Selecting financial service providers for supply chains: How cross-functional collaboration can improve effectiveness and efficiency

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Abstract

Supply chain finance solutions aim at win-win situations for all supply chain partners. They simultaneously address collaborative working capital improvements, supply chain cooperation as well as risk mitigation. To achieve a fit with these objectives the paper derives an iterative three-step decision process for configuring supply chain finance solutions: Define and configure, design and decide. The design step is further subdivided in selecting internal and external supply chain partners. In addition, the contribution of cross-functional collaboration on the efficiency and effectiveness of this decision process is studied. Thereby, the paper contributes to the newly evolving field of supply chain finance.

Keywords: Supply chain finance, financial service providers, cross-functional collaboration

Introduction

Financial flows run parallel to information and physical flows in supply chains. Globally spread supplier and customer markets require sufficient funding in the buyer-supplier relationship to finance the increase in funds tied up in physical flows. Sourcing materials or selling products in emerging markets can result in liquidity risks for entire supply chains (Chen et al., 2013). For instance, in case a company decides to source in emerging markets to reduce procurement costs, sufficient funding has to be available in order to finance the increase in working capital. In addition, suppliers from emerging markets often receive only expensive funding and have less cash available resulting in liquidity risks for the entire supply chain (Chen et al., 2013). However, liquidity risks are not only an issue of emerging markets. As a consequence of the financial crisis in 2008/2009 Europe experienced an increase in bankruptcy rate by more than 9% (Creditreform, 2014). Hence, companies have to ensure sufficient liquidity not only internally but also for their critical suppliers. New supply chain finance solutions – as for instance reverse factoring – try to address these issues in the upstream supply chain (Cavenaghi, 2014). A recent study shows an annual growth rate of around 35% for such
supply chain finance solutions between 2011 and 2013 (Demica, 2014). Besides the raising relevance corporates often face issues when configuring supply chain finance solutions. The objectives addressed with supply chain finance solutions range from working capital reductions, transparency improvements, risk mitigation and supplier collaboration. However, little knowledge exists on the relationship between these objectives when deciding on the configuration of a supply chain finance solution. In particular, the selection of suitable supply chain internal (e.g. suppliers) and external (e.g. banks) partners influences the fit of the solution configuration with the objectives. For instance, should the same suppliers be selected if the main focus is on working capital reduction or risk mitigation?

Current supply chain management literature has long focused on the physical and information supply chain (Fairchild, 2005; Gupta and Dutta, 2011). In recent years, an emergent stream of research on supply chain finance started to address the management of financial supply chains (Hofmann and Kotzab, 2010; Pfohl and Gomm, 2009 and Gomm 2009). However empirical research on supply chain finance is scarce (Wuttke et al., 2013). In particular, the involvement of financial service providers in supply chains is rarely studied (Silvestro and Lustratro, 2014). In contrast to other service providers the selection of financial service providers involves extensive interaction with functions outside of operations and objectives not directly related to the physical or information flows. The alignment of these functions can impede the entire decision process of configuring a supply chain finance solution.

Hence, the overall objective of this paper is to study the decision process on configuring supply chain finance solutions and the contribution of cross-functional collaboration to improve effectiveness and efficiency in this process by answering the following research questions (RQs):

- **RQ 1**: How should supply chain finance solutions be adequately configured to fit with the solution objectives?
- **RQ 2**: How does cross-functional collaboration improve effectiveness and efficiency of this decision process?

The selected methodology to respond to the research questions represents a “conceptual” approach as proposed by Meredith (1993) and Wacker (2008). Multiple, explorative cases were studied to receive profound insight on the presented questions (Yin, 2009; Eisenhardt und Graebner, 2007). Thereby, the paper contributes to the emerging field of supply chain finance.

The present paper is structured as follows: First, we provide an overview of the current state of research on supply chain finance and derive a research framework for our further analysis. Based on this theoretical background the selected case study method is described. Subsequently, the results of the cross-case study analysis are presented and the impact of cross-functional collaboration on the decision process derived. Finally, the theoretical and practical implications of the results are discussed, before all findings are summarized.

