ANTECEDENTS AND OUTCOMES OF COOPERATION WITH RETAILERS FROM MANUFACTURERS' PERSPECTIVE

Marzanna Witek-Hajduk
Warsaw School of Economics, Poland
Piotr Zaborek
Warsaw School of Economics, Poland

Abstract

The concept of cooperation is considered fundamental to fruitful business relationships. The way supply chains operate – how effective and efficient they are – could be driven by scope and quality of co-operation. It is also cooperation that underlies a number of theories that emerged recently in the wake of the explosive growth of social networks advocating co-creation and co-production with consumers as a superior way to achieve competitive advantage.

In this study we look at the critical part of the supply chain of consumer products – the links between manufacturers and retailers. In particular, we investigate factors driving good cooperation and its expected benefits. The conceptual model for this study includes latent variables for the bargaining power of a retailer, type of relationship (pure cooperation, and coopetition), scope of cooperation, formality of relationship and cooperation benefits (joint and individual).

Statistical analysis reported in the paper involved building a structural equation model that confirmed positive links between the type of relationship (TR), scope of cooperation (SC), formality of cooperation (FC) and cooperation benefits (CB). Bargaining power (BP) of the key retailer had mixed influence on TR and SC, displaying both positive and negative correlations with different aspects of TR and SC. Surprisingly, though, strong BP seemed to correspond to increased benefits from cooperation. This insight suggests that not always inequality in leverage between business partners has negative consequences for the weaker side. If fact, our research implies that, on balance, such inequality can bring about positive outcomes leading to enhanced performance of the weaker partner.

The findings suggest that the cooperation mechanisms embedded in the model seem to be better suited to describing larger rather than medium manufacturing companies with 49% versus 28% of variance in CB explained. For both large and medium firms, the strongest driver of CB was cooperation in logistics and production. In comparison to medium businesses, large firms shown considerably more positive impacts of cooperation in marketing on CB.

Key words: Retailer-supplier relationship, cooperation, coopetition, medium and large manufacturers, durable consumer goods, Poland

Introduction

The concept of cooperation is deemed fundamental to fruitful business relationships. The way supply chains operate – how effective and efficient they are – could be driven by the scope and quality of co-operation. It is also cooperation that underlies a number of theories that recently emerged in the wake of the explosive growth of social networks, advocating co-creation and co-production with consumers as a superior way to achieve competitive advantage.

Relationships between buyers and suppliers in the supply chain have been a longstanding theme of research investigating value chain management (e.g. Salmon, 1993; Svensson, 2002) and relationship marketing (e.g. Corsten & Kumar, 2005; Dhar et al., 2001). There were studies that took the perspective of retailers (Chavhan et al., 2012, Ahmed & Hendry, 2012; Dapiran & Hogarth-Scott, 2003) as well as manufacturers (Gomez-Arias & Bello-Acebron, 2008; Blundel & Hingley, 2001). The majority of papers looking into the topic of cooperation between manufacturers and retailers used data from the FMCG market (e.g Kotzab & Teller, 2003; Vlachos et al., 2008) and only a few of them concerned durable consumer products (e.g. Chow et al., 2011), which is the focus of the present paper.

According to Terpend et al. (2008), cooperation between manufacturers and retailers can contribute to enhanced operational and financial performance through deeper integration and acquiring new capabilities from business partners. There is strong evidence that cooperation in the supply chain is more beneficial than competition (Palmatier et al., 2006; Anderson & Naruse, 1990), as it helps lower costs, improve the level of customer service and create other competitive advantages for involved parties (Svensson, 2002). Cooperation between manufacturers and retailers enables them to achieve both individual and joint benefits, including better financial results (Kim et al., 2013).

Existing research on the topic of cooperation is fragmentary with many scholars focusing on a narrow range of issues specific to their particular disciplines, such as marketing or supply chain management. In addition, many studies are conceptual and descriptive, relying on little new empirical material, especially original quantitative data (Anthony, 2000; Mentzer et al., 2000; Simatupang and Sridharan, 2002). What seems to be particularly neglected are studies that investigate durable consumer goods markets (e.g. Chow et al. 2011) in comparison to relatively more popular research on FMCG industries, such as food and beverage (e.g. Kotzab and Teller, 2003; Vlachos et al., 2008). It is also more often that cooperation in the manufacturer-retailer relationship is approached from the retailer's perspective (e.g. Chavhan et al., 2012, Ahmed and Hendry, 2012; Dapiran and Hogarth-Scott, 2003) rather than the manufacturer's (e.g. Gomez-Arias and Bello-Acebron, 2008; Blundel and Hingley, 2001).

In this study we look at the critical part of the supply chain of durable consumer products – the links between manufacturers and retailers. In particular, we investigate factors driving good cooperation and its expected benefits from the manufacturer's point of view. The conceptual model for this study includes latent variables for the bargaining power of a key retailer, type of relationship (pure cooperation, and coopetition), scope of cooperation, formality of relationship and cooperation benefits (joint and individual).

The paper is structured as follows. First we provide a concise overview of pertinent previous literature on cooperation in the supply chain. Then we outline the concept and hypotheses of the study, and employed methodology. A presentation of findings comes next, and the article concludes with a discussion section.

Manufacturer-retailer relationship in extant literature

The central concept for this study is relationship (or relation), which is frequently understood as synonymous with cooperation (Blundel and Hingley, 2001). In the context of manufacturer-retailer interactions, three types of relations are often distinguished: competition, cooperation and coopetition, however specific definitions of the terms can differ from author to author. According to Anderson and Narus (1990) cooperation is marked by voluntarism, interdependence and the concurrent pursuing of mutual and individual objectives of both partners. Sigh and Power (2009) set apart cooperation (where partners exchange basic information and maintain long-term, rather informal relationships), coordination (involving a continuous flow of crucial information facilitated by information systems), and collaboration (which is the most advanced type of relationship with high levels of involvement, trust and information sharing). Considering different levels of coordination, Bruxman et al. (2008) identify decentralized cooperation, where relationship parties independently develop plans and only later share information relevant for implementation success, and centralized cooperation, with only one decision and planning center for all sides to the relationship. In these authors' opinion centralized cooperation usually brings about better results, such as superior delivery and distribution arrangements. In articles on producer-retailer relations cooperation can be contrasted with coopetition which means simultaneous cooperation with partners at the same level of the supply chain (horizontally) with rivalry against the same partners at the same or different supply chain levels (horizontally and vertically) (Kotzab and Teller, 2003; Bengtsson et al. 2003). Coopetition often entails a manufacturer and a retailer working together on mutual goals even as they compete against each other to achieve individual benefits (Kim et al., 2013) One example of coopetition is when a

manufacturer makes similar products under its own brand, as well as a retailer's one, only to have these products vie for consumers' attention in the retailer's stores. Indeed, most of the firms operating extensive retail networks offer goods under their own trademarks and comparable products with manufacturers' labels. In the current research we investigated two most contrasting forms of relationship among surveyed firms: coordination and coopetition, expecting to find substantive differences in their outcomes.

Swoboda et al. (2010) note that cooperation between retailers and suppliers can concern many value chain processes with different domains and objects, such as market research, innovation development, production and assortment planning, distribution and logistics, supply management, merchandising, shelf-management, store-personnel management, sales promotion, and many others. Perhaps due to its common occurrence in business practice, a particular area of interest in the literature has been cooperation in sales promotion and other promotional activities (Ailawadi et al, 2010). Here, different models of collaboration were identified depending on relative bargaining power, such as when (1) a manufacturer takes the leading role in creating a promotional strategy while a retailer only covers part of the promotional costs, or when (2) a retailer initiates and implements promotional actions (e.g. local advertisement) and a producer funds part of the promotional budget. A third scenario involves a balance of power and both partners coordinating and taking equal roles in the promotional effort (Park, 2004; Huang, Li and Mahajan, 2007; Huang and Li, 2004). Following on from this part of literature review we identified two major domains of manufacturer-retailer cooperation that were investigated in this study: (1) cooperation focused on processes aimed at customers and market driven innovations entailing such activities as acquiring market information (e.g. consumer ideas for new products), designing and launching new products, managing product category in a retailer's stores, promotional initiatives, customer service and loyalty programs (considering that the range of this tasks roughly matches the broad definition of marketing, we opted to call this variable "Cooperation scope: Marketing"); (2) cooperation in supply chain activities including: manufacturing products under a retailer's brand, managing stocks, developing and operating distribution channels etc. (the label that we chose for this variable was "Cooperation scope: Production & Logistics").

