Fairness and value appropriation in logistics alliances: a case-study approach

G.R. Janssen (robbert.janssen@tno.nl)
TNO
VU University Amsterdam

A.P. de Man
VU University Amsterdam

H.J. Quak
TNO

Abstract
Firms are not equally capable of capturing value from an alliance. The present research examines how fairness concerns may help appropriation of value jointly created in an alliance. Using case-study methodology, we investigate how justice theory influences partners' collaborative business models and outcomes of logistics alliances.

Keywords: fairness, value creation and appropriation, collaborative business models

Introduction
New products, new methods of production, new sources of supply, exploitation of new markets, and new ways to organize business – those are the five types of innovations defined by Schumpeter (Casadesus-Masanell & Zhu 2013). Our study is about the latter: business model innovation, e.g. changing the logic of how firms do business, and we do so in an interorganizational context in which firms develop alliances in order for the business model innovation to work. From a supply chain perspective, such new collaborative business models could be, for example, the design of a joint distribution service, the use of a freight exchange and auction platform, the cooperative usage of a common category warehouse, and so on.

In a new collaborative business model, partners seek to jointly create value but simultaneously also have individual concerns about how to capture (a part of) that jointly created value (Zott & Amit 2008). For the new business model to be successfully implemented, existing business models may have to change fundamentally. Firms might have to adopt new organizational structures which could be contractual or equity arrangements such as alliances, joint-ventures or mergers and acquisitions (Kale & Singh 2009). The choice of governance form is usually based on efficiency considerations. That is, an alliance as governance form, will be used if its expected value is positive and greater than the expected value of other organizational arrangements (Ariño & Ring

2010). This approach, however, can be characterized as being undersocialized, as expectations of future value creation and capture can be expected to be influenced by considerations of fairness as well (Ariño & Ring 2010). This suggests that not only considerations of *efficiency* should be taken into account when contemplating governance design, but *equity* considerations are of importance as well. This paper investigates such equity considerations by looking at justice theory and the influence of fairness on the ability of firms to create and capture value from new business models. Our main research question is formulated as: *How do fairness considerations shape the ability of firms to create and capture value from collaborative business models?*

We do so by using a case-study methodology in which we analyze the formation of a logistics alliance that follows from the innovation in the business models for the associated companies. Our contribution lies in the fact that we provide evidence on the role of fairness and the ability of firms to create and capture benefits that accrue from alliances that are based on new business models.

Business model innovation for value creation and value capture

At its foundation, business model innovation "refers to the search for new logics of the firm, and new ways to create and capture value for its stakeholders; customers, suppliers, and partners" (Casadesus-Masanell & Zhu, 2013; p. 464). In a new collaborative business model, partners seek to jointly create value but simultaneously also have individual concerns about how to capture (a part of) that jointly created value (Zott & Amit 2008). While evidence supporting the idea that collaborative relationships or alliances are an important source of value creation is widely available (Wassmer & Dussauge 2011), it is necessary to consider how collaborating firms split the value that is generated in the alliance. Dyer et al. (2008) note that we don't know as much about why some firms are able to appropriate more benefits from collaborative relationships, enabled by collaborative business models.

Value creation mechanisms enable the focal firm to generate value from its relationships with partners as they collectively pursue shared objectives (Lavie 2007). Value creation may be realized by resource supplementarity and complementarity in alliances (Wassmer & Dussauge 2011). Value creation, thus, entails the total net-value value (i.e., total outcomes minus total inputs, total benefits minus total costs) created in an inter-firm relationship among partners (Wagner et al. 2010). Value appropriation, or capture, mechanisms, in turn, do not create new value but instead determine the relative share of relational rents that the focal firm can appropriate (Lavie 2007). As such, value appropriation depicts the net value that a specific firm claims successfully (Wagner et al. 2010). The disparity between value creation and value appropriation is akin to the distinction between common and private benefits (Lavie 2007; Khanna et al. 1998; Dyer et al. 2008). Value creation is a collective and collaborative processes aimed at joint value creation, leading to common benefits shared by all parties in the alliance. Value appropriation then determines the distribution of the common benefits to individual partners. Also, value appropriation is concerned with the capacity of partners to unilaterally extract private benefits from the alliance, that are not available to other partners. A collaborative business model aims to create and appropriate superior value over non-collaborative relationships. Yet, too much focus on value creation and too little focus on appropriation of value will make it difficult for a firm to make profit for themselves (Lavie 2007), which may endanger the enduring existence of the collaborative business model. On the other hand, proper value creation and value sharing (i.e., dividing the total 'value pie' among the partners) are at the heart of sustainable relationships (Wagner et al. 2010).

