

Exploring the role of logistics service provider in supporting the supply chain strategy using supply chain finance instruments

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Abstract

In order to serve different global markets, firms are revisiting the available logistics service providers' (LSPs) expertise and their supply chain (SC) activities. The firms are increasingly focusing on outsourcing their logistics activities as they grow, thereby, driving LSPs to offer a variety of increasingly complex services such as supply chain finance. The aim of this paper is to interrelate SC activities, SC financing and LSPs' roles in SC to support a global SC strategy. The findings illustrate three outsourcing scenarios that a firm can undertake to develop a sustainable relationship with the LSPs to facilitate their global role.

Keywords: Supply Chain Finance, logistics service providers, global supply chain

Introduction

The planning, adaptability and flexibility plays a crucial role in today's competitive global supply chains. The focus on the global supply chains has directed companies to rethink and revisit the Supply Chain Management (SCM) and associated solutions like Supply Chain Finance (SCF). This has also resulted in increased demand for the expertise in the logistics management, hence, boosting the future role of Logistics Service Providers (LSPs) in supply chains.

LSPs have become the facilitators of SCM (Zacharia et al., 2011) and this has been emphasised by the growing number of LSPs providing increasingly complex and innovative services (Mahnke et al., 2005, Sanders et al., 2007) to the supply chain members. As supply chains are becoming globally dispersed, companies are outsourcing their operations related to the logistics management to LSPs (Peters et al., 1998, Rudberg and Olhager, 2003). With their ever increasing role in SCM, LSPs have become effective operators with a high supply chain visibility. This allows them to

manage physical and financial supply chains that makes operations cost-effective, financing accessible and global communications easier and pervasive (Hofmann, 2009b, Bryant and Camerinelli, 2014, Liu et al., 2015b).

The literature on the LSPs' role in SCM is multifaceted and the role of a LSP in supporting the global supply chain strategy using SCF is rather unexplored in the academia. In the light of this gap, the main purpose of this article is to develop the scenarios and framework illustrating the LSPs' roles. In particular, authors address the following research question:

RQ How can LSPs support global supply chain strategy using SCF instruments?

Method

The research methodology is based on the mixed method approach, involving Systematic Literature Review (SLR), literature review and a single case study. Figure 1 shows the various steps involved in the research.

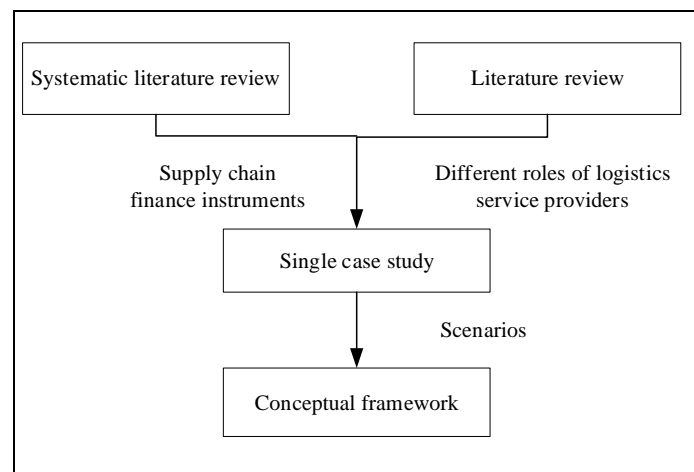


Figure 1 – Research design

The SLR summarises existing literature by identifying the SCF instruments where LSP can play a role of coordinator. The SLR is based on the framework proposed by Denyer and Tranfield (2009). SLR is an evidence-based, replicable, scientific and transparent approach for minimising the bias during thorough analysis and summarisation of the existing literature. It locates existing studies, evaluates contributions, analyses and synthesises data, and reports reasonably clear conclusions (Denyer and Tranfield, 2009).

The second step involves the review of literature on the roles of LSPs in supporting global supply chain strategy.

