Impediments to the Adoption of Reverse Factoring for Logistics Service Providers

Christiaan A.J. de Goeij, Alexander T.C. Onstein and Michiel A. Steeman

Abstract In this chapter we discuss the main impediments to the adoption of reverse factoring (RF) by suppliers in the logistics services business. Although the usage of RF is ascending, empirical evidence on RF and its implementation, especially from the point of view of suppliers, is scarce. The project reported in this chapter provides in-depth insights from seven case studies based on 20 interviews. Employees representing different departments within seven logistics service providers (LSPs) were interviewed. Interviews were also conducted with shippers, financial service providers, industry associations and university experts. The LSPs included in our research are mainly SMEs. Our results show that the main impediments to adopting RF for LSPs result from a lack of knowledge of RF, obstacles related to the collaboration with buyers and inefficiencies in the payment process. This article clarifies the practical implications of adoption of RF for LSPs and suppliers in general. Our results show that LSPs need to improve their knowledge of RF and the quality and efficiency of their invoicing processes if they are to benefit from RF. Furthermore, this research shows a need to find solutions to lower the cost to buyers of onboarding suppliers, so that they can open up RF to more suppliers—not just those that are most significant strategically.

Keywords Reverse factoring · Supply chain finance · Working capital · Logistics service providers · Case studies

C.A.J. de Goeij (✉) · M.A. Steeman
Windesheim University of Applied Sciences, Zwolle, The Netherlands
e-mail: caj.de.goeij@windesheim.nl

M.A. Steeman
e-mail: ma.steeman@windesheim.nl

A.T.C. Onstein
Amsterdam University of Applied Sciences, Amsterdam, The Netherlands
e-mail: a.t.c.onstein@hva.nl

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1 Introduction

Since the credit crisis, financial institutions have been required to increase their liquid assets. This, in turn, has led to a tightening of lending terms, and financing costs for companies have grown. With liquidity scarcity as a result (Ellingsen and Vlachos 2009), companies have found it difficult to invest in inventories and raw materials. This has affected the performance of individual companies and the entire supply chains they are part of More and Basu (2013).

The credit crisis has encouraged some companies to devise more aggressive strategies for cash management as a way to increase liquidity. Extending supplier payment terms is one example of this practice. Suppliers now have to wait longer to get paid, which results in a demand for capital to maintain adequate cash flow (Hofmann 2009). These new strategies have also affected relationships between buyers and suppliers adversely (More and Basu 2013). Cash tied up in slow-moving receivables creates working capital problems for suppliers (PricewaterhouseCoopers 2009). Furthermore, extended payment terms can negatively affect buyers by increasing their supply risk (Aeppel 2010).

In this environment, supply chain finance (SCF) solutions can provide suppliers with the liquidity they require. This prevents disruption to production lines and optimises total costs within the supply chain, thereby stabilising relationships between buyer and supplier (Hofmann 2013). This chapter focuses on reverse factoring (RF)—the most widely used SCF solution. The research is part of the Dinalog project 'Expedited Payment', which aims to increase participation in RF among Dutch logistics service providers (LSPs) as a solution to cash problems. LSPs in the Netherlands are mostly small to medium-sized enterprises (SMEs) (Panteia 2010). In the Netherlands, LSPs have been hit hard by the credit crisis, especially those that are concerned mainly with transportation (Graydon 2013). Late payments and working capital problems have resulted in more bankruptcies in the sector. We focus on LSPs as suppliers to shippers. We refer throughout this chapter to shippers as buyers of logistic services. RF is not yet widely used by LSPs in the Netherlands. As a starting point for broadening RF among Dutch LSPs, we analyse current impediments to adoption. Our main research question is:

What are the impediments to the adoption of reverse factoring for logistics service providers?

This research question and the answers to this question contribute to filling multiple existing research gaps described in the literature review in Sect. 2. The research question will be examined by means of an exploratory multiple case study. We explain the methodology in Sect. 3. Section 4 presents the impediments that have had an impact on the adoption of RF for LSPs, resulting from our research. Section 5 ends with suggestions for further investigations based on the results and the limitations of this case study.

