In this paper we discuss what suppliers can do to get insight into the effects of Reverse Factoring (RF), currently the most used form of Supply Chain Finance (SCF). Even though the usage of RF is increasing, empirical evidence is scarce, especially from the point of view of suppliers. Among suppliers there is a lack of knowledge of RF. We provide in-depth insights from six case studies based on interviews and secondary data. Employees from multiple departments were interviewed. Also buyers and banks were interviewed. The supplier cases included in our research are mainly SMEs. Our results show that increased knowledge of the supplier of RF can help to create a better negotiation position for discussing terms in the RF contract. When getting an offer to join an RF programme a supplier should start with analysing the consequences for cash flow, financing costs, current forms of financing and (long-term) collaboration with the buyer.

Keywords: reverse factoring, supply chain finance, cash flow, financing costs, supplier perspective.
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1. Introduction
Since the recent economic downturn, banks increased their liquid assets. This has led to an increase in the cost of borrowing for companies (Lvashina & Scharfstein, 2010). With liquidity scarcity as an outcome, many firms extended payment terms towards suppliers. These buyers thereby increased financial pressure towards their suppliers.

The credit crisis and the extension of payment terms from buyers towards suppliers resulted in a growing amount of companies looking for alternative financing methods. Supply Chain Finance (SCF) instruments are examples of such alternative financing methods, which gained popularity after the credit crisis. Reverse Factoring (RF) is currently the most used SCF instrument.

The credit crisis and the extension of payment terms from buyers towards suppliers resulted in a growing amount of companies looking for alternative financing methods. Supply Chain Finance (SCF) instruments are examples of such alternative financing methods, which gained popularity after the credit crisis. Reverse Factoring (RF) is currently the most used SCF instrument.

The attention in both the corporate and the academic world for SCF and RF is growing, but there is a lack of attention for the supplier perspective. RF is relatively new, that is why there is a lack of knowledge about the effects, especially among suppliers (De Goeij et al., 2016). RF is mostly portrayed as a win-win situation by buyers and in academic literature. However, recent research shows that extension of payment terms and reduction of purchasing prices are often the most important reasons for buyers to offer suppliers RF (Liebl et al., 2016), and that a win-win situation is not always obvious (Martin & Hofmann, 2016). Especially when the buyer is of strategic importance to the supplier and offers the supplier to participate into an RF programme, the supplier will more likely agree to participate without exactly knowing what the effects will be. This results in the following research question: What can suppliers do to gain insight into the effects of Reverse Factoring?

The research is part of the SIA RAAK-SME project ‘Supply Chain Finance for SMEs’ which looks at post-shipment Supply Chain Finance instruments from the perspective of suppliers, especially the suppliers that are small and medium sized. The goal of the paper is twofold. We want to provide an insights into the results of the first year of the project, but also want to give an indication of the most important topics to focus on in the second year of the project. This paper contributes to filling multiple existing research gaps described in the literature review in Section 2. The research question is examined by means of an exploratory multiple case study. We explain the methodology in Section 3. Section 4 provides the results of the case study. Section 5 concludes with suggestions for further research based on the results and limitations of this research.

2. Literature Review
Supply Chain Management (SCM) literature has traditionally focused mainly on flows of goods and information (Pfohl & Gomm, 2009). Only recently the flow of finance is gaining attention in SCM (Pfohl & Gomm, 2009; Hofmann & Kotzab, 2010). Unlike SCM or finance, SCF is a young discipline (Hofmann, 2005). This explains why so far there is little empirical foundation (Wuttke et al., 2013) and clear definitions are lacking (Hofmann, 2013; Gelsomino, 2016).

Templar et al. (2012) discern three schools of thought on SCF. In the first, SCF is broadly described as the management of the financial flows in the supply chain and includes financial processes (i.e. transaction processes, data processing and invoice matching) and supply chain financing techniques. The second is more narrowly described and concerns financial instruments which optimize financial flows in supply chains. Included in this school of thought are trade financing, fixed asset financing, working capital financing and supplier financing. The third school of thought is the most narrow and concerns buyer-driven payables solutions, mainly focusing on one SCF instrument: Reverse Factoring. This instrument is discussed in the remainder of this paper.