Fairness and organizational justice theory

Fairness, a concept studied for a long time in organizational and management research, is a foundation for all types of economic and social exchanges and relationships. (Liu et al. 2012). Research on justice theory follows from the observation that not only purely rational economics arguments impact the success of relationships and organizations, but also more sociological non-rational contentions. Recently, four distinct dimensions of justice were empirically established in the organizational justice literature (Colquitt 2001):

(1) *Distributive justice* – concerns whether partners are satisfied that the expected value produced by the alliance is proportional to their contribution. E.g., are outcome allocations perceived as being fair?
(2) *Procedural justice* – entails the fairness of the alliance's strategic decision making process and that the allocation of decision making rights establishes fair procedures to make future decisions that influence value creation and value appropriation. E.g., are the procedures and processes used to make allocations perceived as being fair?
(3) *Interpersonal justice* – involves whether people are treated with respect and sensitivity during implementation of procedures. E.g., is interpersonal treatment bestowed on individuals during the implementation of procedures perceived as being fair?
(4) *Information justice* – comprises the kinds of information and the way parties share information. E.g., is the foundation for decisions explained adequately?

The reliance on justice theories in studies related to alliances is growing. For instance, scholars investigated the roles of the various types of justice on the formation of alliances (Ariño & Ring 2010) and on the role of justice in operational stages of alliances (Luo 2005; Luo 2007). Another study on social exchange theory in supply chain relationships indicates that displays of procedural and distributive justice by a supplier, enhance the long-term orientation and relational behavior of its distributor (Griffith et al. 2006). More recently, fairness issues in vertical buyer-supplier relationships have been evaluated (Liu et al. 2012). Still, to the best of our knowledge there has been no evidence on the role of fairness on the ability of firms to appropriate rents that accrue from collaborative business models and alliances. Ariño and Ring (2010) have studied fairness in a longitudinal setting of an alliance formation, but they did not look at the influence of an innovation in business models that changed the core processes of the firms involved, and the ability of firms to capture value from that innovation. At the same time, Zott and Amit (2010) highlight that careful consideration of social aspects of relationships between various business model participants is valuable and important because they influence business model performance.

Theoretical model

The insights obtained from the prior literature review can readily be integrated in a causal loop theoretical model. Figure 1 shows the model for this research.