2 Literature Review

Academic papers on supply chain management (SCM) mostly discuss the flow of goods, materials and information (D'Avanzo et al. 2003; Fellenz et al. 2009; Pfohl and Gomm 2009). Financial flows in supply chains are often neglected (Ceccarello et al. 2002; Fairchild 2005; Fellenz et al. 2009). It is only recently that financial flows have been given proper consideration in academic papers. These papers observe a lack of coordination between financial and physical supply chains (Mentzer et al. 2001; Pfohl and Gomm 2009; Hofmann and Kotzab 2010; Gupta and Dutta 2011). This disparity causes cash to be trapped in the supply chain. Financial institutions and supply chain service providers have introduced many solutions to release this cash, leading to the emergence of the field of SCF (Robinson 2007; Demica 2007; More and Basu 2013). Unlike SCM, finance, or logistics, SCF is a relatively young discipline (Hofmann 2005); this explains why so far it has little empirical foundation (Wuttke et al. 2013a) and lacks clear definitions (Hofmann 2013). Defining the true nature of SCF appears to be challenging, because experts disagree on whether SCF is a discipline, technique, product or program (Templar et al. 2012). Many academic publications mention supply chain finance while actually referring to reverse factoring.

Templar et al. (2012) discern three schools of thought on SCF. In the first, named financial supply chain management, SCF is described broadly, and is considered to cover all activities that can be related to finance in supply chains, from financial processes (transaction processes, data processing, invoice matching etc.) to financing techniques. The second, denoting SCF as supply chain financing, is more narrowly described and concerns the financial instruments that can be used to optimise financial flows in supply chains. Fields that are covered in this school of thought are trade financing, fixed-asset financing, working- capital financing and supplier financing. The third perspective sees SCF as buyer-driven payables solutions, focusing mainly on one SCF instrument: reverse factoring. This instrument forms the basis of the current chapter.

Reverse factoring is an arrangement through which a buyer and its financier offer a supplier credit for the period of the payment term against the credit rating of the buyer (Demica 2007). If the buyer has a high credit rating, the supplier enjoys low short-term financing costs. Often providers of electronic platforms that supply real-time transactional information to all parties concerned partner with financiers (Wuttke et al. 2013a). The buyer sends the approval of the invoice to the platform, which is accessible by all three parties. This approval is a payment guarantee allowing the supplier to receive funds directly from the financier. When the supplier wants to access these receivables, the financier advances a payment with a discount based on the buyer's borrowing rate. This credit allocation uses the buyer's payment guarantee as collateral, leading to a favourable borrowing rate. At the end of the credit period the buyer pays the financier, irrespective of the financial situation of the supplier (Tanrisever et al. 2012). Figure 1 shows the typical steps in RF.

