Recent contributions to supply chain finance

Chaorui Huang[a] , Felix T. S. Chan[a*], Sai-Ho Chung[a]

a Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University, Hung Hum, Hong Kong

*: Corresponding Author

f.chan@polyu.edu.hk

Recent contributions to supply chain finance: Towards a theoretical and practical research agenda

Abstract

Supply chain finance (SCF) is an innovative solution dedicated to optimising financial flows in supply chains, and has drawn tremendous attention from academia and industry. Considering the ever-evolving nature of SCF, the existing literature reviews in this field are limited due to a lack of integration of recent findings. Motivated by the limitation, we attempt to fill this gap by investigating the novel achievements that have been reported in the current literature. By conducting a systematic literature review, we selected 99 qualified papers published between 2010 and the first quarter of 2021, and then used descriptive analysis to identify the literature characteristics, followed by in-depth content analysis. We synthesised nine research dimensions in the selected SCF literature. By virtue of comprehensive analysis, we illustrated the embedded mechanisms among all participants in SCF practices, updated the SCF research framework, summarised the most dominant methods applied in current research, made two classifications of the financial service providers (FSPs) and SCF instruments, and provided five future research directions. The significance of this paper lies in providing both a novel theoretical foundation for academic researchers and a practical guide for industrial practitioners.

Keywords: Supply chain finance, systematic literature review, content analysis, recent contributions, supply chain finance framework

1. Introduction

The history of supply chain finance (SCF) research can be traced back to the 1970s. Budin and Eapen (1970) investigated the impact of trade credit and inventory management on the generated cash flow. Haley and Higgins (1973) used a lot-size model to study the relationship between trade credit policy and inventory policy. However, these initial works only illustrated the fundamental conception of SCF, the research background and environmental contexts of these papers are totally different from today's SCF research because of the transformation of macro/microeconomics. Today's SCF research can be dated back to the last global financial crisis in 2008-2009. Due to insufficient knowledge of liquidity and working capital management, companies and their supply chains suffered constrained cash flow and encountered immense difficulties in accessing financing from banks (Jia et al., 2020a; Gelsomino et al., 2016; Liebl et al., 2016; More and Basu, 2013; Wandfluh et al., 2016; Bals, 2019). The need to deal with these issues became more and more urgent for international enterprises, especially for small and medium-sized enterprises (SMEs) that had difficulties in accessing finance (Caniato et al., 2016; Jia et al., 2020a; Gelsomino et al., 2016). Since then, SCF has gradually become a key instrument in handling such problems (Bals, 2019; Gelsomino, 2016; Jia et al., 2020a).

'Planning, managing, and controlling of supply chain cash flows' is the dominant focus of SCF (Wuttke et al., 2013a). Lamoureux and Evans (2011), Camerinelli (2009) and Hofmann (2005) argued that SCF aimed to help firms cover their daily financing needs so as to optimise the cash flow at the inter-organisation level. Since SCF is a relatively novel solution compared with traditional methods (e.g., equity financing or mortgaging), the research in this field is rather fresh, and the application of SCF faces various challenges (cf. More and Basu, 2013). Regarding the specific SCF solutions, one of the most pervasive instruments of SCF is reverse factoring (RF). The terminologies of RF and SCF are often used interchangeably (Demica,

2012). RF is an instrument where the FSP (e.g., bank) provides discounted loans immediately to suppliers, based on the buyer's high credit rating (Grüter and Wuttke, 2017; Liebl et al., 2016; van der Vliet et al., 2015; Wuttke et al., 2013b). Another common instrument, trade credit (TC), has also been used and researched for a long period. It is a short-term financing scheme for suppliers and buyers without involving the third parties (Wuttke et al., 2013a). Trade credit means that the non-cash limited suppliers can on the one hand provide longer payment terms for buyers in order to avoid buyer disruption; on the other hand, the stronger buyers who have high bargaining power and larger market share can require suppliers to execute payment extensions (Cowton and San-Jose, 2017). Except for these two dominant instruments, there are other emerging approaches such as purchase order financing (cf. Reindorp, 2018) or inventory financing (cf. Yan and Sun, 2013), etc. All the abovementioned instruments are discussed further in Section 4.3.

Since SCF is drawing increasing attention nowadays, the literature volume is increasing as well. Nevertheless, the research on SCF or the interface of operations and finance is still at the infant stage due to its novel nature. In terms of review papers in this field, however, we only located six papers shedding light on SCF (Bals, 2019; Jia et al., 2020a; Jia et al., 2020b; Xu et al., 2018; Gelsomino et al., 2016; Chakuu et al., 2019). By referring to the statistics of these reviews, we find an upward trend in publications by year, with an obvious increment after the financial crisis in 2008/2009. More importantly, in light of the ever-evolving nature of SCF and the fast-moving business environment, there are no detailed investigations on the most recent (e.g., 2010-2021) contributions and updated mechanisms on SCF. This gap is also an obvious discrepancy between previous reviews and ours. The former works are predominantly focusing on the relationships between SCF actors, instruments and contextual factors, while we aim to examine not only the evolving relationship between these constructs but also to derive a theoretical and systematic knowledge database containing concept expansion and

novel applications in the up-to-date literature. It is obvious that if we always persist with the original methods to adapt in an ever-changing environment, it may lead to business failure in the end.

To meet the purpose of this paper and differentiate our work from others, we first conducted a comprehensive and systematic literature review (SLR) and located totally 99 papers published from Jan. 2010 to April 2021. We then conducted a descriptive analysis in terms of journal characteristics and derived a deep content analysis to acquire detailed information by reviewing the relevant journal papers. To ensure the journal level quality, we referred to the '2018 iteration of the Chartered Association of Business Schools Academic Journal Guide (AJG)' and selected journals based on their ratings ranging from 2 to 4* (Xu et al., 2018; Bals, 2019; Chakuu, et al., 2019). The AJG is a guide for evaluating the quality of academics in the business and management fields (AJG, 2018) and is widely accepted by business schools (Kelly et al., 2009; Xu et al., 2018).

Our paper generates theoretical contributions by synthesising nine research dimensions in the SCF domain, summarising the recent contributions extracted from the selected papers, updating the SCF research framework, reclassifying the category of FSPs and SCF instruments, summarising the dominant methodologies used in recent research and proposing five future research directions. In addition, compared with the previous literature reviews, our work comprehensively studied all aspects of SCF instead of focusing on a small area, especially during the last decade. Therefore, not only can senior researchers study the current achievements in SCF but also young researchers can learn about the basics in order to acquire a whole picture in this field by referring to the updated framework and specific methods, as well as the future directions. Further, the insights gained from this study can be of assistance to industrial practitioners who care about the applications of SCF. Since the different situations in firms can lead to various ways of SCF implementation, they can use the results extracted

from the current research combined with their requirements and conditions as a guide to learn the benefits generated from SCF adoption, the improved supply chain performance under multiple SCF instruments, the current challenges, risks and opportunities of SCF, etc. by referring to the content analysis in this paper.

The remaining part of the paper proceeds as follows: In Section 2, the detailed system literature review method is explained; In Section 3, the statistical findings of journals in terms of the literature characteristics are presented; In Section 4, thorough content analysis to illustrate the main current research contributions of SCF is conducted; In Section 5, discussion about the results is provided; Section 6 concludes the full paper.

2. Method

A systematic literature review is a method to rigorously review the research results by synthesising the qualified scientific studies on a certain topic or research question (RQ). The objectives of SLR are to not only collect the findings of previous research but also provide evidence-based support to industrial practitioners (Kitchenham et al., 2009). In this paper, we refer to the procedures recommended by Denyer and Tranfield (2009) and Chakuu et al. (2019) and made some minor adjustments to best fit the purpose of this paper. Hence, the main steps in this paper include formulating questions, locating papers, selecting and evaluating materials, analysing, and synthesising the contents.

2.1 Formulating Questions

There are two central research questions hinging on the aim of this paper:

RQ1: What are the latest mechanisms under SCF practices? What are the new findings contained in these mechanisms?

RQ2: What does the innovative research framework look like and what are the methodologies applied in this field?

2.2 Locating Papers

The essence of this step is to read papers that are as comprehensive and relevant as possible. First of all, by referring to Chakuu et al. (2019) and Jia et al. (2020a), we selected two search engines: ProQuest and Web of Science. Secondly, two different search strings were identified. As presented in Fig. 1, these two strings are represented for both an indirect search and a direct search of the SCF-related literature. We set the published time range from January 2010 to April 2021, seeking to cover all recent articles in this field. In addition, the language was limited to English, the source type was solely for peer-reviewed scholarly journals, and the document type only included articles, case studies and reviews, excluding conference papers, books and book chapters. Finally, we screened out 2976 papers in ProQuest and 3398 papers in Web of Science respectively.

