ORIGINAL PAPER

HYBRID AND ALTERNATE MODES OF GOVERNANCE: IMPLICATIONS FOR RELATIONAL EMBEDDEDNESS IN THE THREE-TIER SUPPLY CHAINS

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ABSTRACT. **Background:** Leveraging the relational embeddedness perspective, we empirically investigate whether hybrid governance (perceived as a combination of market and hierarchy), and the alternate modes of governance (non-market and non-hierarchal) are capable of providing the social layer to governance within the three-tier supply chain framework.

Methods: The study covers two research stages. In the first stage, the variables that demonstrate two modes of formal governance (both market and hierarchy) are reduced through the Principal Component Analysis (PCA) to highlight the main underlying multi-item factors. In the second stage of our research, the cluster analysis is conducted to compare different clusters in terms of relational embeddedness. As our research is exploratory in nature, we used non-parametric tests to evaluate the significance of results.

Results: The results evidence that that along with the pure mechanisms of supply chain governance (market and hierarchy), one may also identify both the hybrid and alternate modes. It corresponds to four clusters embracing three-tier supply chains with different governance mechanisms: the alternate mode, market, hybrid and hierarchy. Likewise, the study shows that both market and hybrid governance demonstrate the strongest relational embeddedness of both dyads. On the other hand, though the alternate mode of governance, perceived as neither market nor hierarchy, demonstrates stronger relational embeddedness than pure hierarchy, nevertheless the strength of its relational embeddedness is significantly lower as compared to market governance.

Conclusions: The study shows that it is difficult to reveal clearly delineated tendencies regarding both the hybrid and alternate modes of governance in terms of relational embeddedness. In fact, the hybrid mode of governance should be rather linked to market as they both are very similar, while the alternate mode of governance demonstrates a moderate strength of relational embeddedness. On the other hand, the lowest strength of relational embeddedness is still reported by hierarchy.

Key words: governance, relational embeddedness, triadic supply chain.

INTRODUCTION

The issue of supply chain governance has been widely explored in the supply chain literature, [Lewis 2001, Blome et al. 2013, Luthra, Mangla 2018]. They cover both market and hierarchy as two distinct formal modes of governance involving standards, contracts, formalized processes, and control systems, such as audits [Tachizawa, Wong, 2015]. More specifically, market involves coordination mediated by a price mechanism, whereas hierarchy concerns a supervisory structure to impose integration and apply bureaucratic routines [Williamson 1985]. Likewise, to address the gap between these two poles, the other modes of governance have been recently introduced [Leuschner et al. 2014, Foerstl et al. 2016, Meinlschmidt et al. 2018]. In the course of time, a discussion unfolded as to whether the other modes of governance are simply a combination of the constructs of market and hierarchy, or whether it would be rather

perceived as a unique, alternate mode of governance, anchored between non-market and non-hierarchy. To respond to these issues, a widely-known concept of relational governance has been developed to balance the negative effects of both market and hierarchy, and act as a sort of counterweight to these formal modes of governance [Dolci et al. 2017, Wallenburg and Schaffler 2014]. In the earlier studies, the discussion on the relationship between the modes of governance was framed into a polarized 'complements versus substitutes' dichotomy. In line with this research stream, the modes of governance either complement or substitute for each other [Reimann et al. 2017]. Consequently, by reference to this dichotomy, relational governance was considered as a combination of bipolar modes that simultaneously possesses the features of market and hierarchy or non-market and non-hierarchy [Ouchi 1991, Bradach, Eccles 1989, Powell 1990, Heide, 1994]. However, in line with the latest research, market, hierarchical and relational governance are depicted as three distinct modes that coexist together, and thus form a construct often referred to as network governance [Alvarez et al. 2010]. In other words, network governance assumes that relational governance is not the outcome of the constellation of market and hierarchy anymore, but requires specific and additional efforts to be undertaken to come in force. Accordingly, the major rationale behind this perspective is that as the hybrid modes cannot provide the social dimension of governance themselves, relational governance should be rather applied as an additional form. Despite this perspective, the paper aims to return to the conceptual roots of hybrid and alternate modes of governance and empirically recognize whether a combination of market and hierarchy (or non-market and non-hierarchy) is still capable of providing social layer to governance within the three-tier supply chain framework. To gain this goal, the paper seeks to advance the concept of hybrid and alternate modes of governance through the lens of relational embeddedness. Consequently, the logic of embeddedness suggests that higher levels of joint dependence necessarily increase the depth of economic interaction between exchange partners, jumpstarting a stronger relational orientation [Gulati, Sytch 2007]. To study

