



Citation for published version:

Formentini, M & Romano, P 2016, 'Towards supply chain collaboration in B2B pricing: a critical literature review and research agenda', *International Journal of Operations & Production Management*, vol. 36, no. 7, pp. 734-756. <https://doi.org/10.1108/IJOPM-03-2015-0124>

DOI:

[10.1108/IJOPM-03-2015-0124](https://doi.org/10.1108/IJOPM-03-2015-0124)

Publication date:

2016

Document Version

Peer reviewed version

[Link to publication](#)

The final publication is available at Emerald via: [10.1108/IJOPM-03-2015-0124](https://doi.org/10.1108/IJOPM-03-2015-0124)

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**Towards supply chain collaboration in B2B pricing: a critical literature
review and research agenda**

**Accepted for publication in the International Journal of Operations &
Production Management (IJOPM)**

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Towards supply chain collaboration in B2B pricing: a critical literature review and research agenda

Introduction

The pricing process in the business-to-business (B2B) context concerns the division of profit between two bargaining industrial parties (i.e. the supplier and the buyer) facing each other in negotiations (Ploetner and Ehret, 2006). Generally, the traditional pricing policy adopts a tactical, short-term perspective (Anderson and Narus, 2004) where the supplier defines its prices according to its internal cost structures and profit objectives, while the final price the buyer pays emerges from the negotiation process (Garda, 1984; Brierty *et al.*, 1998). This view limits the development of closer business relationships, since the main attention is usually given to the single transaction and pricing is perceived as a profit distribution parameter rather than a collaborative process (Voeth and Herbst, 2006). In fact, the main assumption is that what is gained by the supplier is lost by the buyer and vice versa, hence pricing is a “zero-sum” game (Brennan *et al.*, 2007).

Historically, research on B2B pricing has been focused on the pricing process within the supplier company, thus adopting mainly an internal perspective, i.e. within the boundaries of the firm. In particular, scholars have investigated the main intra-organisational issues (e.g. organisational bottlenecks to the price planning and setting process caused by rivalries between departments, etc.) and their impact on firm’s pricing strategy (Lancioni *et al.*, 2005). In this vein, scholars argued that it is essential to adopt a systematic and well-organised approach to industrial pricing, thus leading to the development of pricing process models (Dolan and Simon, 1995; Shipley and Jobber, 2001; Lancioni, 2005a). Despite these models do not ignore the importance of the industrial customer behavior in pricing decision making,

they do not consider the direct involvement of the buyer and other supply chain entities in the supplier's pricing process.

More recently, a new approach for investigating B2B pricing emerged, which embraces the Supply Chain Management perspective (Voeth and Herbst, 2006) and aims at studying how buyer and supplier can overcome the win-lose, zero-sum perspective characterising the traditional B2B pricing approach, towards a win-win, mutually beneficial approach – that in our study we label as “collaborative”, by referring to Christopher and Gattorna's (2005, p. 119) definition of collaboration as “the creation of close working relationships aimed at creating mutual gain”.

The current trends push supply chain members to a higher level of integration and extended collaboration is perceived as a necessity in order to reach efficiency and competitiveness (Matoupolos *et al.*, 2007). As argued by Christopher and Gattorna (2005), over the years competition has moved from individual companies to supply chains, hence it is crucial to improve the overall performance of the supply chain, rather than just the internal tiers. According to Lancioni (2005b), this shift has increased the opportunities for more creative pricing strategies and the extraction of higher profit margins in supply chains. Therefore, it is evident that pricing should be considered as a process to be involved in this collaborative effort by re-thinking its role and increasing its relevancy in accordance with the Supply Chain Management perspective. In line with this view, Daugherty (2011) has underlined that the potential for synergistic combination of cross-firm resources and processes may offer a fertile area for developing innovative approaches to what are now considered standard practices, such as pricing.

Since how a firm assigns value to its output through its pricing strategy has implications for stakeholders both within and outside of the firm (Lancioni *et al.*, 2005), several scholars have also highlighted the necessity for developing an “outward-looking” pricing behavior

(Indounas and Avlonitis, 2011). This means that in a supply chain context pricing should not be considered just an internal process designed and governed by the single company, but as a result of the interaction between several supply chain members through the adoption of contracts, cost information sharing and joint decision making on pricing mechanisms within collaborative win-win supply chain relationships.

Despite this recent scholars' shift of towards the supply chain perspective contributed to the process of delineating the boundaries of a new body of knowledge (i.e. collaborative supply chain pricing), we believe that it has also generated some controversies and ambiguities. For instance, when scholars consider supply chain collaboration in the B2B pricing process it is not clear 1) whether a dyadic or an extra-dyadic extension is intended; 2) which company should act as collaboration "process-owner" - the seller? the buyer? or both counterparts, and how does power balance influence this collaboration? 3) what are the techniques for collaborative pricing implementation according to the different contexts where collaboration takes place? 4) how are the benefits created thanks to collaboration shared among the counterparts?

Since an extensive state-of-the-art literature review on the supply chain collaboration in the B2B pricing process does not exist and the literature often offers vague and controversial answers to the questions reported above, this literature review aims to fill this gap by providing a first classification of extant research focused on this topic.

Methodology

Delimitations in the search for literature

According to Fink (2009) a literature review is a structured, explicit, and reproducible design for identifying, evaluating, and interpreting the existing body of recorded documents. The objectives of a literature review are usually twofold: first, to summarise existing research by

identifying patterns, themes and issues; second, to support the identification of the conceptual content of the field towards theory development. The literature review process was carried out following these steps proposed by Levy and Ellis (2006), i.e. selecting, knowing, comprehending, applying, analysing, synthesizing, and evaluating the literature: the adoption of this process guarantees a structured and reliable literature review and ensures the objectivity of the research process.

Several different disciplines - i.e. economics, marketing, accountancy, finance, management science, etc. – investigated the pricing process (Diamantopoulos, 1991). We focused our analysis on B2B pricing, which regards the transaction of products and services at intermediate tiers of a supply chain. Therefore, we excluded B2C (business-to-consumer) pricing, which is characterised by different features and dynamics (Farres, 2012). Since the analysis of intra-organisational pricing issues and internal pricing models is already developed in the literature (Lancioni, 2005b), we based our research on the external focus, towards a supply chain perspective, thus considering the interaction between buyer, supplier and additional supply chain entities. Due to the aim of investigating the development of collaborative approaches, we selected papers considering different degrees of mutually beneficial approaches.