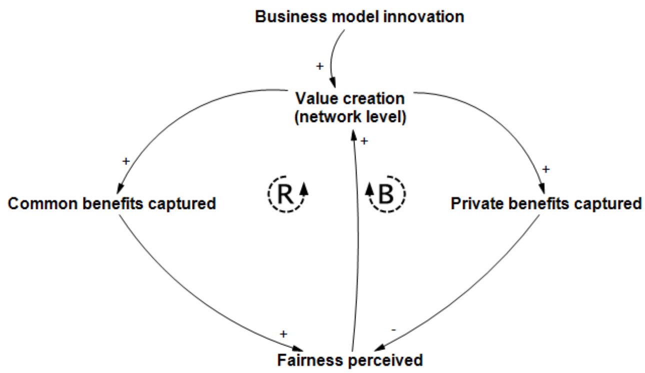

Figure 1 The theoretical model for this research

The model reads as follows: a business model innovation can increase value creation at the network (alliance) level. Partners that jointly develop the collaborative business model are able to increase the economic value of the alliance (Wassmer & Dussauge 2011). Subsequently, a focal firm will try to capture common or private benefits from the collaborative relationship (Dyer et al. 2008). In the case of common benefits that accrue to all alliance partners, this reinforcing causal loop lead to a higher level of fairness perceived among the partners. A higher level of fairness perceived finally increases the willingness to continue the cooperative relationship and allow further value creation. Alternatively, if a firm focuses on capturing private benefits, e.g. unilaterally extracting benefits from the relationship, this may leads to fairness to be negatively perceived by the partners. This balancing loop, in turn, can have a negative impact on further value creation, and as such future value capture. In short, firms should focus on obtaining virtuous cycles, rather than vicious cycles (Akkermans et al. 1999), of fairness leading to new value creation and capture in order for sustainable relationships to ensue.

Case-study methodology

Case research lends itself to exploratory investigation of a phenomenon and allows to answer questions related to why, what and how, by studying the phenomenon in its natural setting and observing actual practice (Quak & Koster 2007; Voss et al. 2002). Similar to Akkermans, Bogerd, and Doremalen (2004), we employ an hands-on action research design as one of the authors was working as a consultant for the companies in the case-study. Our approach follows the case research steps proposed by Voss, Tsikriktsis, and Frohlich (2002): case selection, development of research steps and protocol, field research and finally data structuring and analysis.

Case selection

For our case-study, we used the development of a joint delivery service among six companies in the floriculture industry in the Netherlands as an illustration to our research problem. Such practices of setting up a horizontal alliance, in order to permit the new business models to work, are rather common in the Dutch logistics industry. Our case setting therefore constitutes a representative case (Yin 2009); a typical situation that we observe relatively often in the Netherlands in recent years which justifies the use of a single case.

Research steps

For data reliability to improve, we drafted a research protocol, available upon request. This research protocol ensures that data collection was executed using a replicable process. Future cross-case comparisons could benefit from this protocol (Eisenhardt 1989; Yin 2009). During the research project, there were many plenary sessions in which all boundary spanners participated, whereas we have also chosen to do private one-on-one interviews in order to elicit the respondents' perceptions about sensitive subjects such as fairness, value capture, relationships with alliance partners, and the change in business models. Six semi-structured interviews were held with decision-making level executives of the firms. Interviews lasted between 30 and 60 minutes. The interviews were digitally recorded and fully transcribed afterwards, for a total of over 50 pages of transcribed text. All participants were asked to review the interview reports and they generally appraised the quality of the fully transcribed interview reports.

Throughout the project, secondary data and reports have been collected. The official report of the research project was over 30 pages, whereas archival data and process documents (minutes, slide presentations, emails, etc.) that were drafted during the contract research project were evaluated as well – the total number of pages of these documents exceeded 100 pages.

Validity and reliability

The very same characteristics that make case study research in general, and action research in particular, so well suited to study interorganizational relationships over time (Akkermans et al. 2004), generate considerable problems in ensuring sufficient rigor and reliability as well. We have taken various steps to mitigate validity and reliability issues. Due to space limitations, these are not included here, but available upon request.

Case description

The Dutch floriculture is world-famous and sometimes even referred to as the Wall Street of Flowers. Within the larger Dutch floriculture industry, the single case in this study regards five wholesale firms and one flower and plants auction, a network of companies henceforth referred to as Network Plantion. Table 1 describes some characteristics of the project participants.

The companies participated in a contract research project to explore the potential of a joint delivery service to their customers. Such practices of setting up a horizontal alliance, in order to permit the new business models to work, are rather common in the Dutch logistics industry. The wholesale firms are all but one small and medium-sized enterprises (SMEs), that operate by the cash-and-carry[1] business model and therefore did not provide any formalized delivery services to their customers prior to the contract research project. Over time, some ad hoc delivery services were initiated, especially at the wholesalers, but these were very inefficient, required a lot of coordination efforts and were thought to yield high costs that could not be offset by the delivery fees charged. Yet, all companies realized that the cash-and-carry business model is not sustainable over the longer term, as customers are demanding online procurement facilities, and subsequent distribution services. Therefore, it was decided that the firms needed to innovate their

[1] Cash-and-carry wholesale business model: downstream customers visit either the bricks-and-mortar or online store, buy the products they need and collect the products at the physical store. The wholesale firm essentially provides break-bulk services, as it procures large volumes upstream, and repackages these into very small bundles, accustomed to the buyer. The lack of need for a distribution service drives down cost and operational complexity for the wholesaler.

business models by starting to move away from the basic cash-and-carry model towards a ordinary wholesale model in which distribution and delivery take an important place.

