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# Heterogeneous Organizational Arrangements in Agrifood Chains: A Governance Value Analysis Perspective on the Sheep and Goat Meat Sector of Italy

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**Abstract:** In the Italian agrifood sector, one observes heterogeneity in the types of quality certification processes. This heterogeneity cannot be explained by standard governance theories like transaction costs economics (TCE). We use the governance value analysis (GVA) perspective that synthesizes TCE and a resources-based view (RBV), to suggest that the observed heterogeneity in organizational forms is a result of heterogeneous differentiating strategies that farms have pursued in the face of competitive pricing pressures. To empirically test GVA, data are obtained using a survey methodology on lamb meat produced by local farms in the Abruzzo region of Italy, challenged by price-costs squeeze. Our empirical test evidences the relevance of the adopted approach, enlightening different organizational arrangements, strictly linked to both the strategic positioning and to the farms' resources and core competencies.

**Keywords:** governance value analysis; LAFs governance; quality schemes; sheep sector; geographical indications

## 1. Introduction

This paper deals with the governance of agrifood value chains, according to a neoinstitutional perspective. More precisely, it analyses how, within localised agrifood systems, different mechanisms of governance are chosen to reflect different value propositions. Therefore, research questions concern why heterogeneous forms of governance occur within territorialised agrifood systems, where re-anchoring processes of agricultural production are at stake [1]. This topic seems relevant when collective action should characterise valorisation strategies in localised agrifood systems. On the other side, plural forms of governance may emerge, even in cases of a similar transaction carried out in the same territory [2].

Therefore, questioning the way in which governance mechanisms are developed in a localised agrifood system is a relevant field of research. In his seminal work, Stoker [3] (p. 18) defines governance as a *set of institutions and actors that are drawn from but also beyond government*, aiming at identifying *boundaries and responsibilities for tackling social and economic issues*, bringing about something without the need for government authority. Consequently, governance mechanisms aim at specifying institutional

arrangements affecting the exchange process [4]. For this purpose, a governance structure *consists of a collection of rules/institutions/constraints structuring the transactions between the various stakeholders* [5] (p. 1).

The governance of a market is a key concept for the agrifood sector, being related to the way in which a supply chain is organized, in addition to the ability to govern existing and create new markets [6]. This is a not simple process, in that governance involves actors with diverse preferences and different incentives [1].

The analysis of governance mechanisms in the agrifood sector is a deeply developed field of neoinstitutional researches, focused on the role of transaction costs in explaining the choice of determined modes of governance [7]. According to us, recent literature has not taken the relevance of resources (resources-based view) into account, jointly with the influence of transaction costs. This paper tries to fill this gap in the literature, with the purpose of describing the organizational arrangement in similar transactions by combining a resources-based view and transaction costs economics. Empirical analysis is carried out in an Italian localised agrifood system specialised in sheep breeding. Here, plural forms of governance emerge, as a response to heterogeneous strategies of value creation. In order to provide an explanation for this territorially concentrated heterogeneity, we put forward an original perspective developed within the neoinstitutional theories. Our theoretical perspective refers to governance value analysis [8], which takes into account both transaction costs and a farm's availability of internal resources. Therefore, it may justify the heterogeneous alignment principle in modes of governance.

The paper is organized as follows: following the introduction (Section 1), in Section 2, we provide an overview of the theoretical background. The aim is not to provide an exhaustive literature review, but to try exploring the links between strategy (qualification or quality certification of agricultural products), resources, and governance, with regards to the relatively recent perspective of governance value analysis. An empirical test is carried out in Sections 3 and 4, with an application to a localised agrifood system specialised in meat lamb production. Section 3 provides methodological insights, while Section 4 discusses the results of the empirical analysis.

## 2. Theoretical Background

The modernization model of agriculture was effective in pursuing original objectives, linked to the increase in agricultural productivity. However, unexpected outcomes also emerged: first, due to the high use of chemical inputs and to unsustainable methods of production, negative externalities emerged, jointly with a growing loss of biodiversity. From an economic point of view, rising costs and relatively downward trends in farm revenues had characterised farming activity, and the consequent price-costs squeeze called for new strategies of farm development in rural areas [9]. As a consequence, a new European agricultural model is emerging, centred on agronomically sound and sustainable agricultural systems characterized by high-added-value farming and high-quality primary and processed products [10]. The backbones of the new agricultural strategies are quality differentiation and the construction of new, alternative markets. Relevance and credibility are the keywords of this process [11]: relevance means that the commitment of producing high quality products makes sense to the consumers. In order to fulfil the promises and make them credible, mechanisms of guarantees are required. Therefore, the choice of quality strategy may bring about stricter organizational arrangements [12], as in cases of collective quality strategies. Consequently, choosing the appropriate governance structure is a strategic answer to credibly commit to a certain quality.

A neoinstitutional perspective on governance is clear in emphasising how farm strategies may affect governance structures. More precisely, transaction costs economics provides evidence concerning the trade-off between the market and hierarchy in the presence of transaction costs. Higher transaction costs engender a progressive transition towards hierarchic forms of governance [7,13]. As Menard [14] points out, *“contracts represent a focal point in neoinstitutional economics, because of their role in relaxing the*

*constraints of bounded rationality, fixing schemes of references for future actions, and checking on opportunistic behaviour”* (p. 282).

New institutional economics has also inspired a large number of researchers in the agrifood sector, by providing them with new tools to explain various modes of organization of the supply chain. Menard and Valceschini [15] describe various institutional solutions as the outcome of granting food safety, thus generating more centralised organizational arrangements. According to Menard and Valceschini [15], strategies of value creation through product differentiation are associated with an increase in transaction costs, on account of higher commitments with final consumers (a quality promise) being made credible. This may boost stricter coordination mechanisms. Coordination also involves intermediate transactions, through the introduction of compulsory quality standards at each level of the food chain: the respect of quality standard affects transaction attributes, in that choosing different quality standards requires farms to make different levels of investments (transaction attributes) that necessitate corresponding governance forms [16]. In cases of collective brands (for example, geographical indications), the high number of actors may raise these costs, with the risks of either reduction or profit crossing-out. Therefore, the choice of quality product may be adopted in cases of net positive revenues for farmers. Thus, how to match quality strategies and forms of governance becomes a relevant field of analysis [6]. Against this background, transaction costs theories have recently faced new challenges, with reference to the evidence of plural forms of governance, not always explainable only through the lens of transactions costs economics. Menard’s [2] (p. 125) key question: “why are different forms of governance often adopted for organising similar transaction?”, has brought about a more extended framework which does not properly consider the availability of a firm’s internal resources.