We revised bibliography including peer-reviewed management journal articles and books in English: we decided to exclude dissertations, conference proceedings and unpublished working papers in order to structure our review on reliable and corroborated sources. Major bibliographic databases were used to search for related articles, such as those provided by major publishers, Elsevier, Emerald, Springer, Wiley, Ingenta Connect, or library services (e.g., Ebsco, JStor) adopting Google Scholar and Scopus search engines.

The search for related publications was mainly conducted as a structured keyword search. Since a well-defined and structured body of knowledge for the investigated topics was not

available in the literature, we used brainstorming activities to identify and select the keywords. We used “pricing”, “pricing process”, “industrial pricing”, “B2B pricing”, “supply chain”, “collaboration”, “collaborative pricing”, “cooperative pricing”, “win-win” as main keywords to query the databases, in order to identify the principal contributions related to collaboration in the B2B pricing process in a supply chain context. Keywords were used in combination using logical operators in searches by title, keyword, abstract and full-text. Then, the snowballing technique was used to add keywords and refine the searches: additional keywords have been subsequently adopted with the objective to identify and analyse in detail the different research areas related to industrial pricing to properly structure the literature review, due to the lack of other structured reviews and the low homogeneity of the contributions. As a result of these search parameters, literature was mainly taken from journals in the areas of Industrial Marketing and Operations & Supply Chain Management.

The database search has been conducted in 2013 and updated in June 2015 in order to check the publication of the latest contributions. In order to get a complete and meaningful description of the evolution of this research topic, we did not limit the time horizon of our search.

Each of the retrieved articles was examined first in the title, keywords and abstract to ensure that its content was relevant from the perspective of the aims of our research; subsequently for the selected contributions, the researchers read the full-text article. Moreover, to increase the reliability of the research, three academic researchers jointly carried out the examination and selection of the articles on the basis of the criteria that articles would only be chosen in which the main contribution revolved around the interrelationships between pricing, collaboration and supply chain elements.

Review framework

Lancioni (2005a) describe steps in the traditional B2B pricing process (Figure 1). After the final step, usually the supplier enters the negotiation with the customer. Then, the process continues as a ‘zero-sum’ game.

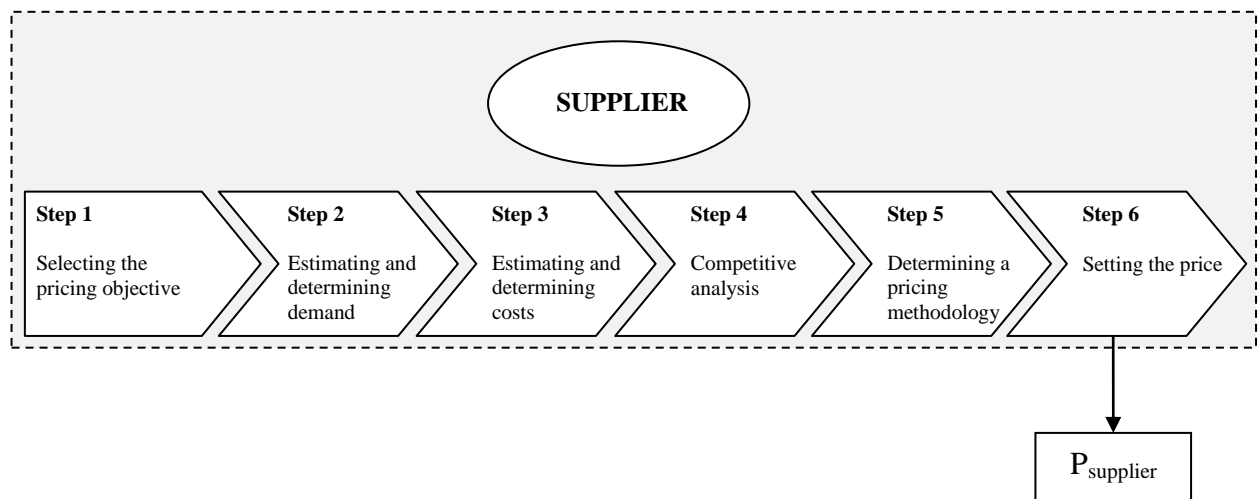


Figure 1 – Traditional pricing process (adapted from Lancioni, 2005a)

By analysing the steps described in this process model, it is possible to note that the involvement of external actors is limited. In particular, customer involvement can take place in step 2 to estimate the demand. The main interaction with the customer is then realised in the following negotiation process. Thus, it is no surprising that most scholars focused on the supplier’s internal side of pricing process.

This gap offers the opportunity to investigate how the pricing process can be ‘opened’ to the buyer or also beyond the supplier-buyer dyad, involving other supply chain actors, and perceived as a collaborative process. In our analysis we critically review the main contributions on supply chain collaboration in the B2B pricing process by selecting as first review variable the *extension* of the collaboration in the pricing process along the supply chain (i.e. the number of supply chain actors involved in the collaboration), thus moving from

the traditional internally-focused perspective (in line with the recent studies on multi-tier supply chains by Mena *et al.*, 2013).

In particular, we classify the literature according to:

- *Dyadic approaches*: i.e. buyer-supplier relationships; within this category we also consider the replication of dyadic approaches, i.e. supply chains built on sets of one-to-one relationships.
- *Extra-dyadic approaches*: i.e. supply chain relationships that involve simultaneously more than two entities, thus overcoming the dyadic approach.

When considering an externally-focused perspective in the pricing process with different degrees of extension along the supply chain, we aim at understanding how scholars have analysed the interdependencies between the pricing processes of the involved supply chain entities in order to develop collaborative approaches.

The literature on Supply Chain Collaboration underlines that within a collaborative relationship, supply chain entities may play different roles (Kampstra *et al.*, 2006). As regards collaboration in the pricing process a critical role is the initiator – who usually plays as “process-owner” in the collaborative process. In line with Frohlich and Westbrook (2001) and Veerecke and Muylle (2006), a strategic issue is represented by understanding the “direction” for developing integration and collaboration activities with other supply chain actors, i.e. “upstream” towards suppliers and/or “downstream” towards customers. In our review framework we integrate as level of analysis this established approach from the Supply Chain Collaboration literature to investigate a strictly connected key issue, namely the “direction” of the collaboration to involve other supply chain actors and their pricing processes. Adopting as second review variable the *direction* of collaboration, we subsequently classify the literature according to:

- *Downwards* - Supplier’s process-ownership to include the buyer.

- *Upwards* - Buyer's process-ownership to include the supplier.
- *Bi-directional* - Joint process-ownership.

