

Supply chain finance is not for everyone

LSP's value creation and capture through SCF

775

Viktor Hugo Elliot

*Department of Business Administration, School of Business, Economics and Law,
University of Gothenburg, Goteborg, Sweden*

Christiaan De Goeij

*Strategic Entrepreneurship Research Centre,
Windesheim University of Applied Sciences, Zwolle, The Netherlands and
Department of Management, Economics and Industrial Engineering,
Politecnico di Milano, Milan, Italy*

Luca Mattia Gelsomino

*Strategic Entrepreneurship Research Centre,
Windesheim University of Applied Sciences, Zwolle, The Netherlands, and*

Johan Woxenius

*Department of Business Administration, School of Business, Economics and Law,
University of Gothenburg, Goteborg, Sweden*

Received 2 November 2019
Revised 15 May 2020
12 October 2020
Accepted 9 November 2020

Abstract

Purpose – Logistics service providers (LSPs) have unique resources and capabilities that position them to deliver supply chain finance (SCF) solutions. The study aims to discuss and illustrate the necessary resources and process of value creation and capture of LSPs, potentially offering SCF solutions.

Design/methodology/approach – Relying on a theoretical framework, combining a resource-based view (RBV) with the literature on SCF, the authors apply an abductive case study methodology, including 11 interviews with representatives from four LSPs.

Findings – The main findings are as follow: (1) although an LSP has sufficient resources for value-added SCF solutions, it may not capture enough value to motivate realising them; (2) an LSP considering offering SCF should account for the interaction between its resources and cargo transit times, risk and regulatory restrictions and (3) future studies should distinguish between financing the logistics services and the moved products.

Research limitations/implications – The authors contribute to the growing field of SCF research by analysing motives and barriers for LSPs to offer SCF service to their customers. Because none of our case companies decided to move beyond experimentation further research is needed on the resources and capabilities needed for LSPs to successfully venture into SCF.

Practical implications – The study provides LSPs with clear indications of the difficulties involved when contemplating a move into SCF solutions and discusses the potential value of offering such services.

Originality/value – Despite evidence of LSPs engaging in SCF in various industries, academic contributions do not go beyond operational conditions or quantification of benefits. The authors add evidence on how LSPs are currently evaluating the prominence of adding SCF to their value offerings, including a new perspective on resources, value generation and capture mechanisms.

Keywords LSPs, Logistics service providers, Supply chain finance, Resource-based view, Inventory finance, Abduction

Paper type Research paper

The authors wish to thank the anonymous reviewers and the editor for constructive comments, the interviewees for sharing their experiences and participants at the 2017 NOFOMA Conference and the 2019 IPSERA Conference for feedback in an early phase of this work. This Dutch part of the paper was funded by a research program called Pre-Shipment and In-Transit Supply Chain Finance, supported by the Dutch Institute for Advanced Logistics (Dinalog), the Netherlands, under grant number 2017-2-130TKI. The Swedish part of the study was funded by the two projects "Supply Chain Finance: New roles for the logistics and transport industry", VINNOVA grant No. 2016-03441, and "Financing the decarbonising of the freight transport system" funded by the Swedish Transport Administration with Triple F Project No.: 2020.3.2.11.



International Journal of Physical
Distribution & Logistics
Management
Vol. 50 No. 9/10, 2020
pp. 775-807
© Emerald Publishing Limited
0960-0035
DOI 10.1108/IJPDLM-11-2019-0331

1. Introduction

This paper analyses the role of logistics service providers (LSPs) in partaking in the management of the supply chain's (SC's) financial flow by offering supply chain finance (SCF) arrangements to their customers. There are a few examples of large LSPs that are entering into the financial flow of the SC. These include recent ventures by Maersk into trade finance [1], DHL's tailor-made solutions for emerging markets [2], the Swiss Post's solution of assuming ownership of in-transit cargo and UPS's alternative finance solutions [3].

Existing empirical evidence of LSPs moving into the SCF market is scarce though (Basu Bal *et al.*, 2018; de Goeij *et al.*, 2016; Gelsomino *et al.*, 2017; Hofmann, 2009; Pfohl and Gomm, 2009), and the majority of work argues for the potential value LSPs could create in the SCF market by leveraging their informational resources. However, for each of the above examples there are specificities that prevent a broader understanding of whether it is actually favourable for LSPs to partake in the SCF market. Maersk only offers their trade finance services to specific customers and the lead times of maritime transport means that the cargo is in transit for an extended period of time. DHL's solution is a one-off example rather than a scalable product, the Swiss Post has decided to abandon its SCF solution and UPS only offer their services to large US customers. Thus, despite some evidence that LSPs are moving into the field of SCF, so far progress is slow and we know little about the potential value for the LSPs as well as for the other SC parties. A recent survey among Swiss corporates found LSP-based inventory financing (IF) to have one of the highest potentials among tools to improve working capital management (Hofmann and Wetzel, 2018, p. 9, 36). Hofmann (2009, p. 735) was early to observe that further research into LSPs and IF should focus on "*necessary knowledge and corresponding resources*" with specific reference to the role of partnership with financial institutions, as a key development for this type of solution. However, empirically based evidence on these issues is, to the best of our knowledge, still lacking.

LSPs offering SCF arrangements link to a broader and well-established literature on value creation in LSPs (e.g. Soinio *et al.*, 2012; van Hoek, 2000), a rather mature topic as indicated by coverage in logistics and SCM textbooks (e.g. Christopher, 1992; Jonsson, 2008). However, this literature is traditionally focused on the generation of new and innovative logistics and SCM services. The theoretical question of whether similar strategies for structuring and bundling resources to generate innovative services holds in a domain different from logistics or SCM is still open. For example, Lai (2004) poses the question of circumstances under which LSPs might venture into new market segments as a relevant direction for future research. Even more generally, the investigation of a topic that is so inherently cross-disciplinary as LSPs offering financial arrangements allows the testing and extension of existing theoretical underpinnings in order to improve, revise and refine key predictions and findings of existing theories (Zahra and Newey, 2009).

The SCF literature offers limited insights into the resources LSPs should possess to successfully offer SCF services. Financial resources – in the sense of access to capital at lower cost than the supplier or buyer – are mentioned by multiple authors (Hofmann, 2009; Hofmann and Kotzab, 2010; Gelsomino *et al.*, 2019). Besides financial resources, mainly SCF knowledge resources (Hofmann, 2009; Hofmann and Kotzab, 2010) and informational resources (Hofmann and Kotzab, 2010) are mentioned but not in a detailed manner. In general, the role of LSPs is underdeveloped in the SCF literature. In particular, empirical contributions are lacking since the majority of papers discussing the role of LSPs in SCF are model based (e.g. Chen and Cai, 2011; Song *et al.*, 2018; Gelsomino *et al.*, 2019) or conceptual in nature (e.g. Hofmann, 2005; Pfohl and Gomm, 2009; Hofmann and Kotzab, 2010; Basu Bal *et al.*, 2018). Altogether, these studies give a rather limited insight into how LSPs develop SCF instruments, which obstacles they face during development and which resources they need to successfully develop SCF service offerings, leading to our research question:

1.1 What prevents LSPs from venturing into the SCF market?

Following the recommendations of Hofmann (2009) and Hofmann and Wetzel (2018), we address this question by zooming in on IF from a resource-based perspective by analysing the resources and capabilities that LSPs have, and how they utilise these resources and capabilities in their attempts to develop market IF solutions. We do so through a multiple case study approach with four European LSPs. In what follows we first define IF and then discuss SCF with specific focus on LSPs.

2. Supply chain finance and inventory financing

The SCF literature has focused its attention on the role of buyers (e.g. More and Basu, 2013; Wuttke *et al.*, 2013a, b; Caniato *et al.*, 2016), financial service providers (FSPs) (e.g. Silvestro and Lustrato, 2014; Martin and Hofmann, 2017; Song *et al.*, 2018) and to a lesser extent suppliers (e.g. Van Der Vliet *et al.*, 2015; Martin, 2017). As noted by Bals (2019), many contributions consider one specific SCF instrument, reverse factoring, wherein buyers, suppliers and FSPs are the main actors, while there is considerably less coverage of products such as IF.

Some authors recognise a role for LSPs in SCF, most often in the context of IF (Hofmann, 2005, 2009; Chen and Cai, 2011; Li and Chen, 2018; Gelsomino *et al.*, 2019; Basu Bal *et al.*, 2018). Besides IF, some attention is paid to the role of LSPs in fixed asset financing (Gelsomino *et al.*, 2017) and offering administrative services like freight payment services (Hofmann, 2005; Wetzel and Hofmann, 2018). Furthermore, de Goeij *et al.* (2016) describe LSPs in relation to reverse factoring, but the LSPs are not offering reverse factoring themselves but are suppliers who might receive reverse factoring offers from their buyers. Following this literature, we focus on IF as the prime SCF solution offered by LSPs. We do not ignore other forms of SCF such as reverse factoring (Liebl *et al.*, 2016) or dynamic discounting (Gelsomino *et al.*, 2019) but acknowledge that these are less explicit to LSPs and more extensively discussed in the SCF literature.

IF is described by Bryant and Camerinelli (2014, p. 64) as “a form of SCF in which goods are financed and over which the bank usually takes security interest” and “may be used by suppliers and buyers depending on the manufacturing and transaction cycles involved.” Hofmann (2009) states LSPs could play an important role in IF by taking over ownership of the goods from the supplier or buyer, especially when the LSP has a better creditworthiness than the supplier and the buyer. Hofmann (2009, p. 725) further elaborates on the potential informational advantage associated with the LSP. The LSPs, for instance, have information about stock levels, shipping lead times and turnover of goods, rendering “a more precise notion of the effective risks than external players such as financial service providers might ever have.” Extending this line of argument, Hofmann and Kotzab (2010) noted that LSPs may also have access to sales forecasts, Chen and Cai (2011) highlight the real-time information of LSPs, Bryant and Camerinelli (2014) mentioned tracking, transparency and visibility and collateral evaluation and Templar *et al.* (2016) discussed transactional data about departure or arrival of goods at different locations.