RF is an arrangement through which a buyer, with the help of its financier, offers a supplier credit against the credit rating of the buyer for the period of the payment term (Demica, 2007). The bigger the difference in creditworthiness between buyer and supplier, the more a supplier will enjoy lower short-term financing costs. Real-time information about transactions in the RF arrangement is provided by electronic platforms (Wuttke et al., 2013). After approving the invoice the buyer sends the approval to the platform so that it becomes accessible by all three parties. The approval of the invoice is a payment guarantee, which allows a supplier to receive funds from the financier. The financier is usually a bank. The supplier can access the receivables, after paying a discount rate to the financier. The discount rate is based on the creditworthiness of the buyer. The buyer’s payment guarantee is used as collateral, leading to a favourable borrowing rate. At the end of the payment term the buyer pays its financier (Tanrisever et al., 2012). Figure 1 shows the typical steps in RF.
The buyer can be return-oriented or risk-oriented when offering an RF programme (Van der Vliet et al., 2013). With a return-oriented strategy buyers extend payment terms to get cash flow benefits and use RF so that their suppliers can still access their receivables early. Also buyers can use RF to reduce purchasing prices (Liebl et al., 2016). With a risk-oriented strategy a buyer aims to benefit indirectly and improvement of the relationship with the supplier is the most important reason to do RF. Usually buyers with a lot of bargaining power are return-oriented and buyers with little bargaining power are risk-oriented. Participation in an RF programme can offer a supplier cashflow benefits and cheaper financing costs. Furthermore the invoicing process can be simplified (Liebl et al., 2016). RF is buyer-driven and therefore always done with the bank of the buyer. Banks can access all the suppliers in the RF-programmes of the buyers. RF allows banks to build a credit history with these suppliers and therefore it provides them with cross-selling opportunities (Klapper, 2006).

RF was already used at the beginning of the 21st century in emerging economies (Klapper, 2006). In the last 10 years it is also gaining popularity in western economies. Procter & Gamble, Volvo, Scania, Caterpillar, Unilever, Heineken, Walmart and Philips are all examples of companies who adopted RF or similar instruments (Aeppel, 2010; Seifert & Seifert, 2011; Steeman, 2014; Lekkakos & Serrano, 2016). Some of these companies have a return-oriented strategy like Procter & Gamble (Ng, 2013), others have a risk oriented strategy like Caterpillar (Aeppel, 2010; Lekkakos & Serrano, 2016).

Recently, the amount of academic articles about SCF and RF is growing. Lots of these papers are rather conceptual in nature, while there is a need for empirical data. The articles on SCF in general, and especially the articles based on empirical data, usually take the perspective of the buyer. Examples are Wuttke et al. (2013) who address adoption of SCF using a multiple case study, More & Basu (2013) who investigate the challenges of SCF investigating an Indian firm and Blackman et al. (2013) who aim to ‘explore the concept of financial supply chain strategy in a global business environment’ by doing a single case study at Motorola.

Only recently attention for the supplier perspective is growing. Van der Vliet et al. (2015) study the supplier’s trade-off between lower cost of financing and payment term extension in RF programmes. Liebl et al. (2016) look at objectives, antecedents and implementation barriers for RF and also take the supplier perspective into account. Lekkakos & Serrano (2016) study the impact of RF programmes on suppliers’ operational decisions and performance. Our research is comparable to these articles in the sense that we also take the supplier perspective.