We adopt the pricing process model proposed by Lancioni (2005a) as main reference to develop our review and understand the linkages between the pricing processes involved in the collaboration, according to extension and direction of collaboration. Subsequently, for each stream we investigate commonalities, differences and unexplored issues according to the following elements, in line with the comprehensive framework on supply chain collaboration developed by Matopoulos *et al.* (2007): power balance; discussion of relational elements (i.e. trust, information sharing, cost transparency, motivations, incentives and duration of relationships); definition of collaboration and the degree of development of collaborative win-win approaches; research methodologies adopted in the main studies; industries; main limitations.

Dyadic extension

In this section we analyse the research streams characterised by dyadic buyer-supplier relationships as unit of analysis, in order to understand how collaboration takes place in the interaction between the two involved pricing processes.

Dyadic – Downwards

We first classify the papers which focus on the extension of the supplier's pricing process to embrace *downwards* customer's perceptions. According to this literature stream the supplier deliberately chooses to involve the buyer in value creation through the pricing process. Including the customer in the pricing process represents an extent to overcome the traditional, internal B2B pricing approach limitations such as cost-plus methods (Shiple and Jobber, 2001; Brennan *et al.*, 2007) adopted by the majority of companies to price their products or

services (Noble and Gruca, 1999). In their conceptual paper Christopher and Gattorna (2005) advice strategic supply chain alignment to understand the buyer's behavior with the objective of defining pricing on the basis of value perceived by the customer. This opens the opportunity to create mutually beneficial, collaborative supply chain relationships. In this vein, an interaction with the customer in the supplier's pricing process is represented by Value-Based Pricing (VBP), namely the set of pricing methods used by the supplier to set the sales price around the value that a product or service can deliver to its customers rather than as a mark-up added to costs (Hinterhuber, 2004; Hinterhuber, 2008; Farres, 2012). In their qualitative inquiry based on semi-structured interviews to managers, Liozu and Hinterhuber (2012) underline that, despite VBP is considered superior by marketing scholars and pricing practitioners, only a few industrial firms have effectively adopted it. A critical issue in its implementation is represented by clearly understanding the value perceived by the customer. Firms adopting VBP support their product-pricing decisions by relying on formal market research, scientific pricing methods (e.g. conjoint analysis, customer acceptance testing) and expert recommendations. Pricing is intended as a component of the overall "value proposition" and the collaboration is perceived as a joint value creation. In a qualitative study based on interviews to suppliers, Ryals (2006) discusses five key techniques (i.e. traditional premium fixed price, bundled solution pricing, confirmed price reductions, shared cost savings, shared profits), describing the opportunities for collaboration, with different balances in benefit sharing; in addition, the author analyses several pitfalls in VBP implementation. Recently, also Töytäri et al. (2015) focused on understanding the organizational and institutional barriers to VBP in buyer-seller relationships. Their analysis provides a critical perspective of how B2B firms utilize customer-perceived value as the reference in their pricing approach.

Strictly interconnected with VBP, the concept of Relationship Pricing (RP) - developed in the Relationship Marketing stream (Grönroos, 1996; Berry, 2002; Grönroos and Helle, 2012) - reflects the growing importance of transferring value to the buyer and integrating the customer perspective in the pricing process. This is in line with the recent focus in the literature highlighted by Lindgreen et al. (2012) on acquiring value from relationships. Within the collaborative pricing process both customers' needs and supplier's objectives are taken into account, in order to encourage the development of profitable, win-win and long-term relationships (Argouslidis and Indounas 2010). According to Grönroos and Helle (2012), the main studies on relationship marketing adopt the supplier's perspective. Being the supplier's business effectiveness a function not only of its own success, but also the success of the customer, they maintain that the supplier's business effectiveness can only be determined once the joint productivity gains are shared through a pricing mechanism as value to the supplier and customer.

To encourage relationships key customers are given a price incentive to consolidate their business. Simapatung *et al.* (2002) underline the importance of offering incentive schemes linked to the global performance that reflects both value creation for the customers and profitability to solve the conflict of interests between buyer and seller. From this perspective, RP (i.e. volume-based quantity discounts, functional allowances and promotional allowances) represents an example of incentive alignment. However, RP is a relatively new concept which has conceptually and empirically neglected (Argouslidis and Indounas, 2010).

When considering commonalities within this dyadic stream, pricing is usually perceived as an opportunity for the supplier to gain increased profitability and alignment with buyer's value perspective. As a result, the focus of interaction is mainly on the supplier's pricing process, as highlighted by the grey area in Figure 2. Basically, the supplier receives information from the customer in order to tune accordingly phase 1 and 2 (i.e. selecting shared pricing objectives

that fit with customers and determining demand) in the pricing process. Differently from traditional cost-based approaches, this stream does not focus specifically on costs, despite the need for cost transparency has been underlined (Argouslidis and Indounas, 2010). The level at which value-based prices are set reflects the exchange of value rather than the costs of production (Ryals, 2006).

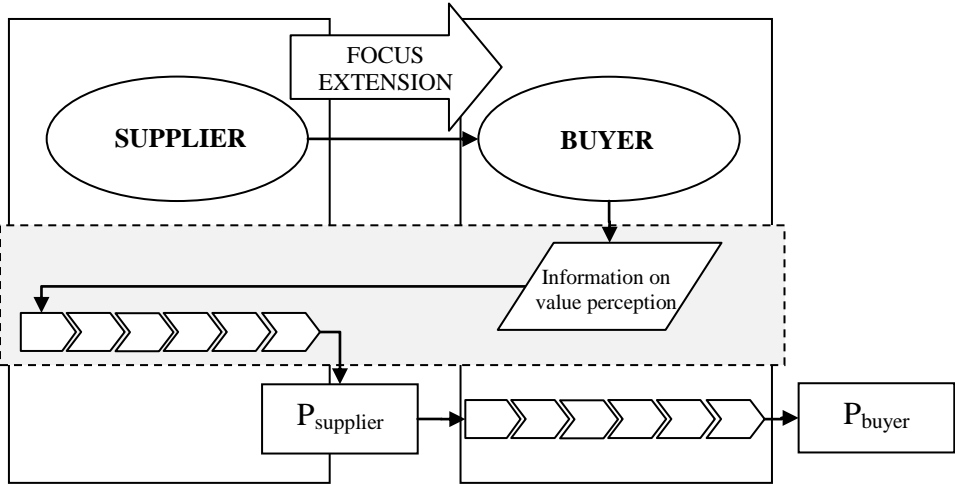


Figure 2 – Dyadic pricing – Supplier’s perspective

Generally, these papers do not provide discussions about power balance between buyer and supplier in pricing implementation as they implicitly assume that the supplier should have enough influence on the buyer’s purchasing behavior. Moreover, despite both RP and VBP are based on win-win outcomes, quantitative analyses to share the added value generated by the joint pricing process are not clearly discussed.