Table 1 Case company characteristics Network Plantion

Company	**Company type**	**SME**	**Type of product/service**	**Parent-subsidiary governance structure**	**No. of employees (FTE)**
Alflora	wholesaler	yes	accessories (pots, vases), packaging material	parent company: Horticoop NV	450
Basics&Trends	wholesaler	yes	accessories (pots, vases), packaging material	parent company: Van Dillewijn Groep	50
FleuraMetz	wholesaler	no	cut-flowers	parent company: FleuraMetz Aalsmeer	1100
GMBloemen	wholesaler	yes	cut-flowers	none	14
Plantion	flower and plants auction, cooperative	yes	cut-flower, tree nursery, plants	none	120
Vianen van Vliet	wholesaler	yes	cut-flowers	none	10

Phases in the research project
In the project, seven phases can be distinguished that lasted about 20 months. The actual contract research project consisted of phases 3 – 5 in the following timeline.

1. History. At the start of our involvement, the companies were very interested in setting up a joint delivery service. After all, the companies were all clustered at the same physical location, the Plantion marketplace in the eastern part of the Netherlands. As they shared the same physical infrastructure, parking lots, electricity, loading docks et cetera, they also had already tried to develop a joint delivery service, albeit in a very haphazard and unstructured way, and consequently very unsuccessful. Still, relationships among the partners were already quite good and they respected each other.
2. Initial workshops and blueprinting. In order to develop a thorough understanding of the problems that could emerge during design and implementation of the joint delivery service, various workshops were held with all partners. These were very useful in setting the scope as well. Individual goals were clarified and the shared project goal was established as: investigate the potential for a joint delivery service that is both cost-efficient and reduces environmental impact (e.g. reduce transport-related emissions). Blueprinting sessions were held to capture in detail the operations of all the parties.
3. Quantitative modeling of potential cost reduction. Using vehicle-routing algorithms, we estimated the costs reductions from moving from individual distribution processes towards the joint delivery service. We gathered sales and transaction data of all partners and proposed some future operational scenarios. The modeling effort yielded, depending

on the scenario chosen, total joint cost savings between 10% and 22% per load unit delivered and total driving distance reductions were in the range of 19% to 28%.

4. Business case analysis. In the 4th phase of the research, based on the quantitative estimation from phase 3, we developed the business case by including delivery revenues in the analysis as well. All participants offered their current delivery tariff structure, when available, and it appeared that delivery rates should be increased by as much as 24%-40% to break-even, depending on the cost structure scenario chosen, even by including the operational performance improvements from the previous step.

5.Alliance formation social factors workshops. Various workshops were held about the human and social factors in alliance formation processes.

*6.Implementation.*The partners needed to jointly decide upon the preferred method of organization. They could either coordinate the delivery service themselves or outsource the bundle of freight volume to a logistics service provider – implicitly using the alliance to tender the freight bundle to the service provider, so it would allow them to get better rate offers. After an intensive process of evaluating the alternatives, they decided to outsource the combined volumes to a logistics service provider.

7. Operational. In this phase, the horizontal alliance became operational. All parties now could offer formalized delivery services to their customers. No actual contracts were signed between the project participants, except an overarching contract with the logistics service provider to formalize the procedure. Within this phase, at the time of this writing (February 2013), first steps are taken to measure and monitor the realized benefits of the new business model for all parties involved.