**Current state of research and research framework**

In this section we provide an overview of related research in order to derive an understanding on the current state of supply chain finance solutions. The main inputs can be gained from supply chain management and finance literature. However, to structure the process of configuring a supply chain finance solution and develop an initial research framework we also elaborate general management literature. In addition, we discuss literature on knowledge sharing to specify the dimensions of cross-functional collaboration.
Literature on supply chain management has steadily been expanding over the last few decades (Lambert et al., 1998; Bowersox et al., 2003). Thereby, the supply chain incorporates three flows (Blount, 2008). The flow of goods represents the physical supply chain with all corresponding services. The flow of information accompanies the physical flows, e.g. shipment tracking or document flows. Finally, the flow of funds results in the financial supply chain. However, research on supply chain management has mostly focused on physical and information flows while financial flows on the other side were mainly covered in finance literature (Hofmann and Kotzab, 2010). In recent years, an emerging stream of literature focused on the management of these financial flows. Nevertheless, there exists little consensus on one common definition regarding the concept of supply chain finance. Therefore, several conceptual papers emphasize the development of a distinct understanding for supply chain finance (e.g. Hofmann and Kotzab, 2010; Pfohl and Gomm, 2009 and Gomm 2009). Special to supply chain finance is its focus on the integration of financial flows with physical and information flows thereby depending on automated processes. In addition, the concept aims at mutual value added for all supply chain members (Hofmann and Kotzab 2010).

Only few papers comprise empirical data on supply chain finance solutions (e.g. Hofmann, 2009; Wuttke et al., 2013a and Wuttke et al., 2013b). However, these studies are mainly focused on selecting a specific solution and/or the implementation. For instance, Wuttke et al. (2013b) discuss the innovation adoption for the specific case of reverse factoring and derive propositions for the implementation phase. Once decided on a specific solution and prior to the rollout, companies have to decide on the configuration of supply chain finance solutions. This step is especially important to ensure the different elements of a solution are aligned in terms of benefits, costs and risks. We want to contribute to supply chain finance literature by focussing on this specific step.

The process of configuring supply chain finance solutions includes the selection of internal and external supply chain partners. The selection of internal partners is dependent on the buyer-supplier relationship. Tangpong et al. (2015) provide an extensive literature review on different types of buyer-supplier relationships deriving relevant criteria for the selection of internal supply chain partners. In particular, buyer and supplier dependency serves as important dimension to study the selection of internal supply chain partners (Cox, 2001). However, the purpose of suppliers as a credit source is neglected in traditional supply management literature focusing rather on supply chain aspects such as costs, quality or availability. In contrast, finance literature focuses on different types of trade credits and related motives (e.g. Klapper et al., 2011) but neglects implications on supply chain performance such as availability. By aligning these aspects of supply chain management and finance literature this paper attempts to contribute to both literature streams.

Configuring supply chain finance solutions also involves the sub-step of selecting external supply chain partners. However, during configuring a supply chain finance solution a company has to specify the extent of external involvement and the type of service provider rather than defining criteria to evaluate the specific external partner. Supply chain management extensively studies the involvement of 3PLs and IT service providers in supply chains (e.g. Lacity et al. 2009 and Marasco, 2009). Therefore, we aim at contributing to supply chain management literature by studying the role of financial service providers in supply chains. Finance literature provides valuable inputs on the function, types and characteristics of financial service providers but neglects their contribution to the physical supply chain. Silvestro and Lustrato (2014) provide first insights on the role of financial service providers for supply chain integration. However,
they do not analyse the available services from a buying company perspective. Hence, this paper studies the decision of companies to involve financial service providers in their supply chains.

Decision processes can easily become very complex, in particular if interdependencies with several internal and external supply chain partners need to be considered. Therefore, a structured decision process as proposed in management literature serves as a first research framework for this paper to study the process of configuring supply chain finance solutions. Mintzberg and Westley (2001) indicate four steps: Define, diagnose, design and decide. In the configuration process companies emphasize the design and decision steps as the supply chain finance solution is already selected and objectives defined. Therefore, the first two steps are merged for the further analysis.