Dyadic - Upwards

Although pricing has been studied generally from the selling company’s point of view, in industrial markets where the buyer can exert a dominant position, it is critical to approach pricing also from the buying side, since price has not to be perceived as something given for the buyer. In fact, the buyer can act in several ways with regard to price in order to influence

its own costs and revenues, but also in order to influence the selling counterpart (Gadde and Håkansson, 2001), as shown in Figure 2. From this perspective, research on the influence played by buyers on the suppliers' pricing process has been performed in the Inter-Organisational Cost Management (IOCM) stream, which investigates the interactions between customer and suppliers aimed at identifying opportunities for joint cost reductions between the parties involved in several different processes (e.g. design, product development, production, etc.) (Cooper and Yoshikawa, 1994). Generally, collaboration is intended as co-operation, especially in product design and development processes. Consequently, the main interaction in the pricing process takes place with a specific focus on cost management (step 3 in Lancioni's pricing process model).

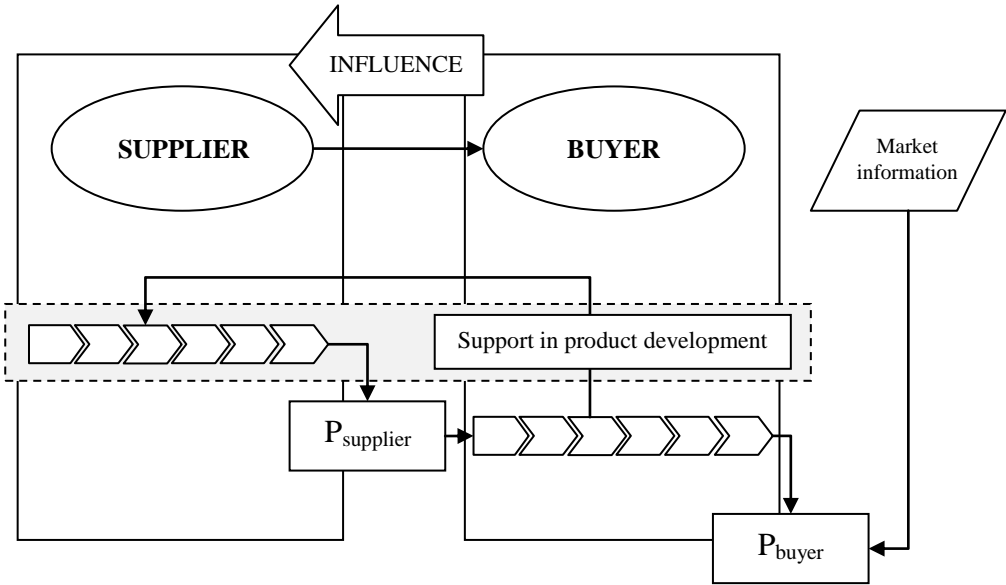


Figure 2 – Dyadic pricing process – Buyer's perspective

For instance, an interaction in the costing (buyer's perspective) and pricing (supplier's perspective) processes between supply chain members takes place in the context of collaborative relationships where Lean Management techniques such as Activity-Based Costing (ABC), Target Costing (TC) and Kaizen Costing (KC) are implemented. Analysing

these techniques it is possible to note that the supplier's pricing process is no longer internally focused, since it must consider the influence of the external customer in the context of a collaborative environment, which differs by a purely market-based one, i.e. realised through competitive bidding and auction bid from suppliers. Driven by the buyer, who act as process-owner, the integrated approach of TC and KC, not only pursues the objective of managing and reducing costs through the determination of global cost targets and not a series of local target costs, but also the objective of creating long-term relationships with suppliers and their development (Ellram, 1998). In the TC process the buyer independently manages its pricing process and directly influences its supplier's process. As highlighted by Handfield *et al.* (2000), in TC usually the buyer sets price reductions and helps the supplier to achieve them along the product development process. At the beginning of the design process the customer sets target costs for items in collaboration with the suppliers (Dyer, 1996). Such efforts often require suppliers to "open their books" (Romano and Formentini, 2012) and share their own cost allocation methods.

Different supply chain typologies require suitable pricing mechanisms. Hines *et al.* (2006a; 2006b) underline the non-applicability of Lean pricing techniques in agri-food environments and the necessity to develop tailored pricing models. Hines *et al.* (2006a) propose two distinct forms of Quality Based Pricing (QBP) mechanisms (i.e. cost-plus and market-led), which are based on a dyadic collaborative interaction between growers and processors. QBP mechanisms are usually introduced by processors as pricing "process-owner" and collaboration initiator. QBP schemes are based on the definition of quality criteria for agricultural products and premium prices associated with their achievement, and pricing incentives offered by both QBP schemes should be designed taking contextual factors into account. The collaborative environment is presented as an enabling factor for establishing both proposed QBP models. Collaborative elements that facilitate the adoption of QBP

mechanisms are represented by with-held power among the involved actors, the creation of trust-based, long-term contracts, price visibility and the achievement of win-win outcomes. Moreover, the “holistic” QBP pricing model, developed by Hines *et al.* (2006b) through an action research, is proposed as a catalyst for supply chain collaboration and continuous improvement in the agri-food industry. The main contributions of these studies are represented by real examples of implementation of collaborative pricing provided by qualitative research methods, which support the investigation of relational elements and the interaction between supply chain members in designing and implementing collaborative pricing mechanisms.

Similarly, the role of quality in agri-food pricing has been underlined also in the study by Haehling von Lanzenauer and Pohl (2007) who focus on the achievement of win-win results when developing a linear programming mathematical model to analyse the definition of a supply contract in a B2B context. The designed contract considers the prices of raw materials transferred from growers to the processor, assuming both supplier and buyer pursue profit maximisation and exogenously established retail prices. The study is based on the assumption of complete information exchange between the producer and the processor; as a result, the supply contract in which the price of raw materials is based on quality is considered appropriate for the construction of a better performance for the supply chain and generating a win-win situation.