Ghosh and John put forward an alternative perspective. The starting point is a similar question pointed out by Ghosh and John in their seminal paper [8]: why do firms working in the same industry choose different positioning strategies and governance forms? To answer this question, we intend to complement TCE through a RBV perspective. If transaction costs analysis seems effective in depicting organizational arrangements, some limits underlined in recent literature suggest integrating it with new analytical perspectives: one of them, the resource-based view, takes into account a firm’s resources. As pointed out by Rantamäki-Lahtinen [17], the analysis of a firm’s resources and governance mechanisms brings together transaction costs economics and a resource-based view.

A resource-based view focuses on the relevance of a firm’s available physical and human resources in the ability of building up competitive advantages [18,19]. The need for considering internal capabilities in transaction costs economics is well known by neoinstitutional theorists [20]. A recent analysis carried out by Rindfleisch et al. [21] brings together transaction costs economics and GVA. We agree with the authors in underlying how the “classic” perspective of transaction costs economics underestimates the role of resources and capability, by emphasizing the relevance of three key dimensions in the explanation of governance (asset specificity, uncertainty, and frequency). Therefore, to efficiently design governance forms that exploit resources and capabilities leads to the existence of heterogeneous/plural governance forms. As pointed out by Bradach and Eccles [22], mixed governance modes may minimize transaction costs. Therefore, the *coexistence of different arrangements for operating similar transactions* [23] (p. 575) is not surprising. As a matter of fact, Rindfleisch et al. [21] specify four contextual conditions influencing the nature of governance: the type of transaction, its level of exchange, the capabilities and resources surrounding this exchange, and the mixture of mechanisms used to govern this exchange.

As far as empirical analysis is concerned, a lot of work remains to be done to excavate the complexity and the variety of institutional arrangements [12,23]. This paper posits that GVA may be of help in evaluating strategic positioning within localised agrifood systems (LAFs). Resource-based perspectives, in combination with transaction costs analysis, are at the basis of Ghosh and John’s [8] GVA. According to them, the economizing calculus of transaction costs analysis should be replaced by strategizing calculus, through including strategic choices (for example, quality strategies), specific

investments, and modes of governance. In this context, value creation and value claiming are central [24]. Consequently, the strategizing calculus argues for a simultaneous, three-way choice of resources, investments, and governance that yields the highest expected outcomes [25] (p. 146). More precisely, in order to explain the differences in the contractual relationships among firms operating in the same industry and hence the use of plural forms observed in industry sectors, the authors hypothesise an alignment between resources, specific investments, and governance, bringing about the highest expected incomes. Therefore, according to the authors, strategic positioning leads the analysis of exchange attributes and, consequently, the alternative governance modes. However, they underline that modes of governance must fit with a firm's resources. In their empirical test of GVA, Ghosh and John [25] (p. 146) affirm that the strategizing calculus argues for a simultaneous, three-way choice of resources, investments, and governance that yields the highest expected outcomes. Consequently, this perspective maintains the idea of specific resources in the firm and the objective of maintaining a skill difference among the firms in order to create value. The interesting aspect of the approach is the consideration of transaction costs as endogenous variables, in that alignment may be obtained through the modification of attributes, for example, by intervening in the specificity of resources.

Therefore, modes of governance are the result of a more complex strategizing calculus, bringing about different types of governance, well explained within the framework of transaction costs economics [26–28]. The Table 1 illustrates the typologies of governance.

**Table 1.** Typologies of governance.

The Spot Market Contract	A Contract for the Immediate Exchange of Goods or Services at Current Prices. The Identity of the Parties is Irrelevant
The relational bilateral governance (also implicit contract).	A non-written (not legally enforceable) contract that specifies only the general terms and objectives of the relationship. This governance introduce the idea of repeated relations with the same agents
The relational bilateral governance with "qualified partner(s)".	This structure is similar to the previous one. However, agents are not free to choose their partners, but have to select a "qualified" transactor (accredited for example by a collective organization)
The formal (written) bilateral contract.	A legally enforceable set of promises that defines all or part of each party obligations
The financial participation in the ownership of the partner(s).	In this case, buyer (respectively seller) is a stockholder of the other but stay legally independent from the seller (respectively buyer). Joint-venture is a canonical example of this type of governance structure
Vertical integration.	Bringing two or more successive stages of the supply chain under common ownership and management

Source: processed from Raynaud et al. [11].

Furthermore, through the analysis of contractual arrangements, GVA sheds light on "comprehensive models that incorporate both value creation and value claiming" [24] (p. 59).

Empirical tests of GVA have concerned various sectors and, recently, have been applied to agrifood analysis: Raynaud and Valceschini [11] underline GVA's utility in describing a quality strategy in agrifood supply, by emphasising the eventual needs for acquiring specific resources. More recently, Nazzaro et al. [29] put forward a Value Portfolio and Multifunctional Governance Analysis (VPMGA), aiming at integrating the value chain analysis, transaction costs, and value creation within the framework of multifunctional agriculture. Nonetheless, these analyses do not provide answers to the question concerning the "coexistence of different organizational arrangements for operating similar transactions" [23] (p. 575). Therefore, we believe a gap in the literature needs to be filled, related to the analysis of coordination mechanisms which take into account both economic and strategizing calculus. In what follows, we will try to fill this gap by putting forward an empirical analysis in a territorial agrifood system of Abruzzo, Italy, where different modes of governance have been found in the same food industry.

### 3. Methodology

#### 3.1. Sample and Methodology Description

The sector under study is the sheep and goat meat produced in the Region of Abruzzo (Italy). This is a specialised area, even though it has been witnessing a continuous decline. As a matter of fact, a real collapse in the number of farms throughout the region (−64%), in addition to a significant decrease in the number of heads (−25%), has been observed in the last two censuses of Italian agriculture (referring to years 2000 and 2010). This trend characterizes the smallest and less specialized farms and marks the entire region, differently from the national situation where the number of heads seems to remain constant. The average size of the farms (32 to 66 animals per farm) is still much lower than that at the national level (132.7 animals per farm) or in Central Italy (165.5).

