The impact of supply chain integration on corporate financial performance

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Abstract

Inter-organizational relationships have received an increasingly interest in recent years because firms have understood that they have to collaborate to compete. Supply chain integration is an efficient tool to reach and brush up collaboration. Supply chain integration is a critical factor in fostering corporate financial performance. Despite this growing interest few studies highlighted this problematic which determine the survival of many businesses.

Key words: Supply chain integration, activities integration, systems integration, corporate financial performance

L'impact de l'intégration de la chaîne logistique sur la performance financière des entreprises

Résumé

Les relations inter-organisationnelles ont suscité un intérêt croissant ces dernières années parce que les entreprises ont compris qu'elles doivent collaborer pour être concurrentielles. L'intégration de la chaîne d'approvisionnement est un outil efficace pour atteindre et améliorer la collaboration. L'intégration de la chaîne d'approvisionnement est un facteur essentiel pour favoriser la performance financière des entreprises. Malgré cet intérêt croissant, peu d'études ont mis en évidence cette problématique qui conditionne la survie de nombreuses entreprises.

Mots clés : Intégration de la chaîne d'approvisionnement, intégration des activités, intégration des systèmes, performance financière de l'entreprise.
Introduction

The end of the thirty glorious years has announced the start of a new era characterized by uncertainty and turbulence where the predatory competition is not the one best way for doing business. In fact, firms become unwilling to meet alone these new realities and are increasingly aware that “they must collaborate to compete” (Bleeke and Ernst, 1993).

Supply chain management emerged for the first time in the literature in the mid-1980’s (Cooper et al., 1997) but its origins are much old; precisely in the sixties of the last century, where supply chain management gained its independence from logistics and physical distribution (Larson et al., 2007). The Council of Supply Chain Management Professionals (CSCMP) had proposed the following definition: “Supply Chain Management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all Logistics Management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers” (Larson et al., 2007, pp: 2).

Collaboration and integration are the building blocks of supply chain management. On the one hand, collaboration foster communication and trust between supply chain members. On the other hand, integration to meet the magic square: the right product in the right place in the right time and in the right quality.

1- Supply chain integration: literature review

Inter-organizational relationships have received an increasingly interest in recent years (Agostini and Nosella, 2017; Barringer and Harrison, 2000; Zhong et al., 2017). A large body of scientific articles have shed light on many features of this issue: joint-ventures (Del Mar Benavides-Espinosa and Ribeiro-Soriano, 2014; Kogut, 1988), vertical integration (Joskow, 2012; Lafontaine and Slade, 2007; Williamson, 1971), outsourcing (Grossman and Helpman, 2005; Williamson, 2008), Supply Chain Management (Lambert and Cooper, 2000; Spekman et al., 1998)... The latter is becoming an efficient tool to hold and conserve a sustainable competitive advantage (Li et al., 2006; Markley and Davis, 2007).

The term integration can be defined as “the unified control of a number of successive or similar economic or especially industrial processes formerly carried on independently” (Flynn et al., 2010; Webster, 1966, pp: 1175). Other scholars proposed more detailed conceptualization. According to Ortiz et al. (1999) integration “consists in facilitating the material, information, decision and control flows throughout the organization, linking functions with information, resources, applications and people, with the aim of improving communication, cooperation and coordination in the enterprise, in order to manage the enterprise to behave as a whole and operate according to the strategy of the enterprise” (pp: 156). Drawing on this definition we will conceptualize supply chain integration. But before that we will shed light on the two following concepts: Supply Chain Management and supply chain.

La Londe and Masters (1994) identified the supply chain as a set of two organizations that work together to pass materials forward which means that work together in order to secure the movement of materials toward the final customer. Another definition considers supply chain as a network of organizations which work together and are involved in the upstream and downstream flows of raw materials, information, finance and finished goods from supplier’s supplier to customer.
(Christopher, 1992; Cooper et Ellram, 1993). Mentzer et al. (2001) qualified Supply Chain Management as “new management philosophy” where Lambert et al. (1998) considered that it is “a new paradigm for conducting business”. Giunipero and Brand (1996) stated that Supply Chain Management “is a strategic management tool used to enhance overall customer satisfaction that is intended to improve firm’s competitiveness and profitability” (pp: 32). A more current and extend definition was proposed by Chen and Paulraj (2004): Supply Chain Management “encompasses every effort involved in producing and delivering a final product from the supplier’s supplier to the customer’s customer” (pp: 122).

Despite this large body of literature, there is a lack of consensus among scholars on a unique definition of supply chain management. The heterogeneity of researchers (e.g: marketers, managers, economists…) is the main cause since each of them proposed a definition based on his own perspective.