Results and discussion

From the previous section, it may be grasped that ex ante expectations of value creation are promising, especially regarding *efficiency* concerns. This section, therefore, investigates how fairness materialized in the case and the actual value created and appropriated ex post.

Distributive fairness. The partners experienced strong differences in input/output ratio from the project benefits, i.e. value creation (Wassmer & Dussauge 2011) for their own firm was insufficient and they were unsatisfied so far with the benefits captured from the project, but this was partly due to the fact that monitoring and measurement of benefits and costs just started up: *"No, these [cost savings] are not clear for me yet. I have the feeling we are saving costs, but we have to measure for a longer period".* At the same time, partners perceived their own benefits to compare unfavorably against the others' parties benefits. This implies that there is a real distributive justice issue here: even though the firms acknowledge that measurement of cost savings is limited, they already have the idea that they are being deprived from benefits by their partners. Consequently, they easily assigned blame and mentioned freeriding as a common concern: *"I sense we are saving costs, but often I got the idea that other partners didn't do anything to deserve those benefits. […] I had to convince everybody from delivering all the information in time, but especially two partners did not do that while they were enjoying the new service as well."* Still, the inertia displayed by some partners did not influence the perceptions on an interpersonal level – interpersonal respect remained high and as such *interpersonal fairness* was not concern from a *distributive perspective* (Griffith et al. 2006).

Procedural fairness. All partners were well able to voice their concerns and had their feedback incorporated in the decision-making process. This was very satisfactory for all involved and entails virtuous consideration of *procedural fairness* issues. The partners agreed that their counterparts were well aware of the stakes and challenges everybody faced, which helped the process of alliance formation significantly: *"[...] indeed in the beginning of the project, we took care to address everybody's issues and now we know quite good where these are."* Further, in terms of procedural fairness, the chairman of the project team was praised for setting up clear decision-making procedures. These were developed in good harmony between all partners, for the post-formation (operational) phase, an indication of procedural and informational fairness. We did not find very explicit asymmetries in perceptions of procedural justice, as suggested by Luo (2005) in this multi-party alliance, but the perceptions were not fully symmetrical either. As one partner noted that all issues surrounding ethicality and morality were adequately treated, however *"nobody was delaying the progress, but some were not helping it either."*

Interpersonal fairness. The partners had already very good working relationships with each other at the start. All partner unanimously agreed that their working relationships were very positive and they respected each other highly; a display of *interpersonal justice*. Even competitive tendencies between the cut-flower wholesalers were suppressed in order for the joint delivery service to become feasible. Another indication of high *interpersonal fairness*: partners spend a lot of time together during working hours, in an informal but polite and professional manner. The executives trusted each other and followed up upon mutual request.

Informational fairness. It was noted by some participants that the fact that two parties were setting up a bi-lateral alliance themselves did not help the larger multi-lateral alliance to take shape: *"I didn't think it was very beneficial for the project that Party X and Party Y were setting up a joint initiative in the background, without us knowing it"*. That information was largely kept confidential throughout the project, until the other parties found out at the end – something that could be considered *informational unfairness*. Similarly, informational fairness was in danger as one partner observed that information sharing was not always timely and complete: *"I wouldn't say they sabotaged the progress, but we had to work really hard to convince them of the benefits this could bring. And even then, they were slacking in delivering the necessary data"*. On the other hand, the partners contended that all partners shared the sensitive customer data (volumes, customers) quite easily among each other – that is, after they got the data in the first place. The partners surprised themselves in how open they are towards one another, even while collaborating with direct competitors, such as is the case for the cut-flower wholesalers and the hardware products wholesalers. All in all, informational fairness seems to be addressed adequately.

Value creation and value capture. After step 3 and 4, the 'hard' value creation potential (benefits and costs) of the joint delivery service was established. Total joint cost savings were expected to be between 10% and 22% per load unit delivered and total driving distance reductions were in the range of 19% to 28%. Quite significant improvements from the business model innovation for the partnering firms. The partners explicated their expected benefits in the start of the project as well such as achieving lower total costs, higher flexibility, opportunities for learning from each other, sustainability improvements, enhanced customer service/satisfaction, the potential for new service offering (by being able to do the distribution themselves now).