2.3 Selecting and Evaluating Materials

Prior to undertaking further investigation, we used inclusion and exclusion criteria as well as quality assessment in terms of the journal ranking to filter out the unqualified papers. The crux of inclusion and exclusion criteria was to select papers associated with the research questions by scanning paper titles and abstracts in the first round. We focused on examining if the paper titles and the content of abstracts were directly related to a specific SCF instrument such as trade credit or indirectly related to the SCF topic. To avoid reviewer bias and improve accuracy,

two of the authors separately reviewed the titles and abstracts in different search engines for the first time, then, they exchanged the search engines to review them again individually. Finally, the list of papers after reviewing was discussed, and agreement was achieved in terms of the relevance of the topic. As for quality assessment, since we only counted journals whose ratings were 2 to 4*, according to the AJG guide (Xu et al., 2018; Bals, 2019; Chakuu, et al., 2019), the number of papers was further reduced. Eventually, after duplicates were removed, we identified 99 papers for further analysis and synthesis. Fig. 1 demonstrates the integral process for selecting and evaluating papers.

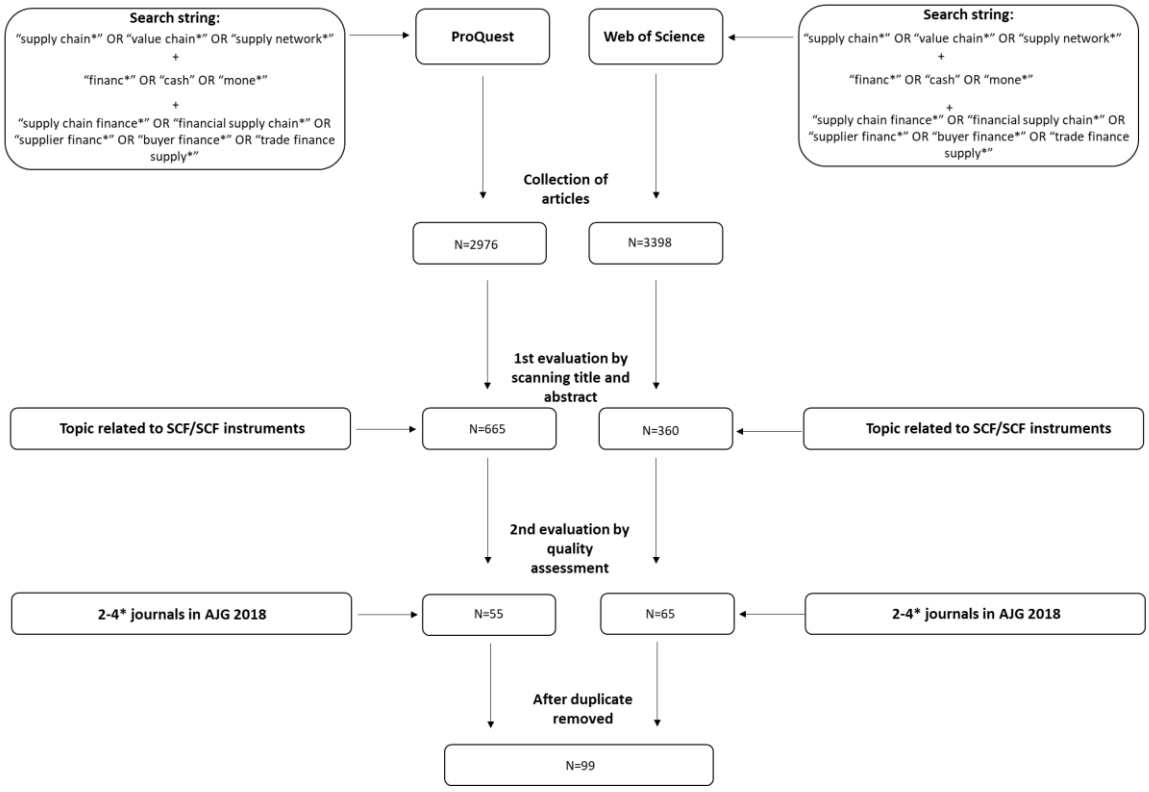

Figure 1 Paper selection process

2.4 Analysing and Synthesising

Once the base of the final samples was identified, it was necessary to conduct descriptive analysis and content analysis. Descriptive analysis was used to characterise the selected papers.

With regard to content analysis, in our paper, we emphasised the contributions obtained from the identified papers. Within the content analysis, we firstly established a coding system to record the paper information including title, keywords, topic, research gap, methodology, limitations and future research directions by extracting the key information then integrating it into several keywords strings after reading. When we finished reading the full text of the 99 papers, we synthesised certain broad dimensions, which means that one dimension has eminent features that differentiate itself from the others according to the coding system. For example, if several papers have a common topic, then this topic can be regarded as a dimension. Under each dimension, the papers were reviewed again to acquire more details, and some sub-dimensions were formed (see Section 4). Finally, we ultimately established nine dimensions in current SCF research.

3. Descriptive Analysis

Through this analysis, researchers can have an overall impression of SCF. Based on the statistics of the first author's affiliated institution and country, we identified the distribution of the countries showing the most interest in SCF, as illustrated in Fig. 2. China's paper volume of SCF research is the largest accounting for 23.26%, followed by U.S. (12.79%) and UK (12.79%), etc. We extrapolated that this was caused by economic development factors. Since SCF was initially fashioned in developed countries and was diffused in developing regions due to the global economic network, coupled with the rapid growth of the Chinese economy, China became the main force in SCF applications.

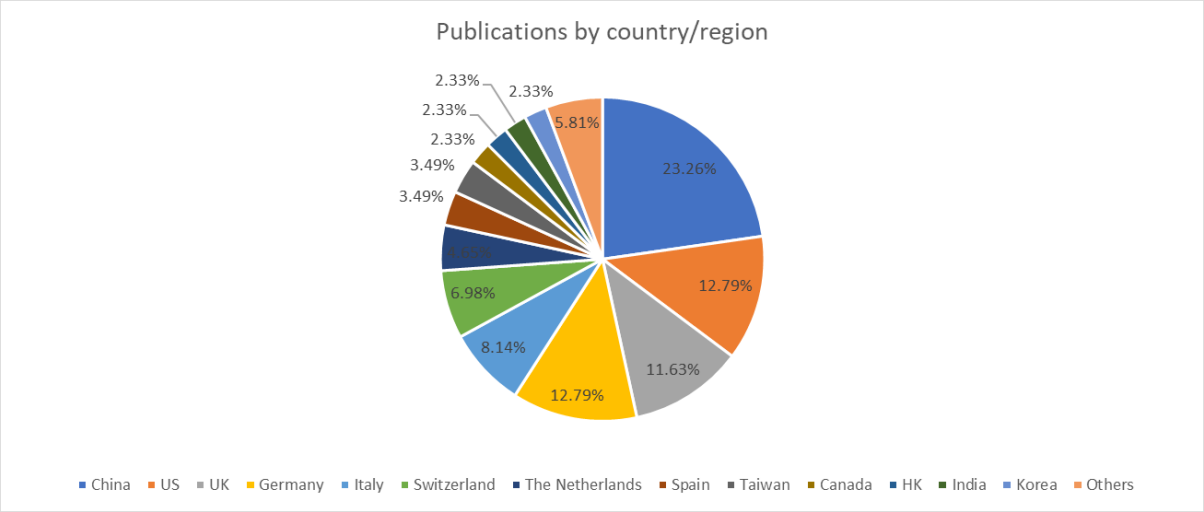

Figure 2 Publications by country/region

The SCF papers were mainly published in 40 journals, as can be seen from Fig. 3., with the papers frequently published in the International Journal of Production Economics (16), then the Journal of Purchasing and Supply Management (9) and the International Journal of Physical Distribution & Logistics Management (8), etc.

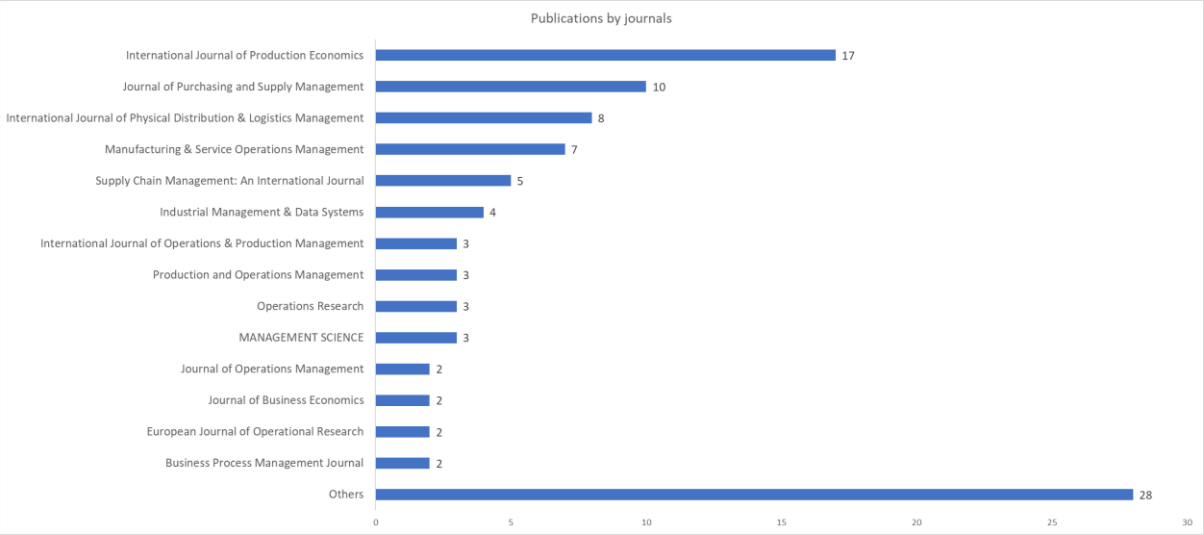

Figure 3 Publications by journal

For journal quality (Fig. 4.), most of the papers rate 2 to 3 based on the AJG guide, exhibiting the high quality of the selected papers, thus increasing the reliability of the research. Interestingly, Fig. 5. shows the interdisciplinary nature of SCF research, even if the majority of journals lie in the operations and technology fields (61%), and other fields such as operations research and management science (12%), economy (7%) and finance (6%) also play a significant role in contributing SCF research.