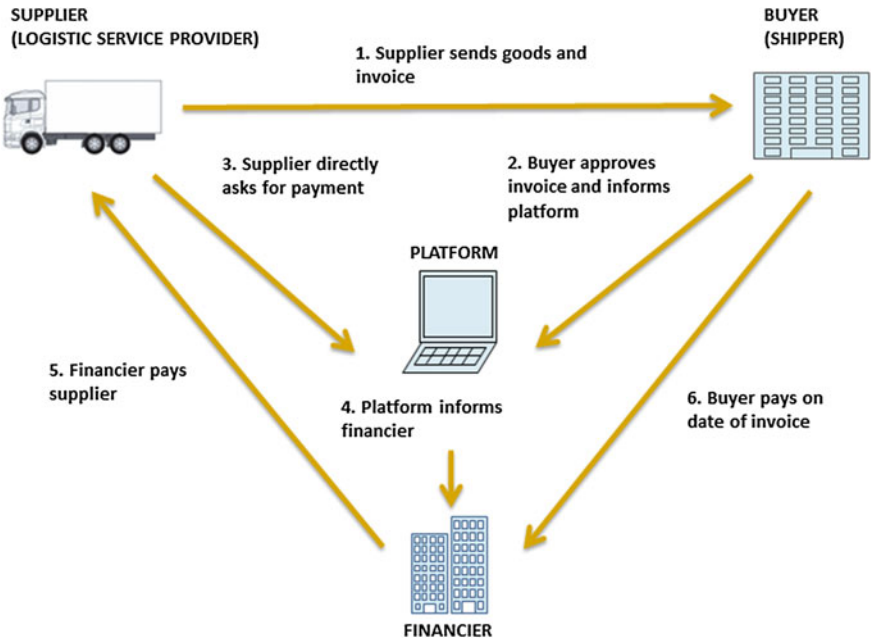

Fig. 1 Explanation of reverse factoring

Suppliers in an RF arrangement gain access to lower financing costs. Suppliers' cash flow also becomes more predictable, because they have more clarity about *when* they can access receivables. By offering financial support to suppliers, buyers can decrease supply risks and stabilise supply chains. For buyers, RF is a way to maintain or extend the payment term, while still leaving net benefits for the supplier. If the buyer extends the payment term, he reduces his need for short-term financing (Tanrisever et al. 2012). Automated transaction platforms can bring down costs for both buyer and supplier. Financiers (usually banks) benefit because they charge a fee amounting to the discount agreed for advance payment. Financiers are also able to create or extend relationships with suppliers without taking on additional risk. They can build a credit history with the supplier that may lead to additional lending (Klapper 2006).

As noted in the introduction, RF is the most commonly used SCF solution, and is common in emerging economies (Klapper 2006). In the last five years, adoption of RF has increased in other economies. Both academic and non-academic publications show a growing number of companies using RF. Philips, Heineken, Unilever, Volvo and Motorola are just a few examples (Seifert and Seifert 2011; Blackman et al. 2013; Steeman 2014).

Recently, a series of case studies on SCF and RF have appeared. Templar et al. (2012) have performed a multiple case study on the adoption of SCF looking at four companies in four different industries. Wuttke et al. (2013a) address adoption of

SCF using a multiple case study on 'the innovation adoption strategy for SCF'. They employ the innovation adoption model proposed by Rogers (2003) that states there is an initiation phase before every implementation phase in innovation adoption. More and Basu (2013) and Blackman et al. (2013) both report single case studies. More and Basu (2013) investigate the challenges of SCF by examining an Indian firm with global operations. Blackman et al. (2013) are not researching SCF instruments as such, but aim to 'explore the concept of financial supply chain strategy in a global business environment' by completing a detailed case study of Motorola. All of these case studies are written from the perspective of the buyer. Many other academic papers on SCF and RF take the perspective of the supply chain as a whole but do not explicitly consider the perspective of the supplier. This paper focuses on the supplier in the adoption of RF, and therefore contributes to closing that research gap. While most academic papers on SCF and RF mention suppliers, they do not specify whether these suppliers are materials or parts suppliers, LSPs or other service providers. Until now, segmentation of supplier types in academic papers has mostly been based on differences in creditworthiness, the purchasing volume they represent to their buyers, and their strategic relevance to buyers (Wuttke et al. 2013a, b).

We focus explicitly on LSPs as suppliers in RF. Few authors consider LSPs in relation to SCF. Hofmann (2005) sees new responsibilities emerging at the intersection of finance and supply chain management, not only for financial service providers, but also for logistics service providers. These concern inventory financing. Hameri and Hintsa (2009) and Hofmann (2009) also conclude that LSPs can increase their service provision in the field of inventory financing. However, there are hitherto no academic papers dealing with LSPs as suppliers in RF arrangements. This is another literature gap we will contribute to closing.

Academic and non-academic literature shows that four types of impediments are most prevalent in the adoption of RF. These impediments are based on papers that do not explicitly focus on LSPs in RF schemes. We use literature on suppliers in general (without specifying whether these are materials or parts suppliers or service providers), supported by insights into the adoption of SCF from the point of view of the buyer. All the categories and subcategories of impediments are depicted in Table 1, and function as propositions in our research. In Sect. 4 we ascertain

Table 1 Categories and subcategories of impediments in the literature

Lack of knowledge	Unfamiliarity with RF
	Lack of skilled personnel and training on RF
Payment process	Poor visibility
	Lack of standardisation in exchange of invoices
	Mistakes in invoices
	Disputes
Inter-firm collaboration	Ease of substitution
	Business volume of supplier
Intra-firm collaboration	Lack of coordination between departments

whether the impediments in Table 1 also apply specifically to LSPs. In the remaining part of the literature review we describe each impediment in further detail.