When discussing cooperation outcomes, joint and individual benefits are often recognized as meaningfully distinct (Tuusjarvii and Moeller 2009; Pereira, Brito and Mariotto, 2013). Joint benefits are in particular sensitive to relationship quality and require a sufficient level of mutual trust, openness in information sharing, colective crucial decisions making, and integration of supply chain processes (Larson and Kulchitsky, 2000). Among joint benefits are such effects as a higher value of shared revenues and profits (Heide and John, 1990) and creating various competitive advantages through pooling resources and exploiting synergy effects, which would be impossible if relationship parties acted separately (Singh and Power, 2009; Togar and Sridharan, 2002, Simatupang and Sridharan, 2002; Nolan, 2007). As implied by the resource-based approach in management, building joint competitive advantages is a function of securing relationship-specific assets acquired from among complementary resources in possession of the other side of the relationship (Dyer and Singh, 1998). From the transaction costs perspective retailer-supplier cooperation can lower operational expenses and – through developing relationship-specific investments – provide partners with an opportunity to get involved in value-added activities that enhance the customer value of their respective offers (Grover et al., 2002). According to Terpend et al. (2008), retailers and suppliers working together can expect gains in operational performance from closer integration, capability-based improvements and enhanced financial outcomes. A unique set of advantages can be gained by manufacturers that enter into agreements with retailers whereby they produce goods under a retailer's brand name. Here, the manufacturer's benefits often include better utilization of production capacity, higher profitability, lower production costs, lowering risk and improving revenue stability, diversifying product portfolio, reducing marketing costs of maintaining own brands and acquiring new know-how and capabilities (Halstead and Ward, 1995; Hoch, 1996; Oubina et al., 2006; Gomez-Ariaz and Bello-Acebron, 2008; Quelch and Harding, 1996; Dunne and Narasimhan, 1999). These considerations guided our own decisions on the composition of indexes for gauging joint and individual benefits from cooperation.

Research on vertical relations in supply chain, in particular on strategic alliances (Heide and John, 1990), scope of cooperation agreements and cooperation outcomes (Noordewier et al. 1990) indicates that cooperation between supply chain members produces clearly better outcomes than antagonism and rivalry (Palmer et al., 2006). Kim et al. (2013), who examined how retailers interacted with suppliers from the former's perspective, compared consequences of cooperation and coopetition to find that while higher involvement in cooperation did predict greater joint benefits, coopetition seemed to have no bearing on this kind of outcomes. It is worth noting that this study, just like many others, did not consider cooperation and coopetition to be mutually exclusive, as in taking the opposite sides on the same continuum. Indeed, according to this view, a firm can develop both aspects of a relationship to some extent independently; it is possible then to have firms with high levels of cooperation accompanied by intense coopetition.

Two factors that were frequently found to determine the outcomes of cooperation are dependence (Heide and John, 1988) and trust (Kumar et al. ,1995). The perceived dependence in manufacturer-retailer relationships is influenced by the degree of outsourcing, inventory levels, the number of retailers/suppliers, the amount of preventive activities, but also by time, knowledge, social, technical, economic, judicial, market, and IT

dependencies (Svensson, 2004). A concept closely connected to dependency is bargaining power, with bargaining power getting lower in response to growing dependency. In a retailer-supplier pairing, dependency can take four forms (Dapiran and Hogarth-Scott, 2003): (1) strong dependence of a retailer on a manufacturer in conditions of low retailer concentration, when the retailer depends on own branding as the main source of competitive advantage, (2) strong dependence of a retailer on a manufacturer, when retailers are highly concentrated and derive their power from expert skills and knowledge, such as capacity for effective category management, (3) weak dependence of a retailer on a manufacturer, low concentration of retailers, and a dominant transactional approach to suppliers, and (4) weak dependence of a retailer on a supplier and high concentration of retailers, making them capable to use a threat of removing suppliers' products from retailers' stores as a basis of the bargaining power. Close cooperation of a supplier with a limited number of retailers, when retailers have considerable bargaining power, may not be a favorable arrangement for the supplier. Some of the possible threats to manufacturers include: (1) economies of scale and resultant cost advantages may be more difficult to attain (Dyer, 1996; Daniel Corsten Jan Felde, (2005), (2) making products under retailers' brand names can undermine a manufacturer's market position and damage the image of its own brands (De Chernatony and McDonald, 1998; Halstead and Ward, 1995; Hoch, 1996; Quelch and Harding, 1996), (3) intense information exchange during close cooperation (often involving sensitive details) can provide a retailer with arguments that could be used to its benefit in contract negotiations (Kumar and Steenkamp 2013). Thus, the consensus in the literature is that high dependency and – consequently – lower bargaining power works toward a worse long-term competitive position and lower profitability, which was also reflected in the conceptual framework and the hypotheses for our study.

An important aspect of cooperation, with likely consequences for its outcomes, is the way such cooperation is organized. Hogarth-Scott and Parkinson (1993) propose six variants of cooperation with different degrees of formal ties between parties to a relationship and various expectations about longevity of cooperation (short-term vs. long-term orientation). They include: (1) pure transactions based on price, specification and availability, (2) repeating transactions, (3) long-term relationships (still adversarial and depending heavily on market control), (4) real partnership (mutuality, trust and dependence), (5) strategic alliances and (6) network organizations (corporate structures evolved from multiple relationships and strategic alliances). Guided by these insights into the form of cooperation we decided to include in the conceptual model a variable measuring the level of formality in a relationship based on the presence of recurring transactions, long-term contracts and capital ties with a retailing partner.

Research concept and hypotheses

The concept of the study along with its hypotheses is illustrated in the following figure.

Figure 1: The conceptual model and hypotheses of the study
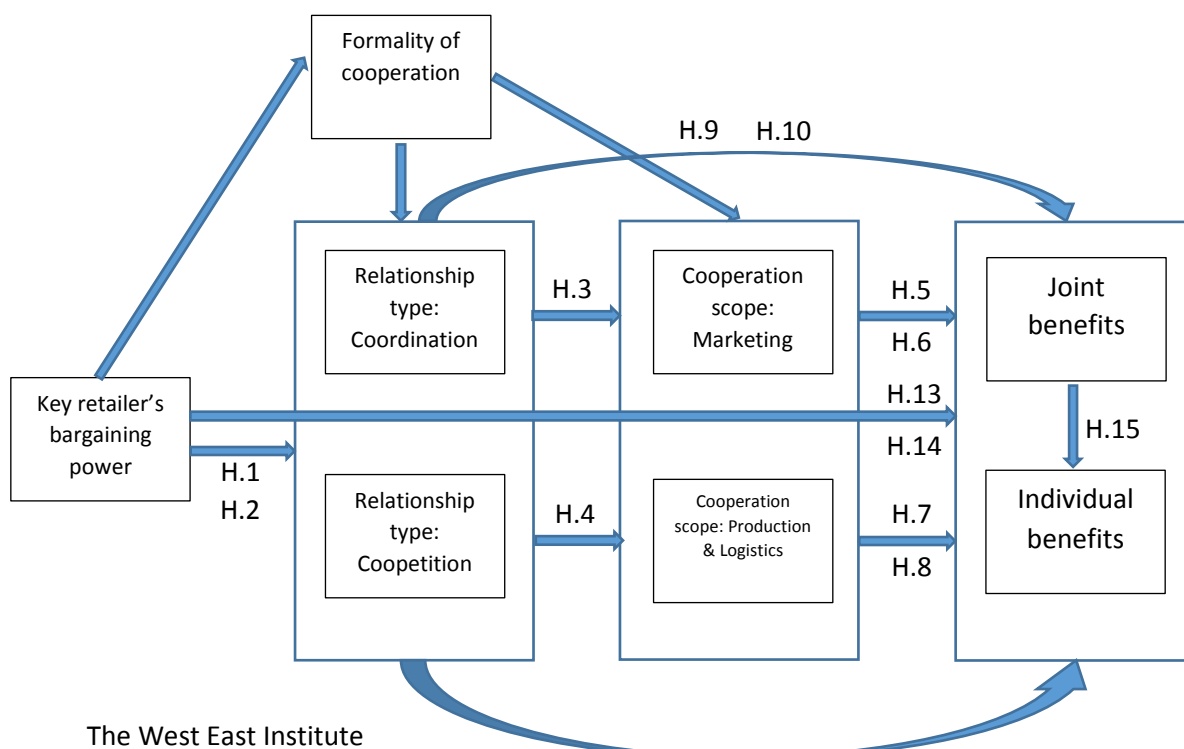
H.11   H.12