A key difference between our paper and the recently published papers about RF is the focus on the supplier’s knowledge about the instrument. A lack of knowledge of suppliers of RF is one of the major problems for adoption (De Goeij et al., 2016). The integration of suppliers can be particularly sophisticated and time consuming for buyers (Liebl et al., 2016). A lack of knowledge from suppliers can increase costs for every party involved by making the process more time consuming. RF is often portrayed as a win-win situation by buyers and in academic articles. In the research of Liebl et al. (2016) all of the interviewed buyers mention payment term extension as the most important reason to do RF. Besides that some of the buyers they interviewed mentioned they use RF as negotiation lever to decrease purchasing prices towards suppliers. Because of this, the win-win situation is not always obvious. Suppliers with limited knowledge of RF might agree to participate into RF programmes of their buyers without exactly knowing what the effects will be for them, especially when the buyer is of strategic importance. Therefore, it is crucial these suppliers get insight into the effects of RF.

3. Methods

We used a multiple case study approach. Research in the field of RF is in the exploratory stage. Existing knowledge about the supplier side in RF is scarce. Using a case study method is a good way to deal with doing research in a field wherein the theoretical foundation is not strong yet (Edmondson & McManus, 2007). Six companies in the SIA RAAK-SME project were selected as cases. Five out of these six companies are small and medium sized enterprises (SMEs). The sixth company is large, serving as a polar type, as suggested by Eisenhardt (1989).

We conducted semi-structured interviews to collect data. Semi-structured interviews suit our research, because it provides us with the flexibility needed to explore a subject that does not have a strong theoretical foundation yet (Da Mota Pedrosa et al., 2012). Triangulation was achieved in three different ways. First of all for every case employees from different departments were interviewed. Since SCF is cross-functional not only financial managers but also operations managers and sales managers were interviewed. Besides that, we
interviewed banks and other financial service providers for additional insights. And lastly, next to interviews we collected many other types of secondary data. For example we used sales presentations by banks, contracts between buyers and suppliers, contracts between suppliers and banks, contracts between suppliers and credit insurers, information coming from e-mail communication between suppliers, buyers and banks, internal financial reports and invoicing data. Students and researchers from five different universities of applied sciences helped to conduct the interviews and collect the secondary data.

After collection of the data we started with open coding. Our strategy for coding was first to allow the involved researchers from the different participating universities of applied sciences to code the data independently, as suggested by Baxter and Jack (2008). All the involved researchers have then met to come to a consensus on categories and groups. We then matched patterns among cases. In this phase both interview reports and secondary data were used. The first results were reviewed by researchers and other participants in the SIA RAAK-SME project, thus decreasing the likelihood of false reporting (Yin, 2009).

4. Results
The cases in this research clearly show the importance of suppliers having knowledge of RF. The suppliers who were able to see the actual consequences of adoption of RF were able to create a better negotiation position towards the buyer. This resulted in adaptations in the buyer’s offer in favour of the supplier. The buyers were not always aware of the actual consequences of their own offers for their suppliers. In one case a buyer assumed his offer would be a win-win situation in terms of cashflow, while if the supplier accepted the offer this would actually have a negative impact on his cashflow. If a supplier can show these effects towards his buyer, the buyer might give him an improved offer. When receiving an offer to join an RF programme, a supplier should start with analysing four different aspects:
• the impact on cashflow
• the impact on financing costs
• the impact on the current forms of financing
• the impact on the collaboration with the buyer.

Cashflow
In theory, RF is usually portrayed as a way to improve the cashflow position of suppliers. Whether suppliers can really improve their cashflow position depends on how early accounts receivables are collected. In two of the cases suppliers already had a factoring programme in place. In comparison to RF, factoring provided them with a lot of flexibility regarding cashflow. The factoring programme made these suppliers able to collect receivables already after one day. Invoice approval of the buyer is not needed to collect those receivables. Even though with factoring they collected only 90% of the invoice value immediately and 10% at the end of the payment term, the factoring agreement was still favourable in terms of cashflow projection.

Fast approval of the invoice by the buyer is crucial if the suppliers want to have cashflow benefits in an RF programme. In one of the cases the sales volume towards the buyer was so large that a difference between approval in 5 or 10 days already had major effects on the supplier’s cashflow, especially because this supplier was used to getting 90% of the invoice value after one day. A company needs to have enough bank credit to finance these extra days until the approval of the invoice and foresee the effects on credit risk insurance. In this case, after the supplier mapped out the effects on cashflow, he started renegotiating the buyer’s approval period. It is important for suppliers to get a guarantee of approval within a certain period, and to include this in the RF contract.