We distinguish between three types of IF. First, there is IF without involvement of LSPs, or what Hofmann (2009) refers to as “traditional” IF. For example, Holdren and Hollingshead (1999) and Buzacott and Zhang (2004) published models on the financing of inventory without involvement of LSPs. Second, there is IF wherein LSPs take ownership of the goods, which is referred to as “alternative” IF by Hofmann (2009), who explains how the LSP buys the goods from the manufacturer, obtains legal ownership and then sells the goods to the manufacturers’ customers. This is backed up by a purchase guarantee which the manufacturer has pre-negotiated with its customers. However, the LSP could also buy and sell back the goods to the manufacturer without including the manufacturer’s customers (Steehan, 2017). And third, there is IF wherein LSPs do not take ownership of the goods, but leverage SC data about the inventories to facilitate the provision of financing (Gelsomino *et al.*, 2017; Chakuu *et al.*, 2019; Templar *et al.*, 2016).

3. The resource-based view (RBV) in logistics and supply chain management

Since the 1990s and, more significantly, across the 2000 and 2010s, the access and use of resources have been used extensively to explain how and why specific LSPs achieve higher performance (Hartmann and Grahl, 2011; Lai *et al.*, 2008; Karia and Wong, 2013; Murphy and Poist, 1998; Wong and Karia, 2010). Murphy and Poist (1998) investigated how “asset-light” and “asset-heavy” strategies are key factors in an LSP’s competitive advantage. Wong and Karia (2010) and Karia and Wong (2013) highlight how financially successful LSPs are able to structure by acquiring, accumulating, divesting and bundling together key resources that build up the LSP’s competitive advantage. Lai (2004) shows how LSPs can be clustered into four groups based on their resource capabilities, with significant differences in terms of service performance. Lai *et al.* (2008) extend on Lai (2004) and show that logistics resources and capabilities positively affect LSP performance and competitiveness.

More recent work (Priem *et al.*, 2018) tends to rely on the value definition introduced by Bowman and Ambrosini (2000). They distinguish between “use value” – the customer’s subjective value of a product or service – and “exchange value” – the price paid for a product or service. After discussing at some length how to create new use value, they move on to value capture. They propose that even when firms create new use value, it is the bargaining power between the firm and its stakeholders that determines whether the firm can capture the value and transform it into profits. This value capture is at the heart of RBV (Priem *et al.*, 2018), which focuses on the heterogeneous, resource-based drivers of firm performance (Priem *et al.*, 2013).

Our framework draws specifically on Wong and Karia (2010) and Sirmon *et al.* (2007) and is structured around the concept of developing capabilities to exploit new opportunities and enhance the LSP’s competitive advantage. Although these frameworks and the empirical RBV-based studies mentioned above make significant contributions, they focus primarily on value capture rather than value creation. Our contribution to the framework is the investigation of LSPs in the process of building their competitive advantage by developing new services that go beyond the “traditional” place utility created by the logistics industry, namely SCF solutions. This means that we are studying the interaction between value creation and value capture by relying on evidence from LSPs already engaged in this type of services.

Nevertheless, to ensure consistency and reliability, we build the steps of our theoretical framework around the same four steps employed – in the context of LSPs – by Wong and Karia (2010) who initially derived them from Sirmon *et al.* (2007). This framework has its roots in the literature of dynamic capabilities (e.g. Eisenhardt and Martin, 2000; Gruber *et al.*, 2010; Teece *et al.*, 1997), defined as the strategic routines that companies employ to achieve new resource configurations to match or create market changes (Eisenhardt and Martin, 2000).

The four steps of our framework (illustrated in Figure 1) are these:

- (1) The LSP, at a certain moment in time, has an existing portfolio of resources and – possibly embedded in its overall business strategy – a plan to structure and bundle such resources towards improved competitiveness (Wong and Karia, 2010; Sirmon *et al.*, 2007). In the context of our research, the plan could consist of an idea to develop and offer IF to its customers.

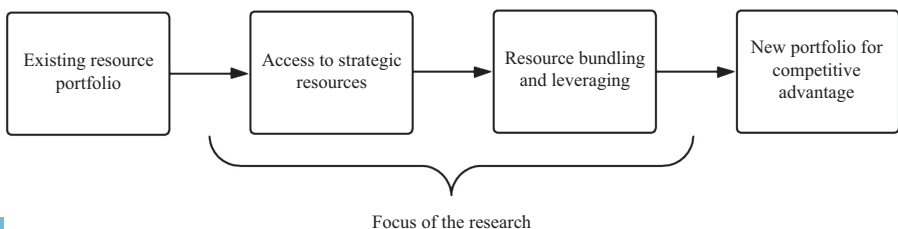


Figure 1.
The theoretical
framework

- (2) The LSP starts to execute its plan by accessing strategic (i.e. valuable, rare, inimitable and non-substitutable) resources, either acquired or already in its possession. For our study, this could imply, for example, combining existing resources (such as holding inventories in a warehouse) with the know-how on monitoring product flows for the purpose of building up an IF service or recruiting new staff with knowledge of financial services.
- (3) Having accessed strategic resources, the LSP is now ready to start bundling resources together to create capabilities (Sirmon *et al.*, 2007). In the context of this paper, this includes, for example, piloting a financial solution with customers or developing partnerships with FSPs.
- (4) Finally, the new leveraged capabilities will result in an increase in the company's competitive advantage (Wong and Karia, 2010).

Following Wong and Karia (2010), our research focuses on the two intermediate steps, which characterise the process of developing the new SCF strategy; we only indirectly analyse the existing resource portfolio, to the extent that our case firms are able, or not, to access strategic resources.

The framework can be seen as a theoretical explanation of how an LSP manages its resources in the process of developing SCF services for its customers. Our contribution lies in applying the theoretical framework to the context of involvement of LSP in SCF services. Therefore, we depict the two central steps of the path towards generation of competitive advantage in the context of an LSP's developing interdisciplinary innovative services, rather than in the general context of an LSP's engagement in new, but "traditional", logistics services. This implies integrating the different relevant bodies of the literature (SCF, IF and generic literature focussing on LSPs developing new services) to generate a set of resource categories and resource bundling strategies supporting the development process of SCF services by LSPs. The result of this theoretical exercise is reported in Table 1.

4. Methodology

The aim of this study is theory building in the interplay between logistics and finance. As emphasised in the previous sections, our focus is on the role of LSPs in developing and offering SCF solutions. Earlier works have concluded that LSPs should be particularly well suited to offer certain SCF solutions, especially IF. However, the empirical evidence confirming these claims is rudimentary and largely anecdotal, motivating an exploratory and qualitative approach (Kvale and Brinkmann, 2014). Accordingly, we purposefully selected four LSPs that claimed either to have experimented with SCF or to be in the process of introducing it into their portfolio. As is common in early stage research, we followed an abductive approach (Kirkeby, 1990; Danermark, 2001; Suddaby, 2006) and gradually developed an understanding of the phenomenon in question that was quite different from what we expected to find.

Relying on Kovács and Spens' (2005) model (see Figure 2) of the abductive research process and the matching strategy suggested by Dubois and Gadde (2002, 2014) we persistently moved back and forth between framework, data sources and analysis (see also, Alvesson and Sandberg, 2011).

Again, as in most qualitative work, our predispositions guided our selection of case firms and the first steps of the data collection process (step 0 in Figure 2). As our understanding of the practical problems associated with developing SCF solutions in LSPs evolved, the matching processes guided us in gradually moving beyond rich descriptions (Dubois and Gadde, 2014) through the use of our RBV-inspired theoretical framework (see Figure 1 and Table 1). The framework offers a map in our search for emergent patterns as well as peculiarities that may provide new insights into the established theory (step 1 in Figure 2).

Table 1.
Predefined categories
in the theoretical model
and delineation in the
context of LSPs
offering SCF services

Theoretical steps in the creation of competitive advantage	Predefined category	Delineation of predefined categories in the context of LSPs offering SCF services
Access to strategic resources	Physical resources	(1) By controlling the physical flow with their resources (tubs, warehouses, vehicles, ...) LSPs are in the ideal position to offer SCF services (Templar <i>et al.</i> , 2016; Hofmann, 2009)
	Information resources	(1) LSPs are effective in IF because they can access information on turnover of goods, shipping lead times and stock levels (Hofmann, 2009, p. 725)
	Knowledge expertise and know-how	(1) LSPs possess knowledge specificity on market, transaction and supply chain processes (Gelsomino <i>et al.</i> , 2017) (2) In "Alternative IF" specific know-how of LSPs is needed in order to conduct assessments of creditworthiness of suppliers and customers (Hofmann, 2009) (3) Prior experience with assessing or implementing other SCF instruments like RF (Gelsomino <i>et al.</i> , 2017)
Human resources	Human resources	(1) Human resources can improve the firm's ability to sense changes in the environment that require changes in activities and devise more effective strategies to respond to environmental changes (Wright <i>et al.</i> , 1994) (2) Awareness of corporate professionals about SCF instruments is important for the success of implementation (More and Basu, 2013) (3) Lack of skilled personnel in relation to SCF is obstacle for successfully adopting SCF instruments (More and Basu, 2013)
	Relational resources	(1) Relationship to customers and/or exclusive horizontal access to competitors and other third parties are key resources for LSPs with high innovative capabilities (Shou <i>et al.</i> , 2017) (2) "The development of SCF models (...) often require a significant partnership with financial institutions" (Gelsomino <i>et al.</i> , 2017, p. 7)
	Organisational resources	(1) Senior management support is a key factor in innovating a company product portfolio (Gomes <i>et al.</i> , 2001) and is an important driver for success in the adoption of SCF instruments (Seifert and Seifert, 2011) (2) Interdepartmental collaboration is beneficial for successful adoption of SCF instruments (Camiato <i>et al.</i> , 2016; Wüttke <i>et al.</i> , 2013a; More and Basu, 2013). Project management can be seen as a resource-creating competitive advantage for companies (Perkins <i>et al.</i> , 2018)
Financial resources	Financial resources	(1) Actively engaging in SCF sometimes requires availability of financial resources (Hofmann, 2005). In "alternative IF" the refinancing rate of the LSP "has to be lower than that of the other players in the supply chain due to assumed sound creditworthiness" (Hofmann, 2009, p. 725)
		(2) Financial health is positively linked with a proactive role in SCF (Camiato <i>et al.</i> , 2016)

(continued)

Theoretical steps in the creation of competitive advantage	Predefined category	Delineation of predefined categories in the context of LSPs offering SCF services
Resource bundling and leveraging	Integration of the physical and financial supply chains	<p>(1) Real-time, joint command and control of physical and financial flows (Chen and Cai, 2011; Fellenz et al., 2009; Gelsomino et al., 2016; Hofmann et al., 2017)</p> <p>(2) Knowledge and information resources should lead to LSPs having a more precise notion of the effective risks in IF than external players such as FSPs (Hofmann, 2009)</p> <p>(3) LSPs need to establish a control mechanism to monitor inventories on behalf of the buyer (Gelsomino et al., 2019)</p> <p>(4) LSPs need to be able to assess marketability and price volatility of inventory based on their information resources (Gelsomino et al., 2017; Bryant and Camerinelli, 2014)</p> <p>(5) LSPs need to be able to make "a clear match between documents and physical goods (...) for avoiding possible ownership disputes over the collateralized assets" (Hofmann et al., 2017)</p>
	Information technology	<p>(1) Development of information systems to facilitate information sharing and integrate involved parties together (Wong and Karra, 2010)</p> <p>(2) A well designed information system can reduce manual tasks in IF that are costly and time consuming such as physically checking quantity and quality of goods and proofing authenticity of storage documents (Hofmann et al., 2017)</p> <p>(3) Digitalisation enables innovative SCF solutions (Caniato et al., 2016)</p>
	Strategic partnerships and alliances	<p>(1) Formation of strategic alliances with FSPs and/or other key partners (Moretto et al., 2018)</p> <p>(2) The SCF construct the LSP proposes needs to have significant financial attractiveness for FSPs and customers (Gelsomino et al., 2017)</p> <p>(3) "Where applicable, the LSP bundles his clients' need for financial services to ensure feasibility for each principal (in this case the manufacturer) and economic viability for the bank" (Wetzel and Hofmann, 2018, p. 5)</p>
	Training	<p>(1) Training of employees in SCF services can increase knowledge (More and Basu, 2013)</p>

Table 1.