2.1 Lack of Knowledge

There is a lack of general awareness about SCF programs like reverse factoring, which negatively affects their adoption (Hofmann and Belin 2011). There is a significant lack of knowledge regarding regulations and legal mechanisms (M3 Consultancy and Zanders 2014) and automated digital payment systems (Fellenz et al. 2009). Companies providing external legal or accounting assistance are generally also unfamiliar with RF. Research by M3 Consultancy and Zanders (2014) shows that the underlying reasons for this ignorance are attributable to the fact that the concept is new and to a general lack of existing standards concerning RF.

This lack of knowledge causes fewer companies to consider adopting RF seriously. This is exemplified by the relationship between the supplier and the bank in RF constructions. RF is generally arranged with the bank of the buyer. Wuttke et al. (2013a, p. 158) report on suppliers that anticipate "…a catch to SCF, as they did not trust an external bank they are not currently doing business with". This shows that, for suppliers, it is unclear what the consequences of RF are when buyers enlist a different bank. Lack of skilled personnel and training on SCF tools and techniques within companies adds to the challenges that are faced when considering adoption of SCF (More and Basu 2013).

2.2 Payment Process

For RF, fast approval of invoices by buyers is important, so that suppliers can be financed quickly for the payment guarantee. A lack of standardisation in the exchange of invoices is often one reason why approval of invoices takes a long time. According to Fellenz et al. (2009) major delays occur when buyers and suppliers do not use the same payment systems. Many companies use paper-based manual processes that make administration less visible (Fairchild 2005; Aberdeen 2006). Companies often struggle to accept electronic invoices even though they offer speed, transparency and cost savings (Berez and Sheth 2007). A lack of automation along with poor visibility leads to difficulties for SCF providers in employing third-party financing programs like RF (More and Basu 2013). Mistakes, which can be the result of a lack of standardisation in exchange of invoices, are also a major cause of slow payments. Such errors, along with a lack of standardisation in invoice exchange and poor visibility, increase the chances of disputes between

buyer and supplier. And disputes further increase the time it takes to approve invoices (Fellenz et al. 2009).

2.3 *Inter-firm Collaboration*

Hofmann (2013) presents an overview of the literature concerning SCF and states that, in the majority of papers, inter-firm collaboration is an important factor. RF is a way for buyers to decrease supply risk, optimise financing costs, and at the same time support their suppliers financially. However, for buyers, collaboration with certain suppliers is more important than with others. M3 Consultancy and Zanders (2014) state that because of a lack of standardisation, the onboarding costs of RF are still quite high for all parties involved. Onboarding costs are related mainly to changes in the administrative process that have to be implemented. These costs could influence a buyer when choosing suppliers for RF. For financiers, the cost of onboarding is fixed for every supplier. The higher the purchasing volume a supplier represents, the more attractive it is for buyers and financiers to include this supplier in an RF arrangement. Most buyers that already use RF have a strict threshold for the purchasing volume a supplier needs to represent, ranging from one to five million euros. In The Netherlands, this is the major reason why very few SMEs participate in RF (M3 Consultancy and Zanders 2014). Furthermore, to decrease supply risk, a buyer looks at the strategic value of a supplier's products or services. If there are many companies that can easily replace a supplier, supply risk is lower than when the supplier is one of a kind. A unique supplier has a better chance of being included in RF schemes (Steeman et al. 2014).