In the final step, a single case study approach proposed by Yin (2009) is opted to develop the scenarios and framework related to the role of LSPs in supporting the global supply chain strategy using supply chain financing.

Literature review: identifying LSPs' role

With the reduced product life cycle, reduced lead times and increase in the product variety, logistics and supply chain has become an area of increased importance (Fisher et al., 1997, Payne and Peters, 2004, Christopher and Holweg, 2011, Godsell et al., 2011). This has made the expertise and services offered by LSPs centre of attention in the extended supply chains (Zacharia et al., 2011).

The outsourcing of logistics makes LSPs link more to the relevant supply chain activities (Bolumole, 2003, Lieb and Kendrick, 2003, Stefansson, 2006). It narrows down

the tasks to be carried out by the firms (focusing on their core competences), thereby developing an overall efficient and effective supply chain (Coyle et al., 1996; Bhatnagar and Viswanathan, 2000). The benefits arising from outsourcing decision are listed in table 1.

Table 1 – Benefits of Outsourcing Logistics

Logistics outsourcing benefits	Supporting references
Reduced cost	Sink et al., 1996; Sink and Langley Jr, 1997; Van Laarhoven et al., 2000
Enhanced control and increased flexibility	Sink et al., 1996; Sink and Langley Jr, 1997; Van Laarhoven et al., 2000; Vasiliauskas and Jakubauskas, 2007
Staff reduction	Sink and Langley Jr, 1997; Van Laarhoven et al., 2000
Better focus on core competencies	Sink et al., 1996; Sink and Langley Jr, 1997; Van Laarhoven et al., 2000; Vasiliauskas and Jakubauskas, 2007
Reduction of Capital expenditure	Sink et al., 1996; Sink and Langley Jr, 1997; Vasiliauskas and Jakubauskas, 2007
Availability of core expertise	Sink and Langley Jr, 1997; Vasiliauskas and Jakubauskas, 2007
Improved use of technology	Sink and Langley Jr, 1997
Change implementation	Sink et al., 1996; Van Laarhoven et al., 2000
Re-engineering supply chains	Vasiliauskas and Jakubauskas, 2007

Source: Adapted from Karamaounas (2017)

The drivers that lead to the outsourcing of logistics function include, centrality of logistics function to core competency of the focal firm, risk liability and control, operating cost / service trade-offs, information and communication systems and market relationships. Based on the characteristics of the outsourcing, outsourcing relationship can be classified as no outsourcing, outsourcing individual activities (unintegrated), integrated outsourcing of multiple activities, outsourcing all activities and single sourcing of logistics (Coyle et al., 1996).

For a LSP to create value, it must be rather an active member of the supply chain because of its ability to operate vertically (integrated with the customer) and horizontally (with other LSP's) and therefore managing multiple complex networks (Bitran et al., 2007, Mason et al., 2007). Moreover, Wong and Karia (2010) have argued that close relationships between firms and LSPs, consequently, strengthen their expertise in a particular sector by providing a sustainable competitive advantage (better knowledge of customer's business and asset-specific investments). This allows LSPs to play more crucial roles in supply chain activities. The various roles that LSPs can play in a global supply chain are illustrated in table 2.

Table 2 –LSP's roles in global supply chain

SC activity (Lambert and Cooper, 2000)	LSP roles (Lieb and Kendrick , 2003; Stefansson , 2006; Bolumole , 2003)
Customer relationship management	Logistics Information Systems
Demand management	Warehousing, freight consolidation and distribution, transportation, traffic management, Logistics Information Systems
Order fulfilment	Order management, invoicing and auditing, cross-docking, Logistics Information Systems
Manufacturing flow management	Freight consolidation and distribution, invoicing and auditing, cross-docking, Logistics Information Systems
Procurement	Invoicing, rate negotiation, Logistics Information Systems
Product development and commercialisation	Product marking, labelling, packaging
Returns	Product returns, Logistics Information Systems
Customer service management	Customer service, Logistics Information Systems

Source: Adapted from Karamaounas (2017)

By exploiting the roles of LSPs as highlighted in table 2, firms not only can improve their performance, but they can also achieve positive results by concentrating more on

the core competencies and capabilities as well as logistics management to improve customer satisfaction (Bask, 2001). Murphy and Poist (2000) and Knemeyer et al. (2003) agree that LSPs can serve as a link that connects the different members of a supply chain. LSPs are also responsible for optimizing the logistics integration with a view to enhance customer satisfaction and competitive advantage.