Source: Own elaboration

The starting point for the study's concept is the bargaining power of the key retailer which has the role of the most fundamental driving force in shaping the nature and outcomes of cooperative relations. We have expected that the link of bargaining power with cooperation benefits would be through a series of indirect influences following several paths depicted in the model. Most of such paths lead through relationship types (coopetition and coordination), then cooperation scope (focused on marketing or production and logistics), and finally through to joint and individual benefits.

It was assumed that the first consequence of a given state of bargaining power would be a specific level of coopetition and coordination in bilateral relations – indeed, we assumed that the greater power of the retailer would induce the higher levels of both coordination and coopetition (H.1 and H.2). Next, coordination should result in more intense cooperation in marketing (H.3), while coopetition should bring about more shared effort in production and logistics (H.4). Both domains of cooperation were supposed to enhance perceived joint and individual benefits (H.5, H.6, H.7, H.8). Coordination and coopetition can also link directly with joint and individual benefits through assorted positive effects, such as improved management processes, greater know-how and innovation sharing (H.9, H.10, H.11, H.12). Two more hypotheses of the study concern possible direct links between bargaining power and joint and individual benefits (H.13 and H.14), and represent all the causal links that were not accounted for by the main, indirect causal paths of the model. Here, we assumed that greater bargaining power of the key retailer leads to smaller joint and individual benefits, after the effects of a relationship type and cooperation scope were factored in.

To control for different levels of formality in cooperation involving different legal and managerial solutions regulating relationships between partners, a variable representing the formality of cooperation was introduced. Its role was to serve as a partial mediator between bargaining power and other elements of the model as well as the moderator of associations between relationship type and cooperation scope. Since the literature do not provide any clear suggestions concerning the directions of said relationships involving formality of cooperation we refrained from formulating any specific hypotheses in this regard.

The last part of the model consists of two composite variables that represent benefits shared by both sides of the relationship (joint benefits), and those advantageous outcomes that are specific only to manufacturing companies (individual benefits). From the nature of investigated individual benefits we assumed that part of them could be induced by the joint benefits that were obtained earlier; hence we assumed a positive regression link from joint to individual benefits (H.15).

The above described relationships were investigated in the context of firm size, with all companies split into two groups: medium-sized with between 50 and 249 employees, and large ones with at least 250 staff members.

Below is a complete list of all the hypotheses.

H.1 The key retailer's bargaining power is positively associated with the level of coordination with the manufacturer.

H.2 The key retailer's bargaining power is positively associated with the level of coopetition with the manufacturer.

H.3 Coordination between the key retailer and the manufacturer is positively correlated with the level of cooperation in marketing.

H.4 Coopetition between the key retailer and the manufacturer is positively correlated with the level of cooperation in production and logistics.

H.5 Cooperation in marketing is positively correlated with joint benefits.

H.6 Cooperation in marketing is positively correlated with individual benefits.

H.7 Cooperation in production and logistics is positively correlated with joint benefits.

H.8 Cooperation in production and logistics is positively correlated with individual benefits.

H.9 Coordination between the key retailer and the manufacturer is positively correlated with joint benefits.

H.10 Coordination between the key retailer and the manufacturer is positively correlated with individual benefits.

H.11 Coopetition between the key retailer and the manufacturer is positively correlated with joint benefits.

H.12 Coopetition between the key retailer and the manufacturer is positively correlated with individual benefits.

H.13 The key retailer's bargaining power is positively correlated with joint benefits.

H.14 The key retailer's bargaining power is positively correlated with individual benefits.

H.15 Greater joint benefits lead to greater individual benefits.

The set of 15 hypotheses was empirically tested in a manner characterized in the next section of the paper.

Methods of data collection and statistical analysis

Empirical evidence for this study comes from a survey of 613 mangers of medium and large manufacturing companies located in Poland, representing diverse industries producing durable consumer goods. Medium and large size of a company was determined based on employment, with medium firms having between 50 and 250 employees and large ones more than 250. Sample units were selected at random from a wider database encompassing all firms in Poland meeting our eligibility criteria, thus ensuring sample representativeness.

The respondents were asked to answer a set of questions about the key retailer that they work with on a regular basis. The data were collected though the CATI method at the end of 2015 and the beginning of 2016.

As it is clear from the conceptual model, the study investigated a set of latent variables, or constructs, which were measured through multiple Likert-type scales of proxy variables, representing various manifestations or aspects of respective constructs. Following the typical routine for Likert scales, the respondents were asked to determine to what extent each statement applies to their company, and use ratings from 1 (strongly disagree) to 5 (strongly agree) to voice their opinion. Indicators for the scales employed in the study were set out in the table. The table also lists factor loading for relevant latent variables obtained for the general model including all observations (without dividing the sample into medium and large companies).

Table 1: Likert-scale items used in the study for measuring latent variables

Item content	Factor loadings in the general model for the entire sample
Key retailer's bargaining power	
In the Polish market of durable consumer goods there are no other retailers to offer us similar terms and conditions as our key retailer.	0.681
The cost of changing our key retailer to a similar one would be too high.	0.823
It would be difficult to compensate for lost earnings from cooperating with our key retailer.	0.831
It would be difficult to compensate for lost revenues from cooperating with our key retailer.	0.820
It is not possible for us to offer our products through other retail networks.	0.688
Relationship type: Coopetiton	
Our relationship with the key retailer is best described as a struggle.	0.833
We often find ourselves in conflict with the key retailer over the terms and conditions of cooperation.	0.571
The key retailer forces on us their terms and conditions of cooperation.	0.817
Relationship type: Coordination	
We carry out joint projects with the key retailer.	0.977
We coordinate supply chain activities with the key retailer.	0.573
Cooperation scope: Marketing	
Our cooperation with the key retailer includes: - acquiring market information	0.927
- promotional activities	0.896
- customer service	0.915
- sales discounts.	0.917
- loyalty programs	0.931
Cooperation scope: Logistics and production	
Our cooperation with the key retailer includes: - launching new brands and products on the market	0.771
- product category management at the key retailer's stores	0.789
- manufacturing contracts from the key retailer involving exclusive or non-exclusive products	0.710
- supply management.	0.536
Formality of cooperation	
We resupply the key retailer through regular, recurring deliveries.	0.680
We have a contract agreement with the key retailer that regulates our cooperation.	0.842
We have capital ties with the key retailer.	0.646
Joint benefits	

Together with the key retailer we have achieved a high level of common benefits.	Factor loadings cannot be computed for a formative construct
Our cooperation with the key retailer has brought considerable profits to both of our organizations.	
We have increased the amount of profits that we share with the key retailer.	
Individual benefits	
The relationship with the key retailer enabled us to: - limit risk - achieve and/or maintain cost advantage over other manufacturers - increase productivity - strengthen our relationships with consumers - develop our bargaining power with suppliers - improve the image of our brands/company - enhance the quality of our products and services - increase the visibility of our products at the key retailer's points of sale - increase our marketing know-how - raise our market share - gain access to new geographical markets, new segments of consumers and/or distribution channels	Factor loadings cannot be computed for a formative construct

Source: Own elaboration

Following guidance from previous research, we assumed all latent variables - except the two types of benefits - to be reflective constructs that manifest themselves through highly correlated indicators. In contrast, joint and individual benefits consist of elements that do not necessary have to be correlated and can change independently of each other, which is one of the traits of formative constructs. With reflective constructs, a latent variable is typically estimated based on the amount of shared variance in indicators through linear transformations, while formative constructs are often represented by indexes computed as the means of component indicators (which was also the method used in this study). All the required transformation and computations on raw data to explore regression paths among latent variables were performed with SMART PLS 3.2, a statistical software package dedicated to estimating structural equation models with the partial least squares method (PLS).