The integrated supply chain is an advanced stage of the implementation of Supply Chain Management (Larson et al., 2007). It refers to a managerial approach that fosters collaboration among supply chain members in order to acquire a sustainable competitive advantage (Lee and Whang, 2001). Bagchi et al. (2005) adopted the same perspective and stated that supply chain integration is the collaboration between firms in strategic, tactical and operational decision-making. Zhao et al. (2008) introduced the management of processes as a key element in supply chain integration. According to those scholars, supply chain integration is “the degree to which a firm can strategically collaborate with its supply chain partners and collaboratively manage the intra- and inter-organization processes to achieve effective and efficient flows of product and services, information, money and decisions with the objective of providing maximum value to customers at low cost and high speed.” (pp: 374).

![Figure 1: An illustration of a company’s supply chain](source: Chen and Paulraj, 2004, pp: 120.)

Supply chain integration cannot be achieved until the internal integration reached (Barratt, 2004). The latter is “the degree to which firms are able to integrate and collaborate across traditional functional boundaries to provide better customer service” (Chen and Paulraj, 2004, pp: 142). The idea is to start by implementing a “collaboration culture” between the different departments of the firm and then orient the efforts toward the satisfaction of customers and other stakeholders. Furthermore, systems integration which is an essential dimension of supply chain integration (we will discuss it in more detail on the following paragraphs) is a key factor in reaching internal integration.
An IT (information technology) infrastructure and information sharing between a focal firm’s departments will increase the chance to extend integration to supply chain members. Then a firm with high systems integration is more likely to reach full supply chain integration. The external integration involves extending the boundaries of the firm to suppliers and customers. Figure 1 illustrates the internal and external integration.

There are several types of supply chain integration (Balambo, 2012): operational integration, control-based integration, process-based integration, flow-based integration, relational integration... There is a quasi-consensus among scholars that process integration and flow integration are the most common in the literature (Fabbe-costes, 2007; Morash and Clinton, 1998). As shown in the figure 1, customers and suppliers are key elements in supply chain integration. Involving customers increases flexibility of the supply chain since the products and services offered create the value for the customer.

In spite of the diversity of supply chain integration studies, the concept remains ambiguous (Tsinopoulos and Mena, 2015). This vagueness may result from the variety of interpretations and perspectives (Gimenez et al., 2012). Moreover, supply chain members have often different goals and priorities which increase the level of complexity when studying supply chain integration (Wang et al., 2016). To overcome this limit we propose the implementation of trust which we believe to be an essential factor to link customers, suppliers and other channel members. Previous studies argued that trust is an important ingredient that fosters cooperation and avoid conflicts (McCarter and Northcraft, 2007; Yeung et al., 2009). Thus, trust strengthens social ties between supply chain members which may facilitate their integration.

### Table 1: Definitions of Supply Chain Management

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<th>Source</th>
<th>Definition</th>
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<td>Monczka, Trent, and Handfield (1998)</td>
<td>SCM requires traditionally separate materials functions to report to an executive responsible for coordinating the entire materials process, and also requires joint relationships with suppliers across multiple tiers. SCM is a concept, “whose primary objective is to integrate and manage the sourcing, flow, and control of materials using a total systems perspective across multiple functions and multiple tiers of suppliers”.</td>
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<td>La Londe and Masters (1994)</td>
<td>Supply chain strategy includes: “…two or more firms in a supply chain entering into a long-term agreement; … the development of trust and commitment to the relationship; … the integration of logistics activities involving the sharing of demand and sales data; … the potential for a shift in the locus of control of the logistics process.”</td>
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<td>Stevens (1989)</td>
<td>The objective of managing the supply chain is to synchronize the requirements of the customer with the flow of materials from suppliers in order to effect a balance between what are often seen as conflicting goals of high customer service, low inventory management, and low unit cost.</td>
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Differences between supply chain management and classical materials and manufacturing control: “1) The supply chain is viewed as a single process. Responsibility for the various segments in the chain is not fragmented and relegated to functional areas such as manufacturing, purchasing, distribution, and sales. 2) Supply chain management calls for, and in the end depends on, strategic decision making. “Supply” is a shared objective of practically every function in the chain and is of particular strategic significance because of its impact on overall costs and market share. 3) Supply chain management calls for a different perspective on inventories which are used as a balancing mechanism of last, not first, resort. 4) A new approach to systems is required—integration rather than interfacing.”

Supply chain management deals with the total flow of materials from suppliers through end users...

Supply chain management is “… an integrative philosophy to manage the total flow of a distribution channel from supplier to the ultimate user”.