2.4 *Intra-firm Collaboration*

In academic papers, a lack of intra-firm collaboration is recognised as a clear impediment to the adoption of SCF. Adoption of SCF by buyers requires cross-functional collaboration between finance, procurement and logistics departments within companies (Stefansson and Russell 2008; More and Basu 2013; Wuttke et al. 2013a). Stefansson and Russell (2008) state that cross-functional collaboration is needed because the finance experts are in the finance department, while contact with suppliers is managed by the procurement and logistics departments. Financial managers can make decisions that constrain operational managers and vice versa (Protopappa-Sieke and Seifert 2010), as finance and SCM departments 'do not speak each other's language' (Timme and Williams-Timme 2000). So far, we are not aware of academic papers dealing with the adoption of SCF for suppliers, while, arguably, suppliers should also introduce cross-functional collaboration. However, such a collaboration might concern different departments, as suppliers would involve sales instead of procurement.

3 Research Method

In order to understand the impediments that exist for LSPs in adopting RF, we carried out an exploratory research in the form of a multiple case study to contribute to filling in a number of research gaps. We checked for construct validity, internal validity, external validity and reliability, following (Yin 2009; Baxter and Jack 2008; Gibbert et al. 2008).

3.1 Case Selection

Seven LSPs from the 'Expedited Payment' project were selected as cases for this research. To enhance external validity we ascertained whether the cases were representative for LSPs in the Netherlands. Case demographics can be seen in Appendix 2. Size is an important factor to consider, as research shows size is related to purchase volume and ease of substitution (M3 Consultancy and Zanders (2014). According to research by Panteia (2010), 99.5 % of Dutch LSPs are SMEs. Six out of seven LSPs in our research are SMEs. The remaining case is the only large company, serving as a polar type, as suggested by Eisenhardt (1989). Along with size, the primary activities a company performs are important as our literature review shows that these affect ease of substitution. Five of the seven LSPs offer transportation and storage as their main products; the other two LSPs are forwarders. To further increase external validity, we carried out three interviews with domain experts from an LSP industry association representing more than 6000 members.

3.2 Data Collection

20 semi-structured interviews were conducted to collect data. Interview questions addressed the impediments that the literature describes, but were sufficiently open to elicit new findings. Of the 20 interviews, nine were conducted with seven LSPs. In the case of one of the LSPs, only the director was interviewed. In the case of four LSPs, a number of employees from different departments took part in a combined interview. Employees from different departments were interviewed separately in the other two LSPs. Following the interviews, transcripts and conclusions were checked by the LSPs for truthfulness and completeness. Data triangulation was achieved by carrying out interviews with shippers and financial service providers, which constitute additional relevant parties next to suppliers in RF arrangements. Furthermore, interviews were conducted with industry associations of both LSPs and shippers, and a university expert with experience in adopting RF in a company. This improved the construct validity of our research (Yin 2009). The interviews

were conducted with the help of students from the Amsterdam University of Applied Sciences.

Reverse factoring is multi-disciplinary. That is the reason why a number of people with different functions in a given company were interviewed. For most of the smaller SMEs, one person at director level was interviewed, and one employee dealing with accounts receivable. In the largest of the six SMEs, a CFO and one of their departmental employees were interviewed. The interviews with the large LSP involved the financial director and head of corporate social responsibility. More detailed information about interviews and case demographics can be found in Appendices 1 and 2.

3.3 Coding and Data Analysis

All interviews were fully recorded and transcribed to create a rich database and to improve reliability. Transcripts of the interviews were coded. We used five code categories, which were the four impediments from the literature review and one extra category for 'other impediments'. We completed axial coding by making subcategories within these categories. For internal validity we matched patterns among cases. Our strategy for coding, as suggested by Baxter and Jack (2008), was first to allow several researchers to code the data independently. We then met to come to a consensus on categories and groups. The categories and their subcategories are listed in Table 2.