embeddedness, we employed a three-tier structure as the example of the smallest multi-tier supply chain. In fact, the three-tier supply chain is a type of a triad and a triad has been argued to be the smallest unit of a network [Choi, Wu 2009, Dubois 2009]. There are two major contributions of our study. First, to the best of our knowledge, this is one of very few studies that treat relational embeddedness as a common theme, shared by all types of hybrid and alternate governance structures, anchored between market and hierarchy or non-market and non-hierarchy, respectively. Second, both hybrid and alternate structures are, at best referred to the dyadic arrangements [Heide 1994, Chelariu et al. 2014]. However, Watson [2001] indicates that complex supply chains, composed of several dyads, may be governed by different modes, as compared to the governance mechanism in dyadic arrangements. To respond to this challenge, our study moves the analysis on the network level, by investigating the three-tier supply chain, composed of two dyads. The paper starts with the overview of the role of relational embeddedness in the other governance structures, positioned either between market and hierarchy or between non-market and non-hierarchy as bipolar modes. This is followed by a description of the methodology used for gathering data within the triadic context. The next section introduces major findings derived from the analysis. Finally, we conclude with a discussion, demonstrate limitations of the study and implications for future research.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

Theoretically, it is important to recognize the three-tier supply chain as a triad. It represents an arrangement consisting of two dyads connected through the middle node. In our supply chain, this middle node is the one that initiates a triad and we there shall call it as the focal company, also known as ego, while the immediate modes, positioned on both sides of the triad are known as alters [Mentzer et al. 2007]. These three actors are directly linked by one or more of the upstream and downstream flows of products, information and finances in the three-tier supply chain [Wuyst et al. 2004].

In this study, the three-tier supply chain is composed of the manufacturer in the middle, its supplier on the upstream and its customer on the downstream. In such the triadic supply chain, the manufacturer through its privileged position between two disconnected actors, holds a key to running the mechanism of governance [Li, Choi 2009, Yang et al. 2011]. Governance can be defined as written or non-written rules that guide, regulate and control social life and features which are emanated from power [Barnett, Duvall 2005, Crisan 2016]. From the classical perspective of the Relational Contracting Theory and Transaction Cost Analysis (TCA), governance is viewed as the choice between market and hierarchy [Williamson 1985]. Conceptually, market involves formal, explicit and legally enforceable inter-organisational agreements that define the roles, rights and responsibilities of exchange actors and establish safeguards against potential opportunism [Poppo, Zenger, 2002]. Consequently, market governance revolves around the notion of price determined in the contract [Gereffi, Lee 2012]. Hierarchy, on the other hand, occurs in organizations and is based on control anchored in organizational structures. It has clear organizational boundaries, lines of authority, detailed report mechanisms, and formal decision-making procedures [Powell 1990]. It thus requires some form of overt rule-driven design and direction [Thompson 2003]. In line with hierarchy, individual companies operate under a regime of administrative procedures and work roles defined by the most powerful supply chain actor [Powell 1990]. Following the study of Bradach and Eccles [1991] we argue that market and hierarchy are not sole ideal types, distinctly existing as individual modes of supply chain governance. Quite the contrary, supply chain governance is a combination of these two mechanisms, as their content and strength define the specific configuration of enacted governance mechanism. Accordingly, we argue that the share of market and hierarchy in supply chain governance is diverse, and does not necessarily require all these modes to ensure balance. We also think that over time we would observe more than one mode of governance in a particular supply chain. In other words, the supply chain governance is dynamic, as the constructs of market and hierarchy may demonstrate a diverse content and relative strength. In fact, from the multi-tier perspective, they may overlap in the particular dyad as well as between dyads. As a consequence, supply chain governance may remain inherently idiosyncratic and unique [Brass et al., 2004, Huxham, Vangen, 2005]. What this means is that once a focal firm is able to establish a specific form of governance, it would be difficult for other firms to imitate [Czakon 2011, Christopher 1996, Foss, 1999]. For instance, Toyota has always been willing to share the knowledge about its supply chain practices, largely because it understands knowing and doing are two different issues [Liker 2004]. Thus, we postulate the following hypothesis:

H1: The three-tier supply chains differentiate in terms of governance mechanisms.