The Abruzzo Region boasts a long tradition in the field of pastoralism, and has a high appreciation by the consumers. Nevertheless, the region is a net importer of live sheep and goats and represents nearly 20% of total Italian purchases of this product.

The census data of 2010 reveal a dichotomous structure of sheep breeding: on the one hand, small and unspecialized farms (with very few animals per holding), and on the other hand, large farms with a number of animals in line with the national context.

In order to analyse the organizational arrangements, data have been collected through a direct and structured survey (developed in 2014, see Appendix A). The survey was conducted through a questionnaire organized into four parts:

- general information (number of heads, rearing, autochthonous breeds, use of transhumance, etc.);
- supplier and upstream relationships;
- quality management (quality of product, labels, geographical indication, process quality management);
- farm diversification.

We submitted the questionnaire through face-to-face interviews. Moreover, in order to acquire further information, qualitative interviews with regional experts and with the Regional Association of Breeders (ARA) were realized. The survey was carried out in cooperation with ARA. After conducting a pilot survey and in-depth interviews with some stakeholders in the Abruzzo Region, we made some minor adjustments to the questionnaire.

Through this direct investigation, it has been possible to collect data on 101 farms in the region, for a total of 35,980 heads (2013), representing 3.1% of the farms in the Abruzzo Region and more than 17% of the animals at a regional level. Farms were casually extracted from the list of the those registered in the regional association of breeders and 50% of the farms registered were included. Consequently, our sample may be considered as representative of farms under the control of the regional body in charge of the control over ovine and goat breeding. The sample has been processed through post-stratification methods and strata have been ascribed by this sample, which sensibly reduces the variability of the estimators.

The farms extracted were professional, on account of their average dimension, which is about 350 heads per farm [30].

In order to acquire further information, our sample was matched with the latest Italian agriculture census. This permitted the inclusion of a significant number of issues: the breeding system, type of farming (wild, semi-wild, extensive rearing, etc.), animal feed and supply methods, organic certification, adoption of technological innovation (as mechanization, milking mechanization and milk refrigeration), development of multifunctional activities, management skills, quality controls, and market channels.

Data collected represent the basis for the application of the GVA approach (Figure 1).

As far as resources and competencies are concerned, by adapting Ghosh and John's indication, three main categories of resources were considered. They are further synthesised in Table 2. As far

as tangible resources are concerned, they take into account the structural characteristics of the farms, represented by the number of heads, types of farming (professional activity), type and composition of the family farm, standard output, and diversification in agricultural and non-agricultural activities. With respect to family composition, family farms have been distinguished according to the phase of life cycle of the manager (young, mature, old), the presence of children, and the presence of farmers' assistants (either young or not) [31].

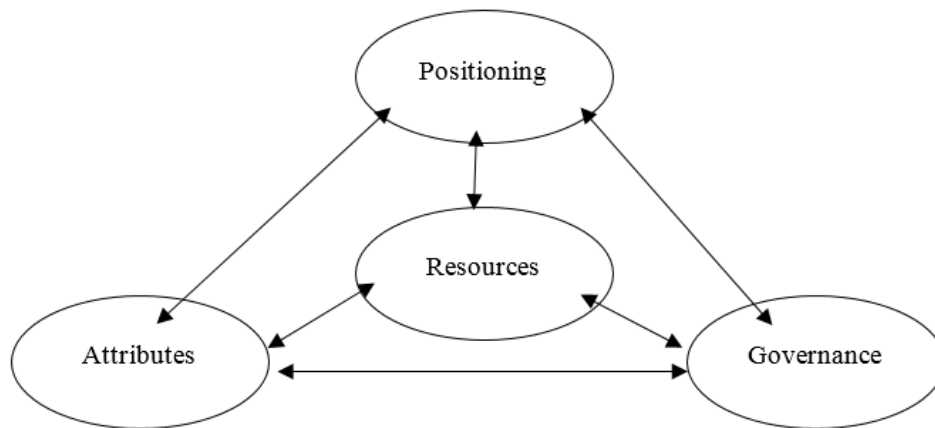


Figure 1. GVA model, processed from Ghosh and John [24] (p. 56).

Table 2. Active variables.

Active Variables	Categories of Variables	Category Description
Adoption of rural development policies	2	Yes/no
CUF-MEAT certification	2	Yes/no
SATA certification	2	Yes/no
Organic farming/transition	2	Yes/no
Supply chain governance	8	- Wholesalers managed by the regional breeding association. - Specialised wholesalers for PGI products. - Other wholesalers - Short food supply chain
Label	4	Buongusto, Protected Geographical Indication (PGI), Buongusto and PGI, no quality sign
Family type	7	<b>Young phase</b> Young farmer and a not young assistant Young farmers with other (assistant may be young or may be not) <b>Mature phase</b> Mature farmer and a young assistant (assistant may be old, mature or may be not) <b>Old phase</b> Older farmer and a young assistant Older farmers with other (assistant may be mature, old or may be not)

Intangible resources refer to the technology, quality, and management control system. Therefore, aspects concerning the presence of the management control system and the adoption of quality processes control have been analysed through the presence of a specific certification scheme, the CUF-meat, a control system employed to monitor the quality of meat at a farm level. Members must adapt to traditional farming, with typical breeds reared on pasture, feeding based on breast milk until weaning, and feeding with fodder and other typical cereals in the fattening phase.

Furthermore, human resources are divided up into basic skills and entrepreneurial skills, according to Rudmann et al.'s classification [32]:



- basic skills refer to the farmers' competencies on farm management (professional and managerial skills). Accordingly, the presence of autochthonous breeds in the farm; to this end, the practice of wild, semi-wild, extensive, or intensive breeding, and the presence of the transhumance system, have been considered. To evaluate managerial competencies, we have considered the adoption of the S.A.T.A. system (Technical Assistance Service to Breeders), which provides breeders with specific experts with the purpose of encouraging the business organization and the achievement of management efficiency.
- entrepreneurial skills include: (a) opportunity skills (capability to exploit opportunities), (b) cooperation and networking skills, and (c) strategy skills. For the purpose of our paper, opportunity skills are synthesised by the capability of gaining access to a rural development policy (revealed by the farm's application for rural policy funds). As far as strategy skills are concerned, investments in quality schemes (geographical indications, quality labels, and organic farming) and diversification into agricultural and non-agricultural activities are considered.