2- Corporate financial performance: literature review

Corporate financial performance is a set of indicators and metrics that assess a firm’s overall financial health. It can be also seen as the process by which assets are used to generate revenues. We have noticed that there is a lack of conceptualization of corporate financial performance in the literature. Despite the increasing number of researches, in most cases this concept is supposed to be understood. We believe therefore that corporate financial performance “is most elusive and yet, most sought after”.

The majority of corporate financial performance metrics fall into two categories: investor returns and accounting returns (Cochran and Wood, 1984). The investor returns evaluate the efficiency of an investment: what the investor gain after deducing the cost of investment. The accounting returns refer to the expected or calculated profit from an investment made. We adopt investor returns instead of accounting returns as an objective metric for financial performance. The latter may be subject to manipulation and also the diversity of methods makes any comparison more complex. Moreover, As far as the gap between investor returns and accounting returns increases the corporate financial performance goes down (Fisher and McGowan, 1983).

Corporate financial performance is among main concerns of shareholders (Simpson and Kohers, 2002). The quality of the relation manifested in trust between shareholders and managers directly influence profitability (Choi and Wang, 2009). Even if trust needs a long time to emerge, it allows to shareholders to focus on improving corporate strategy and fostering management style instead of wasting time and resources on controlling and monitoring (Ryan and Buchholtz, 2001; Yachoulti, 2017).
The articulation between corporate financial performance and corporate social performance was extensively studied in the literature (Orlitzky et al., 2003). The debate on the nature of this relationship was initiated by Milton Friedman who declared 4 decades ago: “the social responsibility of business is to make profit” (Friedman, 1970). Consequently, he considered that corporations do not have an ethical obligation to act to the benefit of the society. This view was contrasted later by many scholars who demonstrated that not only social responsibility exists but also it has a positive relationship with corporate financial performance (Frooman 1997; Griffin and Mahon 1997; Stanwick and Stanwick, 1998; Tsoutsoura, 2004).

The causal relationship between corporate financial performance and corporate social performance remains unclear in the literature (Preston and O'bannon, 1997). Does the former leads to the latter or the opposite? or even the relationship is dyadic? We believe that firms with high social performance are more likely to achieve a high financial performance since a high social responsibility enables firms to empower their brand equity and customers may be favorably disposed to their products. Moreover, socially responsible companies tend to encounter less labor problems which may lead to an increase in productivity. Therefore, corporate social performance is positively related to corporate social performance.

Corporate financial performance can be mitigated by internal and external constraints (Wang and Qian, 2011). Internal constraints refer to the overall barriers inside the firm that impede performance. Those barriers could be conflict between departments, low level of coordination, poor management style... External constraints involve the problems that are outside the firm such as the increase in the price of raw materials, problems in delivery delays, low level of collaboration with supply chain members...

There is a quasi-consensus in literature that corporate financial performance is positively related to size; what is commonly shared that large companies are too big to fail. We believe there is no significant relationship since high technology enables small and medium firms (SMF) to boost their financial performance without being obliged to increase their size. Moreover, capital structure and creativity may strengthen financial health meaning that financial performance will be enhanced.

Corporate financial performance is a broad and multidimensional concept. As illustrated in table 1, there are a set of indicators (and sub-indicators) that measure this variable. We consider this richness an efficient tool to assess and understand in depth the concept of corporate financial performance. Moreover, since there are different stakeholders in firms (employees, bond holders, investors...) who have different perspectives and different ways to track the financial health of the company, we need a different set of items that satisfy the requirements of all parties.

Balance sheet and income statement are considered masterpieces that allow shareholders to assess corporate financial health (Chen et al., 2002; Penman, 2009). Balance sheet determines company’s net worth while income statement reveals the costs, expenses and revenues over a fiscal year. The Enron scandal pushed firm’s owners to brush up financial governance mechanisms and rely on more indicators and metrics to evaluate corporate financial performance.

Though the increasing interest allowed to supply chain integration, some dimensions remain unstudied. Few studies have been interested in activities integration and systems integration. Furthermore, the articulation between supply chain integration and financial performance remains
obscure. This lack of interest can be explained by the large gap (at least in theory) between supply chain and corporate finance. This article is a contribution to reduce this gap through highlighting the critical role played by supply chain integration in fostering corporate financial performance.

3- Conceptual framework and hypotheses

The decreasing in life cycles and the permanent evolution in customer’s preferences has put a lot of pressure on firms. The latter are increasingly obliged to meet those requirements if they want to stay competitive and hence increase their corporate financial performance. The proposed theoretical framework articulates the dimensions of supply chain integration, financial performance and the mediating role of supply chain reactivity (Figure 2).