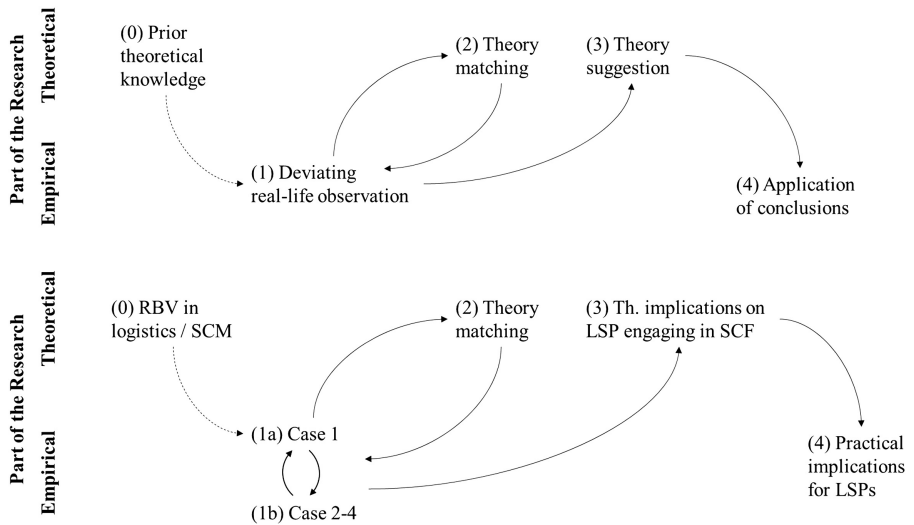


Figure 2.
The abductive research process proposed by Kovács and Spens (2005, top) and its application in this paper (bottom)

One such peculiarity identified in all of our cases (to various degrees) is the extent to which our case firms lack sufficient resources or capabilities to successfully venture into SCF. This may be seen as a failure by the LSPs, but as elaborated below, it can also be viewed as part of the dynamic processes of business, where new products and services are tested and sometimes also abandoned based on a more informed decision (step 3 in Figure 2). As we expanded our empirical venture, we took great care in avoiding the deselection of aspects of importance (Dubois and Gadde, 2014), as elaborated on below.

4.1 Data collection

The key source of data consists of semi-structured interviews, which have been complemented with various forms of archival data. We rely on data triangulation (Silverman, 2001) and researcher triangulation (Ahrens and Chapman, 2006) to strengthen the contextual validity (Ryan et al., 2002) of our study. As is common in most case-based research, we have relied on external and internal documents to corroborate and challenge the interview findings. A list of interviews and additional sources is provided in Table 2. Because the case studies were conducted by two different research groups, we used a form of researcher triangulation, where the researchers not involved in the initial case were responsible for doing the RBV-based analysis of the case findings.

4.1.1 Case 1 (main case): DB Schenker Sweden. The case firm, the Swedish branch of DB Schenker, took part in an applied research project on SCF. In our initial talks with representatives from DB Schenker in 2017, it had actively chosen not to move into SCF. This observation was interesting as DB Schenker is the clear market leader in Sweden and one of the world's largest LSPs, with at least theoretically easy access to cheap capital as it is fully owned by the Federal Republic of Germany. Benefitting from a long and close relationship we then arranged for 1–2 h interviews with three generations of CEOs, all former directors of land transport, the largest business unit. They are referred to as the former, current and coming CEO as the director of land transport was promoted in 2020, after the interviews. The interviews focused how their 40 years of collective experience of senior management affected their repeated decisions not to engage DB Schenker extensively in SCF. Important is that they all had senior positions at DB Schenker during the financial crisis and experienced significant credit losses.

Interviewees	Secondary data
LSP1 CEOs and senior management + logistics/ purchasing managers of four major customers	(1) Media coverage (2009–2018) (2) Annual reports (3) Group history accounts (4) Contractual documents (5) Author's tacit knowledge from being member of the case company's scientific advisory board (2008–2013) and strategic council (2013–)
LSP2 CFO	(1) ABC-Analysis of Customers (2) Sales volumes and payment terms for all customers (3) Detailed documentation of all outgoing invoices (volume, date of sending invoice, date of actual payment) (4) Financial ratios (i.e. DPO, DSO, cash conversion cycle) and operational lead times (5) Annual reports
LSP3 Owner, CEO, member of board of advisors	(1) IF pilot evaluation documentation (2) Documentation of adaptations made to customer portal for IF pilot (3) Overview of process steps in related financial service (escrow) (4) Annual reports
LSP4 Owner/CEO	(1) Publicly available information on plans to offer financial services (2) Annual reports

Table 2.
Data collected for cases

The interviews were conducted in Swedish, electronically recorded, transcribed and circulated back to the respondents for corrections and comments. During the interviews, we relied on open-ended questions such as these:

- (1) Have you had experience with managing the financial flow of clients beyond the normal course of business?
- (2) What is the firm's overall view on (1) risk, (2) cooperation and (3) service innovation?
- (3) What are the important KPIs for the firm and for you?
- (4) Have you had experience with customers asking for help in providing financial service in relation to SCM?
- (5) Have you developed, or considered developing, SCF solutions?
- (6) Are there any specific reasons that your firm does not offer SCF solutions?

We did not strictly follow these questions, but rather formed themes we discussed with the respondents. The questions/themes encompass a wide range of areas, such as willingness to carry financial risk, personal and company experience of credit losses and preferred roles in the industry's division of labour.

In the second step, we widened the perspective by interviewing the CFO of DB Schenker Europe to confirm that our results extended beyond Sweden and to capture information on corporate governance and the relationships between management on the regional and national levels. To contrast with the view of the supply side of SCF, we added short interviews with the logistics or purchasing managers of four of DB Schenker's largest customers. They

represent major Swedish export-oriented firms and the interviews were arranged in conjunction with a workshop with DB Schenker Sweden’s strategic council, at a time when the managers focused on their relationship with DB Schenker.

4.1.2 Complementary cases. To investigate whether the findings from case 1 are illustrative of what might be discerned among a wider set of LSPs venturing into SCF, the case findings were compared and contrasted with three complementary cases. Senior managers from three Dutch LSPs were interviewed, following a set of interview protocols similar to those used in case 1. We selected three different cases to capture a variety of perceptions and meanings about a complex, innovative and multidisciplinary topic (Dubois and Araujo, 2007), namely financial instruments offered by LSPs. The three LSPs are rather homogeneous in their operations and in their geographical locations, but they differ in terms of size and approach to SCF and the stage of development of their SCF instruments. The cases are explorative in nature, and the unit of analysis is the company itself.

Similar to case 1, the complementary cases are also part of a larger ongoing research project, which is why we were able to collect diverse types of data. Semi-structured interviews were conducted with the CFO of LSP2, the owner, the CEO and a board of advisors’ member of LSP3 and with the CEO of LSP4. As presented in Table 2, additional secondary data, from annual reports and customer analysis documents to IF pilot evaluation documentation, was used to corroborate interview findings.

The interview protocol included a general company description and motivation to offer and approach financial instruments. Afterwards, questions were asked to see which resources and capabilities were most relevant in different phases of development of the intended IF service.

4.2 Data analysis

Interviews were recorded, transcribed and analysed by multiple researchers to attain an agreement on the key findings. The case firms are all in a different stage of development of the SCF instrument. Table 3 shows the complementary case study sample. In contrast to our main case, we have promised each of the three other LSPs anonymity.

The predefined categories in Table 1 guided our coding. Within these predefined categories we came up with codes based on the results which can be seen as subcategories. First we did open coding and we allowed several researchers to work on the coding independently. We then came together to work towards consensus on the right codes (Baxter and Jack, 2008). The result of the coding activities is reported in Tables A1 and A2.

5. The four cases

5.1 DB schenker

Of DB Schenker’s 75,000 employees, 3,500 work in Sweden and it engages thousands more in the subcontracted road hauliers. Like its main competitors in the Swedish freight transport market, DB Schenker is state-owned but it adheres to competition law and international

Table 3.
Complementary cases
(sample information)

	LSP2	LSP3	LSP4
Main industry of operations	Food and beverage	Food and beverage	Fashion and retail
Main logistics operations	Forwarding, warehousing	Forwarding, warehousing, customs services	Forwarding, customs services, supply chain services
Turnover	100–150 M€	25–50 M€s	0–25 M€

regulation of state subsidies and the German state keeps the option of privatising DB Schenker open. This means that the state ownership is of minor importance in the DB Schenker case.

5.2 Initial interviews

The main interest in SCF was from the case firm's own working capital position. We interviewed two representatives of Schenker Dedicated Services, an independent part of DB Schenker specialising in tailor-made logistics solutions. It evaluated whether to implement reverse factoring or dynamic discounting to free up working capital:

Sometimes it feels almost like we are the bank [...] as small road hauliers have maybe 10 days, 20 days [payment terms], while the largest customers have 90 days plus sometimes, and we are the one in the middle.