According to Ghosh and John's perspective depicted in Figure 1, positioning, that is the value proposition, is synthesized by the presence of differentiation strategies through the participation in quality systems. Four types of differentiation strategies have been identified:

- adhesion to the "Buongusto" brand (private and local brand of Regional Association of Breeders, ARA) label; it is a collective mark associated with a quality code of practices;
- adhesion to the protected geographical indication (PGI "Agnello del Centro Italia");
- adhesion to both Buongusto and PGI labels;
- no quality marks.

According to our hypothesis, positioning influences the attributes of transactions, resulting in different modes of governance [14]. The positioning strategies may result in a 'commitment intensive' as, for example, in the qualification of agricultural products.

As said before, Raynaud and Valceschini [11] point out that relevance and credibility are the main characteristics of these strategies, probably raising governance costs and boosting discriminant alignment mechanisms aiming at value creation. Consequently, diversified supply chain governance may emerge as a response to diversified attributes, characterising each strategic positioning. As a matter of fact, adhesion to certification (either CUF-meat and SATA, or PGI certification) implies different transaction attributes to be respected. Therefore, various organizational adjustments and, consequently, a different supply chain governance, may emerge.

In order to test the mode of governance, specific questions on distribution channels (wholesalers, retailer, short supply, etc.) and the type of governance structures (ownership of quality signal and coordination vertical relations) were submitted.

In order to verify the modes of governance, a multivariate analysis (cluster analysis and correspondence analysis) has been carried out, in order to identify homogeneous farms with reference to positioning, available resources, and the mode of governance. Cluster analysis is a method of farms' classification that is able to aggregate farms with homogeneous strategies related to positioning/mode of governance. Through multiple correspondence analysis (MCA), a reduced set of factors is extracted in order to reduce the complexity of the variables. MCA is a way to apply the typical Correspondence analysis singular value decomposition algorithm to the so-called "super-indicator matrix", the boolean table in which the rows denote the categories of the survey variables [33]. The Chi-squared distances between the rows of that matrix are based on the variation of the counts of the set of responses of the units, as the sum of the squared differences between their own row data [34].

Clustering procedure has been carried out through the SPAD 3.21 program, by following a hierarchic procedure according to the Ward methodology of aggregation (with 10 iterations with mobile centres). The choice of the three clusters is drawn on the dendrograph, the main graphical tool for looking at a hierarchical cluster solution [35]. This clustering method reveals the groups with the lowest internal inertia and the highest external inertia.

A description of each cluster only takes into account statistically significant variables ( $p \leq 0.05$ ). Active variables are listed below with possible categories.

Illustrative variables concern the average dimension of the farm (physical and economic), diversification of farming activity, type of breeding, and annual family work.

### 3.2. Characteristics of the Sample

The farms under investigation hold different quality positions. The sample is described in Table 3 and includes four categories of quality schemes: 22.8% are in a PGI scheme (PGI “Agnello del Centro Italia”), 10.9% adhere to the Buongusto brand, 14.9% participate in both schemes, and 51.5% are not taking part in any quality scheme. It has to be noted that the interviewed farms of the PGI category account for 40.4% of all Abruzzo’s farms included in the PGI “Agnello del Centro Italia”.

The farms without any quality brand have a lower propensity to implement and use systems leading to improvements in the control process, like CUF-Meat, whereas the propensity is higher for the farms with Buongusto certification. Among the quality management systems, the SATA certification is highly adopted, above all in farms with double certification (PGI and Buongusto), even though non-certified farms present a relatively good level of this SATA certification.

The Buongusto members have a larger share of organic farms (27.3%), even if the share is quite similar to farms producing PGI meat (26.1%). The farms that display more traditional attributes are those with the Buongusto label, with a higher rate of autochthonous breeds (47.5%), while practices of transhumance are mainly realized by farms with both Buongusto and PGI certifications.

Farms with Buongusto certification mainly sell their production through wholesalers; nonetheless, they also sell to local butchers, restaurants, and directly front door farms. Wholesalers are linked to ARA (Regional Association of Breeders) through a specific private company (named SCA—*Servizi Commerciali Allevatori*), specifically created to sell the product to large retailers. Nearly 20% of Buongusto farms directly sell to large retailer buyers. The “only PGI certificated” farms sell the product to specialised wholesalers in the PGI supply chain; moreover, they verify whether each supplier adheres to the standard.

**Table 3.** Percentage distribution of the sample.

	No Certification	PGI + Buongusto	PGI	Buongusto	TOT.
Quality certification (%)	51.5	14.8	22.8	10.9	100
Number of heads per farm (mean)	299	329	453	331	
<i>Std. Deviation</i>	284.5	296.4	244.1	172.9	
<i>Min</i>	30	90	115	160	
<i>Max</i>	1600	1152	910	800	
Organic (%)	13.5 (100%)	20.0 (100%)	26.1 (100%)	27.3 (100%)	
Autochthonous breeds (%)	32.8 (100%)	67.7 (100%)	29.4 (100%)	47.5 (100%)	
Transhumance system (%)	42.3 (100%)	86.7 (100%)	82.6 (100%)	72.7 (100%)	
Average weight of animals (kg)	21	16	19	13	
Average age of animal (days)	65	55	56	57	
Transhumance system (km)					
<i>Mean</i>	11.9	13.1	29.0	15.5	
<i>Std. Deviation</i>	25.6	11.2	31.8	11.3	
<i>Max</i>	120	30	130	35	
CUF-MEAT (%)	50.0 (100%)	60.0 (100%)	78.3 (100%)	81.8 (100%)	
SATA (%)	63.5 (100%)	93.3 (100%)	60.8 (100%)	90.9 (100%)	
Average UAA (hectare)	70	171	105	132	97
Average standard output	108,170	190,398	145,811	117,001	128,787
Average use of policy instruments	0.4	0.6	0.7	0.8	0.6
Supply chain *					
Short foods supply chain (%)	36.5	13.3	4.4	36.4	
Retailer (directly) (%)			100	18.2	
Wholesaler (%)	76.9	93.3		54.5	

\* Total is not 100%.