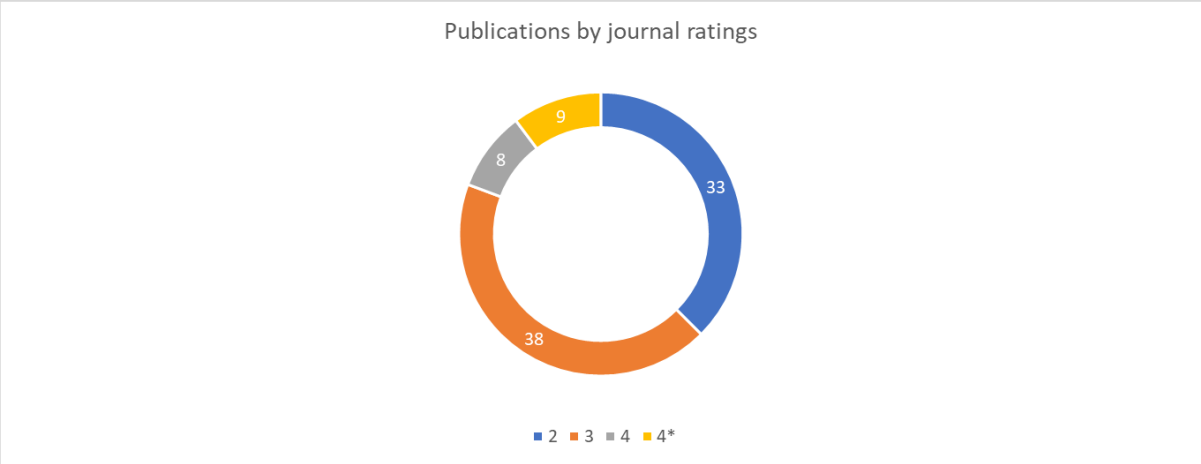

Figure 4 Publications by journal ratings

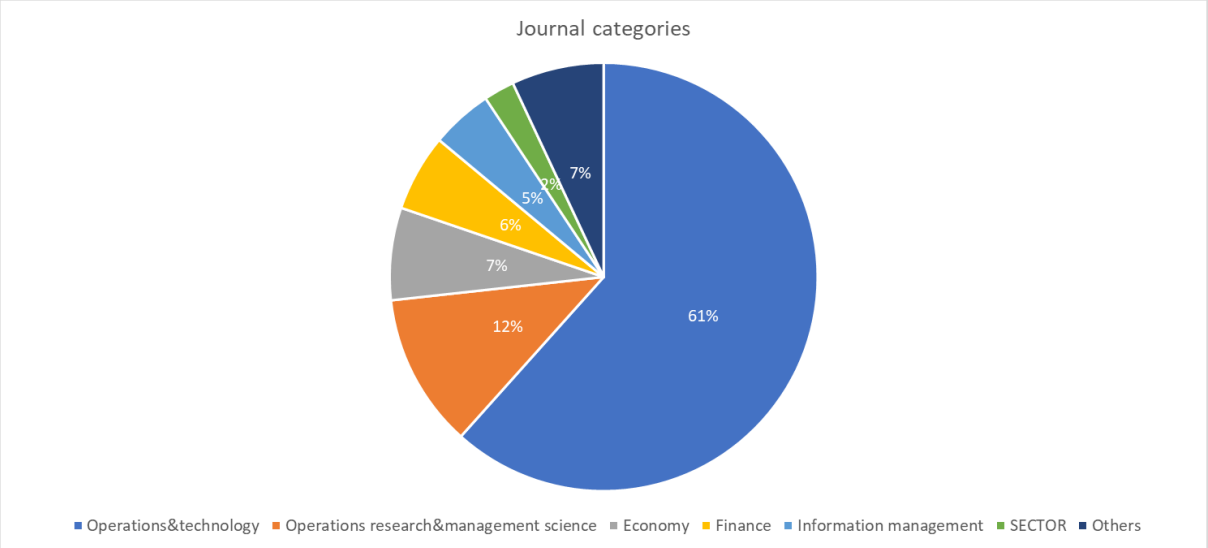

Figure 5 Journal categories

In summary, the descriptive analysis shows distinct features to generalise the overall trends and characteristics of the chosen papers before carrying out content analysis. The details mentioned above can help readers better understand the following content.

4. Content Analysis

As mentioned in Section 2.4, by integrating similar topics in the identified papers, finally, totally nine dimensions emerged, reflecting the current mainstream research directions of SCF: SCF concept definition and exploration, FSP, SCF instruments, SCF adoption, risk management, credit rating, working capital management, SCF combined novel technologies, and SCF performance outcomes. It is noteworthy that some papers may belong to two or three aforementioned dimensions simultaneously. For example, Wang et al.'s (2019) research focuses on the effects of the manufacturer's risk preference on supply chain profits by acquiring financing from a 3PL (third-party logistics) company rather than a bank. Therefore, this paper was categorised in both the risk management dimension and the FSP dimension (i.e., 3PL can be regarded as an FSP). The following sections elaborate on each dimension and sub-dimension. Table 1 shows the coding terms and the integrated dimensions.

Table 1 Overview of key coding terms and merged dimensions

SCF dimensions	Articles	Key coding terms	Key references
1) SCF concept definition and exploration	18	Supply chain network, corporate performance, concentration of suppliers and customers, reputation, sustainable supply chain finance, theoretical conceptualizations for supply chain and finance integration	Shi et al. (2020), Wetzel and Hofmann (2019), Casalin et al. (2017), Cen et al. (2016), Blackman et al. (2013), Kim and Shin (2012), Ali et al. (2018), Tseng et al. (2018), Hofmann and Johnson (2016), Carnovale et al. (2019), Zhang et al. (2019), Caniato et al. (2019), Babich and Kouvelis (2018) Wuttke et al. (2013a)
2) FSP	7	Financial service providers, 3PLs as supply chain orchestrators, the market value of service providers	Ma et al. (2020), Song et al. (2018), Martin and Hofmann (2017), Lam et al. (2019), Chen (2019), Wang et al. (2019)
3) SCF instruments	40	Trade credit model, purchase order financing, vendor managed inventory (VMI) system, buyer investment, the price of reverse factoring, operational decision and financial decision, inventory financing, coordination under SCF, line of credit, supplier finance vs. supplier investment, buyer Finance vs. Bank Finance, financing the newsvendor	Wu et al. (2019), Reindorp et al. (2018), Peura et al. (2017), Birim and Sofyalioglu (2017), Kolay et al. (2016), Marchi et al. (2016), Van der Vliet et al. (2015), Agostino and Trivieri (2014), Yan and Sun (2013), Liebl et al. (2016), Hoberg et al. (2017), Sokolinskiy et al. (2018), Cowton and San-Jose (2017), Lekkakos et al. (2016), Li et al. (2019), Yan et al. (2019), Tunca and Zhu (2018), Deng et al. (2018), Lee et al. (2018), Kouvelis and Zhao (2012)
4) SCF adoption	11	Managing the innovation adoption of supply chain finance, optimal introduction and adoption decisions, drivers and outcomes of supply chain finance adoption	Wuttke et al. (2013b), Wuttke et al. (2016), Caniato et al. (2016), Martin and Hofmann (2019), Chen et al. (2019), Wang et al. (2020)
5) Risk management	9	Prediction of business failure, forecast the SMEs' credit risk, moral hazard problem	Giannetti and Saidi (2019), Wang et al. (2015), Pellegrino et al. (2019), Zhu et al. (2019), Sung and Ho (2019)
6) Credit rating	4	Credit constraint companies choose low profit trade activities, knowledge spillover, credit rating method in SCF	Manova and Yu (2016), Song et al. (2019), Moretto et al. (2019)
7) Working capital management	4	Working capital of suppliers, benefits of working capital sharing in supply chains, working capital management, cash to cash cycle	Vazquez et al. (2016), Protopappa-Sieke and Seifert (2017), Hofmann and Kotzab (2010)
8) SCF combined novel technologies	9	Novel technology, big data analytics, information technology, trade digitalisation, machine learning	Song et al. (2021), Zhao et al. (2015), Caniato et al. (2019), Yu et al. (2021), Fayyaz et al. (2020), Ying (et al., 2020), Lam and Zhan (2021), Zhu et al. (2019), Ali et al. (2018)
9) SCF Performance Outcomes Dimension	11	Empirical study, data availability	Shou et al. (2021), Be Nguema et al. (2021), Song et al. (2021), Lam and Zhan (2021), Martin and Hofmann (2017), Tunca and Zhu (2018), Wetzel and Hofmann (2019), Wang et al. (2020), Dekkers et al. (2020), Ma et al. (2020), Zhang et al. (2019)

4.1 SCF Concept Definition and the Exploration Dimension

4.1.1 SCF Definitions

Several studies have been carried out to demonstrate the broad scope of the SCF concept. Chakuu et al. (2019) conducted a review to summarise the basic structure of SCF incorporating actors, instruments, enablers and inhibitors of SCF adoption. SCF actors include primary actors (buyers and suppliers) and supportive actors (banks, non-bank financial institutions, logistics service providers and platform providers (e.g., Fintech)). The renowned SCF instruments are constituted in three widely utilised categorisations: pre-shipment financing (e.g., purchasing order financing), in-transit financing (e.g., inventory financing), post-shipment financing (e.g., reverse factoring) (Hofmann, 2005; More and Basu, 2013; Wuttke et al., 2013a; Chakuu et al., 2019). Regarding the adoption process, Chakuu et al. (2019) merely summarised the enablers and inhibitors in conjunction with the explicit financial benefits that appeared in the extant literature. The essential difference between Chakuu et al.'s (2019) work and ours is we add new insights in terms of the SCF archetypes instead of establishing an alternative framework.