Beyond the recognition of market and hierarchy, as mutually exhaustive bipolar framework of governance, there have been numerous attempts to develop the hybrid or alternate modes to supplement the existing model with other characteristics [Williamson 2008, Hernandez-Espallardo et al. 2010, Skjoett-Larsen 2000]. Hybrid governance has been framed as a mode filling the gap between market and hierarchy. In line with the first approach, hybrid mode acts as relational governance which is placed between market and hierarchy [Heide, 1994, Gereffi et al., 2005]. It thus develops with the increasing number of recurring transactions when moving on in the continuum from market to hierarchy [Bensaou 1999]. Nonetheless, the other view usually acknowledges that the alternate modes of governance are non-market and non-hierarchical and thus possess neither market nor hierarchical characteristics [Ouchi 1980, Bradach, Eccles 1989]. According to this approach, hybrid governance can no longer be placed in the continuum between market and hierarchy, quite the contrary, is should be positioned on the continuum anchored between non-market and non-hierarchy. In the previous studies, the other than formal modes of governance were usually referred to relational governance which was supposed to add necessary social dimension to purely economic transactions performed between the exchange partners. However, they also show that

relational governance should be rather developed as an independent mode whose antecedents are not anchored in market and hierarchy [Larson 1992]. In consequence, researchers started to move beyond the simplified relationships between the modes of governance in favor to investigate the conditions under which formal and relational governance interact in specific ways [Reimann et al., 2017]. To respond to this ambiguity, the study traces the conceptual roots of governance and empirically recognizes whether hybrid and alternate governance are still capable of providing social layer to governance within the three-tier supply chain framework. To offer a potential link between economical and sociological accounts of business behavior in supply chains, we turn to the concept of relational embeddedness, defined as a 'combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie' [Granovetter 1973]. Thus, relational embeddedness changes a partner's attitude from self-interest to credit and reduces the risk of egoistic behavior during the course of cooperation [Li, Yang 2017]. Appreciating the latest research findings on the role of relational governance as the extra third mode that forms a basic governance structure of supply chains, we tend to empirically investigate whether both hybrid and alternate modes of governance, still provide a requisite level of relational embeddedness. Consequently, as strong relational embeddedness is rarely accomplished automatically and spontaneously, we postulate that it requires establishing hybrid governance, anchored between market and hierarchy or alternate mode of governance, anchored between non-market and non-hierarchy: Thus, we offer the following hypothesis:

H2: Hybrid governance perceived as a combination of market and hierarchy demonstrates stronger relational embeddedness in comparison to the governance mechanisms composed of either market or hierarchy alone.

H3: Alternate governance perceived as neither market nor hierarchy demonstrates stronger relational embeddedness in comparison to the governance

mechanisms composed of either market or hierarchy alone.

METHODOLOGY

Sample and Research Instrument

The process of data gathering that involves a multiple-respondent approach, consisted of several stages. More specifically, to collect data from all three actors forming the triadic supply chain, we combined methods based on probability and non-probability sampling. Firstly, to obtain data from the manufacturers, the stratified sampling method was applied, followed by the snowball sample method to gather information from the suppliers and the customers. Initially, the sample of 98 Polish manufacturers was targeted, out of which, a group of 10 companies refused to fill in the questionnaire, alleging that their suppliers or customers will not be willing to take part in this research. Likewise, a large group of 50 manufacturers encountered problems with a bad attitude of suppliers or customers towards the questionnaire. Finally, a group of 4 manufacturers managed to encourage their suppliers and customers to participate in the survey, however after receiving the questionnaire, they refused to take part in the research. Accordingly, the remaining portion of 34 triads that form a simultaneous relationship with both a supplier and a customer were investigated in the study.

The questionnaire, used in this survey, consisted of several measurement items covering the issues of market and hierarchy as two bipolar modes of governance, and relational embeddedness. Most of the measurement items were operationalized in prior research; however, some of them were also derived from the literature review. The structure of the survey questionnaire was adapted to certain groups of respondents – actors playing different roles in the examined triadic supply chains. Accordingly, depending on the function served in a triad, each responding company answered a specific set of questions. Due to its central location, the manufacturer answered the questions concerning different modes of governance in the upstream and downstream dyad and

relational embeddedness, separately for both dyads – one formed with its supplier, and the other one established with its customer. The other two groups of actors in a triad, the suppliers and the customers, answered the questions concerning governance and relational embeddedness yielded in a certain dyad formed with the manufacturer. The obtained responses from both actors forming a dyad were then captured as averaged scores indicating modes of governance in a bilateral arrangement. Correspondingly, the measures of relational embeddedness were formed by the average scores obtained separately for both dyads.