The logistics integration between members of the same supply chain also reduces costs and promotes efficiency and effectiveness (Larson and Kulchitsky, 1998, Carr and Pearson, 1999, Lambert and Cooper, 2000, Patterson et al., 2003). Andraski (1998) and House and Stank (2001) have stated that the integration yields the most benefits in terms of increased forecast accuracy because firms can use the resources to deal with unpredicted events. Nevertheless, the real value-creation is embedded in the process of sharing knowledge, resources and promotions, which proves to be even more beneficial (Doz and Hamel, 1998, Mentzer et al., 2000, Skjoett-Larsen et al., 2003). To further demonstrate this, Stank and House (2001) define collaboration as an inter-organizational decision-making procedure where LSPs are included.

Among various activities performed by the firms, warehousing is one of the oldest form of logistics activity involving significant costs and high capital expenditure. It also creates hurdles to the operations of a business. In addition, it is one of the most crucial and time-consuming activity in the logistics area and usually the first to get outsourced to LSPs (Hertz and Alfredsson, 2003). The assessment of outsourcing warehousing is largely determined by the complexity and costs associated with serving the customers. The complexity involves aspects like tariff barriers, expansion possibilities, form of transport, location of nearby ports and airports, quality and availability of employees and others (Van Thai and Grewal, 2005). The outsourcing of warehouse results in decreased level of inventories, decreased warehousing operation costs, increased delivery performance and decreased average lead time.

In addition to the traditional services such as warehousing, the LSPs offer supply chain financial services as well (Hofmann, 2009a, Pfohl and Gomm, 2009, Hofmann and Kotzab, 2010, Chen and Cai, 2011, Basu and Nair, 2012, Yiu et al., 2013, Bryant and Camerinelli, 2014, Hofmann and Zumsteg, 2015, Liu et al., 2015a). SCF instruments' portfolio takes into account various financial services that can be used along the supply chain. Albeit, number of SCF instruments available, table 3 illustrates the list of SCF instruments that LSPs can offer, each of them uses different mechanism along with the involvement of different actors.

Table 3 SCF instruments with LSP involvement

Instruments	Supporting references
Inventory financing	Buzacott and Zhang, 2004; Hofmann, 2005; Hofmann, 2009; Chen and Cai, 2011; Lamoureux and Evans, 2011; Lee and Rhee, 2011; Li et al., 2011; Basu and Nair, 2012; Jing et al., 2012; Yan and Sun, 2013; Chod, 2015; de Boer et al., 2015; Liu et al., 2015; BAFT et al., 2016; GBI, 2016; Song et al., 2016; Martin and Hofmann, 2017
Warehouse financing	Hofmann, 2005; Li et al., 2011; Popa, 2013; Yan and Sun, 2013; Bryant and Camerinelli, 2014; de Boer et al., 2015; BAFT et al., 2016
Fixed asset-based financing	Buzacott and Zhang, 2004; Berger and Udell, 2006; Demica, 2008; Jing et al., 2012; GBI, 2016
Leasing	Hofmann, 2005; Berger and Udell, 2006; Beck et al., 2008; O'Toole et al., 2015; Moritz et al., 2016
Consignment stock	de Boer et al., 2015; Caniato et al., 2016; Templar et al., 2016
Vendor Managed Inventory	Pfohl and Gomm, 2009; de Boer et al., 2015; Caniato et al., 2016; Gelsomino et al., 2016; Templar et al., 2016
Distribution financing	Yan et al., 2016

Source: Adapted from Chakuu et al. (2017)

The main reason behind the financial services offered by LSPs is the logistics management, as it induces financial flows and fulfils an important criteria of supply chain visibility (Pfohl and Gomm, 2009). By exploiting their control over the material flows, LSPs can offer SCF in collaboration with the financial institutions or on their own. LSPs might coordinate the implementation of SCF solutions as well offer value added services to the banks in the form of collateral services and information sharing services. LSPs might also take the ownership of inventory and manage the flow in order to maximise the working capital for both buyers and suppliers.