Dyadic - Replication of dyadic target costing

IOCM research area has evolved by extending its focus to the whole supply chain, thus defining the research field of Supply Chain Costing (Kajüter, 2002), by using a replication of one-to-one dyadic TC, adopted with an extended supply chain perspective. This replication is often defined as “Supply Chain Target Costing” (Goldbach, 2002) or “chained” Target

Costing (Bastl *et al.*, 2010) and has represented one of the key factors for the success of automotive Japanese manufacturers. According to Cooper and Slagmulder (2003), the TC system is “chained” when the output of a buyer’s TC system becomes an input to a supplier’s TC system in a dyadic, pairwise manner along the supply chain (as depicted in Figure 3). Unlike the standard TC approach, chained target costing requires active efforts by all involved exchange partners to meet the target price.

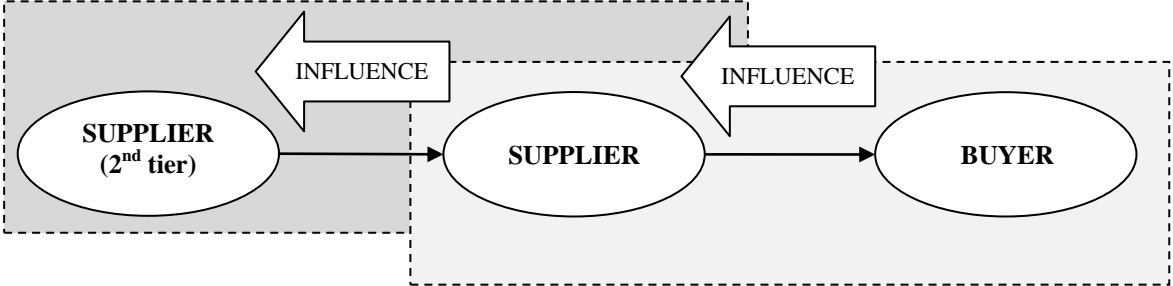


Figure 3 – Dyadic pricing process – Chained Target Costing

Another replication of dyadic approaches is investigated by Goldbach (2002), who proposes a conceptual collaborative Supply Chain Costing approach based on the joint adoption of TC and ABC at a supply chain level based on cooperation, incentives and trust to generate win-win solutions. In this way it is possible to receive signals from the market and customer specifications through TC, creating cost pressures within the supply chain, which in order to create a positive effect should be equally divided between the involved players. ABC acts as a tool that supports all of the partners in optimising the overhead costs.

To summarise the commonalities within the dyadic stream, the studies share the main focus on cost management. Moreover, from a methodological point of view, the studies also share a practical approach, characterised by case studies and action research for Quality Based Pricing, which reflect a direct linkage with automotive and agri-food industries.

When considering power balance, as Cooper and Yoshikawa (1994) point out, the success of cost management practices thereby depends heavily upon a cooperative buyer–supplier model based on mutual benefits. Buyers need to be careful not to reap all of the additional profits generated through collaboration (Cooper and Slagmulder, 2003, p. 17). However, the literature underlines two main approaches in TC: a first “power-based” approach (Goldbach, 2002), characterised by collaborative contexts with an asymmetric distribution of power between buyer (*senior partner*) and supplier (*junior partner*). Therefore, the distribution of economic benefits does not assume balanced “win-win” characteristics, since the dominant party can retain the major part of benefits, relying on greater bargaining power (Goldbach, 2002). A second approach is based on “win-win” benefit sharing, from the Lean Supply Chain perspective; for instance, Kulmala (2004) reports the case of a supplier that has promised to enter the main contractor’s target costing project, being a pilot supplier who will be closely involved. In the network, the win–win procedure of this relationship represents pioneering. In addition, McIvor (2001) underlines the focus on cost rather than price has created a win-win result because the company works with suppliers to meet common cost and functional objectives.

Dyadic - bi-directional

Scholars in Supply Chain Coordination area have investigated pricing decisions as a key factor in relation to the dynamics and performance of supply networks (Özelkan and Çakanyıldırım, 2009). In Supply Chain Coordination the main focus on pricing is usually limited to the interaction in “channel alignment” with other logistic variables, i.e. distribution, sourcing, plant and inventory management and information sharing (Arshinder *et. al.*, 2008; Simatupang and Sridharan, 2008). A supply chain is coordinated when the players, acting

rationally, make the decisions that are optimal for the whole supply chain, thus influencing the pricing process of each involved player (Figure 4).

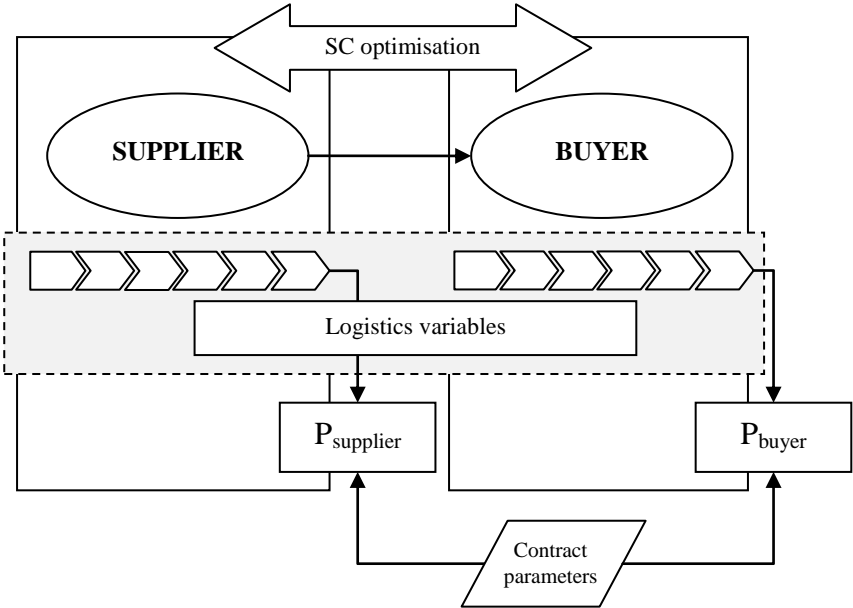


Figure 4 – Dyadic pricing process – Bi-directional

According to Van der Rhee *et al.* (2010) a supply chain contract is a joint agreement among different supply chain actors with respect to different trade parameters such as pricing, order quantity commitment, delivery commitment, and quality.

In this research area the main contributions are based on quantitative models aimed at reaching the main target of supply chain optimisation. Many studies have been developed to analyse contracts for the achievement of optimality conditions (cfr. literature reviews by Tsay *et al.*, 1999; Cachon and Lariviere, 2005; Sarmah *et al.*, 2005; Arshinder *et al.*, 2008).