As supply chain finance research combines finance and supply chain management literature, cross-functional collaboration between finance and operation functions is crucial to increase efficiency and effectiveness in the decision process. Especially since the involved functions usually do not experience such an extensive collaboration (Wuttke et al., 2013b). Within our paper, we focus on relevant individual, organizational and technological factors of cross-functional collaboration at the intersection of financial and physical flows (Nooshinfard and Nemati-Anaraki, 2014).

**Case study method**
Due to the explorative character of the research questions and the objective of contributing to theory building in a newly evolving field a multiple case study approach is selected (Yin, 2009; Eisenhardt und Graebner, 2007).

**Study design**
The presented research questions are studied for the specific case of configuring a reverse factoring solution to avoid biased results due to solution-specific differences. In addition, post-shipment and buyer-centric solutions experience increasing relevance due to benefits in their risk and cost structure. In contrast to supplier-centric solutions only one buying company has to be evaluated for its financial risk profile and not many customers. In addition, the risk is reduced since the solution is based on invoices and not assets.

The interviews were conducted with representatives in finance from treasury as well as controlling and in operations from supply chain management as well as procurement. In one of the case companies, the interviews were extended to a specific supply chain finance department. In addition, the external perspective of financial service providers was included through two interviews as it is a very new perspective to supply chain management. In total, we conducted 14 interviews with a length between 60 to 90 minutes based on a semi-structured questionnaire. In some of the interviews, two representatives participated in the interviews.

To ensure construct validity, the analysis was based on data triangulation through multiple data sources: internal company-presentations, semi-structured interviews and public available information e.g. through the company websites or annual reports. Thereby, a rich data set could be applied to derive the presented results.

**Case selection**
The case selection followed a theoretical sampling approach. To derive extensive insights, we selected companies with different objectives in their reverse factoring solution. Case A (process industries) has an emphasis on working capital improvements
while Case B (food industries) focuses on risk mitigation in its supply chain. To strengthen the findings we also included with Case C (transport industries) a company that discussed the implementation of reverse factoring but then ended the process before selecting suppliers and supply chain finance providers. This combination of cases with opposed outcomes strengthens the results regarding rigor and validity. All companies can be classified as large corporates with an international supply chain and customer base. Table 1 provides an overview on the number of interviews and involved functions.

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*Table 1: Overview in the number of interviews and involved functions*

**Data analysis**

The analysis integrated all data sources discussed above. For the interviews, we used codes grounded in the data but based them on theoretical propositions (Yin, 2009). These propositions were applied to structure the analysis based on the decision process presented above and to study the different factors of cross-functional collaboration. In a next step the codes were grouped into categories to match the data of the three cases. Finally, the results were challenged based on existing findings in theory. The subsequent sections present the specific approach of the case companies within the decision steps in configuring their reverse factoring approach. Propositions are derived how to configure the different steps in order to fit with the initially defined objectives. Finally, the specific role of cross-functional collaboration within the different decision steps is analysed.

**Defining the objectives**

The decision to initiate a supply chain finance solution can be based on multiple reasons. The main objectives include collaborative working capital improvements, supply chain collaboration and risk mitigation. In order to configure the supply chain finance solution companies need to further specify these objectives and rank them regarding to their relevance.