Analysis of results followed the codes. Initial results were reviewed by the researchers and their peers, and participants in the case studies. These persons were all members of the project 'Expedited Payment', thus reducing the likelihood of

Table 2 Categories and subcategories of impediments in our research

Lack of knowledge	Unfamiliarity with RF
	Lack of skilled personnel and training on RF
Payment process	Complicated pricing structure[a]
	International transportation documentation[a]
	Multiple types of invoices[a]
	Lack of standardisation in exchange of invoices
	Poor visibility
	Mistakes in invoices
	Disputes
Inter-firm collaboration	Ease of substitution
	Business volume of supplier
	Lack of trust[a]
Intra-firm collaboration	Collaboration sales and employees handling invoicing[a]

[a]Impediments which are found in our research, but not in the literature

false reporting (Yin 2009). Alternative explanations were sought and considered before we arrived at our final conclusions. In this paper, confidentiality and anonymity of participants are ensured to prevent dissemination of sensitive financial information. Names of companies and organisations are not mentioned in this paper.

4 Results and Analysis

This section elaborates on all categories and sub-categories of impediments to the adoption of RF found in our research. It concludes with Table 2, which is an appraisal of the impediments from literature, that function as propositions in Table 1.

4.1 Lack of Knowledge

None of the seven LSPs is currently involved in a reverse factoring scheme. Before the interviews, only a few of the respondents knew what RF was. Only one out of the seven LSPs, i.e. the large enterprise, had a customer who had discussed the possibility of establishing an RF scheme. However, both this LSP and its customer were still at the stage of investigating the possibilities of RF. This means that no opportunity for RF training for employees could be said to exist within any of the seven LSPs.

The LSP industry association confirmed that knowledge of RF is rare among its members, especially for personnel below director level. In particular, there is a lack of knowledge in LSPs about the degree and the nature of information that needs to be shared in an RF scheme. In an RF arrangement information that is not relevant to the specific transaction between buyer and supplier need not be shared. However, LSPs are concerned about sharing detailed information on returns, pricing structure and financial situation. They are worried that a shipper might cease trading with them if, via an RF scheme, they could compare LSPs more easily. The interviews also show that LSPs do not have a clear idea of the type and the duration of contracts that need to be signed for RF. Furthermore, LSPs are uncertain as to whether entering into RF agreements with the shipper's bank would have any consequences for the relationship with their own bank.

4.2 Payment Process

Quick approval of invoices is a key element in Reverse Factoring. However, this quick approval is difficult when invoices are complicated. The pricing structure of invoices that LSPs send to shippers can be complex. LSPs must consider many

factors when invoicing. There is, for example, always the question of how and by whom the waiting time for truck drivers, fuel and tolls should be paid. When shipping a container that is less-then-container-load, the value of the goods inside can be determined in many different ways, e.g., by weight or by cubic meter. These are all examples of matters that make invoicing more complicated, thereby increasing the chance of mistakes. When such factors are not elucidated in contracts, which is often the case, invoices are open to dispute.

The payment process becomes more complicated when goods are shipped across borders. A CMR waybill is needed in this case, which is a proof-of-delivery document that must be signed directly after shipment of goods. A shipper (being the buyer) will generally receive a copy of the waybill. European law prevents this waybill being signed digitally. When payment takes place after 30, 60 or 90 days, shippers sometimes delay payment even further on the pretext that they need the original waybill before they can proceed with the payment.

The interviews revealed that LSPs use many different types of invoices. Some customers demand an invoice for every single order. However, LSPs frequently complete many 'small jobs' comprising different orders from one specific customer. Sometimes customers demand LSPs to send an invoice every 7, 14, or even 30 days, with all orders being charged at once. If work is done at the beginning of any 7, 14, or 30-day period, the LSP needs to wait almost the full period before even starting the billing process, let alone to be paid. Additionally, such a range of invoices introduces yet more complexity to business, thus increasing the likelihood of mistakes and disputes in the payment process.

Interviews with both LSPs and shippers make it clear that a lack of standardisation in the exchange of invoices is a major reason for more days of sales outstanding. Many invoices are still sent by post. If invoicing is done digitally, LSPs and shippers often struggle with incompatible payment systems. LSPs usually send a PDF or Excel file via e-mail. When the shipper receives the invoice, they must convert the PDF or Excel file into another format, which can be time consuming. E-invoicing, where a shipper and an LSP share a payment system and receive real-time information about transactions, is not in use among the companies interviewed.