Contracts, as a key component of the pricing process, are perceived as a coordination mechanism that have the potential to encourage the partners to work together in order to achieve a better overall performance, so as to bring the results of a decentralised supply chain to those of a vertically integrated supply chain (Wang, 2002). The majority of the Supply Chain Coordination literature focuses on “pairwise” contract mechanisms (Van der Rhee *et*

al., 2010) installed between all pairs of supply chain adjacent entities, which involve only two decision makers, i.e. buyer and supplier.

Although the strong interdependence between the supply chain actors' profits forces partners to cooperation (Cauhan and Proth, 2005), an agreement in which *both* partners are equally benefited is a complicated issue. However, according to Bellantuono *et al.* (2009), scholars have started to pay increasing attention to obtain a mutually beneficial result in supply chain coordination contracts. Win-win conditions to enhance both profits of the manufacturer and the retailer are created by satisfying two properties: firstly, contracts should enable each participating actor to obtain a higher profit; secondly they should increase the overall profit for the entire supply chain. Being the revenue-sharing contract ideally suited to both objectives, it has been thoroughly analysed in the literature (Cachon and Lariviere, 2005). According to this view, the supplier charges the buyer a low wholesale price and shares a fraction of the revenues generated by the buyer (Giannoccaro and Pontrandolfo, 2004).

The opportunity to develop a joint collaborative approach has been investigated also by Industrial Marketing scholars. Voeth and Herbst (2006) advance a new collaborative approach to determine the pricing process from a dyadic supply chain perspective, in the same way as today's industrial markets need to collaborate on logistics, purchasing and production to optimise joint outcome. Consequently, there is the need to revise the traditional role played by the pricing process, which can no longer assume exclusively the function as an instrument to distribute profits, but should become a tool for the remuneration of the participants for their choice to enter the value creation process (Wikström and Normann, 1994). Voeth and Herbst (2006) offer a conceptual contribution to investigate pricing from a buyer-supplier supply chain perspective. They use the term "Supply Chain Pricing" to identify a collaborative tool to increase the joint profits within the supply network. The different actors should avoid optimising their own positions, acting as a single decision-making unit, in order to reach an

optimum that satisfies the interest of the whole chain, thus developing close and long-term relationships across the network and shifting from win-lose to win-win relationships. They maintain that cost transparency and information transparency are critical to support the implementation of this new pricing approach. Although their study provides a mathematical procedure to prove that the overall margin obtained with Supply Chain Pricing at a dyadic level is greater than that the one obtainable with conventional systems, it does not define a clear method for allocating mutual benefits.

Replication of pairwise contracts

In a similar way to chained Target Costing, the literature on Supply Chain Coordination has proposed the simultaneous replication of pairwise contracts, which offers an extended focus on the supply chain (as depicted in Figure 5) (Giannoccaro and Pontrandolfo, 2004).

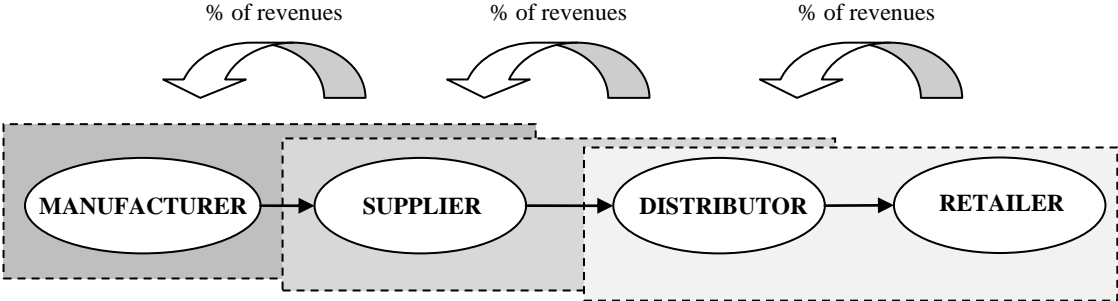


Figure 5 – Simultaneous replication of pairwise revenue sharing contracts (adapted from Van der Rhee *et al.* 2010)

In particular, Giannoccaro and Pontrandolfo (2004) consider a three-stage supply chain where pairwise revenue-sharing contracts are replicated, aiming at achieving channel coordination and contract parameters are discussed to offer win-win conditions. The contract model is characterised by two different agreements: the first which is offered by the distributor to the retailer, the second which is offered by the manufacturer to the distributor. The authors

demonstrate that this model guarantees channel coordination and maintain the implementation of the proposed contract model needs a certain degree of cooperation among the supply chain actors during the contract design phase. The desirability of the contractual scheme by the various chain actors deals with adjusting the contract parameters so as to make all decisions well accepted by the actors.

As regards the main limitations of the studies in the Supply Chain Coordination stream, most complex contracts that ensure an optimal coordination and flexible allocation tend to be expensive to manage. In this vein, Ren *et al.* (2010) underline that despite their theoretical appeal of creating a “win-win” situation for buyer and supplier, empirical and anecdotal evidence shows that simple linear pricing contracts are still the most widely used format, possibly due to their simple structure and associated low administrative cost. When considering elements related to power, an important role is played by the order in which decisions are taken by supply chain actors in contract definition, e.g. in the Stackelberg game (Chen, 2011). The contract design (i.e. the choice of contract parameters) will depend on the relative contractual power of the supply chain actors (Giannoccaro and Pontrandolfo, 2004).

Moreover, the use of mathematical models and the assumptions of a fully rational behavior do not fully allow grasping the relational factors between the involved supply chain actors. To bridge the gap between contracts and relational approaches, Seshadri and Mishra (2004) argue that contracts and relationships are complementary concepts, and contracts constitute a dynamic governance structure, in which the relationship itself may evolve over time, thus illustrating the convergence between Relationship Marketing and Supply Chain Coordination areas. Relational elements have been investigated also by Höhn (2010) in a literature review on supply chain contracts. Another limitation is represented by the simplification of the supply chain under study: generally, the main attention is given to retail and distribution

channels (i.e. considering the “manufacturer-retailer” dyad as main unit of analysis), thus excluding the supply chain portions concerned on transformation processes and without considering additional interactions with upstream supply chain members (e.g. second tier suppliers). Eventually, the discussion of contracts does not refer to specific products or industries, thus without taking specific contextual factors into account.

Extra-dyadic extension

Only a few studies effectively adopt an extended perspective which overcomes the buyer-supplier dyad and does not represent the “chained” replication of a dyadic approach along the supply chain. In this section we classify the main emerging contributions that adopt an extra-dyadic perspective.

