitrust implications*, New York /London Free Press.
- YAQUB, M.Z. (2009). Antecedents, Consequences And Control Of Opportunistic Behavior In Strategic Networks, *Journal of Business & Economics Research*, Volume 7, Number 2, p.15.
- ZHAO, X., HUO, B., FLYNN, B. B., YEUNG J.H.Y. (2008). The impact of power and relationship commitment on the integration between manufacturers and customers in a supply chain, *Journal of Operations Management*, Vol. 26, pp. 368–388.