Financing costs
Multiple suppliers found it challenging to assess the impact of RF on financing costs. A supplier needs to carefully investigate the consequences for the cost of capital. He can do this by using the following formula: interest rate • duration • volume.

There were suppliers who initially did not see the real effect of the discount rate in the RF agreement. This discount rate is a percentage of the invoice. It’s important to recalculate this discount rate to yearly interest rates. With a recalculation it’s easier to make a comparison of the real costs. For some suppliers the discount rate proposed was 1% or 2%, which they thought was a reasonable rate. When this was recalculated to a yearly interest rate there were rates found between 10 and 15%. This was actually more expensive in comparison to bank credit.

When analysing the impact of RF on financing costs it’s important to pay attention to the payment term, which usually is extended when the buyer offers RF. As a supplier it’s important to realize which forms of financing you use for the period of the payment term. For RF you need two forms of financing because you have a period before the invoice is approved and a period in between approval of the invoice and actual payment. RF starts only after approval of the invoice. A supplier needs to think about both forms of financing when he wants to know his actual financing costs. This is also true for the supplier’s current form of financing, which can also exist out of multiple periods. For example with factoring, the first days are usually financed with bank credit. After that a certain percentage of the invoice will be financed with factoring and the rest (usually 10%) will still be financed with bank credit. If a supplier wants to make a good comparison of financing costs not only the yearly interest rates, but also the duration of the usage of diverse financing forms, needed to finance the period of the payment term, matter.
If the supplier is aware of the real impact it is important to communicate this to the buyer, to also create awareness on the buyer side. Awareness of the buyer might increase his willingness to make a better offer to his supplier.

**Current forms of financing**

Important to consider for suppliers is what effect RF will have on their current financing structure. The interest rate for the current financing form is based on the risk profile of the supplier’s customer portfolio. Within our research the customers who offered RF to their suppliers were creditworthy customers who are large in terms of sales volume they represented for their suppliers. When such a customer is removed from the portfolio the risk profile will change, which can have major consequences in terms of interest rate.

For one of the suppliers the relationship with their own bank was the most important matter in deciding on whether or not to accept the buyer’s offer. The relationship of suppliers with their own bank is crucial for the long-term perspective of the organization. For this supplier, a large and creditworthy customer was removed from the portfolio which could have a huge impact on the risk profile. However, their own bank knew about the strategic importance of this customer and the benefits of RF in terms of collaboration with the buyer. Joining the RF programme increases the chance of having a long-term business relationship between this supplier and its buyer. Because they also noticed the positive influence which this RF programme can have for the supplier, they did not change the risk profile. However, we don’t know yet what the effect will be on the relationship with their own bank in the long-term.

**Buyer-supplier collaboration**

To know the consequences of RF, also the impact of the collaboration with the buyer should be considered. Especially, being a small supplier with a large buyer, a good relationship with this buyer is beneficial. Participating in an RF programme might help in getting a long-term contract. For the buyer the opportunity costs for changing suppliers will increase. In this way it can create lock-in effects in the relation. However, if more competing suppliers are able to join the RF programme and the onboarding costs decline, this argument will be less valid.

Besides that, suppliers are afraid that not participating in an RF programme can have negative consequences for the long-term relationship. Therefore, if an RF programme has negative financial consequences the effects on collaboration can still make a supplier decide to accept the buyer’s offer.

**Other aspects**

The results show there are many factors which influence the benefits of RF and also many factors that can change these benefits over time. Before signing a contract suppliers need to think about terms. Benefits of RF can change if the creditworthiness of the buyer changes or when a supplier needs to renegotiate terms with his own bank. Therefore, a supplier needs to know if there is an escape route. He needs to know if he can step out of the RF contract, and if so, under which conditions. The supplier for example needs to know which payment term he will get after stepping out. Also when signing an RF contract, a supplier needs a guarantee of approval within a certain period.