Research Methods and Analysis

To explore the role of relational embeddedness in supply chain governance, a statistical analysis has been performed. In the first step, the variables indicating certain modes of governance and relational embeddedness of upstream and downstream dyads were narrowed down to the main underlying multi-item constructs through the Principal Component Analysis (PCA) with Varimax Rotation. In the second step, the factor scores, obtained through the PCA, for the certain modes of governance were used as criteria for classifying the sample into homogenous groups. As a classification method, a cluster analysis with a two-step approach recommended by Ketchen and Shook [1996] was employed. Consequently, we applied a hierarchical cluster analysis to determine the number of clusters, followed by K-means cluster analysis to perform a group profiling and make necessary comparisons of the obtained clusters in terms of the remaining constructs of relational embeddedness yielded in the upstream and downstream dyads.

Principal Component Analysis

To identify basic modes of governance in the investigated supply chains, the PCA was carried out originally in two groups of 11 variables each, which manifested governance of both upstream and downstream dyads. 1 variable from the group of variables concerning governance in the upstream dyad was dropped for its moderate exploratory relevance, as indicated by the factor loading

that did not exceed 0.6 [Kline 1994]. In the second group, all variables were accepted for the further analysis demonstrating satisfying values of individual sampling adequacy and factor loadings. Based on the Kaiser criterion and eigenvalues for each factor, the analysis showed a clean factor-loading pattern with minimal cross-loadings and high loading on the one construct.

In both groups reflecting modes of governance in the upstream and downstream dyads, the PCA produced three constructs - two constructs of hierarchical governance and one construct of market governance – Table 1. More specifically, the constructs of governance in the upstream dyads (HUD_1, HUD_2, MUD) and downstream dyads (HDD_1, HDD_2, MDD) explain 77.90 and 76.44 of total variance, respectively. Interestingly, the constructs revealed in both groups are rather clearly delineated regarding the specific modes of governance, expect for one item, initially classified as the variable measuring market governance (M5). To check the internal consistency of extracted constructs, we calculated the Cronbach's alpha coefficients which indicated satisfying level of at least .7 for each construct. Apart from the factors manifesting the modes of governance, we also used the PCA with Varimax Rotation to extract the underlying factors of relational embeddedness.

Table 1. Rotated Component Matrices (left for the upstream dyad, right for the downstream dyad)

Component

	HUD_1	MUD	HUD_2
M5_UD	0.917		
H1_UD	0.898		
H2_UD	0.786		
H3_UD	0.694		
M1_UD		0.881	
M4_UD		0.834	
M2_UD		0.786	
H5_UD			0.927
H6_UD			0.893
H4_UD			0.737

The PCA was carried out in two groups of 19 variables each, which manifested relational embeddedness of both upstream and downstream dyads. Based on the results of anti-image correlation matrices and factor loadings, 4 and 2 items were dropped from the further analysis for the upstream and downstream dyad, respectively. In consequence, two constructs of relational embeddedness, composed of 15 and 17 variables for the upstream and downstream dyad, respectively were used in the further investigation.

Cluster Analysis

Interpretation of Clusters

The scores of factors manifesting governance were employed as clustering criteria in the second step of the analysis. At first, to determine the number of clusters a hierarchical cluster analysis with Ward's partitioning method and squared Euclidean distance was performed. The Ward's method attempted to minimize the sum of squares of any hypothetical clusters, which can be formed at each step. To determine the optimal number of groups, we used dendrogram to display dissimilarity levels between clusters. The heights of the links represent the distance at which each fusion is made, such that a greater dissimilarity between the objects indicates a greater distance between them and a taller link (Montalbano and Nenci, 2014). The optimal number of groups was derived by comparing the coefficients in the agglomeration schedule. The highest difference between the coefficients can be observed when four clusters are derived. To assign each case to the appropriate cluster, the number of 4 clusters was used to conduct K-means cluster analysis. The criterion of the cluster membership was the minimal Euclidean distance between each case and classification center represented by centroid (cluster center). In order to additionally validate the results of clustering, the outcome of K-means cluster analysis was compared with the class assignment obtained from the hierarchical cluster analysis. The Rand Index showed that 78.4 percent pairs of objects are placed in the same class. It means a high level of agreement and confirming the correct choice of K-means cluster analysis as the leading clustering method (Krieger and Green, 1999). The obtained clusters contain a diverse share of the research sample. To determine the statistical significance of criteria for 4 groups, the Kruskal Wallis H test was applied – Table 2.