The majority of LSPs have several employees, in different departments, each responsible for one specific part of the invoicing process. This can result in a lack of visibility, making it difficult to determine what the status of an invoice is, and causing delays in completing the process.

Mistakes in invoices are a reason for more days of sales outstanding. The interviews showed that a complicated pricing structure, international transportation documents, different types of invoices, lack of standardisation in exchange of invoices and lack of visibility in the payment process can increase the chance of making mistakes.

These mistakes increase the likelihood of the LSP and the shipper entering into disputes. The majority of the LSPs interviewed did not have any method for resolving disputes, which often causes further delays in payment.

4.3 Inter-firm Collaboration

The vast majority of the companies interviewed said that the shipper (i.e. the addressee) was the dominant company in the supply chain. As mentioned earlier, only one of the seven LSPs had a customer that discussed the possibility of joining an RF program with them. This was the largest of the seven LSPs in terms of the amount of purchasing volume it represented to shippers. RF programs with purchasing volume limits above one million euros excluded the vast majority of LSPs.

LSPs state that they operate in a very competitive market with low margins, where shippers are dominant. Shippers and industry associations of both shippers and LSPs agree on this observation, and add that LSPs are easy to substitute, especially where a company's services are limited to transportation and storage. Because of the limited supply risk for shippers, these LSPs are not the first companies that come to mind for inclusion in an RF program.

LSPs reveal a lack of trust towards dominant shippers that control purchasing conditions on which LSPs have little influence. According to these LSPs, such shippers frequently use their power to manipulate the payment process. Since LSPs show low levels of trust towards shippers, they are less disposed towards buyer-driven programs like RF. They generally believe the shipper has a better negotiation position for RF, and therefore that shippers benefit more in a business arrangement by using RF to extend payment terms. As mentioned earlier, LSPs are unaware of the information that must be shared for RF. They are worried shippers will use this information in a way that would be disadvantageous to them. Some LSPs fear that dependency on a specific shipper might increase if they were involved in an RF program.

4.4 Intra-firm Collaboration

The LSPs that were interviewed do not report a lack of collaboration between departments. The literature about intra-firm collaboration as an impediment to RF refers to the internal structures of big buyers. Our research concerns mostly SME suppliers, where finance departments typically consist of up to five people that are located in the same room along with other departments. Collaboration problems between operational and finance departments therefore differ from those described in the literature review. LSPs in our research frequently mention a lack of cooperation between sales staff and invoicing departments as one of their greatest operational impediments. Sales staff at LSPs are concerned with closing deals. They can discuss the conditions under which the transaction takes place but are not responsible for the invoicing process that follows. When there are disputes with customers concerning invoices, the finance, administration or planning departments

are responsible. According to many of our respondents, sales staff should play a greater role here, as they are more aware of the history of a client relationship and the specific agreements that are made. In this way invoices can be approved earlier by buyers.

This research considered a series of impediments to the adoption of reverse factoring described in the literature. The four main categories in Table 2 are the same as those in Table 1. Since these categories were already broad there was no need to add a fifth category in Table 2. As mentioned earlier, the series of impediments described in the literature is not based specifically on the supplier/LSP point of view. However, our results show they provide a good basis for determining the impediments to RF in general. Additions from our research are based mainly on sector-specific problems. When it comes to the payment process, our research shows complicated pricing structures, international transportation documentation and multiple types of invoices are particularly relevant for LSPs . A lack of trust in collaboration is found in supply chains with an unequal power distribution between companies. An unequal power distribution is prevalent in the transport sector, where companies are easy to replace. The category of intra-firm collaboration did not appear to be a main impediment in our research. This can be explained by the fact that we consider SMEs predominantly, where different departments are small and often located in the same room. The existing literature deals with larger companies, where the dynamics between departments differ.

5 Conclusions

This paper contributes to academic research carried out on reverse factoring. It takes the perspective of LSPs as suppliers. While most research on RF, and SCF in general, is rather conceptual in nature, we provide empirical data that give in-depth insights. By building on recent studies like those of Wuttke et al. (2013a) and More and Basu (2013), we were able to offer further findings on the adoption of SCF solutions. These are relevant not only to academia, but also to practitioners.