To overcome the pairwise dyadic approach, Van der Rhee *et al.* (2010) analyse the “spanning” revenue-sharing contract (Figure 6). Only one contract is needed to coordinate a supply chain, instead of $n-1$ pairwise revenue-sharing contracts (e.g. Giannoccaro and Pontrandolfo, 2004). The most downstream entity, who acts as pricing process owner, compensate the involved supply chain parties in terms of a share of the revenue. The spanning contract has to be signed by all entities to be valid, thus avoiding the opportunity of “gaming”. As long as the revenue-sharing variables and wholesale prices are chosen to achieve both coordination and a win-win outcome, all the entities therefore have the choice to either sign the contract and benefit, or to not sign the contract and not benefit; it is impossible to benefit by not signing the contract. Similarly to other Supply Chain Coordination studies, further investigation of power and relational elements is required. Moreover, the authors acknowledge the opportunity to investigate the design of a spanning contract managed by an entity which is not the most downstream, such as operational coordinators of the supply chain.

Again, they stress that more empirical research is needed on the implementation issues of contract mechanisms in a multi-echelon supply chain setting.

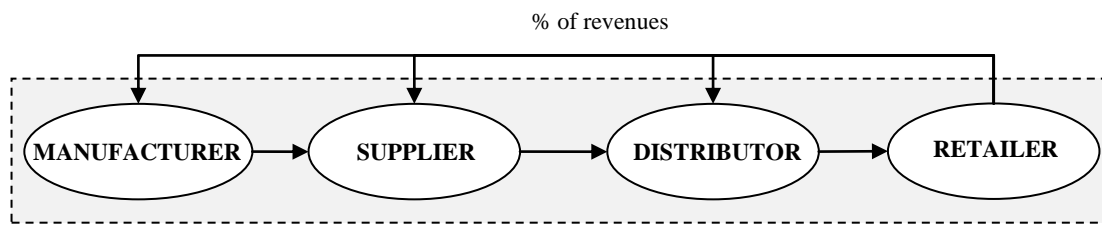


Figure 6 – Extra-dyadic spanning revenue-sharing contract (adapted from Van der Rhee *et al.* 2010)

Buxmann *et al.* (2007) provide an example in the online music sector, investigating a value chain consisting of three actors: a distributor (i.e. online retailer), a collecting society and a record company. After having decided a low price strategy and the optimal retail price through a market survey, this strategy can only be realised if the actors of the value chain act as cooperation partners. In this context cooperation means that the price for music is conjointly set and the profit is shared between the value chain partners. The authors developed a model to find profit-maximising prices and advance two ways (equally and favouring the label which bears more risks) to split up the resulting increasing revenues between the partners of the value chain to assure Pareto-efficient solutions, superior to traditional business models. Again, the collaboration process is initiated by the downstream actor, i.e. the retailer.

When considering the active role played by suppliers and intermediaries along the chain to initiate and manage pricing collaboration, we recognised some preliminary examples of an extra-dyadic win-win pricing approach in the context of agri-food “values-based” supply chains and mainly investigated by agribusiness literature. Values-based supply chains differ from traditional supply chains, since they are characterised by business relationships among “strategic partners” framed in win-win terms, and constructed on collaborative principles that

feature high levels of interdependence and inter-organisational trust (Stevenson and Pirog 2008). These strategic relationships are reflected also in the pricing process: the involved members interact in price setting across the entire supply chain in order to ensure the welfare of all strategic partners, including appropriate profit margins, living wages, and business agreements of appropriate duration. Stevenson (2009) describes the case studies of four innovative American enterprises operating in the context of the “Agriculture of the Middle” research project. These organisations played an important role in the development of a new supply chain collaboration model centered on a cooperative pricing process, which helps distributing profits equitably among the strategic partners and creating mutually beneficial and sustainable relationships. The adopted pricing philosophy has been developed to involve also producers’ perspective: in this manner, the studied firms interact with their supply chain members, in particular growers and producers, through the adoption of based on fair, stable, and transparent pricing mechanisms, which are based on the following two sets of principles, namely supply management and stable pricing, and cost-of-production-based pricing. The first set of principles is intended to significantly unhinge “economic sustainability” from fluctuating commodity markets and pricing systems. The second principle seeks to cover producers’ production and transaction costs, plus a return on investment and a reasonable profit, without squeezing their margins. Several cases of successful implementation of innovative, shared pricing models have been reported; an important role is played by supply chain coordinators (e.g. Red Tomato) and “new-generation” cooperatives, which support farmers in negotiating with supply chain partners who are in close touch with markets and customers.

Similarly, a recent research by Mena *et al.* (2013) investigated the development of triadic relationships in the British agri-food industry, which also regards a joint price arrangement between a baker, a miller and a co-operative. The baker company is engaged in the sourcing

of goods at the second-tier level, however, the baker is not responsible for paying the co-operative directly. In fact, while it has an agreement on the price with the co-operative, the co-operative will charge the miller for the grain. This relationship is perceived as value adding and the co-operative defines the pricing arrangement as “simple and non-combative” (p.66).

The category of extra-dyadic pricing approaches represents an emerging stream, with interesting research opportunities; however, it is characterised by increased complexity, due to the bigger number of involved supply chain actors, which impacts on pricing decision making and win-win benefit sharing. The increased number of involved parties also influence the discussion of power balance. Moreover, when analysing the direction of collaboration, this is indeed an issue. In the majority of papers, it seems that the collaboration is initiated by the most downstream actors in the supply chain and then transferred upwards; however, especially in innovative agri-food supply chains intermediate supply chain parties take control of the pricing process to support weaker elements such as farmers.

Eventually, in Table 1 we provide a summary and comparison of the four reviewed areas.

Table 1

Research gaps and opportunities for future research

The evaluation of different research contributions across several research streams allowed us to discuss consensus, differences and limitations in the investigation of B2B pricing towards supply chain collaboration. When considering the unexplored elements, our review suggests the following interesting avenues for future research.

First of all, despite Voeth and Herbst (2006) purposed a first conceptual model to describe ‘collaborative supply chain pricing’, a shared definition from an extended, extra-dyadic supply chain perspective still lacks. We contributed by offering a novel framework for consolidating the fragmented body of literature, analysing supply chain collaboration in the B2B pricing process, using the extension and the direction of collaboration as main levels of analysis. As a future research direction, starting from our classification, we propose the formalisation and enrichment of this definition and the operationalisation of the proposed approaches for theory-testing objectives.