Table 2. Kruskal-Wallis H Test for the governance constructs in four clusters

Test Statistics

	HUD_1	MUD	HUD_2	MDD	HDD_1	HDD_2
Kruskal-Wallis H	22.906	13.511	8.142	14.448	20.455	6.223
df	3	3	3	3	3	3
Asymp. Sig.	0.000	0.004	0.043	0.002	0.000	0.101

As depicted in Table 2, 1 construct (i.e. HDD_2) should be eliminated from the further analysis as it turned out to be insignificant at $p < .05$. Figure 1 depicts the final cluster centers (medians) obtained from the governance constructs.
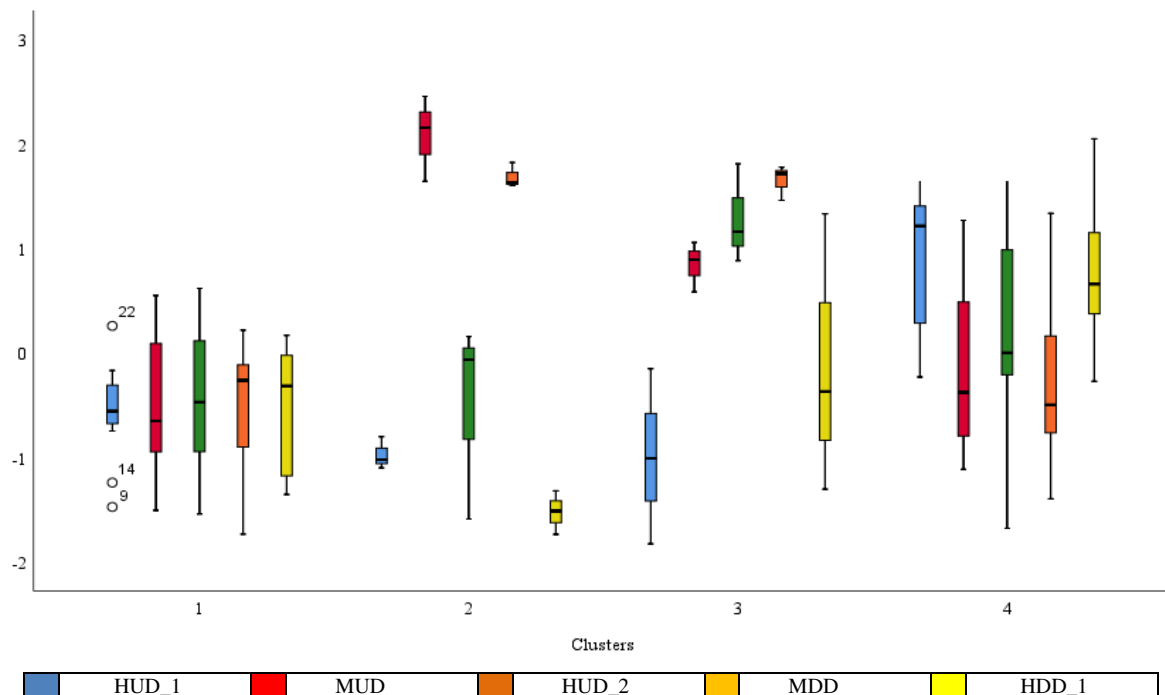
Fig. 1. Boxplots for clusters depicting the intensity of the modes of governance

The remaining set of 5 constructs of governance in the upstream and downstream dyads significantly differentiates the four clusters. Our study shows that regarding the intensity of the modes of governance across the investigated triads, some indicative tendencies may be revealed. Drawing upon the median scores of factors depicting the intensity of the modes of governance across 4 clusters, we conclude that cluster 1 covers the group of triads that apply neither market nor hierarchy, and thus it can be referred to as the alternate governance cluster. Cluster 2 groups the triads that are governed by market in the upstream and downstream dyads, whereas cluster 4 represents the triads that apply hierarchical governance in both dyads. Interestingly, cluster 3 includes the triads that share the modes of governance by simultaneously applying some market and some hierarchy. Consequently, cluster 2 will be referred to as the market governance cluster, cluster 3 as the hybrid group, while cluster 4 will be termed as the hierarchical governance cluster.

Profiling of the Clusters in terms of relational embeddedness

In order to reveal the strength of relational embeddedness in the three-tier supply chains applying different modes of governance, we first tested whether the differences among clusters are significant for relational embeddedness of upstream and downstream dyads. Table 3 depicts the Mann-Whitney U Test statistics for three clusters.

As indicated in Table 3, there are significant differences among clusters. This means that the modes of governance significantly differ the groups of three-tier supply chains. However, Table 3 also shows that governance does not differ two clusters (at $p < .05$) - one cluster governed by market, and another governed by the hybrid mode.