The decision to use the PLS SEM method instead of another popular SEM technique relying on covariance matrices was made because of two prominent features of collected data: (1) most of the observable variables (indicators) did not have a multivariate normal distribution, which is a requirement for the covariance based SEM, and (2) the need to estimate formative constructs favors PLS SEM, which is a recommended choice for such analysis tasks (Hair et al., 2014, p.15).

Research outcomes

The SEM analysis yielded tree models for different groups of surveyed companies. First, we obtained a general model for the whole sample of 612 observations. Second, the sample was divided in two parts, according to the size of a company, to separately estimate models for medium sized and large firms. The rationale for this was our expectation that size could be of issue for the relationships embedded in the model because of frequently lower capacity and bargaining power of smaller firms.

The three models were presented in a graphical form in the three following diagrams. For the sake of clarity and to enable easier interpretation of regression paths linking constructs, the diagrams were simplified to omit indicators of latent variables (factor loadings for indicators in the first, general model were listed in Table 1). The numerical values on the charts represent standardized regression weights between respective pairs of constructs.

Figure 2: Structural model of determinants of cooperation benefits for the whole sample (n=613)
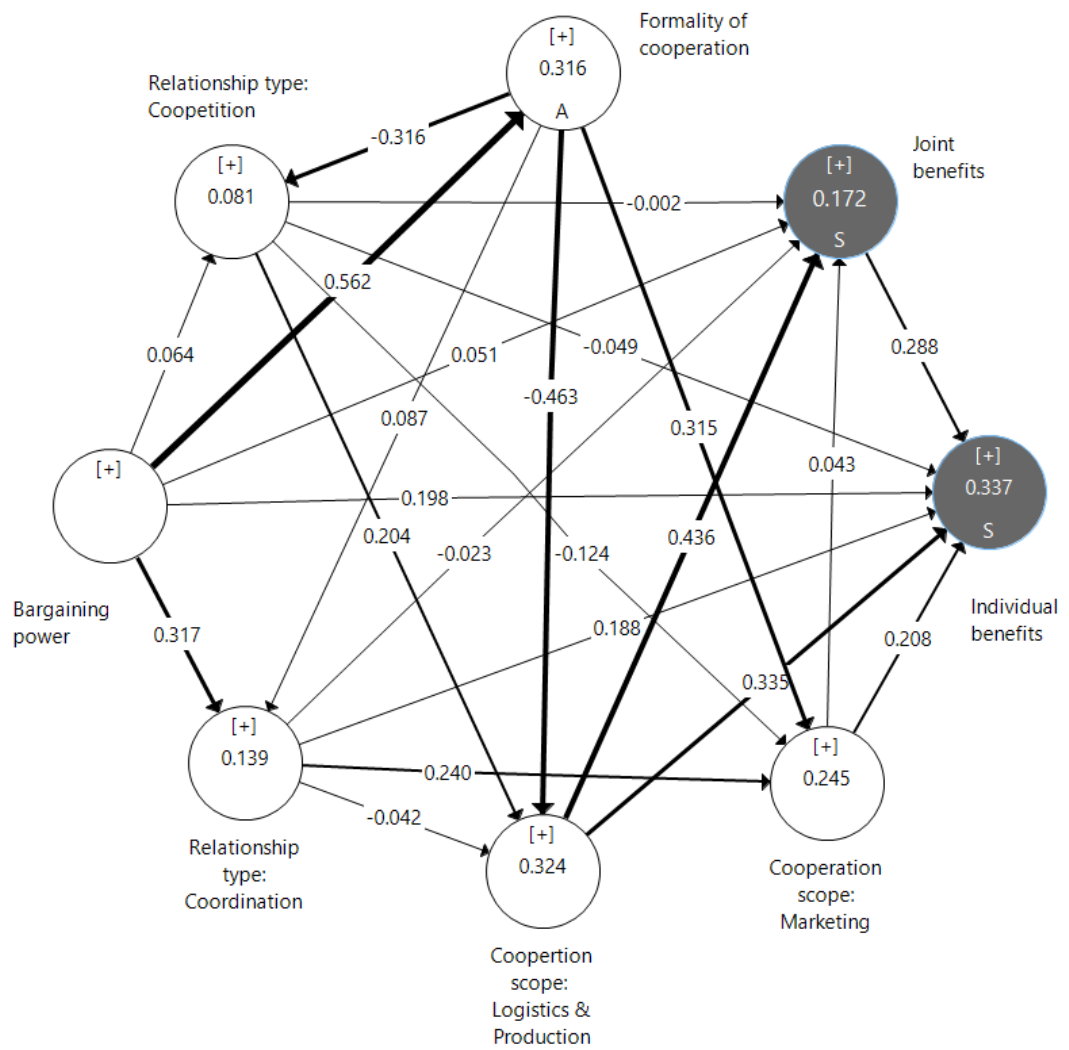
Source: Own elaboration