## 4. Results

### Multivariate Analysis

Through a multiple correspondence analysis (MCA), we have taken into account 22 variables; eight active and 14 illustrative (eight qualitative and six quantitative). The choice of multiple correspondence analysis is due to the preponderance of qualitative variables, with respect to quantitative variables. On the basis of the factors extracted, a cluster analysis has been carried out, with the aim of aggregating homogeneous farms, whilst at the same time obtaining the highest heterogeneity among the groups. Eighteen factorial axes have been created with a total sum of eigenvalues equal to 2.25 (Table 4). First, three factors have been considered to build up the following cluster analysis. These factors explain a total inertia of 32.16%. In order to correct this value of inertia and make it more reliable for the first factors, we have made reference to Benzècri [36]:

$$\lambda^* = \left(\frac{p}{p-1}\right)^2 * \left(\lambda - \frac{1}{p}\right)^2; \lambda > \frac{1}{p}$$

By applying the formula, the first three factors may explain a total inertia of 80.6%, thus confirming a minimum loss of information.

**Table 4.** Eigen values.

Total Inertia: 2.25000					
Factors Extracted	Eigen Values	Inertia %	Cumulated %	Reassessed Inertia %	Cumulated %
1	0.2671	11.87	11.87	38.4577	38.4577
2	0.2483	11.03	22.90	28.9436	67.4014
3	0.2084	9.26	32.16	13.2409	80.6423
4	0.2012	8.94	41.11	11.0741	91.7163
5	0.1772	7.88	48.98	5.1914	96.9078
6	0.1595	7.09	56.07	2.2645	99.1722
7	0.1456	6.47	62.54	0.8084	99.9806
<b>8</b>	<b>0.1282</b>	<b>5.70</b>	<b>68.24</b>	<b>0.0194</b>	<b>100.0000</b>
9	0.1110	4.93	73.17		
10	0.1053	4.68	77.85		
11	0.0977	4.34	82.19		
12	0.0872	3.88	86.07		
13	0.0856	3.81	89.88		
14	0.0750	3.33	93.21		
15	0.0633	2.81	96.02		
16	0.0521	2.31	98.34		
17	0.0258	1.15	99.48		
18	0.0116	0.52	100.00		

Following this, cluster analysis aggregates homogeneous farms in relation to the active variables used in the analysis. A clear misalignment in the modes of governance emerges, attributable to both the presence of quality marks and to the resources available at the farm level, which discriminates organizational arrangements.

Table 5 points out the test value of the three factors extracted to create clusters, which are significant for each cluster of homogeneous farms. By taking into account the test values, a description of the cluster on the basis of the three factors is statistically robust.

**Table 5.** Factors' value tests per each cluster.

	Test Values		
	First Factor	Second Factor	Third Factor
I cluster	6.1	3.6	1.5
II cluster	2.5	−7.0	1.2
III cluster	−6.9	3.0	1.5

The first factor (10.9%) points out the positioning/resources couple. It demonstrates, on the one hand, the presence or absence of value proposition, strictly linked to the endowment of resources and competencies. Consistent with the GVA perspective, the absence of value proposition, that is of a quality mark, characterises the smallest farms (less than 100 heads per farm) that are equipped with a very low level of either tangible or intangible human resources. On the other hand, the presence of resources and competencies in the farm typifies the use of quality brands, more specifically farms with either Buongusto or both Buongusto and PGI brands. The second factor (10.2%) is coherent with the theoretical perspective accepted here: it couples positioning decisions and modes of governance. More precisely, this factor highlights dedicated modes of governance strictly associated with specific brand strategies. The third factor (8.4%) describes the presence of intangible resources in the farm. More precisely, it evidences the adoption of quality process control tools (CUF-MEAT scheme).

On the basis of the previous factors, the following cluster analysis has aggregated farms into three homogeneous clusters. Neither outliers nor highly skewed data have been found; accordingly, it has been possible to extract robust clusters. An interesting element of our empirical analysis concerns the homogeneity between a farm's positioning and consequent supply chain governance.

#### I cluster—Local quality oriented farms with coordinated mechanisms of governance

The first cluster includes 17.9% of farms, with an average size (301–500 heads) and prevalently managed by young farmers without young helpers. These farms' value proposition consists of strategies of specific quality, based on geographical indications, by using the Buongusto label (local label – value test = 2.7), and sometimes joined with the PGI marks as tools to qualify their products (value test = 5.2). To accomplish credible commitments of the strategy, a coordinated governance mechanism is evident, in the form of relational bilateral governance, in which farms have to trade their products within a supply chain coordinated by the regional association of breeders, through a specified type of wholesaler (value test = 7.1).

To better comprehend this form of governance, a resource-based perspective is of help: the farms of this cluster raise only autochthonous livestock (value test = 1.8) and they are provided with a SATA certification (value test = 1.6) demonstrating adequate managerial skills and competencies. Moreover, specific quality is granted through quality control systems, based on specific rearing techniques, making use of traditional and local feeding systems (CUF-MEAT certification – value tests = 1.6).

#### II cluster—farms with specific mark and dedicated mechanisms of governance

In the second cluster, 21.8% of farms have been extracted, characterized by the presence of both big farms (>500 heads (value test = 2.2) and, to a lower extent, farms of an average size (value test = 0.6). A clear combination of value proposition and mode of governance emerges: as confirmed by the high value test (7.9), farms of the cluster adopt a specific differentiation strategy, based on protected geographical indication (PGI). This strategic positioning choice brings about a diverse and dedicated mode of governance. Moreover, to qualify their products further, farmers have adhered to organic methods of production. As a consequence, coherently with the GVA model, a specific mode of governance fits with this value proposition. More precisely, as said in the methodological note, the PGI farms trade the product through specialised wholesalers in the PGI supply chain (value test = 5.9), by checking out the respect of specific quality standards. The analysis of key resources evidences the presence of the quality product certification, but, differently to the first cluster, SATA has not been identified as a key factor.