3.1- Dimensions of supply chain integration

The literature on supply chain management considers the issue of integration as one-dimensional and hence does not differentiate between systems integration and activities integration.

• Activities integration

The capacity of the firm to manage a network of partners has a central place in supply chain management literature. As a result, firms have understood that they have to collaborate to compete (Bleeke and Ernst, 1993) and inter-firm activities integration is a form of this collaboration.

Figure 2: Conceptual model

![Figure 2: Conceptual model](image-url)
Activities integration can be defined as the willingness of two (or more) companies to develop in common a collaborative forecasting and replenishment (Kim and Cavusgil, 2009). This goal cannot be achieved without the awareness of the full value-added of activities integration and its impact on profitability.

**Systems integration**

Inter-firm activities integration is a necessary but insufficient condition to reach supply chain integration. Hence the full supply chain integration requires systems integration. The latter refers to the development of communication infrastructure between supply chain members.

The successful implementation of systems integration fosters information exchange and reduces technical barriers between supply chain partners. However, sharing information about merely sales or promotions plans will not allow to fully benefit from the full virtue of systems integration. In addition, partners have to share strategic information in order to send signals of commitment, goodwill and integrity. Supply chain communication system (SCCS) is an efficient tool to implement a platform that facilitates information sharing.

The existing literature fails to distinguish the two dimensions of supply chain integration. It is unclear if the implementation of systems integration must precede or succeed the activities integration or even their implementation should happen simultaneously. We believe that setting up a SCCS is a prerequisite since collaboration between supply chain members cannot be reached in the absence of communication.

**Supply chain reactivity**

Even if supply chain encompasses a variety of participants, Supply chain reactivity involves primarily two major actors: the buyer and the supplier. It can be defined as the capacity of supply chain members to act rapidly and effectively in market evolution. The globalization has made the rapidity and effectiveness essential in gaining and conserving competitive advantage.

Scholars argued that integration is a critical factor to reach supply chain reactivity (Kim and Cavusgil, 2009). In fact, the integration of activities and systems will enable to supply chain members to act successfully and deal effectively with the evolution of customer requirements.

Taking to consideration all those conclusions we support the following hypotheses:

- **H1**: Activities integration is positively related to supply chain reactivity
- **H2**: Systems integration is positively related to supply chain reactivity

**Corporate financial performance**

In business, the performance is the output of all firm’s efforts during a period of time (usually the year). Those efforts are manifested in doing the right things, in the right way, in the right moment and in the right costs in order to achieve the desired results that create the value for the customer and the organization (Rai et al., 2006).
The last variable in the proposed theoretical model is the corporate financial performance. The latter refers to the overall financial health (determined by a set of subjective measures) of a given organization. A high corporate financial performance is a reliable sign of good management of activities and process across departments and also a willingness of the organization to brush up its relationship with other supply chain members.

Reaching a reactive supply chain is not the ultimate goal of the firms who are instead looking for high corporate financial performance. However, we expect that supply chain reactivity will enhance corporate financial performance. The ability of firms to react rapidly to the evolution of customers’ requirements and competition positions leads to an increase in sales and in market shares. Consequently, firms will hold sustainable competitive advantage.

Taking to consideration all those conclusions we support the following hypothesis:

- **H3**: Supply chain reactivity is positively related to corporate financial performance

**Conclusion and recommendations**

In order to enhance their corporate financial performance companies must follow the advice of Thomas Edison who said “if there is a better way, find it”. Supply chain integration is among those better ways.

Despite its importance, the articulation of Supply chain integration and corporate financial performance has received less interest in comparison to other issues in the Supply Chain Management literature. This article theoretically extends the research on supply chain integration and especially its role in fostering corporate financial performance.

Most of the time supply chain integration is treated as one-dimensional in the literature. Hence, distinguishing some dimensions seems insightful and could sensitize other researchers to deepen our understanding of this concept. Two types of supply chain integration were identified: activity integration and systems integration. The first refers to the willingness of two (or more) companies to develop a common collaborative forecasting and replenishment while the latter means the development of communication infrastructure between supply chain members.

Despite the lack of empirical evidence we have supported the claim that activity and systems integration enhance supply chain reactivity because the intensification of collaboration and communication between supply chain partners enable them to meet the requirements of customers and hence foster the corporate financial performance.

In addition to testing the proposed conceptual model, we strongly recommend for future researchers to study the dyadic relationship between supply chain integration and corporate financial performance since all studies treat the latter as dependent variable. It will be of a great interest to shed light on this concept as an independent variable.
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References