Table 3. Mann-Whitney U test statistics for clusters

Cluster		Upstream dyad	Downstream dyad
Alternate governance (neither market nor hierarchy) - market governance	Mann-Whitney U	0.000	0.000
	Z	-2.625	-2.625
	Asymp. Sig. (2-tailed)	0.009	0.009

Alternate governance (neither market nor hierarchy) - Hybrid governance (combination of market and hierarchy)	Mann-Whitney U	0.000	0.000
	Z	-2.625	-2.625
	Asymp. Sig. (2-tailed)	0.009	0.009
Alternate governance (neither market nor hierarchy) - hierarchical governance	Mann-Whitney U	41.000	51.000
	Z	-2.603	-2.142
	Asymp. Sig. (2-tailed)	0.009	0.032
Market Governance - Hybrid governance (combination of market and hierarchy)	Mann-Whitney U	2.000	2.000
	Z	-1.091	-1.091
	Asymp. Sig. (2-tailed)	0.400	0.400
Market Governance - hierarchical governance	Mann-Whitney U	0.000	0.000
	Z	-2.666	-2.666
	Asymp. Sig. (2-tailed)	0.008	0.008
Hybrid governance (combination of market and hierarchy) - hierarchical governance	Mann-Whitney U	0.000	0.000
	Z	-2.666	-2.666
	Asymp. Sig. (2-tailed)	0.008	0.008

Table 4. Mann-Whitney U test ranks for clusters in the upstream and downstream dyads

Cluster (governance mechanism)	N	Upstream embeddedness		Downstream embeddedness	
		Mean rank	Sum of ranks	Mean rank	Sum of ranks
Alternate governance (neither market nor hierarchy)	13	7.00	91.00	7.00	91.00
Market governance	3	15.00	45.00	15.00	45.00
Total	16				
Alternate governance (neither market nor hierarchy)	13	7.00	91.00	7.00	91.00
Hybrid governance (combination of market and hierarchy)	3	15.00	45.00	15.00	45.00
Total	16				
Alternate governance (neither market nor hierarchy)	13	18.85	245.00	18.08	235
Hierarchical governance	15	10.73	161.00	11.4	171
Total	28				
Market governance	3	2.67	8.00	2.67	8.00
Hybrid governance (combination of market and hierarchy)	3	4.33	13.00	4.33	13.00
Total	6				
Market governance	3	17.00	51.00	17.00	51.00
Hierarchical governance	15	8.00	120.00	8.00	120.00
Total	18				
Hybrid governance (combination of market and hierarchy)	3	17.00	51.00	17.00	51.00
Hierarchical governance	15	8.00	120.00	8.00	120.00
Total	18				

As shown in Table 4, the Mann-Whitney U test mean ranks suggest that the clusters covering both market and hybrid governance indicate the highest and similar strength of relational embeddedness across the four groups. Moreover, the cluster of alternate governance indicates a moderate strength, while the group covering hierarchy, reports the lowest strength of relational embeddedness as compared to other groups.

RESULTS AND DISCUSSION

The study sought to investigate whether hybrid governance as a combination of market and hierarchy, and the alternate modes of governance that are non-market and non-hierarchical are still capable of providing social dimension to governance within the three-tier supply chain framework. To achieve this aim, we first examined whether the three-tier supply chains differentiate in terms of the different modes of governance. Our study confirmed that along with the pure mechanisms of supply chain governance (market and hierarchy), one may also identify both the hybrid and alternate modes. Consequently, the hybrid mechanism demonstrates that market and hierarchy can be intertwined and combined together in various ways. The spectacular evidence for that is delivered by cluster 3 that gathers the three-tier

supply chains, governed by the mechanism that simultaneously shares some portion of market and some portion of hierarchy. On the other hand, cluster 1 consists of the triads that are simultaneously governed by non-market and non-hierarchical modes. This group clearly shows that distinct mechanisms of governance in the three-tier supply chains also exist. Interestingly, however, the pure mechanism of market and hierarchy may be also identified in supply chains, represented by clusters 2 and 4. These two latter clusters fit into the concept of substitutive nature of governance mechanisms, which posits that the use of one governance mode makes the other less useful or even superfluous [Wallenburg, Schaffler, 2014]. In line with this view, market and hierarchy as two formal modes of governance undermine social processes, hamper the formation of trust and destroy establishing a deeper commitment covered by relational governance. This tendency is even more preserved in clusters 2 and 4, when hierarchy is analysed. In case of these two clusters, the influence of both constructs manifesting hierarchy in the upstream dyad goes in the same direction with the positive or negative intensity. Moreover, it is also worth noting that in case of clusters demonstrating pure mechanisms of supply chain governance (i.e. market and hierarchy), certain mechanisms are coherent regarding both dyads. For instance, in the market governance cluster, both dyads are governed by the market, while in case of cluster applying hierarchy, both dyads of three-tier supply chains are governed by hierarchy. This may stem from the fact that the focal company, that in charge of the triadic arrangement, tends to unify the modes of governance across the triad. In other words, the manufacturer, positioned centrally in its three-tier supply chain, shifts the similar modes of governance from one dyad to another. This tendency might be even enhanced when the manufacturer reaps substantial benefits from the particular mode of governance in a certain dyad. For that reason, through its privileged position as a gate-keeper between suppliers and customers, the manufacturer can be especially encouraged to adapt a similar mode of governance to the other dyadic arrangements in its triad.