Improvements of working capital constitute a tangible element and can be directly transferred into financial benefits for a company. Hence, the reverse factoring solution should involve as much working capital as possible with as little costs and risks as possible. In contrast, supply chain collaboration and risk mitigation represent intangible benefits and can only be indirectly transferred through supply chain improvements into financial benefits. Supply chain collaboration in the context of supply chain finance solutions needs to be further specified. On the one hand, it can be related to working capital improvements since the supplier’s financial situation is strengthened resulting in sufficient funding, e.g. for investments or innovation activities. On the other hand, it can also mean enhanced information sharing between the supply chain partners and thereby increasing transparency with possible effects on costs and risks. In this context, the desired benefits need to be precisely defined in order to align the subsequent steps respectively. Risk mitigation is a rather wide term and in the context of supply chain finance solutions is focused on disruptions due to financial risks. However, information sharing can also have indirect effects on other risk types.
Case A has a strong focus on working capital improvements and applies the instrument to better be able to sell adaptations in payment terms to their suppliers. In contrast, Case B has a stronger focus on mitigating financial risks in its upstream supply chain and supply chain collaboration through information sharing. When we analysed the reasons behind those decisions we detected a strong influence of buyer and supplier dependencies. In addition, the function initiating the reverse factoring also affects the afterwards defined objectives. Hence, already in this first step of configuring a supply chain finance solution cross-functional collaboration is necessary to capture all possible benefits.

**Designing supply chain finance solutions**

The designing step can be described as the underlying configuration of the supply chain finance solution. Within this step companies need to develop and evaluate different options regarding relevant supplier, available financial service provider models and operational processes. The operational processes include e.g. defining legal obligations and payment days. They are not discussed any further since they are often very solution specific. However, similar to previous findings (Wuttke et al., 2013) our results show the importance of including the perspective of supply chain partners in this sub-step. In particular, the value added for suppliers needs to be considered since they decisively contribute to the overall success of the program with their participation.

Analysing the supplier base for adequate partners and different financial service provider models for their contribution to achieving the initially defined objectives constitute the two main aspects of this step. Besides the benefits, costs as well as risks need to be incorporated in the analysis. For post-shipment solutions, risks for the buying company play a minor role since the solution is already based on invoices and the materials or products arrived. The main cost types include initial investments, regular fees and costs for internal and external educational programmes.

**Supplier analysis**

In this step suppliers are analysed and classified based on criteria such as working capital, financial risks, geographical structure and supplier as well as buyer dependency. This analysis is relevant to understand how different types of suppliers contribute to the objective achievement and identify possible trade-offs between objectives.

Suppliers with a large procurement value increase the working capital respectively. Case A focuses on these suppliers to maximize the effect on its own working capital and excludes suppliers with a low or medium procurement value. Financial risk is not explicitly taken into account when selecting relevant suppliers. Hence, smaller, sometimes bottleneck suppliers are not involved. Consequently the positive effect on risk mitigation is limited to large suppliers. Another criterion not considered initially in the analysis is the buyer dependency on the supplier. Suppliers not depending on the buying company are often less interested in joining the program when they experience low financial risks and prefer to receive the full amount for their shipment.

Suppliers with high financial risks increase the chances of disruptions in the physical supply chain. Case B focuses on adding these suppliers to the program but opens the program for all suppliers. The supplier-buyer dependency is also relevant in this case. Suppliers with a high financial risk but low procurement and respectively sales volume are less interested in joining the program, as the costs are perceived too high in contrast to the expected benefits. With the program being open for all suppliers the costs increase, as the relative onboarding costs for small suppliers are much higher than for large ones. Hence, Case B focuses its efforts on suppliers with a high financial risk and
dependency. Both companies select a global approach to such an extent as to include the relevant suppliers independent of their geographical region.

Working capital-oriented and supply chain-oriented objectives do not necessarily address the same suppliers and can result in different cost structures. Furthermore, power structures in the supply chain play an important role since they influence the chances and relevance of suppliers joining the program. Although in both cases the supplier analysis is mainly executed by the procurement department the collaboration with the finance department is important to evaluate the financial risk and working capital position of the suppliers.

Financial service provider selection

In this step the buying companies need to decide on the extent of external involvement as well as evaluate the available models. In contrast to other service providers trust and dependency very strongly influence this step for supply chain finance providers. For instance, one main reason for Case C not to initiate a reverse factoring solution is to avoid any further involvement of banks in their supply chains. In general, buying companies can select between three different approaches. First, the buying company can decide to develop an IT-service platform itself and involve its banks to finance the program. This approach is rather scarce. More companies select between a proprietary or pooling model. In the first case a bank provides the platform as well as the financing. In the second case, a service provider provides the platform and pools multiple banks to provide the financing.