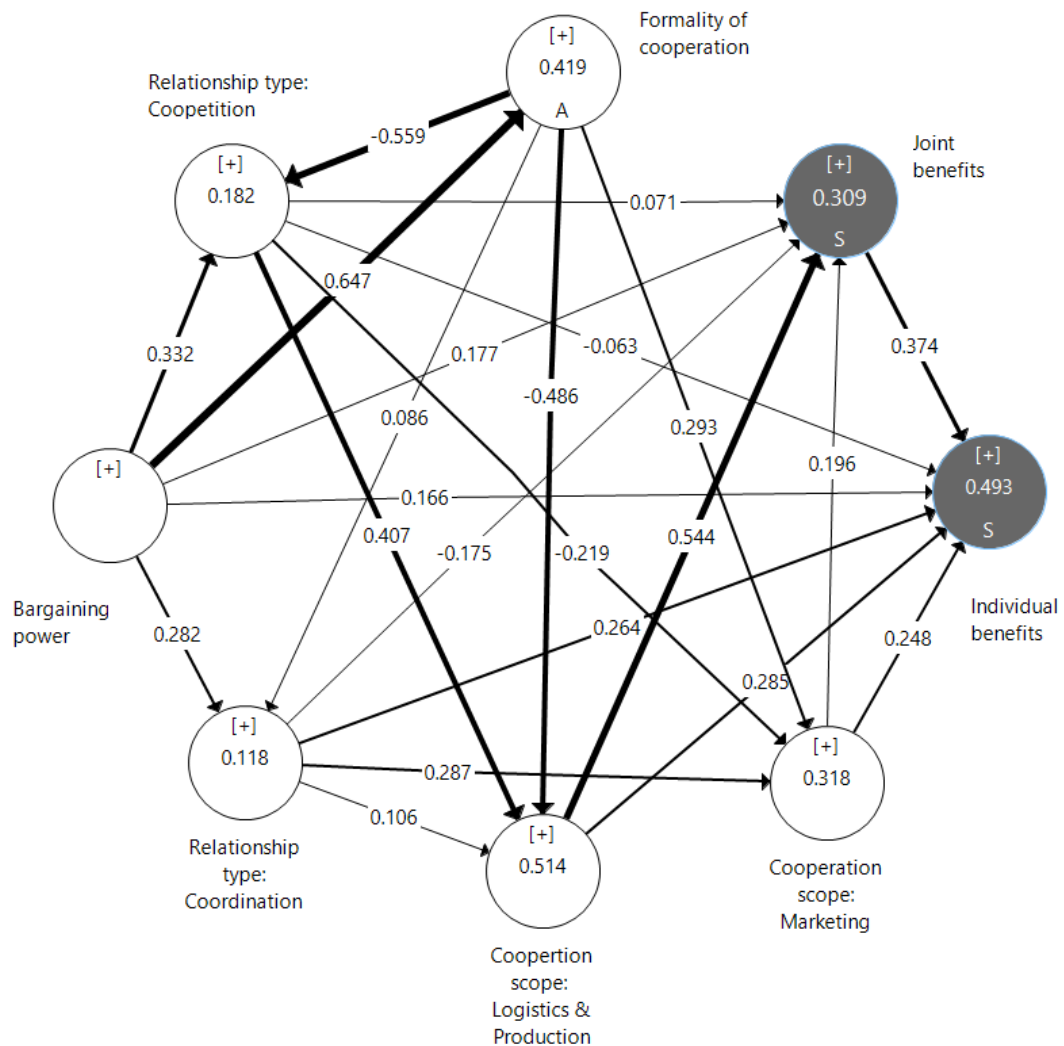**Figure 3:** Structural model of determinants of cooperation benefits for medium-sized manufacturers (employment between 50 and 250; n=413).
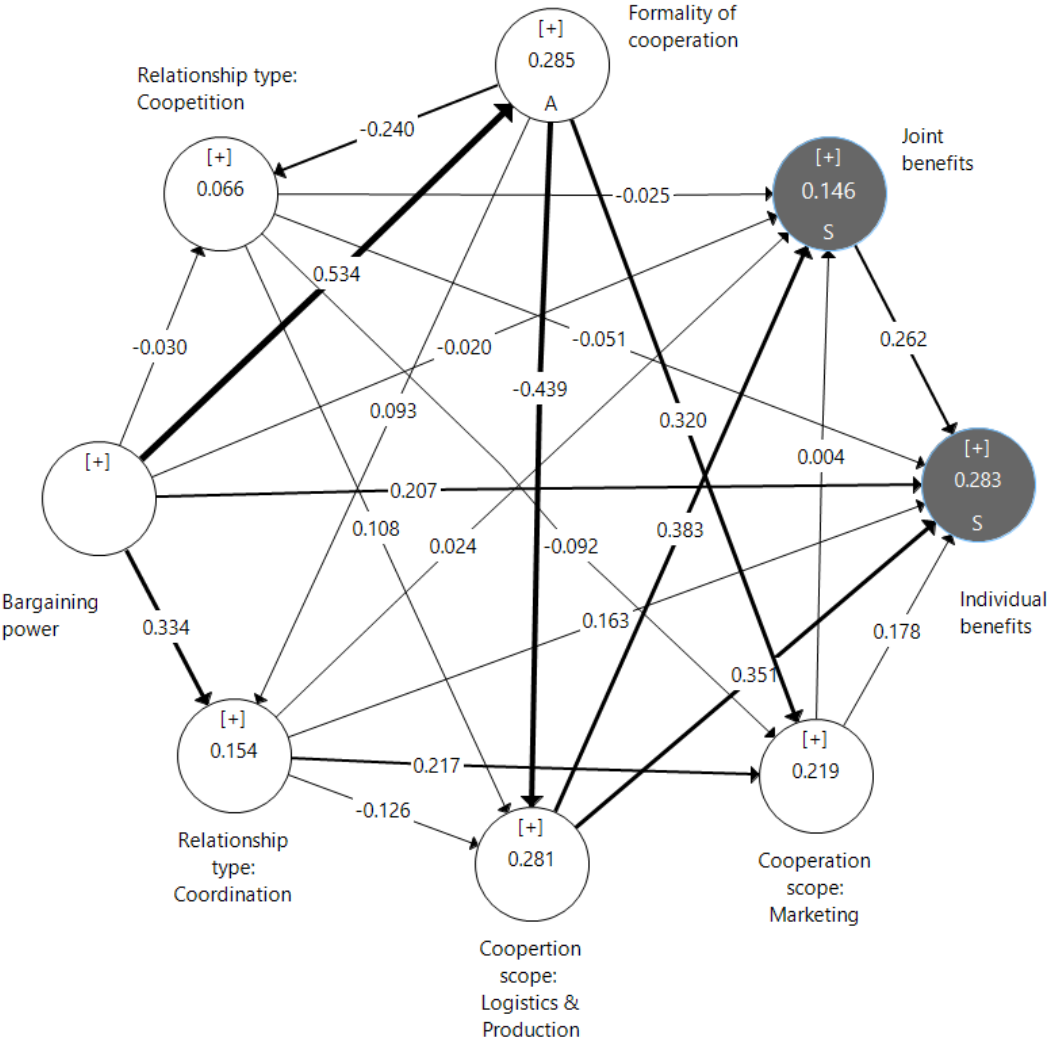
Source: Own elaboration

Figure 4: Structural model of determinants of cooperation benefits for medium sized manufacturers (employment > 250; n=413).

Source: Own elaboration

Before discussing the patterns found in the three models it is pertinent to test the quality of the obtained solutions in terms of how reliable are the estimates of latent variables (i.e. the quality of the measurement model) and the significance of relationships depicted by regression paths.

To evaluate how closely the latent variables correspond to their indicators, one needs to look at three general criteria: internal consistency, convergent validity and discriminant validity.

Cronbach's alpha is a commonly used internal reliability measure of multi-items scales, with a value of 0.6 or greater indicating one dimensional and thus consistent scales [Malhotra, 2014, p. 287].

Convergent validity indicates to what extent a factor explains its manifest variables (i.e. indicators) and is frequently determined with the AVE metric (AVE standing for Average Variance Extracted). It is widely accepted that AVE values of more than 0.5 are acceptable, since it means that at least 50% of variability in observable variables is accounted for by the construct itself [Hair et al., 2010].

The second important aspect of quality of scales for measuring latent variables is discriminant validity, which looks at the extent to which a factor is explained better by its own indicators rather than by indicators under other factors. Discriminant validity is determined by comparing AVE to MSV (maximum shared variance), and a model is considered acceptable if AVE scores are greater than MSV scores for all its constructs [Hair et al., 2010].

Table 2 gives Cronbach's alpha values as well as AVE and MVE metrics for the three obtained models. It should be noted that the table does not include joint and individual benefits, which are formative constructs and thus do not need to display consistent correlational patterns.

Table 2: Metrics of internal reliability, convergent validity and discriminant validity for the three structural models

Construct	Entire sample			Medium firms (50-250)			Large firms (>250)		
	C.'s alpha	AVE	MSV	C.'s alpha	AVE	MSV	C.'s alpha	AVE	MSV
Bargaining power	0.828	0.596	0.316	0.819	0.577	0.285	0.852	0.639	0.419
Cooperation scope: Marketing	0.906	0.841	0.043	0.896	0.827	0.032	0.931	0.879	0.062
Coopetition scope: Logistics & Production	0.794	0.502	0.190	0.776	0.480	0.147	0.832	0.555	0.296
Formality of cooperation	0.637	0.530	0.214	0.611	0.523	0.193	0.702	0.545	0.312
Relationship type: Coopetition	0.790	0.563	0.042	0.779	0.549	0.012	0.808	0.587	0.166
Relationship type: Coordination	0.770	0.642	0.035	0.740	0.612	0.047	0.820	0.700	0.082

Source: Own elaboration

Overall, the above reported metrics do not signal any major problems with integrity of the models.

Considering that alphas for all factors are beyond the threshold of 0.6 it is fair to say that the scales for all subconstructs display adequate levels of internal reliability.

Also all AVE values (except one) are above the cut-off of 0.5, suggesting that measurable indicators are sufficiently consistent with their respective latent variables. The only issue is with the construct Cooperation scope: Logistics & Production obtained for the subsample of medium-sized firms. Here, the value of 0.480 is slightly below the threshold, meaning that most of the variance (about 52%) in indicators of said construct is explained by other factors, not accounted for in the model. However, considering that the difference from the standard is small and there are no other visible faults it seems that the model for medium manufacturers could be seen as acceptable in terms of convergent validity.

In regard to discriminant validity, for no latent variable the value of MSE is greater than its AVE, which is expected of well-fitting models. As a general note, it seems that the theory underpinning the conceptual model is best suited for larger firms that reveal best levels of internal reliability and validity.