Gelsomino et al.'s (2016) research was more inclined to explain the general definitions of SCF. Their dominant contributions are not only in defining the two fundamental factors of SCF (FSP's role and the scope of SCF) but also in concluding the expected benefits and two research directions of SCF. Differentiated from Gelsomino et al. (2016), Hofmann and Johnson (2016) argued that the scope of SCF should build on the foundation of working capital management and envelope any resources financing, risks management and taxes. They furthermore emphasised that the essence of SCF involves the physical assets (e.g., inventory) within the supply chain. Dekkers et al. (2020) organised a group of experts in this field to determine the existing theoretical conceptualisations embedded in SCF. They indicated that agency theory, network theory, transaction cost economics and social exchange theory can be applied to study the phenomenon of SCF. Interestingly, after conducting an empirical analysis of 18,448 US

firms across 8 industries over 48 years, Zhang et al. (2019) discovered that the predominant role of SCF is to mitigate the bankruptcy risk for focal firms and has nothing to do with the focal firm's financial performance and inventory efficiency.

4.1.2 Financial Supply Chain Management

The definition of financial supply chain management (FSCM) is slightly different from SCF. FSCM emphasises the buyer-supplier relationship and cash flow along the chain (Sugirin, 2009; Popa, 2013; Wuttke et al., 2013a; Liebl et al., 2016), while SCF is regarded as a sub-set of FSCM mainly considering financing instruments within the chain (Chakuu, et al., 2019). Several supportive papers have illustrated the differences between FSCM and SCF: Popa (2013), Gelsomino et al. (2016), Hofmann and Johnson (2016), Liebl et al. (2016). Specifically, Wuttke et al. (2013a) defined FSCM as 'optimised planning, managing, and controlling of supply chain cash flows to facilitate efficient supply chain material flow'. To give a vivid example of the FSCM application, Blackman et al. (2013) studied Motorola's global financial supply chain strategy. They achieved an understanding that the financial supply chain is a key competitive advantage for Motorola's supply chain management.

4.1.3 Sustainable Supply Chain Finance

As we further reviewed the papers in this dimension, we noted three papers that discussed sustainable supply chain finance (SSCF). According to Jia et al. (2020b), there is a growing interest in industry and academia as to whether SCF can bring benefits other than financial benefits, such as the contributions on the environment and social value aspects, thus improving supply chain sustainability. Jia et al. (2020b) reviewed 47 articles covering SCF and sustainability and summarised the SSCF motives, practices and outcomes. In addition, they

analysed SSCF enablers (e.g., supply chain integration) and barriers (e.g., poor supplier management) and finally formed a conceptual framework for SSCF. Tseng et al. (2019) constructed a set of measurements and analysed the benefits and costs when implementing SSCF in the textile industry. The results suggested that firms should pay closer attention to collaboration value innovation, strategic competitive advantage and the financial aspect rather than the other attributes to improve performance. In another paper, Tseng et al. (2018) stressed that economic and social aspects are the two most crucial aspects within SSCF.

4.2 FSP Dimension

4.2.1 Ordinary FSPs

Martin and Hofmann (2017) explained why FSPs should be involved in SCF practices and what products FSPs can provide for their customers by surveying 62 companies and conducting expert interviews. They found there are three types of company needs: smooth financial flow, cross-functional cooperation, and supply chain objective misfits. Thus, FSPs can serve as intermediaries between SCF participants and supply chains to moderate and coordinate the resources within the chain. Apart from the significance of FSP itself, in the extant literature associated with SCF, FSP's role is becoming more and more crucial since FSP can determine the financial parameters such as discount rates based on the collaboration level of SCF actors. Hence, detecting which collaborative factors will influence the decision-making process from FSP's perspective is vital. By arranging interviews with experienced practitioners in this field and employing an interpretive structural model, Ma et al. (2020) identified that top management support, trust and IT infrastructure are the most paramount factors considered by FSP in China.

Further, it is clear that the benefits of SCF for buyers and suppliers are obvious and have been researched for a while; nonetheless, the benefits for the service providers themselves are usually ignored. Lam et al. (2019) employed an event study methodology to examine the impact of SCF initiatives on FSP's market value and to ascertain what are the service features that can improve the abnormal returns generated from SCF initiatives. Interestingly, Lam et al. (2019) discovered that SCF initiatives lead to positive abnormal returns for FSP once the initiatives are announced and continue on the following day.

4.2.2 Innovative FSPs

As a result of inadequacy in monitoring real-time transactions of the products, banks, concerned with default risks, are always reluctant to finance cash-constrained firms (Burkart and Ellingsen, 2004). 3PL firms can resolve this problem by jointly providing traditional logistics services and innovative financial services to their customers, and thus help customers not only to raise funds but also to manage their product flow and financial flow concurrently (Chen and Cai, 2011; Huang et al., 2019b). Chen and Cai (2011) adopted a two-stage Stackelberg game where the 3PL played as a leader in determining the interest rate in the first stage, and the retailer acted as the follower in deciding the order quantity accordingly. The results revealed that the control role of 3PL engenders higher profits for the entire supply chain. Chen et al. (2019a) also used a Stackelberg model but considered the opportunity cost of players in capturing the cash-flow dynamics in the supply chain. They identified a Nash equilibrium, implying that both the retailer and the 3PL would like to have a short product lead time and the 3PL still has an extended payment term on the basis of the agreement with the supplier. Similarly, Hua et al. (2021) investigated that under 3PL financing, all parties earn more benefits when the stronger supplier acts as the leader in a Stackelberg game, while both the retailer and the 3PL will be better off but the supplier will be worse off when the leader

changes to the 3PL. In contrast, Wang et al.'s (2019) research target was the 3PL providing integrated logistics services and financing budget-limited manufacturers rather than retailers with different risk preferences (i.e., risk-averse, risk-neutral, risk-taking). Additionally, FSP can also be a proactive actor within SCF practices and act as a buyer to help SMEs access finance. Song et al. (2018) adopted in-depth interviews with FSPs (B2B platform) to study how FSP helps SMEs to access finance compared with banks. In this scenario, FSPs have more advantages in terms of information asymmetry reduction.

4.3 SCF Instruments Dimension

4.3.1 Trade Credit

Trade credit is the common internal financing method for companies, where internal actors provide financing to others, and it usually refers to suppliers allowing buyers to extend payment terms without an interest charge over a prescribed time range (Kouvelis and Zhao, 2018; Peura et al., 2017; Yang and Birge, 2018; Lee et al., 2018; Devalkar and Krishnan, 2019; Chen et al., 2018; Tang et al., 2020). We illustrate the general sequence of events in trade credit as in Fig. 6. Particularly, the most prevailing terms are net terms, for example, 'net 30' means that the buyer should pay the supplier within 30 days, without an interest charge. Another popular type of payment term involves two-part terms, for example, '2/10, net 30', which means the buyer can still pay the supplier within 30 days without an interest charge; nonetheless, if the buyer pays the supplier in advance (e.g., 10 days), 2 percent discount applies. As a result of trade credit implementation, firms survive and the competitive advantages are improved. The recent contributions on trade credit predominantly lie in several aspects: risk management, comparison and contrast of two types of financing schemes (e.g., trade credit vs. bank financing), trade credit under supply chain competition and decision-making of credit term.