In case of hybrid governance, there is an interplay between market and hierarchy which results in yielding relational embeddedness. This may demonstrate the complementary nature between two formal modes of governance as illustrated by Peppo and Zenger [2002]. However, it is also worth mentioning that not only can this interplay be observed between market and hierarchy, but also between specific modes of governance. Hierarchy serves as a very good example in cluster 3 by showing that the intensity of two constructs of hierarchy in the upstream dyads goes in the opposite direction. This indicates a trade-off relationship in the womb of specific governance mechanism. Interestingly however, this interplay also exists between both dyadic arrangements in the hybrid governance cluster. Therefore, according to the complementary nature of the formal modes of governance, the emergence of relational embeddedness in the hybrid governance cluster may contribute to covering so called the blank spots typical for the formal modes of market and hierarchy, especially when planning and in-advance designing may turn out to inefficiently respond to unexpected events. Consequently, performing joint actions, based on social interactions and relational norms, may fill in the gap of the disadvantages of either pure market or pure hierarchy [Wallenburg and Schaffler, 2014]. In the light of the aforementioned, we conclude that the three-tier supply chains differentiate in terms of governance mechanisms composed of both formal modes (pure market and pure hierarchy) and other modes (hybrid and alternate) of governance. The obtained outcome gives support to H1.

Further on, the study also shows that two clusters of three-tier supply chains, governed either by market or the hybrid structure significantly differ from the remaining clusters covering supply chains with the alternate and hierarchical modes of governance in terms of relational embeddedness. Both the market and hybrid governance clusters demonstrate the strongest relational embeddedness of both dyads. Following Jones et al. [1997], we argue that both modes of governance may arise from increasing complexity and thus the need to negotiate with many social actors. In other words, the cluster including supply chains governed by the depicts a retreat from the pure market and hierarchy to more socialized ways

of governance, covering the pluralistic perspective. It thereby shows a movement from formal authority to collective coordinating, social steering and influencing. Following Ouchi [1980], we argue that hierarchy can add some aspects of relational embeddedness (such as trust) to governance, as actors can assume some commonality of purpose. The congruence of goals is developed through establishing long-term relationships, typical for hierarchy, that will reward good performance and reduce the opportunistic behavior of actors in supply chains. The obtained findings may suggest that incorporating some market and some hierarchy contributes to higher relational embeddedness of both dyads in the three-tier supply chains. This may serve as a good starting point for a development of relational governance. The socialization process reflects the extent to which an interorganizational relationship is governed by the social relations and shared norms, such as informal structures and self-enforcement [Mirkovski et al., 2016]. On the other hand, the alternate modes of governance are still capable of providing some relational embeddedness however its strength is profoundly limited as compared to market and the hybrid mode governance. The most interesting outcome can be revealed while analysing the role of relational embeddedness in hierarchy. Williamson [1981] argues that the level of collaboration in case of hierarchy is higher than in market governance, so by analogy, one may suspect that the strength of relational embeddedness will be higher in the three-tier supply chains governed by hierarchy. However, our study appears to contradict the commonly held assumption by showing that it is actually market governance that demonstrates higher strength of relational embeddedness. This might be further substantiated by the findings of Mena et al. [2009] who analyse case studies indicating that hierarchy leads to the lower level of collaboration than market.

To sum up, our study shows that the hybrid mode of governance, anchored between bipolar modes of market and hierarchy contributes to establishing strong relational embeddedness. Though, the cluster of three-tier supply chains, governed by this mode demonstrates significantly higher mean ranks for relational embeddedness of both dyads, as compared to the clusters implementing the alternate mode and hierarchy, it still does not significantly differ from the cluster covering market governance. In this light, we give partial support to H2 by evidencing that hybrid governance, perceived as a combination of market and hierarchy, demonstrates stronger relational embeddedness than the governance mechanisms composed of hierarchy alone. Likewise, it shows similar strength of relational embeddedness to market governance. On the other hand, our study also partially support H3 by showing that the alternate mode of governance, perceived as neither market nor hierarchy, demonstrates stronger relational embeddedness than hierarchy alone. However, the strength of its relational embeddedness is significantly lower as compared to market governance.