Actual results so far were very limited. Due to limited monitoring and measurement practices already in place, the executives could not clearly indicate the realized savings so far. Quantitative evidence could not be attained when collecting the data. Partners indicated to have *"a feeling of cost reduction"*, *"hopefully a fixed cost (asset cost) reduction"* and noted that the *"awareness for potential of joint delivery"* has increased. One cut-flower wholesaler explained that they were now able to always offer delivery services because of the *"virtually unlimited available capacity"* available at the logistics service provider.

And moving beyond value creation (i.e., total benefits minus total costs) into value capture terrain was not even considered at this stage. This could either be a timing issue (e.g., data collection took place too early in the maturation process), or it indicates that value capture matters are not important if fairness concerns are adequately addressed. That is, value capture concerns are mitigated if distributive, procedural, interpersonal, or informational fairness increases. Indeed, the partners did not consider unilaterally extracting private benefits but rather focused on gaining common benefits, even though these were limited as well (Khanna et al. 1998; Dyer et al. 2008). And, since the future value creation potential of the collaborative business model was very high, considerations of value capture were attenuated once more. Therefore, we revise our theoretical model (Figure 2).

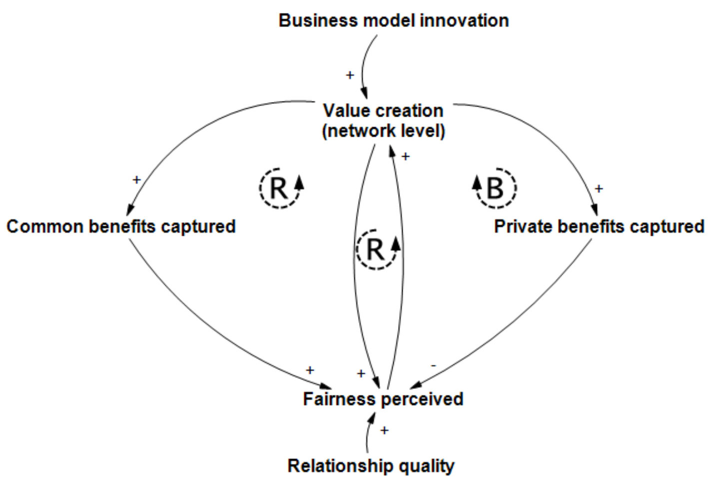

Figure 2 Proposed model

We have included an additional reinforcing loop displaying the virtuous effects denoting higher levels of value creation lead to higher levels of perceived fairness and vice versa. Also, we included a relational component, relationship quality, based on previous exchanges, appeared to significantly influence the fairness perceived.

Conclusions and further research

Building on recent literature about value creation and capture from new business models, justice theory, and a case-study detailing the formation process of a logistics alliance, we propose a model that explains how these concepts dynamically interact with each other. We observe that *equity* considerations are important for explaining the success and outcomes of alliances, additional to *efficiency* considerations. Future value creation and value capture are dependent on companies' perceptions of the four dimensions of fairness in an alliance context. Organizational arrangements such as alliances may create value from a business model innovation if the fairness perceived by the parties in the alliance is considered adequate. At the same time, expectations about future value creation also mitigate concerns about value capture as these issues subside by virtue of increases in the total value pie. Accordingly, firms do not always seek to selfishly optimize their own benefit at the cost of the others in an alliance when innovating their business model, even more so when the realization of this new business model produces dependencies on other parties for the business model to work.

To circumvent limitations from this single case study research, future research should try to replicate the findings here in other conditions and industries. At the same time, our data collection regarding value capture was limited, but the aspect of value capture is a very interesting subject that warrants further investigation. Especially exploring the financial arrangements made that result in private or common benefits for the parties in an alliance are avenues worth exploring. Also, as it appears that fairness is relatively important for being able to create and appropriate value, we reckon that studies into the effects of trust-building third party coordination of alliances are valuable as well.

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