Once the models were found to be credible, it is possible to consider if the hypotheses of the study were supported or refuted by the data. To this end, we looked at p-values for regression weights in all three models. The p-values were obtained through a bootstrapping procedure with 5000 subsamples, which is deemed standard in PLS SEM. As it was already stated, not all regression paths were subjects of hypotheses – we did not frame our expectations as hypotheses where the literature was unclear about the direction of a relationship, or where there was no literature guidance at all (it particular it concerns the formality variable and its associations with the rest of the model).

Table 3: Significance test of regression weights between constructs for the three estimated models. *(significant values highlighted in yellow)*

	Regression paths	Entire sample		Medium firms (50-250)		Large firms (>250)	
		Bootstrapping regression weights	P Values	Bootstrapping regression weights	P Values	Bootstrapping regression weights	P Values
H.1	Bargaining power -> Relationship type: Coordination	0.318	0.000	0.334	0.000	0.281	0.067
H.2	Bargaining power -> Relationship type: Coopetition	0.064	0.321	-0.031	0.700	0.330	0.004
H.3	Relationship type: Coordination -> Cooperation	0.239	0.000	0.214	0.000	0.291	0.001

	scope: Marketing						
H.4	Relationship type: Coopetition -> Cooperation scope: Marketing	-0.125	0.020	-0.095	0.167	-0.215	0.022
H.5	Cooperation scope: Marketing -> Joint benefits	0.042	0.406	0.000	0.954	0.191	0.045
H.6	Cooperation scope: Marketing -> Individual benefits	0.208	0.000	0.178	0.003	0.249	0.002
H.7	Coopertion scope: Logistics & Production -> Joint benefits	0.435	0.000	0.380	0.000	0.544	0.000
H.8	Coopertion scope: Logistics & Production -> Individual benefits	0.333	0.000	0.347	0.000	0.281	0.012
H.9	Relationship type: Coordination -> Joint benefits	-0.023	0.653	0.023	0.730	-0.169	0.018
H.10	Relationship type: Coordination -> Individual benefits	0.186	0.000	0.159	0.007	0.256	0.000
H.11	Relationship type: Coopetition -> Joint benefits	0.000	0.981	-0.023	0.743	0.078	0.644
H.12	Relationship type: Coopetition -> Individual benefits	-0.049	0.308	-0.053	0.362	-0.058	0.538
H.13	Bargaining power -> Joint benefits	0.050	0.406	-0.022	0.802	0.178	0.081
H.14	Bargaining power -> Individual benefits	0.198	0.000	0.206	0.001	0.174	0.059
H.15	Joint benefits -> Individual benefits	0.288	0.000	0.260	0.000	0.373	0.000
X	Formality of cooperation -> Cooperation scope: Marketing	0.260	0.091	0.276	0.071	0.091	0.308
X	Formality of cooperation -> Coopertion scope: Logistics & Production	-0.374	0.095	-0.367	0.080	-0.135	0.309
X	Formality of cooperation -> Relationship type: Coopetition	-0.258	0.110	-0.204	0.117	-0.144	0.317
X	Formality of cooperation -> Relationship type: Coordination	0.071	0.294	0.079	0.297	0.013	0.634
X	Relationship type: Coopetition -> Coopertion scope: Logistics & Production	0.204	0.000	0.110	0.111	0.409	0.000
X	Relationship type: Coordination -> Coopertion scope: Logistics & Production	-0.043	0.551	-0.124	0.185	0.102	0.130
X	Bargaining power -> Formality of cooperation	0.464	0.085	0.456	0.067	0.204	0.297

Note: Due to the estimation with the bootstrapping method based on taking means of coefficients from 5000 subsamples the values of regression weights in the table are somewhat different from the weights displayed in the charts, which were calculated directly from the main sample.

Source: Own elaboration

Looking at the significance of p-values for regression weights it is possible to determine the outcomes of hypothesis verification, which was given in the next table. However, it is important to note that this particular analysis is only considering direct effects between pairs of variables, which are arguably more important than indirect influences, but do not provide the full picture of the data patterns. In the further part of this section we are also investigating indirect and total effects.

Table 4: Hypothesis verification based on the significance of direct effects between latent variables

	Regression paths	Verification outcome
H.1	Bargaining power -> Relationship type: Coordination	True in medium firms
H.2	Bargaining power -> Relationship type: Coopetition	True in large firms
H.3	Relationship type: Coordination -> Cooperation scope: Marketing	True
H.4	Relationship type: Coopetition -> Cooperation scope: Marketing	False – the negative relationship was found
H.5	Cooperation scope: Marketing -> Joint benefits	True in large firms
H.6	Cooperation scope: Marketing -> Individual benefits	True
H.7	Cooperation scope: Logistics & Production -> Joint benefits	True

H.8	Cooperation scope: Logistics & Production -> Individual benefits	True
H.9	Relationship type: Coordination -> Joint benefits	False
H.10	Relationship type: Coordination -> Individual benefits	True
H.11	Relationship type: Coopetition -> Joint benefits	False
H.12	Relationship type: Coopetition -> Individual benefits	False
H.13	Bargaining power -> Joint benefits	False
H.14	Bargaining power -> Individual benefits	True in medium firms
H.15	Joint benefits -> Individual benefits	True

Source: Own elaboration

As it transpired, only six hypotheses were supported by direct effects in data in all three models: H.3, H.6, H.7, H.8, H.10 and H.15. Five hypotheses were demonstrated to be false: H.4, H.9, H.11, H.12 and H.13. For four hypotheses validation was dependent on the size of a firm, with results for large companies supporting H.2 and H.5, and medium firms providing outcomes substantiating H.1 and H.14.

In interpreting the results, valuable insights could be gained by looking into Table 5 with total and indirect correlations between the two benefits variables and other aspects of the model. Specifically, it is possible to establish which variables were the most important drivers of benefit perceptions by managers considering all the aspects of the model. In addition, the table better highlights similarities and differences between medium and large manufacturers. It is also interesting to note that **some of the hypotheses were not significant based on direct effects but find support when total effects are considered**. **This applies to H.11** (Relationship type Coopetition ->Joint benefits) **and H.14** (Bargaining power -> Individual benefits) **which become true for large companies.**

Table 5: Total and indirect effects of model variables on joint and individual benefits from co-operation.

	Employment <250				Employment =>250			
	Total effects		Indirect effects		Total effects		Indirect effects	
	Joint benefits	Ind. benefits	Joint benefits	Ind. benefits	Joint benefits	Ind. benefits	Joint benefits	Ind. benefits
Bargaining power	-0.121	0.189	-0.101	-0.018	0.015	0.252	-0.162	0.087
Cooperation scope: Marketing	0.004	0.179		0.001	0.196	0.322		0.073
Coopetition scope: Logistics & Production	0.383	0.451		0.100	0.544	0.489		0.204
Formality of cooperation	-0.174	-0.121	-0.174	-0.121	-0.352	-0.166	-0.352	-0.166
Relationship type: Coopetition	0.017	-0.025	0.041	0.026	0.250	0.092	0.179	0.155
Relationship type: Coordination	-0.024	0.151	-0.048	-0.012	-0.061	0.343	0.114	0.079

Source: Own elaboration

The correlation coefficients in the table imply that with firms of all sizes the strongest driver of positive individual benefits is cooperation in logistics and production between a manufacturer and its key retailing partner (0.451 and 0.489 for medium and large companies, respectively). Most of the impact from this area of cooperation is of a direct nature with only small part of it derived trough an indirect path with joint benefits serving as the intermediary variable (0.204 and 0.100 for medium and large companies). The other cooperation domain – involving various marketing activities – is only of minor importance for medium firms, explaining less than 4% of variance in individual benefits (0.179), however in larger businesses the role of marketing initiatives is much greater (0.322) but still subordinate to logistics and production. Interestingly, bargaining power of the key retailer has more profound positive consequences for bigger rather than smaller firms (0.252 versus 0.189). The main path of impact is a direct one, with indirect effects of only negligible importance. It suggests, then, that

contrary to popular belief, the dominant position of a retailer tends to induce positive, and not negative effects in manufacturing companies. The likely mechanism underlying this observed pattern was explained in more detail in the discussion section.