However, when it comes to searching for inefficiencies in their clients' financial SC, or offering SCF solutions for their customers the firm is more unenthusiastic. DB Schenker occasionally takes over ownership of the cargo between supplier and buyer but it is generally reluctant to do so:

In most cases it is not completely well-thought-out from [the client] side; they just want to get rid of the risk... In general... DB Schenker does not do this... at least [it is] not the policy right now, maybe because there is not a good concept or solution available.

5.2.1 Strategies and structures. The current CEO is quite clear that DB Schenker did not consider offering standardised solutions where DB Schenker takes over ownership of the cargo at some point in the SC. This is echoed by the coming CEO:

It is not our core business to finance our customers... they should be able to do better through a bank.

However, the current CEO is open to the idea of being an information-sharing partner, under the assumption that a bank, or other third party, assumes the financial risk. He describes it as:

... being a quality gate [along the supply chain]... if blockchain becomes a reality, we could add our information that a specific gate in the transport chain is passed... to add further value.

In terms of innovation and collaboration, limited attention has been dedicated to the financial flow. The current CEO describes the financial flow as being rather traditional:

There are existing... well-established means to finance trade. We see no direct shift in how our customers think in terms of financing, delivery terms or customs clearance.

The coming CEO continues:

I find it difficult to see that we will be able to make a profit out of this... we have a hard time charging a premium for information-related services.

The current CEO notes that SMEs tend to prefer full-service solutions, in search of simplicity and visibility, whereas large firms are more specific about services they demand. He continues that DB Schenker does not actively seek collaboration with financial actors:

Risks associated with optimising the transport chain is within the expertise of DB Schenker but not really financial risks associated with the value of the cargo, and we are not very willing to take such risks either.

The former CEO, who was also director of DB Schenker's North European region, concluded that it is a very politically governed and controller-driven organisation, where strategic initiatives on a global scale need to be confirmed at the highest political level and are therefore very slow.

According to the current CEO, DB Schenker in Sweden could, in theory, initiate an innovative financial solution but doing so in practice would require full support from the head office in Germany. To offer financial solutions would require parties from many different countries and IT-related updates, which would also require full support from the head office. He further adds that:

Today DB Schenker is organised into functional areas with Land, Air and Ocean, and 3PL, and they also need to be on board if we were to offer financial solutions.

5.3 Two examples of IF in Schenker

The coming CEO confirms the current CEO's statement by saying that "*generally, our company does not get involved in these types of financial solutions where we would take over ownership of the cargo at some point.*" There are a few exceptions, however, which are associated with additional risk like obsolescence, financial risk, currency risk and in some cases even price risk.

One example, discussed by several of the respondents is related to incontinence pads for a Swedish county. This service design is associated with a financially strong client, the goods are non-perishable, of low value and have a high turnover, which means that the risk is essentially very low. In addition, DB Schenker is guaranteed a specific price negotiated between the client and their supplier under a central purchasing agreement. The coming CEO stated:

The main difference from a traditional set-up in terms of risk is that if the cargo is damaged during transport, it is DB Schenker's problem because we own the cargo, but because the value of the goods is low and . . . not fragile, it is not a major risk.

This solution came to be because the customer requested it, and he adds,

It may have been an attempt to outsource warehousing because it did not really have the capacity to manage warehousing and the logistics chain; it was only responsible for purchasing.

A second agreement, with a global fast food chain, was terminated at least 10 years ago. DB Schenker stored and distributed goods for their restaurants in Sweden. In this case, DB Schenker assumed ownership of products like bread, meat and ketchup. The former CEO continues:

It was quite problematic with inventory discrepancies . . . so we stopped the solution . . . it was a rather unique solution only available in Sweden.

DB Schenker bought the products from the suppliers and delivered them to the restaurants, after which it made a complete invoice of the value of the goods, warehousing and transport. Similar to the example involving incontinence pads, the fast food chain initiated the solution and was responsible for negotiating a purchasing agreement from which DB Schenker made the orders to the suppliers.

The four additional short interviews with the logistics and purchasing managers of some of DB Schenker's largest customers helped us to understand whether SCF could in fact be a value-added service. Three out of four customers have active SCF programs and two of them reached out to DB Schenker as a potential partner. All four understand the potential value of having an LSP offering these solutions, but so far the three that have active programs rely on financial intermediaries rather than LSPs.

5.4 Case 2

LSP2 is oriented towards developing a service in which they facilitate IF by an FSP by providing relevant information. The confidence of the CEO relies mostly on information

resources the company possesses and on positive experiences with a different SCF instrument (reverse factoring).

From an organisational perspective, both the CEO and CFO are actively involved in exploring opportunities arising from SCF. However, at present there is no project manager assigned for developing IF. This can be seen as one symptom of a broader lack of those knowledge resources that need to be bundled together to form a cohesive strategy for offering IF. This is reflected by the CFO's doubts that persist regarding the role of the bank:

We need a better idea of the role of the bank. Is the bank willing to actually lower costs when it has more and better information?

Due to the lack of knowledge resources, over the past year LSP2 attempted to acquire additional knowledge through training sessions and collaborating with local universities on this topic. These issues reflect their inability to form the necessary strategic alliances for IF, as well as developing a concrete business case. To date, the company has not yet been able to leverage the informational resources it has for SCF purposes.

5.5 Case 3

LSP3 has successfully completed a pilot project with a client on IF, carried out without involving third parties (e.g. an FSP). The company is currently struggling to make the solution scalable. This is mostly due to the fact that the LSP does not envision using its own financial resources on a broader scale and would rather involve an FSP that would take the role of actually financing the flow of goods.

Very similar to LSP2, the starting point that prompted LSP3 into developing an IF service is the realisation of the value of its own information resource. As a member of the board of advisors said:

The process for inventory financing is not that difficult. Shipments come in and are checked to see whether they are authentic. When this is confirmed, financing is provided. That is a normal process for us.

Again, similarly to LSP2, the idea of extending the portfolio towards financial services has been developed by LSP3's positive experience with a similar service, in this case, the management of escrow accounts. The knowledge about this service made them confident to move in the direction of IF. In terms of organisational resources, the project was supported from the start by senior management and a good internal collaboration between higher management and executors of the plan. There was solid project management with formalisation and a clear sequence of service development tasks.

As mentioned above, LSP3 carried out an initial trial of the IF scheme with one customer. However, structuring a partnership with an FSP seems to be the critical point of the company. One local FSP seemed to be initially interested but later declined to commercialise the solution, prompting the same member of the board of advisors to use the expression "cold feet" in relation to their behaviour, adding, "*they are not very flexible in thinking along with us about using real-time information in inventory financing.*" This seems to suggest that the issue with LSP3 lies more in a lack of proper relationship resources, rather than in the lack of knowledge, information, or physical resources. This, to some extent, also seems to explain why LSP3 lies ahead of LSP2 in the development of IF.

Finally, it is worth noticing how LSP3 has actually recently turned down the possibility of offering IF to a second customer, which required the financing of intercontinental in-transit inventory rather than inventory physically located in LSP3's warehouse. As LSP3 does not own the vessels that carry out the transport of such goods, it refused the offer. This highlights the relevance of physical resources in the development of IF services. Both LSP2 and LSP3 examined IF, not simply because they recognise the value of their information resources, but

because they see the opportunity to bundle those resources together with their physical resources into a coherent strategy.

5.6 Case 4

LSP4 is a small company, forwarding is their main business and the company does not own physical resources like trucks, ships, or a warehouse. The CEO (and owner) mentions the core strength is “*providing visibility in the flow of documents throughout the supply chain*”. Just like LSP2 and 3, the company wants to take part in IF by providing relevant information to the bank and not by making use of their own financial resources. According to the CEO, this aligns well with their overall business strategy, since he sees it as a way to leverage their existing knowledge on the flow of information.

In terms of organisational resources, higher management is involved in LSP4’s plans, since the CEO is the initiator. Even though they have no experience with similar financial services, in contrast to LSP2 and LSP3, the CEO mentions, “*everybody knows within our organisation that financial flows are very important; we try to really convince everybody of that.*”

LSP4 engaged with customers and banks already interested in IF. However, this did not result in the partnerships needed to form concrete business cases. The CEO explains: “*The customers are interested but would like to see a more concrete business case.*” He adds, “*this is a chicken and egg story. The customers want to see a business case first, but I want to talk more with the customers first before finishing a business case.*” The CEO talked with the bank, but he mentions some hurdles from the bank’s perspective. The most important one is having enough volume of inventory to finance, which makes it more interesting from a commercial perspective for banks. For this reason, the CEO wants to collaborate with other LSPs in the future: “*If we can collaborate with multiple LSPs, volumes would be larger, and banks might have to develop new processes only once instead of separately for every LSP.*” This seems to indicate that the main inhibitors for developing an IF service for LSP4 are mostly in relational resources, which is why it is looking for different types of partnerships with other LSPs.

6. Cross-case analysis

Together, the four cases (for simplicity we call DB Schenker LSP1) allow us to compare their access to strategic resources and their ability to bundle and leverage those resources across the different phases of development of this new service. The analysis is presented more analytically in [Tables A1](#) and [A2](#), while we summarise the findings in the next sections.

6.1 Access to strategic resources

Physical assets can play a key role in developing IF. Products stored in warehouses waiting for orders can tie up capital for an unpredictable amount of time. Warehousing thus differs from transport flows, where goods are cross-docked in terminals for a short and predefined time. Monitoring and managing the warehouse is one of the key pre-requisites for LSPs that consider offering IF. Warehouse management is complemented by informational resources, where access to unique information can provide LSPs with an edge against alternative SCF providers. This is exemplified by LSP4, which approached IF because of its above-average control over the flow of documents throughout the SC. When an LSP decides to compete against traditional FSPs over the management of the financial flows of their customers, their edge must be built on access to existing strategic resources, either in the form of control of physical flows (e.g. warehouses) or control over information flows (e.g. monitoring document flow).

In terms of knowledge, it is clear that past experience of IF-like services facilitates LSPs in developing a value proposition for their customers. LSP2 struggled to build a business case,

which, at least partly, followed from their limited knowledge, experience and know-how of IF. LSP3 built on its existing multiyear knowledge in offering escrow services to develop its IF pilot project. The examples of IF-services provided by LSP1 were placed in a specialist operational unit (Schenker Dedicated Services). Knowledge in the areas of SCF and IF strongly influences the ability of LSPs to differentiate between different forms of IF and different roles that the company could take. There are in fact two types of financial flows that should be clearly separated when analysing the role of LSPs in SCF, but that are sometimes confused within the company. The first flow is the financing of the logistics services, where the LSP often is in the middle between customers requesting extensive payment terms and small road hauliers with urgent liquidity needs. Applying SCF in this space would position the LSP at the level of a buyer (or a supplier) within a reverse factoring programme as the adopter (or user) of the solution offered by a different service provider. This was the primary solution considered by LSP1.