Another aspect to consider is the investments suppliers need to make to adopt RF (i.e. IT investments). Especially for SMEs these investments can be relatively costly. Therefore, it is good to look at the time it takes to earn back these investments.

We also had suppliers in the project which did not have an actual offer of a buyer to join an RF programme. These suppliers wanted to see if RF could provide them with benefits in terms of cash flow and lower financing costs, and if so, if they could convince a buyer to offer RF to them. We learned that for these suppliers it sometimes makes more sense to look at the potential of efficient invoicing than at the potential of RF. Improvements in invoicing make the period between the sending of the goods and the approval of the invoice shorter, unlike RF, which comes in place after the approval of the invoice. For multiple suppliers, in terms of cash flow and financing costs, the potential of invoicing improvement is bigger than the potential of RF.

For some of the suppliers the time between delivering a good and sending the invoice is long. For most of the suppliers the time between sending the invoice and the buyer’s approval of the invoice is even longer. The reasons could be inefficiencies in the supplier’s order-to-cash (O2C) process and in the buyer’s purchase-to-pay (P2P) process. For multiple suppliers there were a major amount of entry and system mistakes during invoicing. The physical flow of goods was not always linked well to the administrative flow of finance. If suppliers make mistakes in invoices, this can result in disputes between buyer and supplier which may lead to even more delay in payment.

What also caught our attention was that the suppliers all had buyers who often did not live up to agreed payment terms. Most of the times these were large buyers who represent a large sales volume for suppliers. Therefore, there is a big financial impact for the supplier. This makes monitoring receivables crucial. RF programmes can be a solution for this problem. With RF, after the approval of the invoice, the risk of late payment is for the financier and not for the supplier anymore.
5. Conclusion

This paper takes the perspective of the supplier in RF, which helps to fill in a major research gap in the field of SCF. We provide empirical data which give in-depth insights, while most SCF research is still rather conceptual. By building on recent studies like that of Van der Vliet et al. (2015), Liebl et al. (2016) and Lekkakos & Serrano (2016) we were able to provide further insights on RF for suppliers.

Our research not only has clear implications for academia, but also for practitioners. In section 4 we mentioned some important possible consequences of accepting an RF offer. When a buyer offers a supplier to participate in an RF programme, a supplier needs to start with analysing the impact on cash flow, financing costs, current forms of financing and collaboration with the buyer. Increased knowledge of suppliers of these consequences can lead to a better negotiation position to discuss terms in the RF contract. This paper also provides useful insights for buyers. Sometimes buyers just assume their offer will be a win-win situation, while actually not seeing some of the possible negative consequences for the supplier. Transparency between the buyer and supplier is important. If the buyer is unaware, the supplier needs to be able to show his buyer what the real consequences of accepting RF are, since this might lead to a better offer.

We showed in this paper that there is not always a win-win situation for RF, unlike often portrayed in academic papers. Besides that, for some of the suppliers the potential of reducing the time between the sending of the goods and the approval of the invoice was bigger than the potential of post-shipment SCF instruments like RF. For suppliers who are interested in RF, but do not have an actual offer to participate in an RF programme yet, it might be more interesting to look into the ways to reduce the time between sending of the goods and the approval of the invoice.

Our paper provides useful insights for suppliers, but not all insights apply directly to all types of suppliers. Six companies were selected as cases. Five out of these six companies are SMEs. If suppliers are larger, they could be more strategic for the buyer, and the buyer might give them a better offer. Therefore, it might be useful to also look at the point of view from large, strategic suppliers in SCF. Furthermore, the research clearly showed that invoicing improvements can have a major effect on both cash flow and financing costs. Future research from the supplier’s perspective might benefit from looking at a bigger part of the order-to-cash process: it should not only take the period between approval and payment of the invoice into account, but also the period between the sending of the goods and approval of the invoice.

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