Discussion of the findings

The outcomes of the PLS SEM analysis may lead to the conclusion that large companies had reported greater amounts of benefits from cooperation then their medium-sized counterparts. Also, one could assume that both groups of firms operated to different average levels of bargaining power of key retailers as well as other variables comprising the model. To verify if any such dissimilarities did occur we conducted a series of t-tests for two independent samples based on scores for composite variables derived from the PLS SEM model. The results are displayed in the table.

Table 6:   T-tests for two independent samples of differences between medium-sized and manufacturing companies

	Levene's test for equality of variances		t-test for equality of means				
	F	Sig.	t	df	p-value	mean difference	std. error difference
Key retailer's bargaining power	,007	,931	-,864	611	,388	-,076	,088
Relation type: Coordination	,099	,753	-,609	611	,543	-,054	,088
Relation type: Coopetition	,128	,721	,712	611	,477	,063	,088
Cooperation scope: marketing	,950	,330	-,578	611	,564	-,051	,088
Cooperation scope: production and logistics	,010	,922	,586	611	,558	,052	,088
Formality of cooperation	1,174	,279	,396	611	,692	,035	,088
Individual benefits	,018	,893	-,332	611	,740	-,013	,041
Joint benefits	1,160	,282	,398	611	,691	,022	,055

Source: Own elaboration.

None of the t-tests points to the existence of any significant differences between smaller and larger firms. This suggests that, on average, both groups of companies were similar in terms of all the latent variables encompassed by the model. As such, there is no reason to believe that larger firms gained more benefits from their cooperation with the key retailer, also there are no grounds to assume that key retailers wielded less power in their dealings with larger companies. The fact that the SEM model for smaller firms explains considerably less variance for joint and individual benefits as compared to the larger firms is not because of a smaller amount of benefits but rather due to partially different causal mechanisms underlying the formation of such benefits. In other words, the variables present in the current model are less relevant for medium-sized firms, and new factors should be included to provide better explanatory power.

Based on the literature and our own considerations, we can offer the following as likely explanations of the worse data fit of the model in the group of medium-sized manufacturers.

Stronger positive total effect of cooperation in marketing on individual benefits for large manufacturers (0.322 vs. 0.179) is likely due to large companies often owning strong brands, which is particularly relevant for durable consumer goods. In addition, large firms tend to have more generous marketing budgets than their medium counterparts. As such, they can take a more proactive role in planning and deploying marketing campaigns with their retailing partners. In fact, they can often launch promotional initiatives instead of just following the distributor's lead. Consequently, a similar level of cooperation in marketing among large and small manufacturers (suggested by the t-tests) can bring more benefits to large firms on account of their greater level of control over promotional actions and other marketing efforts. In comparison, for many medium manufacturers the participation in joint marketing projects could be limited to only covering part of the budget without much impact on the substantive issues that could be better fitted to goals and expectations of the key retailer.

The sheer difference in the size of operations could also make cooperation in marketing more beneficial for large companies, who are more likely to achieve economies of scale even in purely marketing operations.

Another reason why smaller firms are worse described by the model is differences in business models, in particular concerning the roles of own brands in the overall marketing strategy. It seems that the structural model is better suited to those manufacturers who own a portfolio of strong brands and do not need to rely too much on the success of retailer brands that they make based on cooperation contracts.

The smaller percentage of explained variance in joint benefits for smaller firms could have to do with an insufficient amount of complementary resources, which many scholars consider a prerequisite for such effects to occur (Dyer and Singh, 1998). Large businesses have more to offer for retailers to consider a more permanent tie-up such as a strategic alliance leveraging the producer's and retailer's brands, which was found an effective element of competitive strategy in past research (Arnett et al., 2010; Vaidyanathan and Aggarwal 2000).

As a final note, considering that medium firms may have relatively lower skills and competencies in comparison to their larger counterparts, addressing this particular deficiency through cooperation with an often larger and more competent retailer could be a missing factor responsible for a large portion of benefits reported by medium manufacturers. The model has not explicitly considered knowledge and innovation management issues and these have been reported by some researchers to be pertinent in the formation of benefits from cooperation (Li et al. 2011).

Limitations and directions for further research

This research built and validated a model for explaining core mechanism underlying cooperation between retailers and manufacturers. However, as with any model, to enable its estimation it only offers a simplified version of reality with a limited number of variables. As such, it seems that the analysis of cooperation outcomes could be more complete and relevant especially for medium-sized manufacturers if additional factors were included. These factors should account for additional intermediate effects of cooperation such as acquisition of know-how by manufacturers and innovation fostering by interactions with the key retailer, especially process and administrative innovations, which are often responsible for productivity gains that are one important benefit of cooperation. Also, new light on the nature and outcomes of supplier-retailer relations could be shed by adding a control variable describing business models operated by manufacturers.

The fact that the study relied on cross-sectional data may have precluded observing how dynamics and outcomes of cooperation evolved over time. Even though the sample consisted of firms with different lengths of relationship with the key retailer, a longitudinal study would offer a more accurate record of changes.

Authors' biographies

Marzanna Katarzyna Witek-Hajduk - Associate Professor at the Warsaw School of Economics, the Institute of International Management and Marketing and Deputy Dean of the Collegium of World Economy. Director of Postgraduate Studies in Brand Management and Postgraduate Studies in Luxury Products and Brands Management. Director of Doctoral Program in Management and Economics. A representative of the Warsaw School of Economics in EDAMBA. She has participated in numerous research projects in the field of marketing alliances, internationalization strategies, business models and brand management. Author or co-author and editor of numerous articles and monographs.

Piotr Zaborek is an Assistant Professor at the Institute of International Marketing and Management, Warsaw School of Economics, where he teaches courses in Survey Research and Statistics, Marketing Research and Statistical Analysis of Quantitative Data with Computer Software. He specializes in multivariate statistical modelling of cross-sectional data. His research interests include business performance issues in relation to business models, organizational culture, innovation management, sustainable development and CSR. He has also studied novel concepts in marketing, including service dominant logic and value co-creation.

References

Ahmed, M. and Hendry, L. (2012), Supplier development literature review and key future research areas, International Journal of Engineering and Technology lnnovation, Vol. 2 No. 4, pp. 293-303.

Anderson J.C., Narus J.A (1990), *Model of Distributor Firm and Manufacturer Firm*, Journal of Marketing, 1990; Vol. 54, No. 1, pp. 42-58.

Anthony, T. (2000), "Supply chain collaboration: success in the new internet economy", Achieving Supply Chain Excellence through Technology, Vol. 1, pp. 41-4.

Arnett D.B., Laverie D.A., Wilcox J.B., (2010), *A longitudinal examination of the effects of retailer-manufacturer brand alliances: the role of perceived fit*, Journal of Marketing Management, Vol. 26, Nos. 1-2, pp. 5-27.

Bengtsson M., Hinttu S., Kock S., (2003), *Relationships of Cooperation and Competition Between Competitors*, Work-in-Progress Paper submitted to the 19th Annual IMP Conference, September 4-6, 2003, Lugano, Switzerland, http://www. impgroup.org/uploads/papers/4294.pdf (18.05.2014).

Blundel, R.K. and Hingley, M. (2001), *Exploring growth in vertical inter-firm relationships: small-medium firms supplying multiple food retailers,* Journal of Small Business and Enterprise Development, Vol. 8 Iss. 3, pp. 245 – 265.

Buxmann P., von Ahsen A., Diaz L.M. (2008), *Economic evaluation of cooperation scenarios in supply chains*, Journal of Enterprise Information Management, Vol. 21 No. 3, pp. 247-262.

Chavhan, R., Mahajan, S.K. and Sarang, P.J. (2012), Supplier Development: Theories and Practices, Journal of Mechanical and Civil Engineering, No. 3, pp. 37-51.

Chernatony L., McDonald L. M., (1998), *Creating Powerful Brands in Consumer, Service and Industrial Markets*, Butterworth-Heinemann: Oxford.