The second flow is the actual financing of inventory between primary SC players, which is the topic of IF. Throughout our interviews, confusion periodically arose between these two concepts, both in distinguishing between them and in addressing them within the company. One example is LSP1's focus on adapting a reverse factoring scheme to release working capital. Another one is LSP2 that would allocate people within the finance department to SCF in general, despite the clear differences between IF as a new service in the portfolio and "using" reverse factoring. In terms of relational and organisational resources, it is clear that access to customers interested in IF was an important driver for top management support in LSP3 and for the two examples of IF in LSP1.

Finally, none of the LSPs present financial resources to provide IF directly to customers without FSP involvement. Accordingly, all of our case firms would prefer solutions where they could leverage their information and control over the physical flow in strategic partnerships with FSPs. Levering control over physical and information flows also seems to be one of the main drivers to consider IF in the first place. The main differences between LSP1 and LSP2-4 are in expertise, relational and organisational resources. LSP1 have access to all of these but still decided against implementing a full launch of IF. LSP3 completed a successful pilot, based on their expertise, relational resources with existing customers and attention to project management, whereas LSP2 and LSP4 remained in earlier phases of development. In conclusion, it seems that even though access to strategic resources may be an important step to reaching a stage of piloting, it is not sufficient to motivate a commercialisation of the service. Next, we discuss whether this is dependent on the ability to successfully bundle the strategic resources.

6.2 Resource bundling and leveraging

Obviously, none of the cases were fully able to bundle resources to implement IF and turn it into a sustainable competitive advantage. That is not to say that some of the resources were not appropriately bundled or leveraged. This is especially true for IT and training. LSP1 has highly developed IT knowledge and skills that would allow them to offer such services. LSP3 bundled together the necessary resources and capabilities to develop the appropriate IT infrastructure, and LSP4 has the appropriate means to support IF, at least in the form of exchanging information with FSPs. Moreover, there is no evidence that the LSPs in our study would have problems bundling their knowledge and network to generate training opportunities for their employees at all levels to increase their knowledge of SCF in general and IF specifically. The size and organisational structure of LSP1 may to some extent make this process slower and require cooperation between different functional areas, but essentially, it has all of the necessary competencies in-house.

This is similar to the point made by [Wong and Karia \(2010\)](#) about track and trace: resources and capabilities necessary to provide track and trace are widespread and a common requirement for any LSP, while the ability to bundle these resources and capabilities together to integrate with other parties is often unique. Similarly, resources and capabilities necessary to offer IF seem to be relatively widespread and none of the LSPs in the sample present or perceive any major obstacle in integrating their control of physical and information resources for the purpose of offering IF. However, the ability to properly integrate with a financial partner while creating sustainable competitive advantage is more unusual. Such strategic partnerships and alliances with FSPs seem rather important to our LSPs in successfully developing IF. At first glance this is a rather straightforward result: scaling up an IF solution requires extensive access to liquidity that generally derives from a partnership with an FSP. Extending the argument, this inhibitor signals a discrepancy between the ability of LSPs to master physical and/or information resources (which is not in doubt) and their ability to leverage such resources in the SCF space. This inability to form strategic alliances is at the core of the difficulties faced by all four case firms: LSP1 acknowledge that they have not explored the possibility with any FSP but that it is indeed interesting. LSP3 defers the failure to scale up after the (otherwise successful) pilot (the “cold feet” mentioned by the interviewee) to the limited interest shown by their core bank. In LSP2 it hinders further development after the initial concept was introduced, and for LSP4 it means that they cannot provide customers with a compelling business case.

In conclusion, the LSPs present several of the necessary resources and capabilities identified by the literature as pivotal for successfully venturing into IF. They all have (to various degrees) control of the physical flow, extensive informational resources and superior understanding of SC processes. This should guarantee the operational conditions necessary to offer IF to customers, which present some interest in the solution. However, bundling and leveraging such resources to create sustainable competitive advantage seems to be more complex and difficult to achieve, especially via the forming of strategic partnership with FSPs.

6.3 Value creation and value capture

As noted by [Priem et al. \(2018\)](#), good new ideas that create consumer value draw resources, which mean that entrepreneurs and established executives alike must also consider how to capture some of the value before dedicating these resources. The results from our four case studies indicate that there is potential for LSPs to create value for their customers by offering SCF and, specifically, IF. Several of the LSPs are persistently approached by customers asking for various forms of SCF, including IF. LSP1 even developed and applied, although on a small scale, this solution, only to discontinue it. This implies that the customers do see some benefit from an LSP that can offer management of the financial flow. Still, based on the evidence collected, concerns persist as to whether LSPs will be able to capture some value by offering it.

We explain the discrepancy between existing demand and the difficulties faced by LSPs through the difference between value creation and value capture, as illustrated by [Bowman and Ambrosini \(2000\)](#). There is little doubt that the logistics industry generates significant value in our globalised economy; ultimately, it is through logistics that products are available through SCs to final customers. However, LSPs are traditionally unable to capture the value that they generate. Relevant reports measuring the financial performance of the logistics sector often find that it underperforms in terms of profit margins compared to the rest of the economy, with players often finding themselves close to, or even below, the profit line ([Hausmann et al., 2015](#); [Tipping and Kauschke, 2016](#)). This signals a difficulty in capturing use value.

Bowman and Ambrosini (2000) mention supply of capital as the typical activity that captures value through scarcity of supply. As with most of SCF, IF is in essence a financial arrangement and thus, a supply of capital to parties in an SC. This availability of capital revolves not so much around the specific resources owned by the LSP or its specific capabilities (that is, the ability of generating use value and transforming it into exchange value) but rather on the ability of the LSP of behaving as a “value capturer”, like other suppliers of capital. Therefore, a discrepancy exists between the theoretical prediction regarding the benefits of IF and the interest of customers towards such arrangements, on the one hand and the difficulties faced by the LSPs in our sample, on the other. The explanation of this discrepancy appears to lie in the traditional focus of LSPs on generating use value, while being less effective in capturing value. This result is further strengthened by the notion that our LSPs consider themselves to have weak bargaining power towards customers and especially towards FSPs.

From a more practical perspective, this indicates that, over time, LSPs may have to provide SCF to remain competitive in the market. Rather than becoming a sustainable competitive advantage for the LSPs, SCF might become an added service that they all provide – just like track and trace.

7. Conclusions

This paper asks what prevents LSPs from entering the SCF market and analyses how LSPs utilise their resources and capabilities in attempting to develop marketable IF solutions. We rely on RBV as our theoretical lens and explore four cases of LSPs that, to varying degrees, have engaged in the process of introducing IF. Our work provides the following contributions to theory and practice.

7.1 Theoretical implications

First, drawing on the well-established interaction between use value creation and value capture (Bowman and Ambrosini, 2000; Priem *et al.*, 2018) our results indicate that even though LSPs have the necessary resources and capabilities to create value-adding SCF solutions, they are typically less versed than the traditional supplier of capital in capturing value and as such might not be able to transform IF or SCF into a source of sustainable competitive advantage. Thus, the main barrier seems to reside in an inability to capture, rather than create value among LSPs. It also means that SCF might not be a viable option for all LSPs, regardless of what strategic resources they have at their disposal.

Second, while research on SCF is partly a reflection of practice innovation, it has also sprung out of a critique of traditional SCM studies for largely ignoring the financial flows in their analysis of efficient solutions (Dekkers *et al.*, 2020; Gelsomino *et al.*, 2016; Gomm, 2010; Hofmann, 2005; Pfohl and Gomm, 2009; Wuttke *et al.*, 2013b). Several contributions in the SCF literature highlight the incentive trade-offs between various actors in the SC when embarking on SCF (e.g. Caniato *et al.*, 2016). We add a puzzle piece by analysing the LSP as a potential contributor in the SCF space. Our case firms show that despite their inherent advantage, LSPs find it difficult to benefit from control over the physical and information flows due to difficulties in creating strategic alliances. We clearly show that, in contrast to most LSP-related SCF-work, LSPs are not that well-positioned to enter into the SCF-market. To succeed they must either identify means to capture sufficient value by strengthening their bargaining power capabilities, or find ways to avoid having to form strategic alliances with powerful FSPs.

Third, our focus on LSPs directed us towards an SCF product that thus far has not received a lot attention in the literature, that is IF. In response to Bals's (2019) call for SCF studies beyond reverse factoring, our study offers additional details on IF by examining

strategic resources and their bundle and leverage into capabilities able to provide sustainable competitive advantage. In this sense, we find that partnerships and collaboration with FSPs is key to overcoming barriers to the development of IF solutions for LSPs. The synthesis of the literature on SCF and IF is a first step to a broader understanding of when and why IF could become an interesting addition to a broader SCF portfolio.

7.2 Practical implications

The main practical implication of our contribution is its ability to be interpreted as a cautionary tale. Specifically, we identify as a potential development in IF and SCF the possibility for LSPs to provide SCF, not as a sustainable competitive advantage, but as a service that they all provide and hence an order qualifier and not an order winner – just like track and trace. The bargaining power of customers, for one thing, and of financial partners, for another, might ultimately reduce significantly the ability of LSPs to profit from such solutions.

Second, there appears to be a struggle among LSPs between providing IF by taking ownership of goods themselves or providing information to a partner FSP. Within our sample, it is clear that the latter method is more appealing. However, this might lead to enhanced bargaining power on the side of the FSP which, as explained in previous sections, will further limit the possibility for LSPs to capture value from IF. On the other hand, offering IF throughout their own balance sheet is a more significant effort from the LSP side and it obviously requires more effort in structuring and commercialising the solution. As such, managers in LSPs should carefully analyse the resulting trade-off. It appears that to overcome this hurdle and become effective, IF providers either have to be exceptional (or at least above average) in structuring the right partnership with FSPs without eroding their value capture capability or have to develop enough internal knowledge, know-how and expertise to allow them to offer the solution through their own balance sheet.

The third and final implication of our study is that our case analysis points to the importance of separating between the financing of the logistics flow (services) and the SC flow (products). IF is related to the latter, but in fact many LSPs may be more inclined to focus on the former and develop solutions that help their suppliers (like transport and terminal operators) manage their financial flow. Either way, it is important to distinguish between the two flows to avoid confusion.