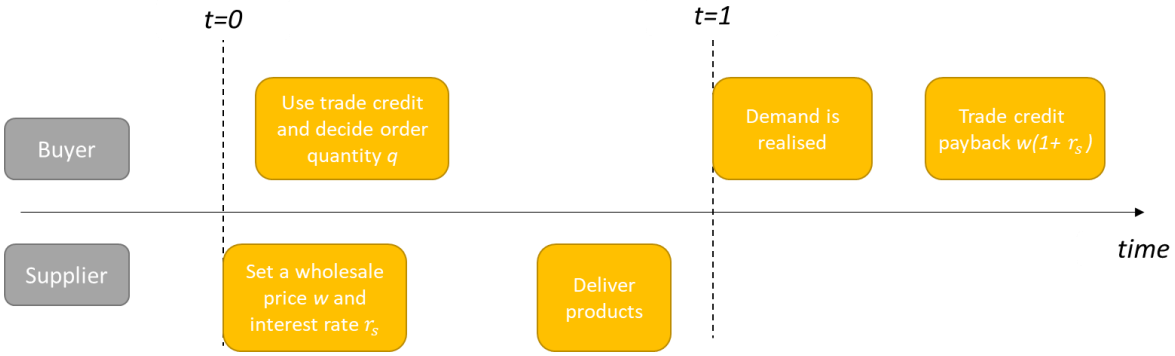

Figure 6 Sequence of events in trade credit

In the risk management related aspect, Serrano et al. (2018) investigated various payment methods for suppliers and the impacts of these methods on risk generation and propagation. Kolay et al.'s (2016) research was similar to Serrano et al.'s (2018). Kolay et al. (2016) identified that the costs of distressed flow (defaulted trade credit) transmitted to both the upstream and downstream supply chain and the supplier or customer substitution cost is significant for others once financial distress occurs. Alternatively, Yang and Birge (2018) studied the risk-sharing role of trade credit by illustrating how a supplier partially shares the demand risk with retailers under trade credit. Their equilibrium model revealed that trade credit was an indispensable financing mechanism compared with bank loans, while the latter's function was to restrict the supplier's default risk within the trade credit contract. Cowton and San-Jose (2017) considered the ethical issues related to trade credit and identified a maximum period where it is applicable for delayed payment, and such cash should be paid back promptly once the end customer settled the payment.

With respect to the competition aspect, competition exists both on the supplier side and buyer side. Peura et al. (2017) examined horizontal competition, that is two competing suppliers' price decisions, with and without trade credit, by adopting the classical Bertrand competition framework. Their results revealed that with trade credit, financial-constrained suppliers always

set amenable wholesale prices in order to avoid arousing additional financing costs and to contribute to the equilibrium prices over the marginal cost, in which the equilibrium profits would be higher than those without trade credit. In contrast to Peura et al.'s (2017) findings, Lee et al. (2018) focused more on the vertical competition and the impacts of competition with trade credit on a firm's performance. They conducted an empirical analysis and verified several features of vertical competition under trade credit. As for buyer competition, Wu et al. (2019) suggested that the suppliers employ trade credit as a countermeasure for their dominant buyers with strong bargaining power.

In light of the current comparisons of trade credit and other financing methods, researchers discuss them from the profit perspective. Kouvelis and Zhao (2012) compared trade credit with bank loans and investigated the optimal trade credit contract by employing a Stackelberg model. Interestingly, Yan et al. (2019) discovered that trade credit may not always be the best choice and they concluded that a financing portfolio can help the supplier achieve the highest profits. In optimising the credit term decisions in SCF, Li et al. (2019) attempted to analyses the supplier's credit term decision and the corresponding buyer's order decision in a multi-period context. The results showed that optimal credit under a trader credit contract changes over time, while a fixed credit term results in profit loss, and the supplier should note that different product categories have multiple demand sensitivity to credit terms.

4.3.2 Reverse Factoring

Another prominent financing instrument is named reverse factoring (RF). Since RF targets accessing financing by using supplier's account receivables, RF can also be viewed as account receivable financing (Wuttke et al., 2019). Within RF, the buyer approves the invoices and sends the invoice information to FSP for confirmation upon which products are delivered from

suppliers, then the supplier sells the account receivables to FSP to obtain immediate financing with a discount. The discount rate is determined by the FSP based on the creditworthiness of the buyer, then the buyer repays FSP the invoice amount after an agreed payment term granted by the supplier (Grüter and Wuttke, 2017; Liebl et al., 2016; van der Vliet et al., 2015; Wuttke et al., 2013a; Wuttke et al., 2019). The FSP provides financing for the supplier based on the buyer's credit level rather than the supplier's. Hence, under this mechanism, transaction risks of the lenders (i.e., FSP) can be lowered. By signing an RF contract between the three parties, the basic sequence of events of RF and its embedded relationships among the involved actors is shown in Fig. 7.

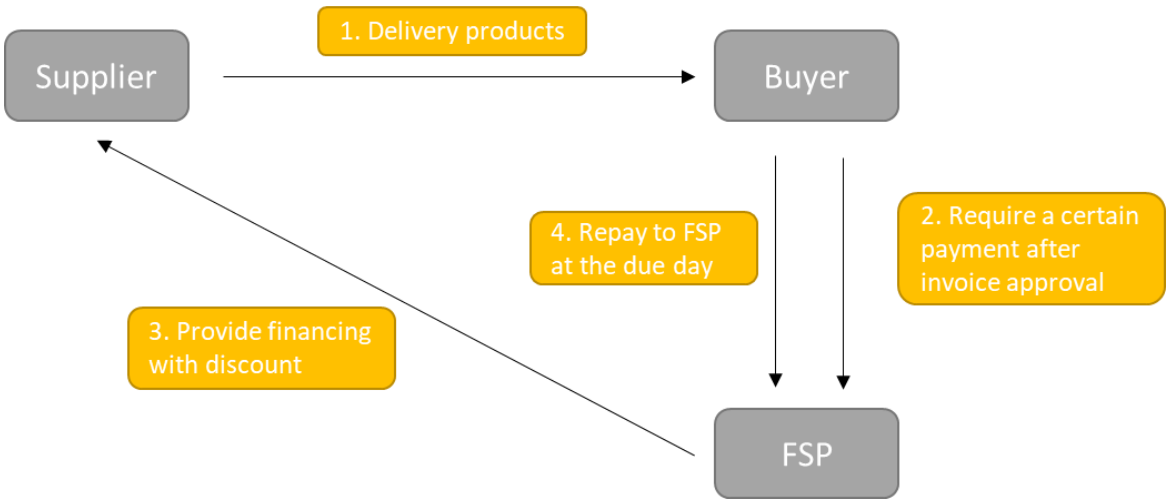

Figure 7 Sequence of RF events

As a novel instrument, compared with trade credit, RF research is still at the nascent stage. By virtue of a case study, Liebl et al. (2016) showed that the main objectives of RF were to extend the days payables outstanding (DPO) for buyers, exploit working capital improvement and simplify the payment process for suppliers and enlarge the market share for FSPs. Lekkakos et al. (2016) investigated the impacts of RF implementation on a firm's operations

and the performance of a cash-limited SME. They discovered an optimal working capital-dependent base-stock policy and identified a specific time range for selling account receivables to improve profits. Kouvelis and Xu (2021) theoretically identified a certain condition for RF adoption, that is the supplier's credit rating should relatively low. They also discovered that RF could be implemented even if the retailer's high credit rating vanished, and it could still benefit the retailer even without payment delay. Van der Vliet et al. (2015) answered the question of how long the extensions of payment terms could benefit a supplier in reverse factoring. By virtue of a periodic review base stock model, they eventually identified that the extended payment terms induced the non-linear financing cost (i.e., cost of discounted transaction) for the supplier which was even more than the opportunity cost for holding additional receivables under manual discounting.

4.3.3 Inventory Financing

We find that the concept of inventory financing has various meanings in the literature, and thus can cause confusion. In some papers, the authors use the term 'inventory financing' to denote a transaction process, for example, the buyer purchases inventories (Yang and Birge, 2018); however, in other papers, like Hoberg et al. (2017), they view inventory financing as a means of inventory management. In our paper, we regard inventory financing as an SCF instrument. Inventory financing requires a firm to use its current assets as collateral (e.g., account receivables and inventories) to obtain financing from an FSP or to extend credit lines from buyers by exploiting the value of assets rather than the credit rating (Berger and Udell, 2006; Gelsomino et al., 2019; Yan and Sun, 2013). Inventory financing has recently involved a 3PL as FSP to purchase goods from suppliers and resell them to the buyers after a period of time. Before reselling to buyers, the 3PL retains the ownership of the goods (Chen and Cai, 2011;

Hofmann, 2009; Gelsomino et al., 2019). The traditional inventory financing framework and its embedded relationships among the involved actors are shown in Fig. 8.

