WINDESHEIMREEKS KENNIS EN ONDERZOEK nr. 50

The Power of Supply Chain Finance

Michiel Steeman

Windesheim makes knowledge work

Windesheim

De afbeelding van het stadszegel van Zwolle op de cover is te vinden in het artikel 'Twee Zegels' in: Verslagen en Mededeelingen van de Vereeniging van Overijsselsch Regt en Geschiedenis, dl. 6 (Deventer, 1871), p. 112-113. Het betreft een beschrijving van de twee zegels die de heer Cost Jordens in 1871 aan de Vereeniging aangeboden heeft. Op het stadszegel is te zien hoe de aartsengel Michael het kwaad, in de vorm van een draak, verslaat. Volgens de Griekse filosoof Socrates is onwetendheid de bron van alle kwaad. Windesheim wil onwetendheid verslaan door middel van onderzoek.

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The Power of Supply Chain Finance

How companies can apply collaborative finance models in their supply chain to mitigate risks and reduce costs

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Samenvatting

Supply chain finance krijgt steeds meer aandacht bij bedrijven als een middel om hun supply chain strategie te ondersteunen. Het gaat hierbij niet alleen om het reduceren van kosten maar ook om het mitigeren van de risico's in de keten. Wij verwachten dan ook dat vooral bij grote bedrijven de toepassing van supply chain finance modellen sterk zal toenemen in de komende jaren, zowel in kwantiteit, verscheidenheid als in complexiteit.

Beleidsmakers bij overheden zijn steeds meer betrokken bij de ontwikkeling en adoptie van supply chain finance modellen en zien het als een mogelijke alternatieve financieringsvorm voor het MKB. Het streven van overheden is daarbij om grote afnemers te bewegen om dergelijke programma's te faciliteren voor hun MKB leveranciers.

Ook ontwikkelingsbanken zoals de IFC en de World Bank zijn de laatste jaren supply chain finance programma's gestart om met hulp van de sterke partijen in een keten bijvoorbeeld de kleinere leveranciers, coöperatieven en boeren in ontwikkelingslanden toegang te geven tot financiering.

Er is tot nu toe nog maar beperkt onderzoek gedaan naar supply chain finance. Het is een veld op het scheidsvlak van finance en supply chain en nog volop in ontwikkeling. Onze doelstelling is om het begrip, de ontwikkeling, en de implementatie van supply chain finance modellen te stimuleren en te versnellen. Hierbij richten we ons op drie dimensies

- Supply chain finance voor multinationals;
- Supply chain finance voor het MKB;
- Supply chain finance voor internationale duurzame ontwikkeling.

Foreword

My personal fascination with supply chain finance already began more than ten years ago. At that time I was employed by NMB-Heller, later part of ING, and I became involved in the first implementation of a reversed factoring programme by one of the world's leading retailers. Reversed factoring, now the most widely adopted form of supply chain finance, rests on the principle that invoices sent by small suppliers and officially approved by a large buyer form a sound basis for the supplier to obtain early payment or financing. This first programme was launched in Poland and provided the smaller suppliers with access to funding they did not have before.

These experiences and developments motivated me to form a cross functional project group within ING to further explore the possibilities of supply chain finance. It led to a positioning paper in early 2007 and an aggressive business plan in the summer of the same year. Unfortunately the demise of Lehmann later that year and the subsequent credit crisis delayed the implementation. It became clear that the role and position of banks was starting to change. Banks faced tighter balance sheets, tougher regulations, and a loss of confidence. Especially in the domain of the financial supply chain, new and serious competitors to the banks started to surface, such as online platform providers, service providers, and payment providers.

It was in 2009 that I took the lead in forming a consortium with Nyenrode and all the major banks to analyze and understand the interface between the physical and financial supply chain. This resulted in the development and launch of a business simulation and training tool called The Cool Connection, now used by more than 1000 professionals around the world. It also resulted in the Supply Chain Finance Community that now encompasses 40+ universities in more than 25 countries.