7.3 Limitations and directions for future research

We can identify three limitations of our study. First, the abduction process has, of course, its weaknesses, most notably in a greater need for verification than other approaches. Second, the sample size, although adequate, is relatively small, especially concerning the amount of replication variables involved (size, geography, industry served, organisational structure, etc.). Third, the “alternative” IF model might be in its infancy, but it is a wide-ranging topic. In the literature, different characteristics of the logistics process underlying the flow of goods subject to financing, and the information and characteristics of the goods themselves are seldom in focus. This paper is not different; we do not differentiate between in-transit goods and stock held in warehouses, between perishable and non-perishable goods, etc. These potential control variables likely influence not only the benefits and costs of the solution, but also the resources and capabilities required by the LSP to be effective in its deployment.

This last limitation is our first suggestion for future research: the academic community can focus on conditions whereby IF is developed, applied and used, including moving or stationary inventory, price-volatile or price-stable goods, industry and geographic market served, etc. More specifically, we advocate further empirically backed contributions towards the clarification of IF models in which LSPs exchange information with FSPs and in which

LSPs offer IF through their own balance sheet. Acquiring quantitative data from LSPs to test conjectures developed in the literature is paramount. Generally, the literature theorises a positive impact from the integration of physical and financial SCs (Pfohl and Gomm, 2009; Silvestro and Lustrato, 2014). An LSP engaging in IF represents a golden opportunity for researchers to study the operationalisation of this concept and provide steps forward in the theoretical development within SCF.

Another important point involves the research directions streaming from the confusion among some LSPs regarding the financing of logistics flow rather than their role as FSPs. This prompts us to believe that SCF literature right now could greatly benefit from more detailed investigation of triads, a topic that so far has been touched only by Martin and Hofmann (2019).

Finally, during our case studies we have encountered several boundaries in the interaction between a firm's resources and the environment that can prevent LSPs from entering into SCF. As such, we encourage future studies to rely on the resources and capabilities addressed in this paper to identify LSPs that qualify as prominent SCF adopters and control for environmental factors, with specific emphasis on regulatory restrictions. After all, there is a need for studies assisting LSPs to capture value.

Notes

1. <https://www.maersk.com/solutions/shipping/cargo-and-financial-services/trade-finance>
2. <https://www.logistics.dhl/ug-en/home/our-divisions/supply-chain/thought-leadership/case-studies/automotive/solutions-for-emerging-markets.html>
3. <https://upscapital.com/>

References

- Ahrens, T. and Chapman, C.S. (2006), "Doing qualitative field research in management accounting: positioning data to contribute to theory", *Accounting, Organizations and Society*, Vol. 31 No. 8, pp. 819-841.
- Alvesson, M. and Sandberg, J. (2011), "Generating research questions through problematization", *Academy of Management Review*, Vol. 36 No. 2, pp. 247-271.
- Bals, C. (2019), "Toward a supply chain finance (SCF) ecosystem—Proposing a framework and agenda for future research", *Journal of Purchasing and Supply Management*, Vol. 25 No. 2, pp. 105-117.
- Basu Bal, A., Elliot, V., Lindblom, T., Rajput, T., Malmberg, L.G. and Woxenius, J. (2018), "Different perspectives on supply chain finance – in search of a holistic approach", in Gong, S. and Cullinane, K. (Eds), *Finance and Risk Management for International Logistics and the Supply Chain*, 1st ed., Elsevier, Oxford, pp. 35-54.
- Baxter, P. and Jack, S. (2008), "Qualitative case study methodology: study design and implementation for novice researchers", *Qualitative Report*, Vol. 13 No. 4, pp. 544-559.
- Bowman, C. and Ambrosini, V. (2000), "Value creation versus value capture: towards a coherent definition of value in strategy", *British Journal of Management*, Vol. 11 No. 1, pp. 1-15.
- Bryant, C. and Camerinelli, E. (2014), *Supply Chain Finance EBA European Market Guide*, Euro Banking Association, Paris June 2014.
- Buzacott, J.A. and Zhang, R.Q. (2004), "Inventory management with asset-based financing", *Management Science*, Vol. 50 No. 9, pp. 1274-1292.
- Caniato, F., Gelsomino, L.M., Perego, A. and Ronchi, S. (2016), "Does finance solve the supply chain financing problem?", *Supply Chain Management: An International Journal*, Vol. 21 No. 5, pp. 534-549.

- Chakuu, S., Masi, D. and Godsell, J. (2019), "Exploring the relationship between mechanisms, actors and instruments in supply chain finance: a systematic literature review", *International Journal of Production Economics*, Vol. 216, pp. 35-53.
- Chen, X. and Cai, G. (2011), "Joint logistics and financial services by a 3PL firm", *European Journal of Operational Research*, Vol. 214 No. 3, pp. 579-587.
- Christopher, M. (1992), *Logistics and Supply Chain Management - Strategies for Reducing Costs and Improving Services*, Pitman Publishing, London.
- de Goeij, C.A.J., Onstein, A.T.C. and Steeman, M.A. (2016), "Impediments to the adoption of reverse factoring for logistics service providers", in Zijm, H., Klumpp, M., Clausen, U. and Ten Hompel, M. (Eds), *Logistics and Supply Chain Innovation*, Springer International Publishing, Cham, pp. 261-277.
- Danermark, B. (2001), *Explaining Society: An Introduction to Critical Realism in the Social Sciences*, Routledge, Florence, KY.
- Dekkers, R., de Boer, R., Gelsomino, L.M., de Goeij, C., Steeman, M., Zhou, Q., Sinclair, S. and Souter, V. (2020), "Evaluating theoretical conceptualisations for supply chain and finance integration: a Scottish focus group", *International Journal of Production Economics*, Vol. 220, p. 107451.
- Dubois, A. and Araujo, L. (2007), "Case research in purchasing and supply management: opportunities and challenges", *Journal of Purchasing and Supply Management*, Vol. 13 No. 3, pp. 170-181.
- Dubois, A. and Gadde, L.E. (2002), "Systematic combining: an abductive approach to case research", *Journal of Business Research*, Vol. 55 No. 7, pp. 553-60.
- Dubois, A. and Gadde, L.E. (2014), "Systematic combining'-A decade later", *Journal of Business Research*, Vol. 67 No. 6, pp. 1277-1284.
- Eisenhardt, K.M. and Martin, J.A. (2000), "Dynamic capabilities: what are they?", *Strategic Management Journal*, Vol. 21 Nos 10-11, pp. 1105-1121.
- Fellenz, M.R., Augustenborg, C., Brady, M. and Greene, J. (2009), "Requirements for an evolving model of supply chain finance: a technology and service providers perspective", *Communications of the IBIMA*, Vol. 10 No. 29, pp. 227-235.
- Gelsomino, L.M., Mangiaracina, R., Perego, A. and Tumino, A. (2016), "Supply chain finance: a literature review", *International Journal of Physical Distribution and Logistics Management*, Vol. 46 No. 4, pp. 348-366.
- Gelsomino, L.M., de Boer, R. and Steeman, M. (2017), "Financial futures for service logistics", *Paper Presented at IPSERA Conference*, 9-12 April, Balatonfüred, Hungary.
- Gelsomino, L.M., de Boer, R., Steeman, M. and Perego, A. (2019), "An optimisation strategy for concurrent Supply Chain Finance schemes", *Journal of Purchasing and Supply Management*, Vol. 25 No. 2, pp. 185-196.
- Gomes, J., De Weerd-Nederhof, P.C., Pearson, A. and Fisscher, O.A. (2001), "Senior management support in the new product development process", *Creativity and Innovation Management*, Vol. 10 No. 4, pp. 234-242.
- Gomm, M.L. (2010), "Supply chain finance: applying finance theory to supply chain management to enhance finance in supply chains", *International Journal of Logistics: Research and Applications*, Vol. 13 No. 2, pp. 133-142.
- Gruber, M., Heinemann, F., Brettel, M. and Hungeling, S. (2010), "Configurations of resources and capabilities and their performance implications: an exploratory study on technology ventures", *Strategic Management Journal*, Vol. 31 No. 12, pp. 1337-1356.
- Hartmann, E. and Grahl, A.D. (2011), "The flexibility of logistics service providers and its impact on customer loyalty: an empirical study", *Journal of Supply Chain Management*, Vol. 47 No. 3, pp. 63-85.
- Hausmann, L., Nangia, I., Netzer, T., Rehm, W. and Rothkopf, M. (2015), *Pathway to Value Creation: A Perspective on How Transportation and Logistics Businesses Can Increase Their Economic Profit*, Travel, Transport and Logistics, McKinsey and Company, Munich.