The second identified gap is related to the implementation of supply chain collaboration in the B2B pricing process. Implementation seems to be influenced by two main interconnected elements, i.e. power balance and benefit sharing, as demonstrated by our review. Firstly, collaboration cannot take place if an abuse of power is exerted; secondly, power determines the direction of collaboration and the *symmetry* (Hingley, 2005) in benefit sharing. Hingley (2005) highlights that contractual power as leverage to manage supply chain relationships is always present and should not be perceived in a negative way. In fact, the creation of relationships in asymmetric contexts is feasible and weaker members can bear these less balanced power situations. In this vein, Maloni and Benton (2000) underline that the issue of power does not go away just because companies willingly enter into cooperative relationships: hence, collaboration does not always mean with-held power. While the implementation of ‘asymmetric’ pricing approaches can easily be described by several examples of Target Costing application, literature is still lacking of real implementations of ‘symmetric’ approaches in terms of techniques and mechanisms. Therefore, further studies are required to deepen the knowledge related to the design of incentives to support the implementation of the ‘symmetric’ approach in supply chain collaboration, to avoid opportunistic behaviors and to equally allocate benefit between the involved parties. Scholars should carefully consider the

main implementation problems and pitfalls identified in the conceptual models proposed in the literature: these difficulties are related to the willingness of companies to exchange information, the possibility of opportunistic behavior, relational elements such as trust and relationship length, conflicts of interests, different goals, equity and power structures along the supply chain.

A third gap concerns the analysis of simplified supply chains, especially in quantitative research, which in most cases consider distribution channels, and exclude value-adding activities such as transformation or product development processes. This precludes the understanding of contextual variables and limits the contingency-based investigation of what supply chain contexts can effectively develop different collaborative approaches in pricing between different actors along the network. The literature review has given interesting research indications to explore collaborative pricing approaches in the agri-food context (Hines *et al.*, 2006a; Hines *et al.*, 2006b; Haehling von Lanzeneuer and Pohl, 2007; Stevenson and Pirog, 2009); it should be relevant to identify other collaborative industries in order to ascertain which other context can allow the development of similar collaborative pricing approaches, e.g. the service industry.

A further research direction is required by the absence of an extended supply chain perspective, rather than the common dyadic unit of analysis which has been studied in the majority of reviewed contributions. According to our review, the extension of collaborative supply chain pricing approaches along the supply network is an issue that definitely needs additional investigation: as underlined by Mena *et al.* (2013), what happens in multi-tier supply chains is largely underexplored.

Moreover, in evaluating the methodological approaches in the research on collaborative pricing, we assessed the prevalence of conceptual and mathematical studies, in line with Wagner and Lindemann (2008), who underline that in recent years a substantial body of

knowledge on value sharing in inter-organisational relationships has been accumulated in the Operations Research and Management Science field. In contrast, only a minority of the authors has approached value sharing in channel relationships with empirical research methods. In fact, from a methodological point of view, the vast majority of contributions are based on mathematical optimisation models based on analytical models or Game Theory in the Supply Chain Coordination area. Therefore, there is a need to develop empirical studies, as the analytical and mathematical models may not fully grasp the dynamics existing in the adoption and development of collaborative pricing approaches.

We also assessed the absence of review of the supply chain collaboration in the pricing process phenomenon through established theories. Indeed, the initial phase of investigation of this topic has precluded the possibility of developing interpretations through the lens of managerial theories. However, the main reviewed studies suggest the application of theories (mainly Game Theory) for the equitable distribution of profits generated by the collaborative pricing process between the involved parties. In addition, issues such as the adoption of opportunistic behavior, the conditions of asymmetric information along the supply chain and the risk connected to price negotiation recall Agency Theory (Eisenhardt, 1989), as also proposed by Goldbach (2002). Additional theories such as the Relational View (Dyer and Singh, 1998) and Transaction Cost Economics (Williamson, 1979) could play an important role, respectively evaluating the opportunity to perceive collaborative pricing as a way to create inter-firm competitive advantage, and understanding how collaborative pricing impacts the dimensions of a transaction (i.e. uncertainty, frequency and idiosyncratic investments).

Conclusions

The main academic contribution of this paper lies in the effort to advance a first interdisciplinary literature overview on supply chain collaboration in B2B pricing, which

provides a broad map of the various streams of research occurring in different fields of management studies. This review highlights and integrates the critical elements from different areas in order to outline the evolution towards collaborative, win-win approaches in pricing from dyadic approaches towards an extended supply chain perspective beyond the dyad, eventually providing a first taxonomy of collaborative B2B pricing approaches from a supply chain perspective. In this vein, thanks to extending our study beyond the boundaries of the literature in Industrial Marketing and Operations & Supply Chain Management, we offer a more comprehensive view of the pricing process and we provide chances for intensifying dialogue across different research areas.

Our study aims at contributing not only to the general research on pricing in Supply Chain Management, but also in particular to the Supply Chain Collaboration research stream (Barratt, 2004; Simapatung and Sridharan, 2008; de Leeuw and Fransoo, 2009). Despite scholars have deeply investigated collaborative relationships between supply chain members in production planning, logistics, quality management, new product development processes, this research area has paid little attention to the opportunity to extend a collaborative approach also in the pricing process interface, thus shifting from a distributive “zero-sum” game to a mutually beneficial relationship. Moreover, we maintain that this study operates a first step in considering the pricing process as an important process to be included in Supply Chain Collaboration research, thus offering the opportunity for extending the scales provided by Cao and Zhang (2011) for measuring supply chain collaboration, by including also items related to collaborative pricing.

This paper provides also managerial implications. Collaboration in the pricing process could play an important role for practitioners to achieve sustainability for the involved supply chain members (Formentini and Taticchi, 2014), not only in economic terms but also considering and social impacts, as demonstrated by the extra-dyadic approach recognised in the cases of

emerging “values-based chains” (Stevenson and Pirog, 2008) in the agri-food industry. In this context, Pullman and Dillard (2010) underline the need to develop new organisational forms to accomplish sustainability needs: from this point of view, collaborative B2B supply chain pricing is a first attempt to support producers to protect their margins and create fair and equitable relationships across the network, which represent a primary issue especially in agri-food supply chains (Bunte, 2006).

Eventually, the investigation of collaborative approaches in pricing opens new research directions on behavioral and psychological aspects of decision making in industrial markets; in fact, the majority of research in this area has been conducted in consumer markets leaving implications for industrial marketing largely unexplored. Therefore, we underline the opportunity to study behavioral elements such as motivations, incentives, information sharing as a critical support element for the implementation of collaborative supply chain pricing.

Acknowledgements

We acknowledge the helpful comments and observations provided by Prof. ManMohan S. Sodhi (Cass Business School, City University London). We thank Prof. Lisa M. Ellram (Miami University) for her precious guidance and advice offered at the beginning of this research.

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