Findings: Case study

A successful case study is a result of formulating a strong and well-thought process (Yin, 2009). The unit of analysis for this case study is Company A. Company A is based in the UK, exporting goods to New Zealand, Australia, North America and Europe. They operate 6 warehouses in 3 regions; North America (serving Canada and U.S.A), Asia – Pacific (serving mainly the Middle East) and Europe (serving mainly Continental EU and Scandinavian customers). The current turnover of Company A is around £110 million and their objective is to increase overseas sales to 75% of the total turnover (currently 50%).

Company A's primary manufacturing site is in the UK. The company offers 1200 various products of which 30, account for 40% of the total sales. Over 450 products are available in-stock for next day dispatch. The UK sales account for 50% and North America sales follows with almost 28%. The main challenge Company A faces is the weakly managed global supply chain. This is due to the disintegrated software, local planning, company silos and poor forecasting. With respect to the software challenge, Company A does not have direct access to regional sales data or inventory levels. To make matters worse, item codes used at warehouses vary from those used at central offices, making data integration very challenging. It also does not control the planning and inventory management for any of its warehouses. It just ships what the warehouses ask for. The warehouses operate as distinct business units having individual order planning systems as well as their own financial statements.

To guard against inaccurate forecasts, the inventory buffer must be raised resulting in overstock or stock becoming obsolete due to the low inventory turnover ratio. To further demonstrate this, the stock held in North America is almost equivalent to the stock held in the production site in the UK although no production takes place in North America.

Under the umbrella of their 2035 business plan, Company A has decided to investigate in the improvement of their global supply chain by outsourcing the warehousing function that has so far been kept in-house. The warehouse under consideration is one of the 6 warehouses owned by Company A internationally, it serves all the Scandinavian-based customers, acting as a distinct business unit. Currently, all warehouse functions are performed in-house from receiving the goods until dispatching them to customers, but without measuring performance. Company A has not revisited its activities at the warehouse for years and as a consequence the asset is in sub-optimal condition. The major challenges facing the warehouse are high levels of obsolete stock, very low capacity utilization, investment for refurbishing, no automation techniques used (technology), no warehouse management tools used, limited visibility because of disintegrated software and no performance measurement.

As proposed by Gibbert et al. (2008) and Yin (2009), authors took into consideration the construct validity, internal validity, external validity, and reliability throughout the research process. The research instruments used were documentation, interviews, observations and physical artefacts. A semi-structured questionnaire was used to support the interviews.

After discussing with the supply chain manager of Company A, it was decided that the current study will develop three potential future state scenarios for warehouse outsourcing to LSPs, tailored to the needs and challenges of the focal company and industry. All relevant personnel of Company A demonstrated the will to investigate scenarios for 0% or 100% outsourcing of the warehousing function. Furthermore, the scenarios for 100 % outsourcing of all the activities was developed while considering the renting or selling the warehouse. Table 4 illustrates the three scenarios for outsourcing the warehousing function.