In Sect. 4 we explained that the new impediments found in our research relate mainly to LSPs. However, we have uncovered other impediments that are applicable to other types of suppliers, like a general lack of trust and failure of sales persons and employees handling invoicing to collaborate. In any buyer-supplier relationship where the power is in the hands of the buyer, and where the buyer seems to take advantage of this, suppliers may not trust buyer-led initiatives like RF. Better communication between sales persons and employees handling invoices could be relevant to any supplier. With greater efficiency in the payment process, invoice approval happens more quickly; this is a key element in RF.

Currently, the most significant impediments to LSPs and suppliers in general occur as a result of dysfunctional inter-firm collaboration. Purchasing volume

thresholds exclude most LSPs from participating in RF schemes. This is the reality faced by many suppliers that only represent a low purchasing volume to a buyer, especially if they can be easily substituted by a competitor. To make it profitable for buyers and financiers to include suppliers that represent a low purchasing volume, solutions must be found that lower the costs of onboarding. According to M3 Consultancy and Zanders (2014), costs are high for buyers and financiers because there is currently no standardisation in the onboarding process. The management of legal affairs and contracts is one element of RF onboarding that is a victim of this problem. More research is needed to devise methods to standardise this onboarding process, thereby reducing costs and making suppliers that represent low purchasing volumes a more profitable proposition for buyers and financiers. Onboarding costs for buyers and financiers show a close relationship to a supplier's knowledge of RF. The more knowledge the supplier has, the less time it takes the buyer and financier to complete onboarding. Education and training programs for suppliers therefore help to bring down onboarding costs. Furthermore, such initiatives might help suppliers to overcome trust issues by offering access to detailed information on the benefits to all parties involved in RF.

Our research shows that LSPs can make substantial improvements to payment processes. Quick approval of invoices by buyers is important for RF, but this is often impeded by the inefficiency of the invoicing process of LSPs. A higher degree of automation in the payment process might increase visibility and decrease mistakes in invoices. Popa (2013) suggests clarifying internal responsibilities by determining who sets and who monitors payments. This is highly recommended for LSPs as a way to make the collection of receivables less time consuming, and facilitate ease of tracing mistakes. This will enable quick resolution of mistakes and identify commonly recurring errors with a view to eliminating them. Furthermore, we recommend clear dispute resolution procedures to save time.

An important limiting factor in our research is that only one of the seven LSPs interviewed had been approached about the use of RF. None of the seven LSPs is already in the implementation phase of adopting RF. Our research results provide useful insights from the supplier's point of view, but not all of the insights apply directly to all suppliers. Most of the companies we researched offer transportation and storage as their core products, which are services that are easy to substitute. Moreover, most companies we interviewed were SMEs representing low purchasing volumes to their buyers. Future research on the adoption of RF for suppliers would benefit from case studies regarding companies in different commercial environments and addressing suppliers that represent bigger purchasing volumes to their buyers.

Appendix 1: Interviews

Type of company/organization	Number of companies/organizations	Number of interviews
Logistics service providers (LSPs)	7	9
Shippers	2	2
Financial service providers	3	4
Industry association LSPs	1	3
Industry association shippers	1	1
Universities	1	1
Total	15	20

Appendix 2: Case Demographics

Cases	A	B	C	D
Main activities	Transportation and storage	Transportation and storage	Transportation and storage	Forwarding
Size	SME—small	SME—small	SME—small	SME—small
Respondent #1	Director/owner	Director/owner	Director/owner	Owner business developer
Respondent #2	Financial assistant	Financial assistant	–	Financial assistant
Respondent #3	–	–	–	–

Cases	E	F	G
Main activities	Forwarding	Transportation and storage	Transportation and storage
Size	SME—medium	SME—medium	Large company
Respondent #1	Managing director	CFO	Financial director
Respondent #2	Head of credit control	Business controller	Head of corporate social responsibility
Respondent #3	Business controller	–	–

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