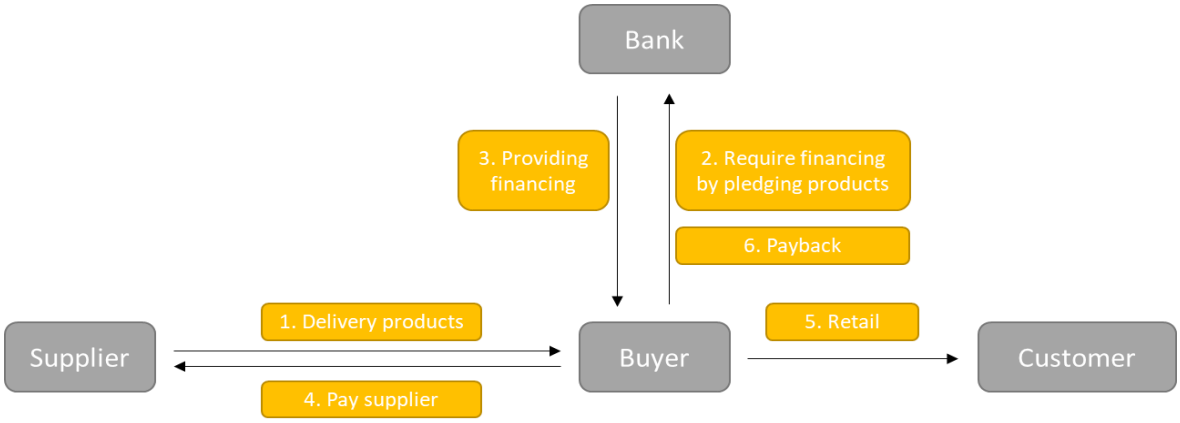

Figure 8 Sequence of events of inventory financing

Yan and Sun (2013) studied the decision-making process of banks, suppliers and retailers under inventory financing in terms of the optimal credit line, wholesale price and order quantity individually by employing a multi-level Stackelberg game model. The results confirmed that, firstly, crucial interdependencies exist between operational decisions and financial decisions within a cash-limited supply chain; secondly, an applicable financing setting can encourage the retailer to order more; more importantly, the limited financing provided by the bank in conjunction with the supplier's wholesale price contract will achieve a coordinative effect on the SCF system. In contrast, rather than paying sole attention to inventory financing, Gelsomino et al. (2019) investigated the benefits of reverse factoring, inventory financing and dynamic discounting (a flexible mechanism that allows buyers and suppliers to handle payment issues at any time in exchange for a discount) portfolio. Their results indicated that working capital needs and the cost of financing were the indispensable metrics to assess the benefits of financing instruments portfolio.

4.3.4 Buyer Financing

Buyer financing implies that buyers directly provide financing to suppliers. There are diversified types of buyer financing including early payment, supplier investment and equity investment, etc. Compared with bank loans, buyer financing helps the buyer acquire positive abnormal returns and facilitates a coordinative supply chain (Deng et al., 2018). The recent research, basically, buyer financing is either used to make a comparison with other financing instruments such as bank loans (Deng et al., 2018), or to make a supplement to other financing instruments such as supplier financing (Tunca and Zhu, 2018) under SCF practices. Deng et al. (2018) analysed the efficiency of buyer financing by comparing it with bank financing with one assembler and various heterogeneous suppliers. They found that the assembler should charge the lowest interest rate on suppliers, and the rate can be even lower than the assembler's capital opportunity cost in buyer finance in order to have higher gains by taking advantage of strengthened inventory backup and lower wholesale prices. Tunca and Zhu (2018) examined the intermediating role of the buyer when the buyer provides intermediated financing to suppliers. They discovered it can significantly improve supply chain performance and benefit all participants. They further selected a Chinese e-business retailer JD.com to conduct a detailed empirical analysis through structural regression estimation, and consequently, they verified that buyer intermediated financing can reduce the interest rates and purchase costs, increase order fill rates and motivate supplier borrowing.

4.3.5 Purchase Order Financing

Purchase order financing (POF) is a type of pre-shipment financing, where suppliers can gain access to capital provided by the FSP based on the purchased orders issued by their creditworthy and reputable buyers before delivering products. Differing from asset-based financing (e.g., inventory financing), which pledges tangible assets, the repayment of loans is

subject to the successful delivery of products meeting the requirements of buyers (Tang et al., 2018; Reindorp et al., 2018). Hence, the major risk of POF exists in the supplier's production and delivery performance (Gustin, 2014; Tang et al., 2018). The sequence of events of POF involving a bank as FSP and the relationships of participants under POF is shown in Fig. 9.

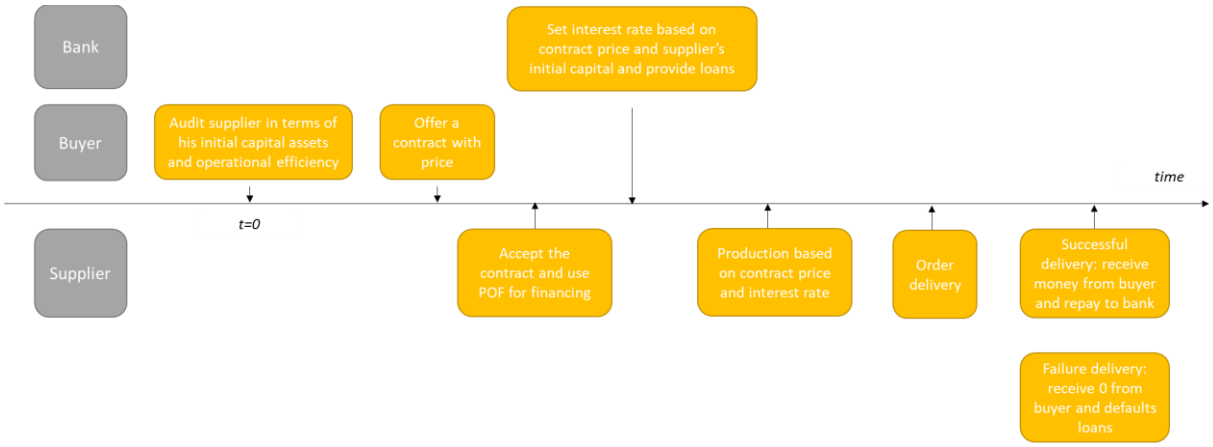

Figure 9 Sequence of events of POF

Reindorp et al. (2018) analysed a scenario in which a retailer purchases products from a cash-limited supplier with information opaque problems. The results revealed that the supplier can benefit from a lower ex-ante credit limit depending on the initial capital and assets or lower informational transparency, while the retailer's profits increase in the supplier's credit limit and information transparency. Tang et al. (2018) studied a similar problem but employed two financing instruments: concurrent POF and buyer financing. They summarised that firstly if the buyer and the bank have symmetric information about the supplier's operation efficiency, the values created by the two schemes are the same, regardless of the buyer's better control on buyer financing; secondly, the buyer can take advantage of information convenience on the supplier to determine contract terms flexibly; thirdly, the effectiveness of POF is the same as buyer financing when the supplier's initial assets are not so low, however, buyer financing is

preferable to POF when the supplier's initial assets are extremely low but the operational capability is efficient.

4.4 SCF Adoption Dimension

4.4.1 Theoretical Analysis of SCF Adoption

SCF adoption is critically dependent on a set of drivers facilitating successful SCF adoption and several inhibitors that impede the adoption process. Chakuu et al. (2019) and Huang et al. (2019a) summarised the dominant drivers such as a firm's requirement of financial risk management as well as the crucial inhibitors like information asymmetry when considering SCF adoption. Wang et al. (2020) examined the impacts of three drivers: perceived capital pressure, order fulfilment cycle, and inventory turnover cycle on three types of SCF instruments adoption: RF, inventory financing, and account payable financing. Iacono et al. (2015) studied the influence of market dynamics on RF adoption by virtue of a dynamical model. The results indicated that competition, interest rates, receivable volumes and firms' working capital goals were key factors influencing the successful adoption of RF. However, although RF can generate benefits for supply chain partners, the benefit might change over time due to the natural economic changes (Iacono et al., 2015). There is also evidence that some firms may appear reluctant and hesitant to adopt SCF, thus resulting in a time lag between the focal firm's introduction and the adoption of its targeted suppliers. Wuttke et al. (2016) employed a diffusion model to study the SCF adoption decisions made by the involved actors. They observed that only the successful early adoptions from others support the adoption decisions.

4.4.2 Case Studies of SCF Adoption

Wuttke et al. (2013b) used an inductive multiple case study approach in six European firms to propose that for successful SCF adoption, internal collaboration and mutual enforcement for buyers and suppliers, a high-level alignment of procurement-finance departments and supplier involvement, clarification and dissemination are critical requirements. More and Basu (2013) analysed the challenges/inhibitors of SCF adoption. By deeply studying an Indian firm, they revealed that insufficient common vision for all supply chain participants was the biggest challenge. Moreover, transaction delays, non-automated payment processes, inadequate knowledge and training on SCF also impede the adoption process thereby postponing supply chain performance improvement. Caniato et al. (2016) investigated 14 cases of Italian firms that had already implemented SCF solutions. Their major findings included the recognition that the level of inter- and intra-company collaboration, the level of automation in the payment process, the bargaining power and the financial strength of the leading firm play significant roles in SCF adoption. Martin and Hofmann (2019) used a contingency approach in conjunction with a multiple case study to establish a contingency framework for the SCF adoption on the supply side. They considered the contingencies of application from the endogenous perspective, relationship-related perspective and exogenous perspective and identified two types of practices involving the timing of financing and the source of funds, and finally set up various criteria for the different practices. Chen et al. (2019b) specifically examined JD's practices in SCF adoption. After several field interviews, they demonstrated that the objectives for SCF adoption were to enhance the business ecosystem and improve JD's competitive advantages. JD built up an iterative process and used its financial technologies to enhance trade automation by improving transparency and efficiency, and employed its bargaining power to influence the production process and maintain a closer partnership with its suppliers. Interestingly, Wuttke et al. (2019) further distinguished the adoption drivers into

efficiency motive drivers and legitimacy motive drivers. By conducting empirical analysis, Wuttke et al. (2019) found that suppliers tend to adopt SCF faster if they have more difficulties in accessing financing and if the adoption can greatly reduce their financing cost. Additionally, mimetic and normative pressures hasten the speed of SCF adoption, but coercive pressures do not generate a huge impact if the buyer's stakes are high.