In 2010 ING joined the 4c4 More Research and Development project funded by Dinalog and led by TU Eindhoven to become a trailblazer in supply chain finance. The membership consisted of large corporates, logistic service providers and IT service providers. Through my board membership on Factors Chain International, with members in 70 countries around the world, I had the chance to discuss these developments in supply chain finance with financial institutions around the world, from Brazil to China, from Russia to South Africa, from the USA to India.

These many discussions on supply chain finance confirmed my belief that, in fact, the large buyers, the large corporates, are the dominant force in the further development of supply chain finance. The supply chain management discipline which is already quite well established within these large corporates increasingly turns to collaborative finance models to support their supply chain strategy. It was late in 2011 that I started to explore the possibility of a PhD, in discussions with Pieter Klapwijk, Professor of Supply Chain Economics at Nyenrode. Early in 2012 I decided to leave ING and devote more of my time to this fascinating and developing interdisciplinary field on the interface between supply chain management and finance.

Over the years I have supervised several students writing their master's thesis, conducted some research among purchasing managers and logistic service providers, made presentations at numerous conferences and written several (non-academic) articles. I followed the Hora Est course at the Rotterdam School of Management to prepare for writing a dissertation.

But the main focus in 2013 was on the composition of a consortium that could form the basis of my research. In collaboration with TU Eindhoven, we managed to put together a research and development project dubbed SCF 2.0 that was approved for funding by Dinalog in June 2013. I am very pleased that Heineken, Philips and Unilever agreed to participate with both with resources and funding.

The cooperation with Windesheim started late in 2013 when I was asked to consider this professorship in supply chain finance. I am truly thankful for being given the opportunity to build up the research group here in Zwolle.

1. Introduction

In a globalising economy, industrial value chains are becoming more complex, spanning more countries and providers than ever before. While the flows of goods are increasingly integrated and optimised, information and finance flows are often fragmented. The credit crisis has revealed the structural weaknesses of this system.

During the recent credit crisis liquidity dried up (Ellingsen & Vlachos, 2009) and many companies adopted aggressive cash management strategies to safeguard their cash levels in the face of declining credit from financial institutions. One aspect of these new cash management strategies included extending payment terms for their suppliers. Companies have continued to push payment term extensions with suppliers as a means of freeing up cash for purposes such as investment, dividends and share buybacks (NG, 2013). Another reason for the continued pursuit of aggressive cash management strategies is that companies feel that they do not have sufficient working capital to take advantage of an economic upturn. Suppliers to these companies are now feeling the effects of extended payment terms by having to obtain more and more financing to continue operations.

SCF and Multinationals

To address these costs and the risks of supply disruption, multinationals are increasingly interested in managing the financial supply chain with an equally integrated view similar to the one that they apply to the physical supply chain (Protopappa-Sieke & Seifert, 2010).
Supply chains in manufacturing industries could reach up to 25 tiers, often including hundreds of parts suppliers spanning the globe. Such chains involve an equally complex string of (financing) arrangements and interdependencies between suppliers, buyers, banks and logistics service providers.

(Hurtrez & Gesua' sive salvadori, 2010). This large network of agreements creates a clear IT challenge, with the risk of data being fragmented and the challenges of common sharing and interfacing.

The latest study in France (Roubert, 2013) has shown an excess of working capital of more than 200 billion euros due to poorly managed inventories, payment terms and delays. Inefficiencies in inter-company processing mean that significant amounts of working capital are locked in delivered products and services not yet paid for by the client. With an average payment period of 56 days in Europe, despite formal payment terms of 30 days, the liquidity position of the supplying companies is negatively influenced. Many companies need to obtain trade credits to overcome this cash flow problem. Whereas large corporates often are 'investment grade', with AAA to BBB ratings and related credit terms, their direct and indirect suppliers face relatively high financing costs while credit rates soar as the distance from their large, credit-worthy end buyers increases (NG, 2013).

At present, for such non-investment grade suppliers, the Weighted Average Cost of Capital (WACC) approaches 20% or more (Gustin, 2006) – 10 to 50 times the rate of the end buyer – causing high overhead costs which affect the whole supply chain. In addition, finance organisations that provide trade credit have so far mostly targeted businesses in familiar markets and industries where transactional terms are relatively unambiguous.

Preliminary research indicates that late payments contributed to about 25% of bankruptcies in Europe (Muriel, 2006). More often, lack of cash could prevent a company from achieving its desired production capacity. This can be illustrated by the widely published case of Caterpillar (Aeppel, 2010), the world's leading manufacturer of construction equipment. When it wanted to ramp up production in 2010, some of its top 500 suppliers could not deliver due to insufficient working capital. This had a ripple effect throughout its supply chain and resulted in limited growth. Such risks, therefore, force companies to maintain expensive stock or to support supplying companies with working capital.

Large buyers typically control and steer supply chain improvement processes. We see several examples of large multinationals using reverse factoring for this purpose. An early example of successful reverse factoring implementation is that of Unilever (Seifert & Seifert, 2011), which has freed up 2 billion USD in overall working capital. The first movers in SCF, located mainly in Europe and the United States, are experimenting with supply chain finance models on an international scale, reaching beyond their larger second, or even third tier suppliers. In 2012, pilot projects were announced by companies like Airbus (FR/DE), Mercedes-Benz (DE), Volvo (SE), ASML (NL), Sainsbury (UK), and others. These experiments aim to improve operational aspects, such as efficiency, inventory optimisation and risk reduction. To what extent can these supply chain finance models actually reduce costs and mitigate risks are the underlying research questions that multinationals would like to understand. We are working together with Heineken, Philips and Unilever to address these questions.

The starting point for our research is the idea that supply chain finance strategies can be linked to the supply chain strategy that in itself supports the overall strategy of the company. Strategic dimensions could include efficiency, the stability of the chain, the potential to support business growth, and the loyalty of suppliers. This can be illustrated in the following figure.

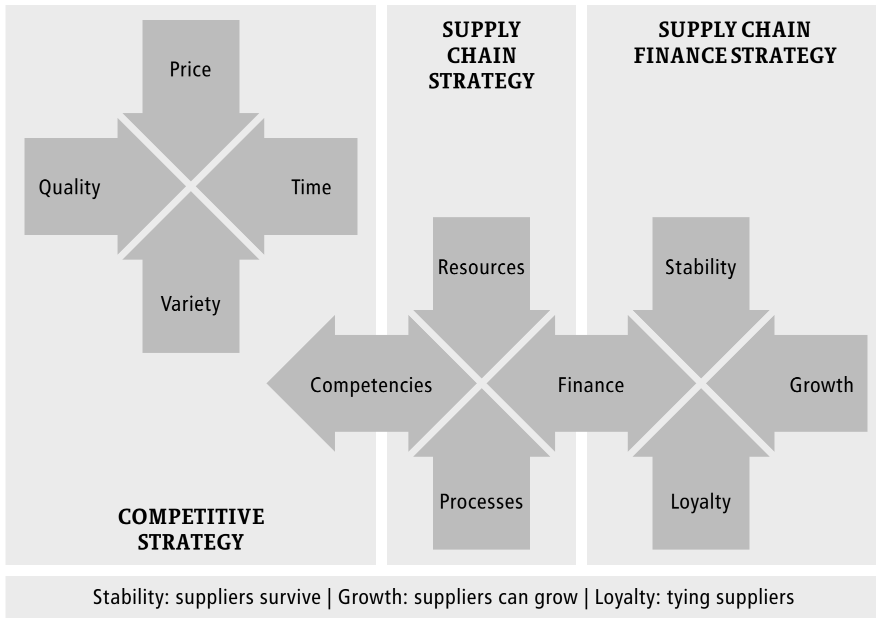

Figure 1: From Competitive to Supply Chain Finance Strategy

SCF and SME

The relevance of supply chain finance models is also gaining ground among governments in Europe as they are actively looking for alternative forms of financing to stimulate research, innovation and growth. Horizon 2020, the EU framework programme for Research and Innovation that was launched in 2013, highlights two important finance themes: access to risk capital and SME finance. This was reflected in the European Commission hosting several sequential panel discussions in 2011, with the aim of helping refine the design of a new generation of financial instruments for risk capital and SME finance.

Policy makers are particularly keen to add nontraditional bank financing instruments as a tool favourable to SMEs.

The traditional view of regulators and financiers is that such initiatives are to be financed from outside the supply chain through banks, investors and private equity. Governments are now looking to stimulate new structures for improving the framework conditions for companies to provide or facilitate debt and equity financing from within the supply chain. This will improve access to risk capital and financing for small and medium-sized companies, such as advocated in Horizon 2020.

With politicians picking up signals from the market, European programmes are beginning to address this topic. The European Union Directorate-General Enterprise & Industry has opened a consultation process on SCF in early 2013, with the goal of exploring its role in this new market.

The European Parliament in its Industrial Policy Communication update of 10.10.2012 (COM(2012) 582 Final), calls for the consideration of SCF as an alternative to traditional banking finance, and hints at the possible revision of the Markets in Financial Instruments Directive (MiFID). At the same time it stresses the need for prudent consideration by regulators.

Also at a national level, politicians support the development of SCF, for example, SCF being a topic within the Dutch industry policy on logistics. In December 2012, the UK Prime Minister, David Cameron, announced a major SCF scheme, commenting that, "this scheme will not only help businesses secure finance and support cash flow, but will help secure supply chains for some of our biggest companies and protect thousands of jobs. It can be a win-win, with large companies and small suppliers both benefiting from this innovative scheme" (Cameron, 2012).

Also in The Netherlands, the government has picked up on supply chain finance in their Kamerbrief of July 11, 2014, in which the position of "ketenfinanciering" as an alternative financing scheme alongside solutions such as micro credit, crowdfunding and credit unions. These governmental schemes are experimental.

In relation to supply chain finance, the question is whether supply chain finance models can result in additional access to financing for SME's and how these models should be implemented. The Dutch government has asked us to help in researching, designing and implementing an SCF scheme in The Netherlands.

SCF and International Sustainable Development

In 2004 (Klapper, 2004) from the World Bank wrote about the success of reverse factoring, and its role on the supplier financing of small and medium-sized enterprises. She describes the successful initiative of the Mexican Government and NAFIN through which a number of SME companies gained access to financing (reverse factoring) and trading opportunities with big buyers which they did not have before.

The World Bank, as part of its Financial Inclusion and Infrastructure initiative has identified SCF as an approach to improve access to finance and improve trading opportunities for SMEs. They claim that there is little supply chain finance provision for developing economies in Asia, Africa and Eastern Europe. This creates an entry barrier for many industries into the global market. Such financial inefficiencies are increasingly becoming a strategic risk factor in supply chain management for the end buyers.

But more importantly, the question arises whether supply chain finance could really be an accelerator for economic development by providing suppliers in developing countries with improved access to funding. Our aim is to work together with developing banks, non-governmental organisations, commercial banks, and investment funds to understand, develop and implement SCF models in supply chains that originate in developing countries.


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2. Definition

Specific attention should be given to the definition of supply chain finance. In most of the literature on SCF the definition question is discussed, besides the fact that not much academic literature is available specifically about SCF. The problem seems more profound than just deciding on a definition. Citing Templar et al., 2012.: "Defining the true nature of SCF in itself appears to be difficult: model, discipline, technique, product or programme?" Some definitions of SCF:

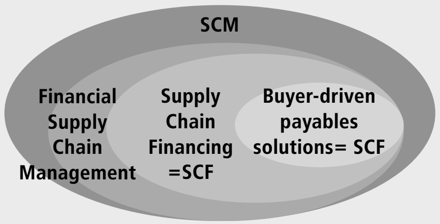
(Hofmann, 2005): "SCF is an approach for two or more organisations in a supply chain, including external service providers, to jointly create value through the means of planning, steering, and controlling the flow of financial resources on an inter-organisational level".
(Aberdeen, 2006): "SCF is a combination of trade financing provided by a financial institution, a third-party vendor or a corporation itself, and a technology platform that unites trading partners and financial institutions electronically and provides the financing triggers based on the occurrence of one or several supply chain events".
(Camerinelli, 2011): "SCF is the name attached to the collection of products and services that financial institutions offer to facilitate the physical and information flow of a supply chain".
(Hofmann & Belin, 2011): "This study views SCF ... namely that financial flows are in contrast to physical flows and their related information flows along the C2C cycle. Thus, the optimization of a company´s SCF can be considered equivalent to working capital optimisation".

The framework from Templar et al., 2012 is particularly worthwhile to consider when categorizing the different schools of thought about SCF as observed in the literature. They position supply chain finance as part of the broader concept of Supply Chain Management (SCM). It recognizes three schools (from broadly to narrowly defined): SCF as financial supply chain management, SCF as supply chain financing and SCF as buyer-driven payables solutions.

The first school of thought from Templar et al. (2012), SCF as financial supply chain management, encompasses all activities in the supply chain that can be related to finance, so in a broader sense than just payables or integrated working capital solutions. It covers the entire end-to-end supply chain and, as put forward by Hofmann (2005) and Hofmann & Belin (2011) it follows in the opposite direction to the physical supply chain. Where materials flow from suppliers to buyers; funds flow from buyers to suppliers. Hofmann and Belin go one step further than Templar, since they see the financial supply chain as the opposite of the physical supply chain, whereas Templar observes financial supply chain management as part of a broader SCM context. According to Hofmann (2005), the information flow, technology, document and data management, order processing, etc. are all considered to be part of SCF.

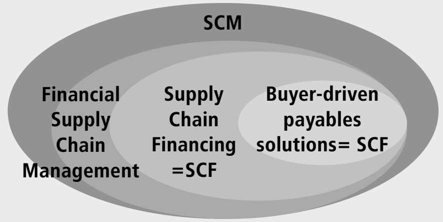
SCF as supply chain financing is described by Templar et al. (2012) as a set of supply chain financing instruments which can be used in managing the financial supply chain. It is different from the first school of thought in the sense that this stream focuses on financial instruments as a means of optimising the financial supply chain. As such, it considers specific financial solutions and evaluates their impact on the financial performance of the chain. Fields that can be part of this definition are trade financing, fixed asset financing, working capital financing and supplier financing.

MODEL 1



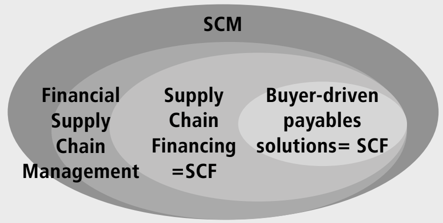
DESCRIPTION	REFERENCES
SCF is broadly described as the management of the financial flows in the supply chain: financial processes (transaction processes, data processing, invoice matching, etc.) and SC financing techniques.	Hofmann and Belin (2011) Hofmann (2005) Pfohl and Gomm (2009) Gomm (2010)

MODEL 2



DESCRIPTION	REFERENCES
SCF is a set of supply chain financing instruments, then included in financial SC management. Different fields can be encompassed in this definition mainly: Trade financing Fixed asset financing Working capital financing Supplier financing	Aberdeen Group (2006) Sunshine (2007) Atkinson (2008) Camerinelli (2009b) Keifer (2008) Camerinelli (2010a) BAFT-IFSA (2010) ACT (2010) Camerinelli (2011)

MODEL 3



DESCRIPTION	REFERENCES
SCF or supplier financing is described as a buyer-driven payables solution, mainly referring to all types of reverse factoring solutions, supported by the appropriate IT technology. This is an invoice settlement option at the very end of the financial supply chain.	Hartley-Urquhart (2000) Demica (2009) Dyckman (2009) Kerle (2009) PWC (2009) Sugirin (2009) Kramer (2010) McKinsey (2010) Moran (2010) Jacquot (2011)

Figure 2: The SCF definitions - SCF Schools of Thought, (Templar et al., 2012)

Where the previous school of thought focuses on a variety of financial instruments which can be found throughout the chain in both directions (upward or downward), the third school of thought is even narrower. It views SCF as buyer-driven payables solutions and is with this mainly referring to reverse factoring (also called supplier financing).

Several academic papers have researched reverse factoring (Hofmann, 2013). Large companies have turned to reversed factoring solutions over the past 5 years as seen in publications about its application at Philips, Inditex, Volvo, Walmart, Unilever and Motorola (Blackman, Holland, & Westcott, 2013; Bozdogan, 2010; Seifert & Seifert, 2011; Steeman, 2012; van Woelderen & Witteveen, 2008). Nevertheless, progressive thinking in this area must start to address new challenges appearing on the commercial horizon. Experts perceive the imminent need for a next generation of SCF applications: models and tools that can facilitate faster, deeper, and broader financing for the complex structures of modern supply chains (Kerle, 2003). These new challenges all involve the financing of transactions that are inherently more risky than the ones now addressed by reverse factoring.

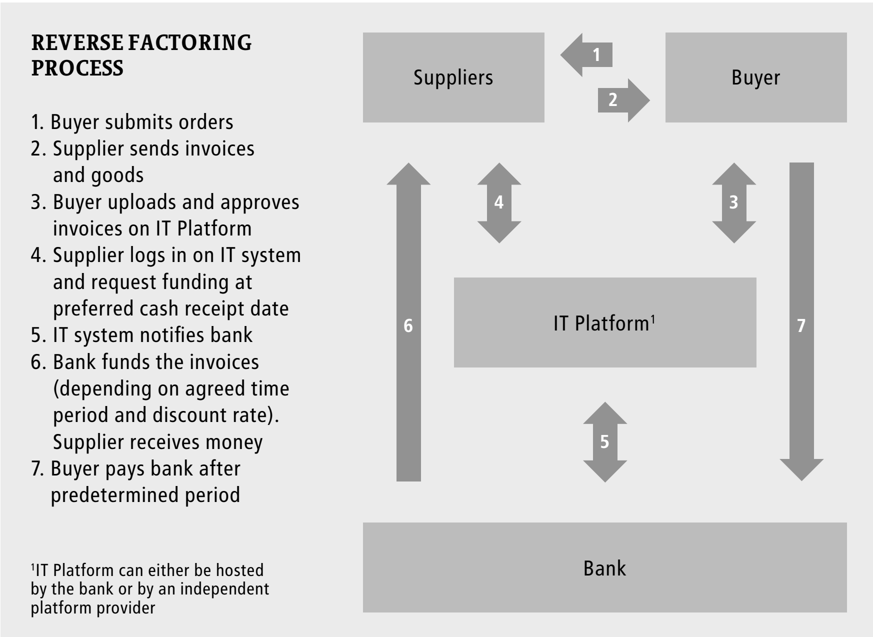


Figure 3: Actors and processes in Reversed Factoring

It is helpful to first start with an attempt to define supply chain finance. Such a definition can initially be made using two important building blocks that are generally cited as important in making this definition: the class to which SCF belongs and the specific characteristics that set it apart from other terms in the same class.

Firstly, we have to consider the framework of Templar et al. (2012) which gives direction regarding the class. Is SCF as narrow as reversed factoring or as broad as financial supply chain management? We follow this notion that supply chain finance is about manifestations of the collaboration between supply chain partners in the form of contractual or financial arrangements. With financial arrangements we mean a wide range of equity, debt and financial contracts. Equity-related solutions can include acquisitions, joint ventures and minority interests. As an example one could think of the strategic stake that Intel has acquired in ASML recently. Debt-related SCF instruments can be loans, convertibles, lease constructions, reversed factoring and advance payments. We have already presented earlier examples of capital equipment manufacturers that have leasing programmes in place and retailers that have now implemented reversed factoring programmes for their suppliers. Financial contracts can include profit and revenue sharing, risk sharing, vendor-managed inventory, buyer-managed inventory, dynamic discounting, options and futures.

The main characteristic that stands out is collaboration. According to Hofmann's literature review the vast majority of academic papers include collaboration as a core characteristic of supply chain finance (Hofmann, 2013). Some would say it is a collaboration between the financial institution and the companies. Others would include IT providers. We also believe that collaboration is at the heart of supply chain finance. One could think of arrangements between just buyers and sellers. But this is too narrow. As supply chains have become more complex the supply chain partner could include any company in or connected to the supply chain. One can distinguish 2nd and 3rd tier suppliers, or even deeper in the chain. Logistics service providers especially have become more important as a partner to optimise the supply chain. But also dealers and distributor networks could be included.

A second important characteristic is related to the purpose of SCF models. The current definitions are quite different if you look at the goal of supply chain finance. Why is SCF important to the supply chain partner? What do they want to achieve? Most common words include optimisation, value creation and financial benefits. In the end we believe it boils down to two main goals: improving financial performance and mitigating risk. Improving financial performance can include lowering transaction costs, financing costs, purchase costs, transport costs, and so on. Risk mitigation is about dealing with supply risk.

The final element we try to capture in the definition is the perspective of SCF: how SCF programmes get started and come to life. This relates to the discussion of whether SCF is buyer- or supplier-led. One can expect that the supply chain partner that has most to gain would probably initiate the discussion to start a programme. In principle this can be any type of company in the chain, large or small, robust or weak. However, in many supply chains one would see that there is a focal company, quite often a large buyer that controls and dominates the chain. Other partners in the chain would need the support of that large buyer to implement SCF models. And the large buyer will typically steer the improvement processes in the chain. This big dominant buyer has two very strong assets that give him the power to manage and control the supply chain: credit worthiness and purchase volume. Big dominant buyers are generally the focal company in the SCF programmes and often the initiator, but almost always the facilitator of SCF programmes.

The above resulted in the following working definition of supply chain finance for the purpose of our research proposal.

"Financial arrangements used in collaboration by at least two supply chain partners and facilitated by the focal company with the aim of improving the overall financial performance and mitigating the overall risks of the supply chain."

Even though the definition of supply chain finance gives some direction to our research it is necessary to further narrow down the scope and direction of our proposed work. Templar et al., 2012. indicate that SCF is part of the broader supply chain management framework. But we have to realize that the supply chain management framework itself developed only over the past 2 decades. An important point in time is 1998. Lambert et al., 1998 published their paper that year with the statement that the Council of Logistics Management formally stated that logistics itself is a subset of supply chain management and the terms are not synonymous. More recently, also APICS, the association active in the operations area are using the term supply chain management. Procurement is also often named supply management and seeks to link up with supply chain management (Kraljic, 1983). We take the view that supply chain finance should be positioned as a subset of supply chain management. This allows us to use the broader concept of supply chain management in giving direction and scope to our research.

3. Research

The goal of our research is to instigate and accelerate the understanding, development and adoption of (collaborative) supply chain finance models. Earlier we distinguished three main areas of development around supply chain finance that will be reflected in our three research lines:

- Multinationals (SCF 2.0): How can SCF support multinationals in reducing costs and mitigating risks?
- SME: How can SCF result in improved access to funding for small and medium-sized companies, and especially for smaller suppliers in Western Europe, particularly those in The Netherlands?
- International Sustainable Development (ISD): What role can SCF have on international sustainable development, especially for smaller suppliers in developing countries?

Through experimenting and analysis the relevance of SCF models will be researched. The aim is to realize substantial benefits for buying firms and their suppliers through cost reductions and risk mitigation.

Our initial focus is on the role of the larger multinational or large buyers in their supply chain with respect to supply chain finance. How can they apply collaborative finance models to support their supply chain, and particularly their supplier network. These suppliers can have very different characteristics, for example, from very small to very large, or from located close by to located far away. Taking the perspective of the large buyer we can develop the following uniform research question across the three research lines:

1. Do buyers consider the strategic relevance of suppliers in the decision to facilitate supply chain finance?

This central question can be divided into the following sub-questions:

- *When are suppliers considered strategically relevant to the buyer? What segmentation models are commonly used?*
- *What is supply chain finance? What supply chain finance models are known and being used?*
- *What disciplines are involved in the decisions to facilitate supply chain finance? Do they apply to supplier segmentation models?*

The second central research question deals with the potential value of supply chain finance models. There are many types of costs and risks that buyers face when dealing with suppliers. We propose adding supply chain finance to the set of tools buyers can use to mitigate risks and lower costs. But what role can supply chain finance models have? This leads to our second central research question:

2. What type of costs and risks need to be analyzed and quantified to determine the value of collaborative finance models for the buyer and its suppliers?

The second central question can be divided into the following sub-questions

- *What types of cost and risk factors are manifested in the relationship between buyers and sellers?*
- *How do you analyze and quantify these cost and risk factors?*
- *How do you determine the value of a collaborative finance model?*

The third central research question concerns the tactical decision by large buyers to facilitate supply chain finance models for their suppliers. The value of a supply chain finance model might be positive, but the question remains whether it is the only factor that motivates the buyers' decision to facilitate this for their suppliers? Other dimensions might play a role, such as the various functional departments that are involved, the relative value of the SCF programme, the level of understanding, or other environmental factors. This results in the third central research question:

3. What factors can influence the tactical decision to facilitate collaborative finance models for suppliers?

The following sub-questions can be defined:

- *What are tactical decisions and what are their characteristics?*
- *What are the most important factors that influence tactical decisions in large organisations?*
- *What factors can positively influence the decision to facilitate collaborative finance models in the case of a negative value?*
- *What factors can negatively influence the decision to facilitate collaborative finance models in the case of a positive value?*

The aim of our research is to address these three central research questions across the three research lines of the multinational, SME's in The Netherlands, and suppliers in developing countries. This should lead not only to a better understanding of the cost and risk factors that determine the need and value of supply chain finance models, but should also provide insights into the (organisational and environmental) factors that influence decision making and that can help shape the policies of governments and international institutions.

The deliverables of our research on supply chain finance should be a rich collection of applicable products:

- conceptual models to guide further research
- simulation models to increase understanding
- policy frameworks to assist practitioners in the adoption
- learning products to educate students and professionals

4. Conclusion

Supply chain finance has gained much interest among corporates as a support for their supply chain strategy. We have shown with multiple examples that the use of SCF models is not only about reducing costs, but also about mitigating risk. It can be expected that the application of SCF models by large buying firms will increase significantly, in both variety and depth, in the years to come.

It has also been shown that policy makers in governments increasingly promote the adoption of SCF models as an alternative financing solution to regular banks. Large buying firms are expected to facilitate these solutions for their wider supplier base. Development banks such as IFC and the World Bank have started programmes to leverage the position of large buying firms for the benefit of small suppliers in developing countries.

As shown, the applied research in the area of supply chain finance is still limited. It is a developing field of research and our aim is to add to this research field in three dimensions:

1. Supply chain finance for multinationals
2. Supply chain finance for small and medium-sized enterprises
3. Supply chain finance for international sustainable development

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Lectoraat Supply Chain Finance

MICHIEL STEEMAN

Michiel Steeman was selected as the inaugural holder of the Supply Chain Finance Professorship at the Windesheim University of Applied Sciences in The Netherlands. He is also the founder and chairman of the Supply Chain Finance Community that has already brought together over 40 leading business schools from more than 25 countries around the world who actively collaborate with companies, banks and governments in the developing field of Supply Chain Finance.

In 2012 he launched The Cool Connection, a business simulation and training tool that bridges the physical and financial supply chain by bringing together finance, sales, procurement and supply chain in a virtual decision making environment.

From 2009 to 2012 Michiel was elected into the Executive Committee of Factors Chain International, a worldwide organization with more than 300 members in over 70 countries. He holds a Master's degree in Financial Economics from Erasmus University in Rotterdam.

His working experience includes a variety of roles for Deutsche, NIB Capital, NMB-Heller such as relationship management, risk management and marketing. In his last role at ING he was member of the Management Team and responsible for product development and strategy for leasing and factoring with operations in 14 countries and almost 3000 employees.

Michiel has also been the driving force behind the Rainbow Homes through his Chairmanship of the Partnership Foundation. This foundation has introduced a ground breaking franchise formula to help street-children in India. This Rainbow Home model is a scalable solution based on the belief that each and every school can be transformed into a home for street-children.

His further interests include traveling, hiking, mountaineering and of course his family as a proud father of three daughters.

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