#### III cluster—farms without either quality strategies or specific governance mechanisms

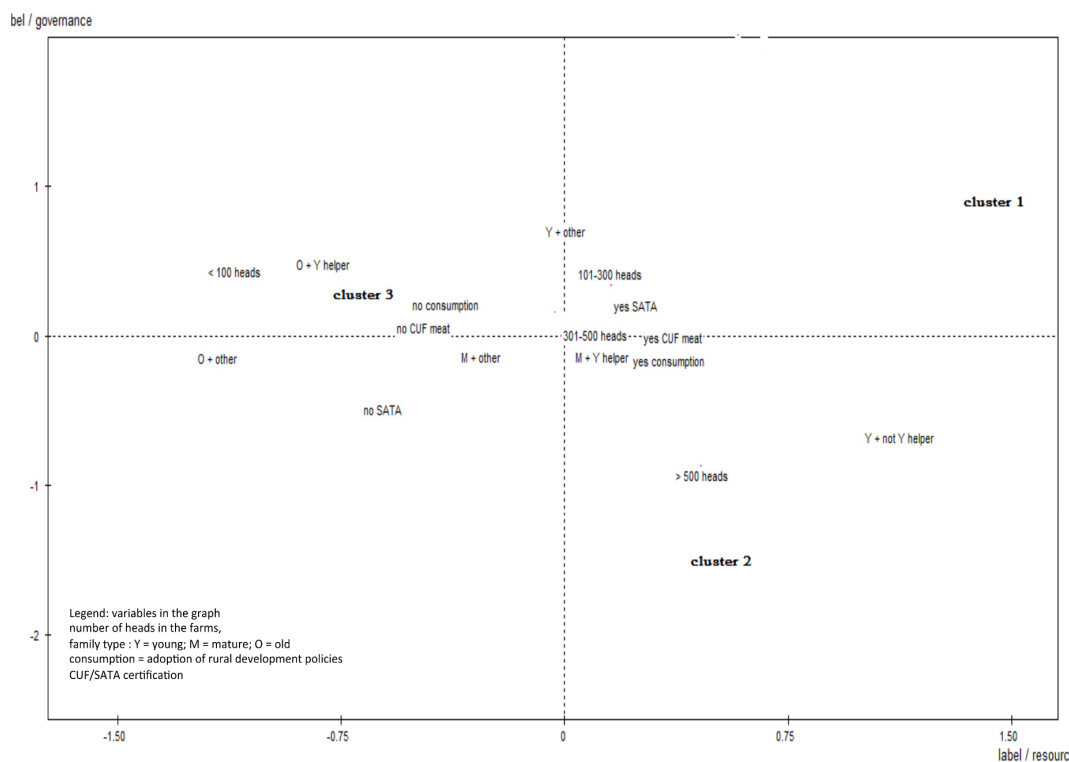
The third cluster includes the majority of farms, comprising 60.3% of the total. They are mainly small farms, managed by elderly people and in a few cases, by young farmers. In these farms, no value proposition has been put forward: as a matter of fact, these farms make use of no label (value test = 8.0) to market their products and make use of either a generic mode of governance (value test = 3.7) or

alternative food networks. Consequently, they sell meat through “generic” wholesalers and/or through direct selling (value test = 2.21). The analysis of internal resources provides possible explanations concerning difficulties adopting specific quality strategies. The location in the elderly phases of the life cycle, above all in the absence of generational renewal, limits the propensity to adopt differentiation strategies. Moreover, the scarcity of both tangible and intangible resources hampers other value propositions (no CUF meat or SATA certifications).

In order to synthetize previous information and to size up the role of each variable, we have positioned the clusters and included other key-variables on the basis of factorial coordinates. To this end, in Figure 2, the horizontal axis reports the factorial coordinates of the first factors (label/resources) extracted from the correspondence analysis, while, on the vertical axis, factorial coordinates of the second factor (label/mode of governance) are calculated. Factorial coordinates are obtained on the basis of chi-squared distances, delivered by the Burt matrix (Escoutier\*).

A differentiation among clusters, explainable according to our theoretical perspective, emerges. Clusters 1 and 2 are clearly positioned in the area where value proposition is “supported” by the presence of core competencies and internal resources. Differences between the two clusters emerge in terms of strategizing calculus: farms in the first cluster pursuit a regional brand strategy, with the aim of serving local-regional markets. Farms of the second cluster aim at valorising their product through the adherence to a geographical indication (PGI). This implies the choice of a larger market, thanks to the availability of large cattle and to the entrepreneurial profile of the manager, usually the young manager of a family farm.

On the contrary, the third cluster evidences a reduced level of resources. Consequently, it is positioned in the area where no brand strategies are adopted.



**Figure 2.** Distribution of clusters and key variables on the basis of the first two factorial coordinates.

## 5. Discussion and Conclusions

Rindfleisch et al. [21]’s stimulus “to continue to explore the relationship between resources and capabilities upon both transaction costs and governance mechanisms” has been acknowledged in this

paper. GVA seems particularly effective in describing links between positioning, the availability of resources, and modes of governance. Actually, three different value propositions [8] characterize our farms, generating three different modes of governance. Moreover, if resources may be defined “as the scarce and imperfectly mobile skills, assets, or capabilities owned by a party to an exchange” [8] (p. 14), a resource-based view permits the cluster to be clearly differentiated. Therefore, if, on the one hand, GVA retains the key elements of transaction costs theory, on the other hand, through the concept of strategizing calculus, it revisits the positioning process by taking into account firms’ core competencies and motivations.

Our empirical analysis demonstrates how farms have coherently chosen couples (positioning/governance) fitting best with their resources and competencies. Three different trajectories have been pointed out, where, coherently with GVA, farms design modes of governance with the aim of joint value maximization (value creation and value claiming) [24]:

1. The first one concerns the majority of farms with limited available resources: value creation and value claiming are a consequence of this. If the farm has no key resources (for example, in cases of farms located in the elderly phases of the life cycle), it has to opt out of differentiation strategies. As a matter of fact, value proposition is based on generic quality and on generic supply chains, where the product is sold through wholesaler or informal food networks. Accordingly, price becomes the most dominant and the most relevant variable in a competitive arena where imported (low price) meat is the reference.
2. A second trajectory involves farms with a clear differentiation strategy based on a local regional brand (Buongusto). In this case, key resources can be put into play and imply a more coordinated mechanism of governance, which calls for resources to be adequate: to support this strategy, tangible, intangible, and human resources are involved. Accordingly, value creating and claiming implies the involvement of vertical systems of governance where the institutional role of the regional breeders’ association is fundamental. As a matter of fact, this association acts as a meso-institution [23], with the purpose of facilitating organizational arrangements in the meat value chain.
3. Finally, a third trajectory adopts a deeper market strategy, based on the recognition of a geographical indication of central Italy, entailing a dedicated form of governance. Value creation is targeted to a deeper market and value claiming leads to specific governance.

Relational bilateral governance characterizes the farms of the clusters, even though two clusters provide qualified partners, while the third one works in generic circuits with non-written contracts and generic conditions to be respected.

Previously described strategies lead to different implications for the modes of governance along the food chain. As a matter of fact, to become credible, a quality signal raises the costs of the governance of intermediate transactions [15]; this is particularly true in cases of complex food chains, enhancing dedicated mechanisms of governance. Nonetheless, the core competencies perspective has permitted a more integrated approach to the individuation of strategies and of “coherent” modes of governance. Therefore, we think that this paper provides a contribution to the literature by integrating transaction costs economics with resources-based perspectives and, thus, clarifies modes of governance as the outcome of this double perspective strategizing calculus.

Finally, the alignment between positioning and the mode of governance feeds the value creation, put into effect thanks to a premium price achieved by farms within quality circuits [37]. However, considering the premium price in detail, the interviews with stakeholders, and our analyses of the main Italian markets, we present evidence that the price differential between PGI and Buongusto farms and not certified farms is more or less than 10%. This aspect may imply a misalignment between value creation and value claiming [24] and, as a consequence, this may partly explain the 60% of our sample not involved in the quality schemes. Consequently, creating value may be an insufficient strategy in

cases of difficulty of value claimed by farms [38]. On the other hand, these farms prefer to diversify agricultural production, in order to escape foreign competition.

Set against this background, GVA has revealed its effectiveness in discriminating three different strategizing calculi in the same territorialized agrifood system, thus confirming Menard's [11] idea of the diversity of institutional rules.

Of course, our paper suffers limits related to the restricted sample investigated and to the regional level of the analysis. Therefore, further analyses are necessary to consolidate the approach and above all to evaluate the economic performance of the various marketing channels. Nonetheless, we think that GVA could be supportive to enlarge the transaction costs perspective, thus taking into consideration resources and competencies, as suggested by Rindfleisch et al. [21]. Moreover, normative implications can be drawn from our analysis, starting from Menard's idea that different organizational arrangements are not to be considered as optimal solutions, but they *leave room for adaptation and evolution* [23] (p. 574). In this trajectory, the consideration of a farm's core competencies and resources may address policy implication, within the framework of the new rural development policies for the period 2014–2020. The large set of measures aiming at boosting collective action (funds for either collective investments, or collective brands, or innovations, etc.), in combination with the classic instruments for a farm's structural adjustments (generational renewal, measure to upgrade entrepreneurial skills of farmers, etc.), may be at the basis of future strategies. The role of rural policies in acquiring specific resources seems remarkable and may involve all farms classified in the three clusters. This could redefine future trajectories of value proposition and, consequently, new organizational arrangements based on new couples and higher expected incomes.

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## Abbreviations

ARA	Regional Association of Breeders
CUF	Control system quality of meat
LAFs	Localised agrifood systems
GVA	Governance value analysis
PGI	Protected Geographical Indication
RBV	Resources-based view
SATA	Technical Assistance Service to Breeders
VPMGA	Value Portfolio and Multifunctional Governance Analysis
TCE	Transaction costs economics

**Appendix A**

Date \_\_\_\_\_ Data collector \_\_\_\_\_

Farm name

Municipality \_\_\_\_\_ Address \_\_\_\_\_

Identification Code

**Number of heads:.....**

**Race...**

**Type of tenure:** Family farming  No. of workers.....

With salaried workers  No. of workers.....

Cooperative  No. of workers.....

Other  No. of workers.....

**Certifications:** CUF Milk  CUF Meat  SATA

“Buongusto Agnello d’Abruzzo” brand

“Agnello del Centro Italia” PGI

Organic farming certification (related to breeding crops)

In transition towards organic farming certification (related to breeding crops)

Organic livestock certification

In transition towards organic livestock certification

**Breeding system**

Wild (without any building)  Semi-wild (with buildings but not stables)

Extensive (stabled and on pasture)  Grazing months per year

Intensive (only stabled)

**Transhumance towards mountain pastures:** NO  YES

Municipality .....

Place .....

Distance .....

**Meat marketing**

Average weight of selling/slaughtering lambs \_\_\_\_\_ Average age of the lambs (days)

Selling to dealers  \_\_ % of heads

Direct selling within the farm shop  \_\_ % of heads

Other types of direct selling:  \_\_ % of heads

- Ethical Purchasing Groups

- Farmers’ markets

- Personal delivery

- Internet

- Other (specify)

Butchers' shops  \_\_ %

Retailers  \_\_ %

Restaurants  \_\_ %

Other (specify) \_\_\_\_\_  \_\_ %

**Milk production and selling**

Milking: NO  YES

Milk selling NO  YES

Dairy within the farm: NO  YES

**Wool selling** NO  YES

**Distribution of farm land used for breeding**

Crops.....

Ha.....



## References

1. Torre, A.; Traversac, J.B. *Territorial Governance. Local Development, Rural Areas and Agrofood Systems*; Springer: Heidelberg, Germany; New York, NY, USA, 2011.
2. Menard, C. Plural forms of organization: Where do we stand. *Manag. Decis. Econ.* **2013**, *34*, 124–139. [[CrossRef](#)]
3. Stoker, G. Governance as theory: Five proposition. *Int. Soc. Sci. J.* **1998**, *50*, 17–28. [[CrossRef](#)]
4. Hesterly, W.S.; Liebeskind, J.; Zenger, T.R. Organizational economics: An impending revolution in organization theory? *Acad. Manag. Rev.* **1990**, *15*, 402–420. [[CrossRef](#)]
5. Hendrikse, G.W.J. Governance of chains and networks. A research agenda. *J. Chain Netw. Sci.* **2008**, *3*, 1–6. [[CrossRef](#)]
6. Vihinen, H.; Kroger, L. The governance of markets. In *Unfolding Webs*; van der Ploeg, J.D., Marsden, T., Eds.; van Gorcum: Assen, The Netherlands, 2008.
7. Williamson, O.E. The new institutional economics: Taking stock, looking ahead. *J. Econ. Lit.* **2000**, *38*, 595–613. [[CrossRef](#)]
8. Ghosh, M.; John, G. Governance value analysis and marketing strategy. *J. Mark.* **1999**, *63*, 131–145. [[CrossRef](#)]
9. Renting, H.; Vogelenzang, L.; Roep, D.; Oostindie, H.; van der Ploeg, J.D. Going backwards to find a way forward: The Netherland. In *Driving Rural Development: Policy and Practice in Seven EU Countries*; O'Connor, D., Renting, H., Gorman, M., Kinsella, J., Eds.; van Gorcum: Assen, The Netherlands, 2006; pp. 51–81.
10. Van der Ploeg, J.D. Rural development and territorial cohesion in the new CAP. Detailed briefing note. In *2010 European Parliament, Directorate General for Internal Policies, Policy Department B: Structural and Cohesion Policies, Agriculture and Rural Development*; European Parliament: London, UK, 2010.
11. Raynaud, E.; Valceschini, E. Creation and capture of value in sectors of the agrifood industry: Strategies and governance. In *Working Party on Agricultural Policies and Markets*; OECD: Paris, France, 2007.
12. Menard, C. The diversity of institutional rules as engine of change. *J. Bioecon.* **2014**, *16*, 83–90. [[CrossRef](#)]
13. Williamson, O.E. *The Economic Institutions of Capitalism*; Free Press: New York, NY, USA, 1985.
14. Menard, C. A new institutional approach to organization. In *Handbook of New Institutional Economics*; Menard, C., Shirley, M.M., Eds.; Springer: Berlin, Germany, 2008.
15. Menard, C.; Valceschini, E. New institutions for governing the agri-food industry. *Eur. Rev. Agric. Econ.* **2005**, *32*, 421–440. [[CrossRef](#)]
16. Raynaud, E.; Sauvée, L.; Valceschini, E. Aligning branding strategies and governance of vertical transactions in agri-food chains. *Ind. Corp. Chang. Adv.* **2009**, *18*, 1–34. [[CrossRef](#)]
17. Rantamäki-Lahtinen, L. The success of the diversified farm—Resource-based view. *Agric. Food Sci.* **2009**, *18*, 1–134.
18. Barney, J.; Wright, M.; Ketchen, D. The resource-based view of the firm: Ten years after 119. *J. Manag.* **2001**, *27*, 625–641.
19. Eghtedari, N.; Hosseini, M.; Malek Mohammadi, I.; Chizari, M. Resource-Based View, Innovative Orientation and Performance In Iran's Agricultural Advisory Services Corporations. *J. Appl. Sci. Agric.* **2014**, *9*, 68–76.
20. Williamson, O.E. Strategy research: Governance and competence perspectives. *Strateg. Manag. J.* **1999**, *20*, 1087–1108. [[CrossRef](#)]
21. Rindfleisch, A.; Antia, K.; Bercovitz, J.; Brown, J.R.; Cannon, J.; Carson, S.J.; Ghosh, M.; Helper, S.; Robertson, D.C.; Wathne, K.H. Transaction costs, opportunism, and governance: Contextual considerations and future research opportunities. *Mark. Lett.* **2010**, *21*, 211–222. [[CrossRef](#)]
22. Bradach, J.L.; Eccles, R.G. Price, authority, and trust: From ideal types to plural forms. *Annu. Rev. Sociol.* **1989**, *15*, 97–118. [[CrossRef](#)]
23. Menard, C. Embedding organizational arrangements: Towards a general model. *J. Inst. Econ.* **2014**, *16*, 567–589. [[CrossRef](#)]
24. Ghosh, M.; John, G. Progress and prospects for governance value analysis in marketing: When Porter meets Williamson. In *Handbook of Business-to-Business Marketing*; Lilien, G.L., Grewa, R., Eds.; Edward Elgar: Northampton, MA, USA, 2012; pp. 54–726.
25. Ghosh, M.; John, G. Strategic Fit in Industrial Alliances: An Empirical Test of Governance Value Analysis. *J. Mark. Res.* **2005**, *42*, 346–357. [[CrossRef](#)]

26. Williamson, O.E. *The Mechanisms of Governance*; Oxford University Press: Oxford, UK, 1996.
27. Raynaud, E.; Sauvée, L.; Valceschini, E. Governance of the agrifood chains as vector of credibility for quality signalisation in Europe. In Proceedings of the 10th EAAE Congress, Saragoza, Spain, 28–31 August 2002.
28. Milgrom, P.; Roberts, J. *Economics, Organization and Management*; Prentice Hall: Upper Saddle River, NJ, USA, 1992.
29. Nazzaro, C.; Marotta, G.; Pascucci, S. Creation and governance of value in agricultural cooperation: The role of policies. In Proceedings of the 126th EAAE Seminar, Capri, Italy, 27–29 June 2012.
30. Sotte, F.; Arzeni, A. Imprese e non-impreses nell'agricoltura Italiana. *Agriregionieuropa* **2013**, *32*, 65.
31. Bartoli, L.; De Rosa, M. Family farm business and access to rural development policies: A demographic perspective. *Agric. Food Econ.* **2013**, *1*, 12. [[CrossRef](#)]
32. Rudman, C.; Vesala, K.M.; Jäckel, J. Synthesis and recommendations. In *Entrepreneurial Skills and their Role in Enhancing the Relative Independence of Farmers. Results and Recommendations from the Research Project Developing Entrepreneurial Skills of Farmers*; Rudmann, C., Ed.; Research Institute of Organic Agriculture: Frick, Switzerland, 2008.
33. Greenacre, M.J. Canonical correspondence analysis in social science research. In *Studies in Classification, Data Analysis, and Knowledge Organization*; Locarek-Junge, H., Weihs, C., Eds.; Springer: Berlin/Heidelberg, Germany, 2010.
34. Lebart, L.; Piron, M.; Morineau, A. *Statistique Exploratoire Multidimensionnelle*; Dunod: Paris, France, 2006.
35. Maimon, O.; Rokach, L. Clustering methods. In *Data Mining and Knowledge Discovery Handbook*; Maimon, O., Rokach, L., Eds.; Springer: New York, NY, USA, 2010.
36. Benzècri, J.P. *L'analyse des Données—Leçons sur L'analyse Factorielle et Reconnaissance des Formes et Travaux*; Dunod: Malakoff, France, 1982.
37. Quiñones-Ruiz, X.F.; Penker, M.; Belletti, G.; Marescotti, A.; Scaramuzzi, S. Why early collective action pays off: Evidence from setting Protected Geographical Indications. *Renew. Agric. Food Syst.* **2016**, *32*, 179–192. [[CrossRef](#)]
38. Verwaal, E.; Commandeur, H.; Verbeke, W.; Wilem, J.M.I. Value creation and value claiming in strategic outsourcing decisions: A resource contingency perspective. *J. Manag.* **2009**, *35*, 420–444. [[CrossRef](#)]



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