4.5 Risk Management Dimension

The major risks involved in the SCF practices are debtor's credit risks for lenders, and debtor's bankruptcy risks, partially resulting from their credit risks (e.g., payment default), and unpredictable demand risks for retailers. The demand risks are also denoted by a probability function conforming to a certain distribution, such as the Poisson distribution in the literature, and the remaining content mainly covers the former two types of risks.

4.5.1 Credit Risk

The Basel Committee on Banking Supervision (BCBS) defines credit risk as the possibility that a lender will not fulfil his or her legal responsibilities according to the debt contract with the corresponding financial institution (Supervision, 1999). In SCF practice, credit risk is still a major concern, especially for SMEs in developing countries such as China, because of a low-level of credit rating, high probability of fraud and default, and an underdeveloped credit guarantee system (Su and Lu, 2015; Zhu et al., 2019). Credit risks also imply the financial distress of a firm having default risks on bank loans or trade credit, thereafter generating financial frictions (i.e., cost of default) (Yang and Birge, 2018), moral hazard problems (Sung and Ho, 2019; Chen et al., 2018), and credit rating issues (Sung and Ho, 2019).

As a result of the urgent requirement for forecast accuracy in SCF practices, traditional forecasting models cannot effectively and efficiently predict the credit risks for SMEs. Zhu et al. (2019) proposed an enhanced hybrid ensemble machine learning approach to forecast the SMEs' credit risk and verified that it performs better in terms of forecasting accuracy than in traditional approaches. Sung and Ho (2019) examined the moral hazard problems when a bank provides financing for purchasing orders. They showed that the supplier's monitoring task can be included in the procurement contract, thereby mitigating the supplier's credit rating problem and improving banks' under-estimation on the supplier's default risk and the over-estimation on the retailer's default risk simultaneously. Giannetti and Saidi (2019) provided some novel insights on the reason why lenders provided liquidity for SMEs was dependent on whether the lenders would like to internalise the spillover effects of financial distress. Particularly, in the tourism industry, when a tourism service provider contracts with unfamiliar customers, they need to be conservative under a positive economic condition and remain progressive under a moderate economic condition in order to decrease the risk of payment default (Chen et al., 2018).

4.5.2 Bankruptcy Risk

Bankruptcy risk usually refers to the business failure of a firm in which the firm can no longer exist due to an inability to absorb negative shocks and respond to all kinds of supply chain environmental changes (Amankwah-Amoah and Debrah, 2010; Watson and Everett, 1993; Zhao et al, 2015). Sokolinskiy et al. (2018) viewed bankruptcy risk as rollover risk which means a financial institution such as a bank has the probability to refuse to finance the debtors. The debtors then will first find alternative costly financing sources in the form of backorder penalties and lost sales, then face a bankruptcy situation and supply chain disruption ultimately, due to the delayed or failed delivery of the products (Sokolinskiy et al., 2018). By developing

a prediction model for the business failure of SCF actors and employing a logistics regression method to test the model, Zhao et al. (2015) indicated that taxable sales revenue, frequency of VAT (value-added tax) invoice issuance and firm age are negatively related to business failure. In contrast, the VAT-paid and industry clock-speed are positively associated with business failure.

4.6 Credit Rating Dimension

4.6.1 Various Credit Rating Methods

Moretto et al. (2019) suggested a combination of financial and operational indicators to evaluate supply chain credit rating. Song et al. (2019) studied the impact of knowledge spillover and knowledge access in supply chain network effects on SMEs' credit rating when employing SCF solutions. Differing from the aforementioned two articles, Cen et al. (2016) argued that suppliers who had a long-term relationship with their principal customers will potentially generate a reputational consequence to different markets. Under this situation, suppliers can obtain a better credit rating provided by banks because of the long-term relationships with creditworthy customers, thus they can achieve smaller loan spreads and looser loan covenants (Cen et al., 2016).

4.6.2 Impact of Credit Ratings on Supply Chain Decisions

In a situation where both the supplier and the buyer are cash-limited, the retailer can use either trade credit provided by the supplier or bank loans or both to purchase orders, while the supplier can use both the retailer's early payment with discount and bank loans to produce products. Kouvelis and Zhao (2018) studied the impact of different actors' credit ratings under this situation and discovered that the retailer will only use trade credit with zero interest rate if the

supplier's credit rating is beyond a certain threshold; otherwise, the supplier will fix a positive interest rate to encourage the retailer to use a combination of trade credit and bank loans.

4.7 Working Capital Management Dimension

4.7.1 Working Capital Management Methods

Hofmann and Kotzab (2010) employed a supply chain-oriented method of working capital management to investigate two perspectives: the single company perspective and the supply chain-oriented perspective. They argued that firstly only one firm's (cash-to-cash) C2C cycle improvement would not benefit other participants within the chain; secondly, an optimal C2C cycle enables a minimal cost of tied-up capital and maximum gains of receivables through collaboration; lastly, a firm with higher financing costs needs a shorter C2C cycle while a firm with low capital cost could extend its capital cycle (Hofmann and Kotzab, 2010). Ali et al. (2018) regarded trade digitisation as a moderating variable in investigating its function of enhancing working capital management and supply chain performance. The results indicated that trade digitisation was a cost-effective way to improve a firm's working capital without pledging any fixed assets, thus increasing visibility and improving the automated transaction process within the supply chain. Vázquez et al. (2016) studied the working capital of two-tier suppliers in the automobile industry by adopting a cooperative approach. Their results confirmed that there are great differences in working capital between the first-tier suppliers and the second-tier suppliers which implies that the working capital management within the supply chain is not cooperative, and ultimately leads to low production efficiency. Hence, similar to Hofmann and Kotzab's (2010) recommendations, Vázquez et al. (2016) proposed that the individual supply chain managers should establish long-term and collaborative relationships, especially in managing working capital in a cooperative way, so as to finance weaker members and improve the overall performance instead of only benefiting some of the participants.

4.7.2 Benefits of Collaborative Working Capital Management

Protopappa-Sieke and Seifert (2017) assumed that if there was a joint pool of working capital allowing capital allocation in a collaborative way rather than each actor having his/her own working capital, it would generate significant cost savings. However, the extended payment terms enforced by a strong buyer on a weaker upstream supplier will cause higher supply chain costs. Wetzel and Hofmann (2019) analysed the relationship between working capital assets and company performance within an inter-organisational supply chain and found parallel results. By empirical analysis, they discovered that the relationship between working capital assets and company performance resembled an inverted U-shaped curve and this relationship depended on the financial constraints along the chain.

4.8 SCF Combined Novel Technologies Dimension

Nowadays, with the faster development of information technology (IT), information and communications technology (ICT) as well as computer science (CS), more and more advanced technologies such as artificial intelligence, machine learning, deep learning, 5G, big data analytics, etc. have been tentatively applied in the SCF-involved scenarios to improve the supply chain performance.

4.8.1 The Explorations of the Role of the Novel Technologies

Song et al. (2021) used big data analytics (BDA), neural networks and multiple regression to explain how SMEs obtain financing through a digital platform and how FSPs evaluate SMEs' credit levels by conducting data mining analysis on the Chinese mobile manufacturing industry. They verified that the BDA not only has an advantage in identifying the SMEs' quality and potential default risks but also effectively helps the FSPs provide tailored financing schemes

to SMEs. Likewise, Zhao et al. (2015) established a prediction model by using the external big data set to improve the predictability of business failure of SCF clients. Caniato et al. (2019) mentioned that the descriptive, predictive and prescriptive analytics in BDA can provide a more accurate and reliable decision-making foundations for supply chain actors. Yu et al. (2021) applied the organisational information processing theory to investigate the positive impact of BDA capability on SCF integration. They identified that the internal SCF integration can fully mediate the relationship between BDA capability and the SCF integration.

By applying machine learning methods, Fayyaz et al. (2020) considered the credit risk evaluation from the buyer's perspective (i.e., buyer's ability to repay under trade credit settings) and they also took the supply chain network's impact into consideration thus significantly improving the accuracy of prediction. Similarly, Zhu et al. (2019) proposed an enhanced machine learning methods to improve the accuracy of SMEs' credit risk forecasting and identified several crucial factors such as core enterprise's profit margin when financing SMEs. Interestingly, Ying (et al., 2020) considered that the results acquired in machine learning are hard to be understood by practitioners so that interpretability is extremely important to help the supply chain practitioners well manage the risks.

Lam and Zhan (2021) studied how SCF together with IT capability impact on the financial risk of FSPs. Their findings highlighted that the risk would be reduced significantly when the FSPs have a higher IT capability, so the FSPs are encouraged to improve their IT infrastructure. Ali et al. (2018), as mentioned in Section 4.7.1, regarded trade digitisation as a moderating variable to investigate its function of enhancing working capital management and supply chain performance.

4.9 SCF Performance Outcomes Dimension

There is also some research focusing on the empirical study to verify the previous results, i.e., the firm's improved performance after implementing SCF, obtained from the theoretical modelling processes, which had been neglected in the initial SCF research due to insufficient data.