Table 4 Scenarios for outsourcing the warehousing function

LSPs roles	Current State (handled by company A)	Scenario A	Scenario B	Scenario C
		Keep the warehouse, after refurbishment rent half of it	Keep only sales team intact, after refurbishment rent entire warehouse to LSP	Keep only sales team intact, after refurbishment sell entire warehouse to LSP
Product Marking	Handling	Will handle	All activities will be handled by LSP	All activities will be handled by LSP
Labelling				
Packaging				
Inventory Management				
Freight consolidation and distribution				
Transportation				
Cross docking				
Product returns				
Order management				
Carrier selection				
Rate negotiation				
Warehousing	Not handling	Will not handle		
Traffic management				
Fleet operations and management				
Rate negotiation				
Logistics information systems				
Warehousing management				
Outsourcing proposition		0 %	100 %	100 %

Source: Adapted from Karamaounas (2017)

In-house Scenario (A): The first scenario involves keeping all warehousing activities in-house. This is the path of least resistance because it requires the fewest changes compared to the scenarios developed next, which involve fully outsourcing the warehousing function. In agreement with relevant personnel from Company A, it was decided that the warehouse be split into two distinct and autonomous warehouses. This is a robust decision going forward, as the capacity utilization is around 60%, but having large amounts of obsolete or discontinued stock as well as unused tools and rooms. In this particular scenario all the core logistics activities including warehousing is kept by Company A, hence there is no direct applicability of the SCF.

Outsourcing Scenarios (B and C): Scenarios B and C from a logistics perspective will be rather similar. The difference between the two scenarios is whether Company A should rent or sell the warehouse to an LSP after refurbishing it. Obtaining logistics expertise could prove rather beneficial to Company A in its search for competitive advantage in the logistics area. These two scenarios call for changes compared to scenario A. If the company rents the warehouse it will still own it, making the LSP to whom the warehouse will be rented heavily dependent on Company A. This is the first step towards developing a strategic partnership with the LSP because of the mutually beneficial arrangement (Company A obtains logistics expertise, LSP obtains fixed asset). Renting the warehouse

will also reduce the capital employed by Company A, while increasing the cash flow. On the other hand, selling it will have a much greater impact on cash flow and capital employed but considering the future expansion, if Company A wants to have a fixed asset in Scandinavia, it will need a big investment to buy warehousing space again.

Renting or selling the warehouse and outsourcing all logistics activities to a LSP will automatically mean better usage of the warehouse. Obtaining warehousing expertise will mean that every process within the warehouse will be carried out by the experts. Moreover, the LSP will implement complex warehousing tools as well as introduce automation technology in the warehouse to minimise the time and effort spent. It will also allow more efficient control over the overall procedure. It is important to note that the software of the LSP must be compatible and integrated with Company A's. This will further facilitate information sharing and consequently, reduce the response times.

The planning and managing of warehousing by the LSP will allow Company A to focus more on the core capabilities. The workload would not include the warehousing function and the sales team can focus on driving sales and not addressing warehousing challenges, as they are currently doing. Moreover, the budget for warehousing could be included in the contract with the LSP, acting as key performance indicator for the outsourcing relationship. In general, LSP will measure its performance and due to its expertise, it can rapidly proceed with changes that will make the warehousing function much more efficient and effective.

The supply chain financing services are particularly applicable under scenario B and C, as these scenarios provide impetus to the relationship between LSP and Company A. A logistics service provider can offer warehouse financing in which goods of Company A are held in a warehouse for the buyer, until needed. At a minimum, warehouse receipts are commonly required as an evidence for this financing. A finance lease can be another way of providing finance – effectively a LSP buys the asset from Company A (warehouse in this case) and leases it to them for an agreed period. Substantially, all the risks and rewards of ownership of the asset lies with the LSP. LSPs can also make the inventory replenishment decisions for Company A, monitoring its inventory levels and making periodic resupply decisions regarding order quantities, shipping and timing.

Figure 2 shows the conceptual framework illustrating the role of LSPs in the global supply chain strategy.

The type of collaboration has a direct impact on the SCF services offered to Company A based on the LSP's role (related to the supply chain activities). Internal and external factors play a crucial role in enabling or inhibiting the overall role of LSPs. Although outsourcing and financing together means better focus on core competence, it does not mean that Company A can exclude logistics activities from its daily agenda. Company must engage very strongly with its LSP and work together to better understand the relevant challenges and communicate closely on everything concerning the logistics area (e.g. forecasting, supply chain disruption, order volumes, exceptional events). Therefore, communication will be the key to success for scenario B and C.

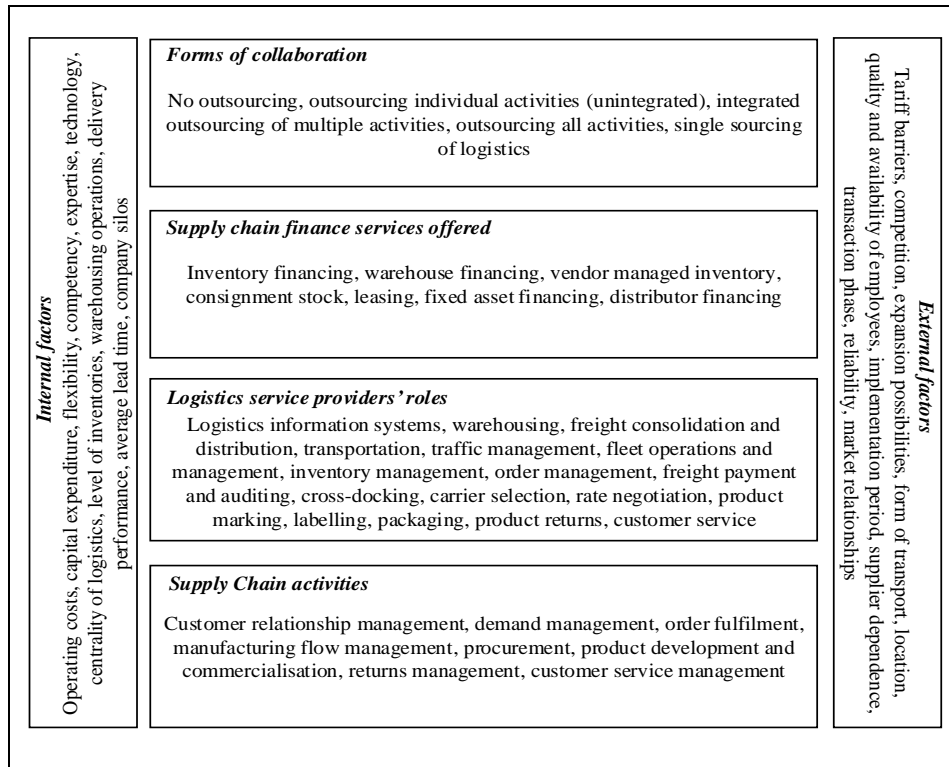


Figure 2 – Conceptual framework

Company A must understand that initially the time and effort spent on logistics might increase, until the LSP is confident and capable enough to perform all the required tasks successfully. If the transition period is based on true communication and collaboration, the future results will only support the aggressive business plan set. As pointed out in literature, the biggest advantages of working with LSPs come from the re-design of distribution networks. Therefore, if an LSP that already possesses fixed assets in the relevant regions is selected, they may choose to use a variety of warehouses to serve Company A's customers with reduced lead times, costs as well as inventory levels.

Conclusion

This paper identifies interrelationship between the role of LSPs in supply chain, supply chain finance instruments offered by LSPs and types of collaborations (in the form of logistics outsourcing) between firms and LSPs. An in-depth case study is conducted to develop three scenarios (based on the role of LSPs) with different levels of outsourcing of logistics activities. After all the activities performed by LSPs are identified, the focus is switched to the internal and external factors affecting the LSPs in undertaking the supply chain activities. Finally, a conceptual framework is developed to illustrate LSPs' role in supporting the global supply chain strategy of a firm.

The contribution of the presented research is twofold. The innovative combination of supply chain activities, LSPs' roles and SCF instruments in the form of a conceptual framework will add to the knowledge related to the SCM and SCF, whereas its application showcases the practical implications. Furthermore, most of the papers focus on the supply chain activities, LSP roles and SCF instruments individually, while this paper brings all together by interrelating them.

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