Case A prefers the proprietary approach with its main bank in order to benefit from their expertise throughout the entire implementation process. They compare different approaches mainly with regard to trust, expertise and cost criteria. In contrast, Case B emphasizes the independence from banks and an easy onboarding of smaller suppliers. They therefore prefer a pooling solution since it provides a standardized access also for small suppliers. Both companies experience a strong-interrelation between the selection of suppliers and financial service providers. For instance, in Case B some of the selected suppliers are situated in countries not included in the service offer of the service provider. Consequently, the sub-steps of designing the supply chain finance solution are strongly interlinked. In particular, due to this strong interrelation knowledge sharing between financial and operations departments is crucial to increase efficiency and effectiveness.

Deciding on the adequate solution design

Within the decision step the final configuration is selected. However, both cases indicate that the design and decision step are strongly interrelated. As for instance, after analysing and evaluating their supplier base both case companies first decide on relevant suppliers prior to analysing possible financial service providers. The design and decision process steps require several adaption rounds before the final configuration of the reverse factoring is determined and implemented. Too many adaption rounds can be avoided when finance and operation departments work together. One important prerequisite for this successful collaboration is a common understanding between both functions.

Discussion

The results separate the configuration process of a supply chain finance solution in three main subsequent steps. The cases show that these steps do represent a linear but simultaneously an iterative process. In addition, the design step needs to be subdivided
into the two sub-steps supplier selection as well as financial service provider selection. In a last step, the final configuration is determined. The decision process indicates how the subsequent steps interrelate and influence the fit of the configuration with the initial objectives. Due to trade-offs between costs, benefits and risks these interrelations need to be considered throughout the entire process in order to prepare a successful implementation. If the configuration does not fit the initial objectives it will become nearly impossible to be achieved during implementation. To avoid this misfit cross-functional effectiveness becomes very important for the configuration process. The expertise of both sites is needed to evaluate trade-offs between costs, benefits and risks as well as decide which options should best be selected.

**Conclusion**

The current article shows how the configuration should be structured. The starting point is a clear definition and ranking of the objectives to derive explicit requirements for the subsequent steps. Accordingly, cross-functional collaboration helps to evaluate the relevance of the different objectives for a company. Afterwards, different configuration options are analysed and evaluated. Depending on in step one defined objectives different suppliers can be suitable for the solution. In addition, supplier and buyer dependency influence this selection process. Besides suppliers the available financial service provider models are analysed. Similar to other services these models are evaluated based on costs, risks and benefits. In contrast to other service providers trust and dependency play a special role. While some companies prefer a close collaboration with financial service providers other want to remain as independent as possible. The previous working capital situation of the company seems to have an influence on this preference. In addition, pooling solutions provide more flexibility, as they are not limited in the number of banks involved. In a final step, companies decide on the configuration of the supply chain finance solution. The three decision steps constitute an iterative process. Furthermore, the findings indicate a strong contribution of cross-functional collaboration on effectiveness and efficiency. Without cross-functional collaboration the sometimes opposed objectives of the involved functions are not aligned. As a consequence not all functions support the project resulting in a reduced effectiveness for the initially defined objectives. The interrelation between cross-functional collaboration and efficiency can vary as aligning the involved parties can prolong the process. However, well-established cross-functional collaboration reduces the risk of unexpected interruptions during the selection process as knowledge is shared between operations and finance.

The paper contributes to existing findings in supply chain management literature with insights on the configuration of supply chain finance solutions. Related work on supply chain finance solutions does not focus on the configuration process, the strong influence of cross-functional collaboration as well as the selection of financial service providers from a supply chain perspective. For practitioners, the findings provide a well-structured decision process and show important factors contributing to cross-functional collaboration during the configuration of supply chain finance solutions. However, the research focuses on one specific supply chain finance solution. Although other solutions may result in adaptations during the individual steps the overall structure and the involvement of different functions should remain similar. In addition, the qualitative findings could be enlarged with quantitative research to confirm the derived propositions.
References:


