



Review

Supply chain finance: A systematic literature review and bibliometric analysis

Xinhan Xu^a , Xiangfeng Chen^a , Fu Jia^b  , Steve Brown^c , Yu Gong^c , Yifan Xu^a [Show more](#)  Share  Cite<https://doi.org/10.1016/j.ijpe.2018.08.003> [Get rights and content](#) 

Abstract

Supply Chain Finance (SCF) is an effective method to lower financing costs and improve financing efficiency and effectiveness, and it has gained research momentum in recent years. This paper adopts a systematic literature review methodology combined with bibliometric, network and content analysis based on 348 papers identified from mainstream academic databases. This review provides insights not previously fully captured or evaluated by other reviews on this topic, including key authors, key journals and the prestige of the reviewed papers. Using rigorous bibliometric and visualisation tools, we identified four research clusters, including deteriorating inventory models under trade credit policy based on the EOQ/EPQ model; inventory decisions with trade credit policy under more complex situations; interaction between replenishment decisions and delay payment strategies in the supply chain and roles of financing service in the supply chain. Based on the clusters identified, we carried out a further content analysis of 112 papers, identifying research gaps and proposing seven actionable directions for future research. The findings provide a robust roadmap for further investigation in this field.

Introduction

Supply Chain Finance (SCF) has played an increasingly important role in operational and financial practices and attracted growing attention from academia and industry alike (Yan et al., 2016; Milder, 2008). The history of SCF research can be traced back to the 1970s, well before the popularisation of the term supply chain management. For example, Budin and Eapen (1970) study the net flow of cash generated over the course of business operations in a cash planning period and how such net inflows are affected by changes in policies concerning trade credit and inventories. Haley and Higgins (1973) investigate the relationship between inventory policy and trade credit policy in the context of the basic lot-size model.

The first formal definition of SCF did not appear until the 2000s. Stemmler (2002) finds that the key characteristic of SCF is the integration of financial flows into the physical supply chain, and SCF can be characterised as an essential part of supply chain management. Hofmann (2005) describes SCF as located at the intersection of logistics, supply chain management, and finance and defines it as an approach for two or more organisations in a supply chain, including external service providers, to jointly create value by planning, steering, and controlling the flow of financial resources on an inter-organisational level.

Pfohl and Gomm (2009) define SCF as the inter-company optimisation of financing and the integration of financing processes with customers, suppliers, and service providers to increase the value of all participating companies. Gomm (2010) states that the objective of SCF is to optimise financing across company borders to decrease the cost of capital and accelerate cash flow. Pfohl and Gomm (2009) definition is adopted in this paper. However, we realise that early studies in SCF tend to focus on the effects of only one supply chain player's financing on inventory, which has implications for other supply chain members (supplier or retailer). To trace the complete evolution of the topic, we include these early studies in this review. The methods we used to select the papers are reflected in the search strings and keywords in the methodology section.

SCF aims to optimise financial flows through solutions implemented by financial institutions (Camerinelli, 2009) or technology providers (Lamoureux and Evans, 2011). The ultimate objective is to align financial flows with product and information flows within the supply chain, improving cash flow management from a supply chain perspective (Wuttke et al., 2013). The benefits of the SCF approach rely on cooperation among stakeholders within the supply chain and typically result in lower debt costs, new opportunities to obtain loans (especially for weak supply chain players) or reduced working capital within the supply chain (Gelsomino et al., 2016).

Specifically, when we selected search strings and keywords, we chose “trade credit” and “factoring” because trade credit, factoring and reverse factoring are all specific solutions in SCF that should be included in the review of SCF. Trade credit is a short-term loan between firms that is tied in both timing and value to the exchange of goods between them (Ferris, 1981). Seifert et al. (2013) point out that the role of trade credit in the global economy is extensive and consequently, it has received considerable attention in the SCF research. Factoring is a type of supplier financing in which firms independently sell their creditworthy accounts receivable at a discount to a financier, the factor, and receive immediate cash (Klapper, 2006; Soufani, 2002). Reverse factoring is a financial arrangement in which a corporation facilitates early payment of its trade credit obligations to suppliers; this arrangement has received considerable attention from both the business and research communities (van der Vliet et al., 2015; Tanrisever et al., 2012). In reverse factoring, the lender purchases accounts receivables only from specific informationally transparent, high-quality buyers, and the credit risk becomes the default risk of the high-quality buyers instead of the risky Small and Medium-sized Enterprise (SME), which make it possible to provide low-risk financing to high-risk suppliers (Klapper, 2006).

There have been a few literature reviews on certain themes of SCF. These review papers cover one or two themes of SCF. For example, Chang et al. (2008) provide a review of inventory lot-size models under conditions of extended payment privileges. Birge (2015) discusses the interaction of operations and finance in which financial activity has significant potential to make an impact on operations and operational considerations provide new perspectives for financial decisions. Zhao and Huchzermeier (2015) propose a risk management framework for the multidimensional integration of operations-finance interface models.

However, there is no comprehensive review paper except for Gelsomino et al. (2016). There are several significant differences between our review and that of Gelsomino et al. (2016): 1) Gelsomino's study is focused on SCF concepts and solutions, while we review papers containing all aspects of SCF; 2) We include a more comprehensive list of keywords than Gelsomino's study and separate keywords into two search strings (financing and supply related), which theirs does not; 3) Gelsomino et al. (2016) identify more than 2000 articles and select 119 papers for final review, while our study examines more than 4700 articles and focuses on 348 papers for bibliometric analysis together with 112 papers for content analysis; 4) Gelsomino's study first covers papers from a period between 2000 and 2014 and then examines the reference of the papers selected in the first step based on a handful of elite journals, while we trace back to the origin and did not put a time limit or constrain the review with a set of journals for the bibliometric analysis (we do constrain the journals as AJG 3, 4 and 4* for the content analysis to be explained later); 5) Gelsomino's paper adopts only the content analysis method for reviewing selected papers while we adopt a combination of bibliometric and content analysis and the results are significantly different. In a sense, we provide a more comprehensive view of how SCF research developed and identify four clusters based on rigorous mathematics tools, which are different from their themes and advanced a different set of future research directions for SCF researchers. To illustrate the similarities and difference between Gelsomino's and our paper more explicitly, Table 1 is presented for comparison.

In this study, we first carried out a comprehensive and systematic literature review and rigorous bibliometric and network analysis on SCF (e.g., citation and co-citation analysis) to map out the knowledge structure of this topic and then conducted a content analysis of the key papers based on journal quality and the papers' PageRank score. Network analysis through bibliometric tools proves powerful for identifying established and emerging topical areas. These algorithmically identified clusters set the stage for topical classification of the published models and further investigation of the evolution of these clusters over years. Based on the bibliometric and network analysis, we selected papers published in 3, 4 and 4* journals of the Association of Business Schools' Academic Journal Guide (AJG) from each cluster and carried out a content analysis. From these results, we gained additional insights into the current research themes and potential directions for future research.

The AJG, which was called the ABS Guide before 2015, is recognised as an influential journal ranking system. It is based upon peer review, editorial and expert judgements and is informed by statistical information relating to citations. The guide not only is based on a weighted average of journal metrics but also reflects the perceptions of the subject experts and scholarly associations (AJG, 2015). We choose the AJG because it has been widely adopted as a policy tool for staffing in business schools (Kelly et al., 2009; Hussain, 2011) and is commonly used by researchers in papers (Mingers and Willmott, 2013; Tüselmann et al., 2016).

We make contributions to SCF research in the following ways. First, this is one of the most comprehensive reviews of this emerging albeit important topic in supply chain management. Second, the combination of bibliometric and content analysis presents a methodological contribution to a systematic literature method. Third, the identification of the four clusters and additional insights from the content analysis provide a systematic knowledge structure for SCF based on which actionable ideas for future research are proposed.

The remainder of the paper begins with an introduction to the literature review methodology used and descriptive analysis in section 2. Section 3 presents the results of bibliometric analysis and network analysis (including citation and co-citation analysis). In Section 4, we carry out a content analysis. Section 5 discusses the findings of all the analysis and proposes numerous future research directions. Section 6 summarises the results and presents the limitations of this study.

Section snippets

Research methodology and descriptive data analysis

Literature reviews aim to map and evaluate the body of literature to identify potential research gaps and highlight the boundaries of knowledge (Tranfield et al., 2003). Structured literature reviews are typically completed through an iterative cycle of defining appropriate search keywords, searching the literature, and completing the analysis (Saunders et al., 2009). Rowley and Slack (2004) recommend a structured methodology for scanning resources, designing the mind map to structure the...

Bibliometric analysis

Bibliometric analysis offers additional data statistics including author, affiliation and keywords. Several software packages such as HistCite and BibExcel have been used in the past for bibliometric analysis, and each has different capabilities and limitations (Garfield, 2009; Persson et al., 2009). BibExcel was chosen for this study due to its high degree of flexibility in modifying and/or adjusting the input data imported from various databases, including Scopus and Web of Science, and its...

Content analysis of the four clusters

To obtain insights into each cluster, a content analysis was conducted to identify the research sub-themes within each of the four clusters identified from co-citation analysis. Since co-citation analysis considers only co-cited papers, recent articles tend to be missed due to a low number of citations. To perform the content analysis, we screened papers that were published in 2014, 2015 and 2016, but not included in the 214-node co-citation network. Overall, 90 papers were found to be...

Discussion and future research directions

Cluster one appeared first, in 1973, and Cluster two emerged last, in 2007, but both clusters declined beginning in 2014. From 2008 onwards, there was a boost in Clusters three and four. SCF research has gradually developed into two main streams. One stream consists of Clusters one and two, which represents the traditional SCF research with a focal company focus. Cluster two was developed from Cluster one. These two clusters are focused on how financial mechanisms affect operation decisions...

Conclusions

Supply Chain Finance (SCF) has been established as an important but niche research area in supply chain management. The increasing number of publications in this area supports this argument. We have used bibliometric and network analysis tools to analyse the SCF literature, examine the evolution of this research area and identify four research themes/clusters. In addition, based on the co-citation/clustering analysis, we carry out a content analysis focusing on AJG 3, 4 and 4* journal...

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References (132)

P.L. Abad *et al.*

[A joint approach for setting unit price and the length of the credit period for a seller when end demand is price sensitive](#)

Int. J. Prod. Econ. (2003)

S. Bougheas *et al.*

[Corporate trade credit and inventories: new evidence of a trade-off from accounts payable and receivable](#)

J. Bank. Finance (2009)

S. Brin *et al.*

[The anatomy of a large-scale hypertextual Web search engine](#)

Comput. Netw. ISDN Syst. (1998)

C.T. Chang *et al.*

[Optimal manufacturer's replenishment policies for deteriorating items in a supply chain with up-stream and down-stream trade credits](#)

Int. J. Prod. Econ. (2010)

X. Chen

[A model of trade credit in a capital-constrained distribution channel](#)

Int. J. Prod. Econ. (2015)

L. Chen *et al.*

[Integrated vendor-buyer cooperative inventory models with variant permissible delay in payments](#)

Eur. J. Oper. Res. (2007)

P. Chen *et al.*

[Finding scientific gems with Google's PageRank algorithm](#)

J. Inform. (2007)

S.C. Chen *et al.*

[Economic production quantity models for deteriorating items with up-stream full trade credit and down-stream partial trade credit](#)

Int. J. Prod. Econ. (2014)

S.C. Chen *et al.*


[Retailer's economic order quantity when the supplier offers conditionally permissible delay in payments link to order quantity](#)

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Stackelberg solution in a vendor–buyer supply chain model with permissible delay in payments

Int. J. Prod. Econ. (2013)

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