- Hofmann, E. (2005), "Supply Chain Finance: some conceptual insights", in Lasch, R. and Janker, C.G. (Eds), *Logistik Management: Innovative Logistikkonzepte*, Deutscher Universitäts-Verlag, Wiesbaden, pp. 203-214.
- Hofmann, E. (2009), "Inventory financing in supply chains: a logistics service provider-approach", *International Journal of Physical Distribution and Logistics Management*, Vol. 39 No. 9, pp. 716-740.
- Hofmann, E. and Kotzab, H. (2010), "A supply chain-oriented approach of working capital management", *Journal of Business Logistics*, Vol. 31 No. 2, pp. 305-330.
- Hofmann, E. and Wetzel, P. (2018), *Working Capital Management Study 2018 – Supply Chain Finance Introduction*, Universität, St. Gallen.
- Hofmann, E., Strewe, U.M. and Bosia, N. (2017), *Supply Chain Finance and Blockchain Technology: The Case of Reverse Securitisation*, Springer International Publishing, Cham.
- Holdren, D.P. and Hollingshead, C.A. (1999), "Differential pricing of industrial services: the case of inventory financing", *Journal of Business and Industrial Marketing*, Vol. 14 No. 1, pp. 7-16.
- Jonsson, P. (2008), *Logistics and Supply Chain Management*, McGraw-Hill Education, New York.
- Karia, N. and Wong, C.Y. (2013), "The impact of logistics resources on the performance of Malaysian logistics service providers", *Production Planning and Control*, Vol. 24 No. 7, pp. 589-606.
- Kirkeby, O.F. (1990), "Abduktion (abduction)", in Andersen, H. (Ed.), *Vetenskapsteori Och Metodlära. Introduktion (Theory of Science and Method. Introduction)*, Studentlitteratur, Lund, Swedish.
- Kovács, G. and Spens, K.M. (2005), "Abductive reasoning in logistics research", *International Journal of Physical Distribution and Logistics Management*, Vol. 35 No. 2, pp. 132-144.
- Kvale, S. and Brinkmann, S. (2014), *Den Kvalitativa Forsknings intervjun (The Qualitative Research Interview)*, Studentlitteratur, Lund, Swedish.
- Lai, K.H. (2004), "Service capability and performance of logistics service providers", *Transportation Research Part E: Logistics and Transportation Review*, Vol. 40 No. 5, pp. 385-399.
- Lai, F., Li, D., Wang, Q. and Zhao, X. (2008), "The information technology capability of third-party logistics providers: a resource-based view and empirical evidence from China", *Journal of Supply Chain Management*, Vol. 44 No. 3, pp. 22-38.
- Li, S. and Chen, X. (2018), "The role of supply chain finance in third-party logistics industry: a case study from China", *International Journal of Logistics Research and Applications*, Vol. 22 No. 2, pp. 154-171.
- Liebl, J., Hartmann, E. and Feisel, E. (2016), "Reverse factoring in the supply chain: objectives, antecedents and implementation barriers", *International Journal of Physical Distribution and Logistics Management*, Vol. 46 No. 4, pp. 393-413.
- Martin, J. (2017), "Suppliers' participation in supply chain finance practices: predictors and outcomes", *International Journal of Integrated Supply Management*, Vol. 11 Nos 2-3, pp. 193-216.
- Martin, J. and Hofmann, E. (2017), "Involving financial service providers in supply chain finance practice. Company needs and service requirements", *Journal of Applied Accounting Research*, Vol. 18 No. 1, pp. 42-62.
- Martin, J. and Hofmann, E. (2019), "Towards a framework for supply chain finance for the supply side", *Journal of Purchasing and Supply Management*, Vol. 25 No. 2, pp. 157-171.
- More, D. and Basu, P. (2013), "Challenges of supply chain finance: a detailed study and a hierarchical model based on the experiences of an Indian firm", *Business Process Management Journal*, Vol. 19 No. 4, pp. 624-647.
- Moretto, A., Gelsomino, L.M., Caniato, F. and de Boer, R. (2018), "Business models for supply chain finance: the perspective of logistics service providers", *Paper Presented at IPSERA Conference*, 25–28 March, Athens, Greece.
- Murphy, P.R. and Poist, R.F. (1998), "Third-party logistics usage: an assessment of propositions based on previous research", *Transportation Journal*, Vol. 37 No. 4, pp. 26-35.

- Perkins, D., Jugdev, K. and Mathur, G. (2018), "Characteristics of project management assets and project management process outcomes: an exploratory factor analysis", *International Journal of Information Technology Project Management*, Vol. 9 No. 1, pp. 59-77.
- Pfohl, H.C. and Gomm, M. (2009), "Supply chain finance: optimizing financial flows in supply chains", *Logistics Research*, Vol. 1 No. 304, pp. 149-161.
- Priem, R.L., Butler, J.E. and Li, S. (2013), "Toward reimagining strategy research: retrospection and prospect on the 2011 AMR decade award article", *Academy of Management Review*, Vol. 38 No. 4, pp. 471-489.
- Priem, R.L., Wenzel, M. and Koch, J. (2018), "Demand-side strategy and business models: putting value creation for consumers center stage", *Long Range Planning*, Vol. 51 No. 1, pp. 22-31.
- Ryan, R.J., Scapens, R.W. and Theobald, M. (2002), *Research Methods and Methodology in Accounting and Finance*, 2nd ed., Thomson Learning, London.
- Seifert, R.W. and Seifert, D. (2011), "Financing the chain", *International Commerce Review*, Vol. 10 No. 1, pp. 32-44.
- Shou, Y., Shao, J. and Chen, A. (2017), "Relational resources and performance of Chinese third-party logistics providers: the mediating role of innovation capability", *International Journal of Physical Distribution and Logistics Management*, Vol. 47 No. 9, pp. 864-883.
- Silverman, D. (2001), *Interpreting Qualitative Data. Methods for Analysing Talk, Text and Interaction*, 2nd ed., Sage, Thousand Oaks, CA.
- Silvestro, R. and Lustrato, P. (2014), "Integrating financial and physical supply chains: the role of banks in enabling supply chain integration", *International Journal of Operations and Production Management*, Vol. 34 No. 3, pp. 298-324.
- Simon, D.G., Hitt, M.A. and Ireland, R.D. (2007), "Managing firm resources in dynamic environments to create value: looking inside the black box", *Academy of Management Review*, Vol. 32 No. 1, pp. 273-292.
- Soinio, J., Tanskanen, K. and Finne, M. (2012), "How logistics-service providers can develop value-added services for SMEs: a dyadic perspective", *The International Journal of Logistics Management*, Vol. 23 No. 1, pp. 31-49.
- Song, H., Yu, K. and Lu, Q. (2018), "Financial service providers and banks' role in helping SMEs to access finance", *International Journal of Physical Distribution and Logistics Management*, Vol. 48 No. 1, pp. 69-92.
- Steehan, M. (2017), *Viewpoint: Taking Stock of Inventory Finance Models*, SCF Briefing, Zwolle, October 3rd, 2017.
- Suddaby, R. (2006), "What grounded theory is not", *Academy of Management Journal*, Vol. 49 No. 4, pp. 633-642.
- Teece, D.J., Pisano, G. and Shuen, A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, Vol. 18 No. 7, pp. 509-533.
- Templar, S., Findlay, C. and Hofmann, E. (2016), *Financing the End-to-End Supply Chain: A Reference Guide to Supply Chain Finance*, Kogan Page Publishers, London/Philadelphia/New Delhi.
- Tipping, A. and Kauschke, P. (2016), "Shifting patterns: the future of the logistics industry", *PwC's Future in Sight Series*, available at: <https://www.pwc.com/gx/en/transportation-logistics/pdf/the-future-of-the-logistics-industry.pdf> (accessed 7 May 2020).
- van Hoek, R.I. (2000), "The purchasing and control of supplementary third-party logistics services", *Journal of Supply Chain Management*, Vol. 36 No. 3, pp. 14-26.
- Van Der Vliet, K., Reindorp, M.J. and Fransoo, J.C. (2015), "The price of reverse factoring: financing rates vs payment delays", *European Journal of Operational Research*, Vol. 242 No. 3, pp. 842-853.
- Wetzel, P. and Hofmann, E. (2018), "Financial value-added services by logistics service providers-towards a guidance of external governance", *Presented at Logistics Research Network Annual Conference*, 5-7 Sep, Plymouth, UK.

-
- Wong, C. and Karia, N. (2010), "Explaining the competitive advantage of logistics service providers: a resource-based view approach", *International Journal of Production Economics*, Vol. 128 No. 1, pp. 51-67.
- Wright, P.M., McMahan, G.C. and McWilliams, A. (1994), "Human resources and sustained competitive advantage: a resource-based perspective", *International Journal of Human Resource Management*, Vol. 5 No. 2, pp. 301-326.
- Wuttke, D.A., Blome, C., Foerstl, K. and Henke, M. (2013a), "Managing the innovation adoption of supply chain finance-empirical evidence from six European case studies", *Journal of Business Logistics*, Vol. 34 No. 2, pp. 148-166.
- Wuttke, D.A., Blome, C. and Henke, M. (2013b), "Focusing the financial flow of supply chains: an empirical investigation of financial supply chain management", *International Journal of Production Economics*, Vol. 145 No. 2, pp. 773-789.
- Zahra, S.A. and Newey, L.R. (2009), "Maximizing the impact of organization science: theory-building at the intersection of disciplines and/or fields", *Journal of Management Studies*, Vol. 46 No. 6, pp. 1059-1075.

Corresponding author

Viktor Hugo Elliot can be contacted at: viktor.elliott@gu.se

Table A1.
Codes for accessed
resources

Predefined category	Codes	LSP1 (Schenker AB, Sweden)	LSP2	LSP3	LSP4
Physical resources	Physical assets owned	<p>(1) 27 cross-docking terminals for parcels and general cargo</p> <p>(2) 3PL warehouses</p> <p>(3) In all, 39 properties with handling equipment</p> <p>(4) 1,000 trucks in a subsidiary</p> <p>(5) Unit loads</p>	<p>(1) All goods are stored in own warehouse</p> <p>(2) Own trucks for road transport (albeit not all road transport is done with their own trucks)</p> <p>(3) Own boats for inland sea transport</p>	<p>(1) All goods are stored in own warehouse</p> <p>(2) Own trucks for road transport (albeit not all road transport is done with their own trucks)</p>	<p>(1) Doesn't own any warehouses or trucks</p>
Information resources	Access to relevant information	<p>"... being a quality gate [along the supply chain] ... if blockchain becomes a reality, we could add our information that a specific gate in the transport chain is passed ... to add further value"</p>	<p>"We think we can provide the bank with information to make a better estimation of risks involved so that costs of financing the inventory can go down"</p>	<p>"We know if the right certificates are there and we know the amount of money the buyer paid for the goods, we can compare prices and make an estimation of the average price. If there is a commercial invoice coming in wherein the price is twice as high for this product, we can easily decide not to finance it, because there is a large risk"</p>	<p>"We are a company which is good at providing visibility in the flow of documents throughout the supply chain. Because we do custom services for 90/95% of the textiles we get, we also do the value check and therefore know the value. And often we also get insights in the invoicing of the customer"</p>
	Ability to integrate information with customers' processes	<p>(1) Schenker offers a wide range of transport administrative services like EDI and Application Programming Interface (API) coordinated through the portal eSchenker</p> <p>(2) API available for integration with customers' e-commerce platforms</p>			<p>(1) LSP4 has tailor-made EDI connections with various clients and data such as booking date, on-board date, arrival date, delivery date and all shipment data per PO number are automatically exchanged with an interface</p>

(continued)

Predefined category	Codes	LSP1 (Schenker AB, Sweden)	LSP2	LSP3	LSP4
Ability to automate processes	(1)	Shippers with more than 50 shipments per month are advised to use a transport administrative system integrated with Schenker's			(1) Clients of LSP4 have access to the most up-to-date shipping information, via automatically generated Excel files
	(1)	Overtook legal ownership of incontinence pads for Swedish countries and ingredients for a global fast-food chain as part of 3PL services	"Our organisation already has experience with another SCF instrument, which is reverse factoring"	"There is experience in the organisation with Escrow services. This is an important reason why we thought IF would become successful. Because it is very similar"	
	(1)	Experience from above cases and from considering requests from customers	"We need a better idea of the role of the bank. Is the bank willing to actually lower costs when they have more and better information? If we have more information we can go to our customers with a better idea or proposal"		
Knowledge, expertise and know-how		"Risks associated with optimising the transport chain within the expertise of DB Schenker but not really financial risks associated with the value of the cargo, and we are not very willing to take such risks either"			
	Knowledge about inventory finance				

(continued)

Table A1.

Table A1.

Predefined category	Codes	LSP1 (Schenker AB, Sweden)	LSP2	LSP3	LSP4
Human resources	Mindset of employees	(1) Schenker is directly involved in many research projects, some of which are on SCF	(1) The LSP hosted 3 internship projects in collaboration with different local universities on the topic of SCF	(1) LSP3 hosted an internship project on the topic of SCF	(1) "I think we have good financial people to support this once we are at the next step. Most people are operational/logistics in our team, but everybody knows within our organisation that financial flows are very important. We try to really convince everybody of that"
	Human resource allocation	(1) None directly allocated to SCF	(1) One person in finance is partially allocated to SCF	(1) The plan was mainly executed by a board of advisors' member. He asked for approval from the owner of the company. In the execution of the plan a supply chain engineer was also involved	(1) LSP4 already talked about IF with multiple customers
Relational resources	Customer collaboration	(1) Previous experience from two collaboration schemes on SCF "It is not our core business to finance our customers ... They should be able to do better through a bank." "In most cases it is not completely well-thought-out from [the client] side; they just want to get rid of the risk" "... generally, our company does not get involved in these types of financial solutions where we would take over ownership of the cargo at some point"	"We haven't found an interested customer yet"	"We found a customer pretty early. With this company we discussed if IF would be suitable and they liked it from the start"	

(continued)

Predefined category	Codes	LSP1 (Schenker AB, Sweden)	LSP2	LSP3	LSP4
Bank collaboration	Bank collaboration	<p>"... being a quality gate [along the supply chain] ... if blockchain becomes a reality, we could add our information that a specific gate in the transport chain is passed ... to add further value"</p> <p>"There are existing ... well-established, means to finance trade. We see no direct shift in how our customers think in terms of financing delivery terms or customs clearance"</p>	<p>"I do see some potential hurdles for bank collaboration. I would like to know if they are actually willing to do this, and how fast they can do this"</p>	<p>"The main reason why we are currently stuck is because the collaboration with the bank is not going well. They have 'cold feet'. They are not very flexible in thinking along with us about using real-time information in inventory financing"</p>	<p>LSP4</p> <p>"We talked about inventory financing with the bank. We asked them if they see a role for us in there. Because we do customs, I have a lot of 'assurance systems' for information"</p>
Organisational resources	Higher management involvement	<p>"A very politically governed and controller-driven organisation, where strategic initiatives on a global scale need to be confirmed at the highest political level ..."</p> <p>"DB Schenker in Sweden could ... in theory, initiate an innovative financial solution, but doing so in practice would require full support from the head office"</p>	<p>"If we are going to decide to do this, this will be a higher management decision. The session we had before where we explored the idea, was also with higher management, CFO, CEO involved"</p>	<p>"The owner of the company was involved from the start; he was the one who came up with the idea"</p>	<p>"The idea to do this came from me [CEO]. This came from the knowledge and know-how I got from the expeditors industry association, Fenex, and from talking to [a SCF industry expert]"</p>

(continued)

Table A1.

Table A1.

Predefined category	Codes	LSP1 (Schenker AB, Sweden)	LSP2	LSP3	LSP4
Collaboration between involved departments	(1)	“Today DB Schenker is organised in functional areas with land, air, ocean, and 3PL, and they also need to be on-board if we were to offer financial solutions”		“Mainly me [board of advisors member] and the owner were involved in the process. After I did the initial analysis of the impact of inventory financing on our IT and systems, we included a person from operations, a supply chain engineer, to do a last check on this. This collaboration went without many problems”	“Most people are in operational/logistics on our team, but everybody knows within our organisation that the financial flows are very important. We try to really convince everybody of that”
	Project management	(1)	To offer financial solutions would require parties from many different countries, and IT-related updates, which would also require full support from the head office	“A project manager or key person inside the organisation to focus on developing the inventory financing service was not yet assigned”	(1) No project manager or key people assigned yet to work on IF

(continued)

Predefined category	Codes	LSP1 (Schenker AB, Sweden)	LSP2	LSP3	LSP4
Financial resources	Availability of financial resources	<p>(1) Although publicly owned, there is strict financial control</p> <p>(2) The German state keeps DB Schenker "saleable" and thus focuses on financial KPIs</p>		<p>(1) Invested approx. 100k € of its own liquidity in the pilot to buy inventories from customer</p>	<p>(1) Financing mostly from equity</p> <p>(2) Good solvency position</p>
	Financial health	<p>(1) As owned by the German government it is strong</p> <p>"It is not our core business to finance our customers ... they should be able to do better through a bank"</p>	<p>"We do not want to finance inventory ourselves, mostly to avoid a negative impact on our balance sheet"</p>	<p>"We have a good financial position. This is relevant because in the pilot we financed the inventory ourselves without bank involvement"</p>	<p>"We are a financially solid organisation. Our solvency rate is good, we finance mostly from equity. Sometimes we can put financial guarantees in place. We are strong financially and strong in IT, therefore I see opportunities in SCF"</p>

Table A1.

Table A2.
Codes for resource
bundling and
leveraging

Predefined category	Codes	LSP1 (Schenker AB, Sweden)	LSP2	LSP3	LSP4
Integration of the physical and financial supply chains	Ability to leverage information for SCF	<p>"I find it difficult to see that we will be able to make a profit out of this ... we have a hard time charging a premium for information-related services"</p>	<p>"We want to provide the bank with information to make a better estimation of risks involved so that costs of financing the inventory can go down"</p>	<p>"The process for inventory financing is not that difficult. Goods come in. Then they are checked to see whether they are authentic. When this is confirmed, financing is provided. That is a normal process for us"</p>	<p>"The banks we talked with want security that goods can't be transferred to the next step in the chain, when not everything is arranged yet. We should be able to give this security. We can use this to play a role in both reverse factoring and inventory financing" "It is hard to say what the value is of something sometimes. What is the value of a good when I have a million of them in my warehouse, and I can't bring them on the market because of trademark laws, for example, in a situation of bankruptcy"</p>
	Ability to take SCF-related risks	<p>"It is not our core business to finance our customers ... they should be able to do better through a bank"</p> <p>"Risks associated with optimising the transport chain are within the expertise of DB Schenker but not really financial risks associated with the value of the cargo, and we are not very willing to take such risks either"</p>	<p>(1) LSP2 doesn't want to finance inventories themselves and take the financial risk. They want to take the role of information provider to the bank</p>	<p>"Another customer was interested in financing inventories in transit. They ship from South America with lots of in-transit time. If we want to do this, we have to control sea transport and the bill of lading. We don't want to be responsible for container stock in Chile where we don't have an agent. There are too many risks"</p>	

(continued)

Predefined category	Codes	LSP1 (Schenker AB, Sweden)	LSP2	LSP3	LSP4
Information technology	Design of information system	(1) Highly developed IT skills and access to several platforms and services "I find it difficult to see that we will be able to make a profit out of this . . . we have a hard time charging a premium for information-related services"	(1) LSP2 does not have a good idea yet on how information services can lead to a business case "Is the bank willing to actually lower costs when they have more and better information?"	"A not-too-complex administrative design was a success factor for the pilot. In this way it didn't impact the daily work of employees too much" "Our IT provider made 'safety catches' in the system so that we can see the goods don't leave before the loan has been repaid" "We still have to make some steps in automation. There are different departments and companies involved and things are generally going well, but sometimes people make mistakes. For example, they forget to send an e-mail. It is certainly not a robust process at the moment"	"We have our own software system, and customers and warehouse providers already use this software. Most information on invoices and goods is already shared in this way"
	Automation	(1) The current IT system allows for automated information flow			

(continued)

Table A2.

Table A2.

Predefined category	Codes	LSP1 (Schenker AB, Sweden)	LSP2	LSP3	LSP4
Strategic partnerships and alliances	Starting partnerships with customers in developing SCF solution	<p>"In most cases it is not completely well-thought-out from [the client] side; they just want to get rid of the risk... in general... DB Schenker does not do this... at least [it is] not the policy right now, maybe because there is not a good concept or solution available"</p> <p>"... generally, our company does not get involved in these types of financial solutions where we would take over ownership of the cargo at some point"</p>	<p>"We have not been able yet to form a collaboration with a customer to develop an inventory financing solution"</p>	<p>"Because we found a customer early on, we could include them early on in our line of thinking"</p>	<p>"We have not been able yet to form a collaboration with a customer to develop an IF solution"</p>
	Starting partnerships with banks in developing an SCF solution	<p>"It is not our core business to finance our customers... they should be able to do better through a bank"</p> <p>"We are open to the idea of being an information sharing partner, under the assumption that a bank, or other third party, assumes the financial risk"</p>	<p>(1) LSP 2 has not formed a partnership with a bank yet on inventory financing</p>	<p>"For making it scalable we need a collaboration with the bank. But the main reason why we are currently stuck is because this collaboration is not going well. They have 'cold feet'. They are not very flexible in thinking along with us about using real-time information in inventory financing"</p>	<p>"When you talk to a bank or customer, for example, they are aware that you are only a small player which does not help. If a big company is talking to a bank or customer, they might take it more seriously. This means I will have to prove more. I cannot do this alone, so therefore we see value in collaboration with other LSPs"</p>

(continued)

Predefined category	Codes	LSP1 (Schenker AB, Sweden)	LSP2	LSP3	LSP4
	Forming a concrete business case with partners	(1) Based on previous experience from the two cases (countries and a global fast-food chain) "Sometimes it feels almost like we are the bank [...] as small road hauliers have maybe 10 days, 20 days [payment terms], while the largest customers have 90 days plus sometimes, and we are the one in the middle." "SMEs tend to prefer full-service solutions, in search of simplicity and visibility, whereas large firms are more specific about the services they demand"	"What we want before going to a client is a more concrete business case. What's the benefit for us, and what can we give to our customers with inventory finance?"		"We are already thinking about it for a long time, and have already talked about it with customers. The customers are interested but would like to see a more concrete business case"
Training	Employee education		(1) The LSP carried out a training session on SCF with experts in 2016, addressed to those employees (at different levels) that would eventually be involved in the SCF service The LSP took part in a 2-years research project on the role of LSPs in SCF	"If we want to make inventory financing scalable, we have to train people"	
	Access to innovative content through research partners	(1) DB Schenker was part of a research project on SCF and access through the German head office			

Table A2.

Reproduced with permission of copyright owner. Further reproduction prohibited without permission.