In the light of the aforementioned, it is worth noting that it is difficult to reveal clearly delineated tendencies regarding both the hybrid and alternate modes of governance in terms of relational embeddedness. In fact, the hybrid mode of governance should be rather linked to market as they both are very similar, while the alternate mode of governance demonstrates a moderate strength of relational embeddedness. On the other hand, the lowest strength of embeddedness is still indicated by hierarchy.

LIMITATIONS OF THE STUDY AND FURTHER RESEARCH AVENUES

The limitations of this study pave the way for new research opportunities. First, though, in line with the multi-tier view, the supply chains are classically studied via the incremental examination of multiple dyadic relationships, emanating from the focal actor, this perspective may not accurately reflect the complexity of contemporary supply chains. To embrace the full complexity of supply chains, the study should go beyond the triadic perspective, and thus incorporate a larger number of actors involved in the flow of products, information and finances in supply chains. Second, apart from extending the number of actors forming the overall structure of network, future research should also address

the issue of sample size. In other way, moving forward the empirical validation, the number of the units of network, forming the research sample, should be taken into account. This will contribute to increasing the reliability of sample and the validity of research findings. Finally, though our study showed that both the hybrid and alternate modes of governance yield some strength of relational embeddedness, it would be worthwhile to investigate the quality and constitutive features of embeddedness obtained from these two modes in comparison to embeddedness obtained from relational governance as the third additional and complementary mode of governance.

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HYBRYDOWE I ALTERNATYWNE MECHANIZMY KOORDYNACJI DZIAŁAŃ WIELOPODMIOTOWYCH: IMPLIKACJE DLA ZAKORZENIENIA RELACYJNEGO W TRIADYCZNYCH ŁAŃCUCHACH DOSTAW

STRESZCZENIE. **Wstęp:** Artykuł podejmuje próbę zbadania czy hybrydowe (postrzegane jako kombinacja rynku i hierarchii) oraz alternatywne (nierynkowe i niehierarchiczne) mechanizmy koordynacji umożliwiają wyłonienie aspektu społecznego, wzbogacającego proces regulacji działań wielopodmiotowych w triadycznych łańcuchach dostaw

Metody: W warstwie empirycznej badania obejmują dwa etapy. W pierwszym etapie dokonano redukcji zmiennych manifestujących dwa formalne mechanizmy koordynacji działań wielopodmiotowych (rynek i hierarchię) za pomocą analizy głównych składowych. W kolejnym etapie badania przeprowadzono analizę skupień w celu porównania zróżnicowanych grup łańcuchów dostaw ze względu na zakorzenienie relacyjne. W celu identyfikacji poziomu istotności w artykule wykorzystano nieparametryczne testy statystyczne.

Wyniki: Badanie pokazało, że obok stricto rynkowych i hierarchicznych mechanizmów koordynacji działań w badanych łańcuchach dostaw występują również mechanizmy hybrydowe i alternatywne. Korespondują one ze zidentyfikowanymi czterema grupami łańcuchów dostaw. Ponadto, rynkowy, jak i hybrydowy mechanizm koordynacji wyróżnia najwyższy stopień zakorzenienia relacyjnego obu diad w badanych strukturach triadycznych. Z drugiej strony, mimo że alternatywny mechanizm koordynacji, postrzegany jako nierynkowy i niehierarchiczny, wskazuje wyższy stopień zakorzenienia relacyjnego w stosunku do mechanizmu hierarchicznego, to jednak siła jego zakorzenienia relacyjnego jest istotnie niższa w stosunku do zakorzeniania relacyjnego wskazywanego przez mechanizm rynkowy.

Podsumowanie: Przeprowadzone badania pokazują, że trudno jest praktycznie wskazać określone tendencje dotyczące zarówno hybrydowego, jak i alternatywnego mechanizmu koordynacji działań wielopodmiotowych w kontekście zakorzenienia relacyjnego diad w strukturach triadycznych. Niemniej, hybrydowy mechanizm koordynacji powinien być raczej łączony z mechanizmem rynkowym, Z kolei, alternatywny mechanizm koordynacji pokazuje umiarkowaną, a mechanizm hierarchiczny najniższą siłę zakorzenienia relacyjnego.

Słowa kluczowe: koordynacja, zakorzenienie relacyjne, triadyczny łańcuch dostaw.

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