Chow, C.S.F., Kaynak, E. and Yang, C.J. (2011), Channel power struggle between a manufacturer giant and a retailer giant in China", Competitiveness Review: An International Business Journal, Vol. 21 Iss. 3, pp. 306 – 321.

Corsten D., Felde J., (2005), *Exploring the performance effects of key-supplier collaboration*, International Journal of Physical Distribution & Logistics Management, Vol. 35 No. 6 pp. 445 – 461.

Dapiran G.P., Hogarth-Scott S., (2003), *Are cooperation and trust being confused with power? An analysis of food retailing in Australia and the UK*, International Journal of Retailing & Distribution Management, Vol.31, No. 5, pp. 256-267.

Dhar, S.K., Hoch, S.J. and Kumar, N. (2001), Effective Category Management Depends on the Role of the Category, Journal of Retailing, No. 77, pp. 165-184.

Dunne D., Narasimhan C., (1996), *The New appeal of private labels*, Harvard Business Review, Vol. 77, No. 3, pp. 41-52.

Dyer, J.H. and Singh, H. (1998), *The relational view: cooperative strategy and sources of interorganizational competitive advantage*, Academy of Management Review, Vol. 23 No. 4, pp. 660-79.

Dyer, J.H., Kale, P. and Singh, H. (2001), *How to make strategic alliances work*, Sloan Management Review, Vol. 42 No. 4, pp. 37-43.

Gomez-Arias J.T., Bello-Acebron L., (2008), *Why do leading brand manufacturers supply private labels?*, Journal of Business & Industial Marketing, Vol. 23 No. 4, pp. 273-278.

Grover, V., Teng, J. and Fiedler, K. (2002), *Investigating the role of information technology in building buyer-supplier relationships,* Journal of Association for Information Systems, Vol. 3, pp. 217-45.

Hair J.F., Black W, Babin B., Anderson R. (2009). *Multivariate Data Analysis*, 7th edition, Pearson Prentice Hall, Upper Saddle River, New Jersey.

Hair J.F., Hult G.T., Ringe C.M, Sarsredt M., (2014), *A primer on partial least squares structural equation modeling (PLS-SEM)*, SAGE, Thousand Oaks, California.

Halstead D., Ward C.B., (1995), *Assessing the Vulnerability of Private Label Brands*, Journal of Product & Brand Management, No. 4/3, pp. 38-48.

Heide J.B., George J., (1990), *Alliances in Industrial Purchasing: The Determinants of Joint Action in Buyer-Supplier Relationships*, Journal of Marketing Research, Vol. 27, No. 1, pp. 24-36.

Hoch S.J., (1996), *How Should National Brands Think about Private Labels*?," Sloan Management Review, No. 37 (Winter), pp. 89-102.

Hogarth-Scott S., Parkinson S. T., (1993), Retailer-supplier relationship in the food channel: a supplier perspective, International Journal of Retail & Distribution Management, Vol. 21 No. 8 pp.11-18.

Huang Z., Li S.X., Mahajan V., (2002), *An Analysis of Manufacturer-Retailer Supply Chain Coordination in Cooperative Advertising*, Decision Sciences, Vol. 33, No. 3, pp. 469–494.

Huang Z., Li S.X., (2004), *Coordination and Cooperation in Manufacturer–Retailer Supply Chains*, Data Mining and Knowledge Management, Vol. 3327 of the series Lecture Notes in Computer Science, Chinese Academy of Sciences Symposium CASDMKM, Beijing, China, July 12-14, 2004, pp. 174-186

http://link.springer.com/chapter/10.1007%2F978-3-540-30537-8_19#page-1.

Jonas A., Roosen J., (2005), *Private labels for premium products – the example of organic food*, International Journal of Retail & Distribution Management, Vol. 33 No. 8, pp. 636 – 653.

Kim S., Kim N., Pae J.H., Yip L., (2013), *Cooperate "and" compete: coopetition strategy in retailer-supplier relationships*, Journal of Business & Industrial Marketing, 28/4, pp. 263–275.

Kotzab H., Teller C., (2003), *Value-adding partnerships and co-opetition models in the grocery industry*, International Journal of Physical Distribution & Logistics Management, , Vol. 33, No. 3, pp. 268-281

Kumar, N., Scheer, L.K. and Steenkamp, J-B.E.M. (1995), *The effects of perceived interdependence on dealer attitudes*, Journal of Marketing Research, Vol. 32 No. 3, pp. 348-56.

Larson, P.D. and Kulchitsky, J.D. (2000), "The use and impact of communication media in purchasing and supply management", Journal of Supply Chain Management, Vol. 5 No. 2, pp. 29-37.

Malhotra, N. (2010), *Marketing Research: An Applied Orientation*, Prentice Hall, 6th edition.

Mentzer, J.T., Foggin, J.H. and Golicic, S.L. (2000), "Collaboration: the enablers, impediments, and benefits", Supply Chain Management Review, Vol. 5 No. 6, pp. 52-8.

Nolan K., (2007), *The pursuit of distinction*, Retailing Today, Vol. 46, 9 April, p. 33.

Noordewier T., John G., Nevin J., (1990), *Performance outcomes of purchasing arrangements in industrial buyer vendor relationships*, Journal of Marketing, Vol. 54 No. 4, pp. 80-93.

Oubina J., Rubiuo N., Yaüge J. (2006), *Strategic management of store brands: an analysis from the manufacturer's perspective*, International Journal of Retail & Distribution Management, Vol. 34 No. 10, pp. 742-760.

Palmatier R.W., Dant R.P., Grewal D., Evans K.R., (2006), *Factors influencing the effectiveness of relationship marketing: a meta-analysis*, Journal of Marketing, Vol. 70 No. 4, pp. 136-53.

Park H., (2004), *US retailers' cooperation with manufacturer promotional support*, Journal of Fashion Marketing and Management, Vol. 8, No. 4, pp. 412-424.

Pereira E., Brito Z., Mariotto G., (2013), *Benefits of Cooperation between Buyers and Providers: a study in the field of information and communications technology*, Review of Business Management, Vol. 15, No. 47, pp. 241-261.

Quelch J.A., Harding D., (1996), *Brands Versus Private Labels: Fighting to Win*, Harvard Business Review, Vol. 74, No. 1, pp. 99-109.

Salmon, K. (1993), Efficient Consumer Response. Enhancing Consumer Value in the Grocery Industry, FMI, Washington DC.

Simatupang, T.M. and Sridharan, R. (2002), "The collaborative supply chain", International Journal of Logistics Management, Vol. 13 No. 1, pp. 15-30.

Singh P.J., Power D., (2009), *The nature and effectiveness of collaboration between IRMS, their customers and suppliers: a supply chain perspective*, Supply Chain Management: An International Journal, Vol. 14 No. 3, pp. 189-200.

Svensson G., (2004),"Vulnerability in business relationships: the gap between dependence and trust", Journal of Business & Industrial Marketing, Vol. 19 No. 7, pp. 469 – 483.

Svensson, G. (2002), The theoretical foundation of supply chain management: A functionalist theory of marketing, International Journal of Physical Distribution & Logistics Management, Vol. 32 Iss: 9, pp. 734 – 754

Terpend R., Tyler B.B., Krause D.R., Handfield R.B., (2008), *Buyer-supplier relationships: derived value over two decades*, Journal of Supply Chain Management, Vol. 44, No. 2, pp. 28-55.

Togar M.S., Sridharan R., (2002), *The collaborative supply chain*, International Journal of Logistics Management, Vol. 13 No. 1, pp. 15-30.

Tuusjarvi E., Moeller K., (2009), *Multiplicity of norms in inter-company cooperation*, Journal of Business & Industrial Marketing, 24/7, pp. 519-528.

Vaidyanathan R., Aggarwal P., (2000), *Strategic brand alliances: implications of ingredient branding for national and private label brands*, Journal of Product & Brand Management, Vol. 9 No. 4, pp. 214 – 228.

Vlachos, I.P., Bourlakis, M. and Karalis, V. (2008), Manufacturer-retailer collaboration in the supply chain: Empirical evidence from the Greek food sector, International Journal of Logistics Research and Applications, Vol. 11 No. 4, pp. 267–277.