Be Nguema et al. (2021) empirically studied the impact of SCF on firm performance and investigated the relationship between SCF and organisational performance by collecting data from a survey of 210 companies in China. They demonstrated that SCF can effectively mitigate the risks contained within a supply chain and can generate a positive effect on a firm's performance, which has been already proven in early modelling works (e.g., Sokolinskiy et al. (2018); Yang and Birge, 2018). Furthermore, Shou et al. (2021) investigated the relationship between RF and operating performance and the related contingency conditions embedded in this relationship based on a sample of 167 Chinese companies who claimed to have implemented RF to finance suppliers. Shou et al. (2021) discovered that RF positively affects the firms' operating margin and cost-efficiency. Again, these results match with the early theoretical conclusions (e.g., Liebl et al. (2016); Kouvelis and Xu, 2021). In addition, Song et al. (2021), Lam and Zhan (2021), Martin and Hofmann (2017), Tunca and Zhu (2018), Wetzel and Hofmann (2019), Wang et al. (2020), Dekkers et al. (2020), Ma et al. (2020), and Zhang et al. (2019) which mentioned early in this paper also used empirical studies to verify the positive impact of SCF on supply chain performance, supply chain capabilities, etc. by providing supportive evidence. By observing these empirical studies, we can see the significance of data availability in leading to more objective and general results. However, the data is unfairly distributed in different regions, e.g., the data is more limited in developing economies due to the lagged implementation than that of developed economies, hence we

expect the empirical study that used to examine a firm's operational and financial performance after SCF adoption especially in developing regions is worth further studying in the future.

Ultimately, in order to give a clear picture of the comprehensive content analysis, we summarise the key contributions extracted from the chosen literature across nine research dimensions as presented in Table 2.

Table 2 Recent contributions within each dimension

SCF dimensions	Sub-dimension	Key contributions from recent research	Supportive key references
1) SCF concept definition and exploration	SCF Definitions	● Identified the basic structure of SCF incorporating actors, instruments, enablers and inhibitors of SCF adoption.	Chakuu et al. (2019); Hofmann (2005); More and Basu (2013); Wuttke et al. (2013a)
		● Defined the general conception, the predominant role and the scope of SCF.	Gelsomino et al. (2016); Hofmann and Johnson (2016); Dekkers et al. (2020); Zhang et al. (2019)
	Financial Supply Chain Management	● Emphasised the difference between FSCM and SCF.	Sugirin (2009); Popa (2013); Wuttke et al. (2013a); Liebl et al. (2016); Chakuu, et al. (2019); Gelsomino et al. (2016); Hofmann and Johnson (2016)
		● Concluded the successful experience of FSCM application.	Blackman et al. (2013)
	Sustainable Supply Chain Finance	● Combined SCF with sustainable development and summarised the SSCF motives, practices, outcomes, enablers, barriers.	Jia et al. (2020b)
		● Measured and analysed the benefits and costs of SSCF.	Tseng et al. (2019); Tseng et al. (2018)
2) FSP	Ordinary FSPs	● Understood the role of FSPs when providing SCF services.	Martin and Hofmann (2017); Ma et al. (2020)
		● Identified the challenges of FSPs.	Euro Banking Association (2014)
		● Identified the benefits of FSPs when providing SCF services.	Lam et al. (2019); Steeman (2014); Herath (2015); Martin and Hofmann (2017)
	Innovative FSPs	● Understood the 3PL's role as a FSP under various settings.	Chen and Cai (2011); Huang et al. (2019); Chen et al. (2019a); Hua et al. (2021); Wang et al. (2019); Song et al. (2018)
3) SCF instruments	Trade Credit	● Defined the general conception of trade credit, e.g., net term and two-part term.	Kouvelis and Zhao (2018); Peura et al. (2017); Yang and Birge (2018); Lee et al. (2018); Devalkar and Krishnan (2019); Chen et al. (2018); Tang et al. (2020)
		● Understood the impacts of trade credit on risk generation, risk propagation, risk sharing, ethical issues.	Serrano et al. (2018); Kolay et al. (2016); Yang and birge (2018); Cowton and San-Jose (2017); Agostino and Trivieri (2014)
		● Explored the benefits of trade credit in the presence of competition.	Peura et al. (2017); Lee et al. (2018); Wu et al. (2019)
		● Made comparisons between trade credit and other SCF instruments and concluded the benefits of trade credit under certain conditions.	Kouvelis and Zhao (2012); Yan et al. (2019)
		● Optimised the credit term setting in trade credit contract.	Li et al. (2019)
	Reverse Factoring	● Defined the general conception of RF.	Grüter and Wuttke (2017); Liebl et al. (2016); van der Vliet et al. (2015); Wuttke et al. (2013a); Wuttke et al. (2019); Milne (2009); Gelsomino et al. (2019); Klapper (2005)
		● Identified the objectives of RF.	Liebl et al. (2016)
		● Concluded the benefits of RF under certain conditions.	Lekkakos et al. (2016); Kouvelis and Xu (2021)
		● Optimised the payment term setting in RF contract.	Van der Vliet et al. (2015)
	Inventory Financing	● Defined the general conception of inventory financing.	Yang and Birge (2018); Hoberg et al. (2017); Berger and Udell (2006); Gelsomino et al. (2019); Yan and Sun (2013); Chen and Cai (2011); Hofmann (2009); Gelsomino et al. (2019)
		● Optimised the key parameters settings in inventory financing contract such as credit line, wholesale price and order quantity.	Yan and Sun (2013)
		● Made comparisons between different SCF instruments in terms of benefits.	Gelsomino et al. (2019)
	Buyer Financing	● Identified the immediate role of buying financing.	Deng et al. (2018); Tunca and Zhu (2018)
	Purchase Order Financing	● Defined the general conception of POF.	Tang et al. (2018); Reindorp et al. (2018); Gustin (2014)
		● Concluded the benefits of POF under certain conditions.	Reindorp et al. (2018); Tang et al. (2018)
4) SCF adoption	Theoretical Analysis of SCF Adoption	● Concluded the drivers and inhibitors of SCF adoption.	Chakuu et al. (2019); Wang et al. (2020); Huang et al. (2019); Iacono et al. (2015); Wuttke et al. (2016)
	Case Studies of SCF Adoption	● Found the evident results of SCF adoption and proved the theoretical analysis.	Wuttke et al. (2013b); More and Basu (2013); Caniato et al. (2016); Martin and Hofmann (2019); Chen et al. (2019b); Wuttke et al. (2019)
5) Risk management	Credit Risk	● Improved the forecast methods of credit risk evaluation in SCF.	Zhu et al. (2019)
		● Examined the moral hazard problem contained in SCF.	Sung and Ho (2019)
		● Studied the detailed scenarios that how credit risk could be mitigated in SCF.	Giannetti and Saidi (2019); Chen et al. (2018)
	Bankruptcy Risk	● Identified different drivers that could induce bankruptcy in SCF.	Sokolinskiy et al. (2018); Zhao et al. (2015)
6) Credit rating	Various Credit Rating Methods	● Formed the effective credit rating methods.	Moretto et al. (2019); Song et al. (2019); Cen et al. (2016);
	Impact of Credit Ratings on Supply Chain Decisions	● Identified the impact of credit rating on supply chain decisions.	Kouvelis and Zhao (2018)
7) Working capital management	Working Capital Management Methods	● Formed the effective working capital management methods.	Hofmann and Kotzab (2010); Ali et al. (2018); Vázquez et al. (2016)
	Benefits of Collaborative Working Capital Management	● Identified the benefits of collaborative working capital management.	Protopappa-Sieke and Seifert (2017); Wetzel and Hofmann (2019)
8) SCF combined novel technologies	The Explorations of the Role of the Novel Technologies	● Identified the key role of novel technologies in improving the performance in SCF.	Song et al. (2021), Zhao et al. (2015), Caniato et al. (2019), Yu et al. (2021), Fayyaz et al. (2020), Ying (et al., 2020), Lam and Zhan (2021), Zhu et al. (2019), Ali et al. (2018)
9) SCF performance outcomes		● Found the evident results of improved performance and proved the theoretical analysis.	Shou et al. (2021), Be Nguema et al. (2021), Song et al. (2021), Lam and Zhan (2021), Martin and Hofmann (2017), Tunca and Zhu (2018), Wetzel and Hofmann (2019), Wang et al. (2020), Dekkers et al. (2020), Ma et al. (2020), Zhang et al. (2019)

5. Discussion

With respect to research question 1 ‘What are the latest mechanisms under SCF practices? What are the new findings contained in these mechanisms?’, we totally synthesised 8 research dimensions, SCF concept definition and the exploration dimension, FSP dimension, SCF instruments dimension, SCF adoption dimension, risk management dimension, credit rating dimension, working capital management dimension, SCF combined novel technologies dimension, and SCF performance outcomes dimensions. Within each dimension, we clarified the definitions, presented the sequence of events in each financing scheme, explained the specific mechanisms, compared and discussed the updated findings extracted from the selected paper. We consider that this comprehensive and thorough analysis well answers RQ1. As for research question 2 ‘What does the renovated research framework look like and what are the methodologies applied in this field?’, in each dimension, we illuminated the relevant methods applied and summarised the commonly used methods in SCF research regarding different topics in Table 3 to provide a rudimental roadmap for newcomers who are interested in this field. Additionally, in order to demonstrate a clear picture of SCF research systematically, we innovatively build up an integrated and updated structure, as shown in Fig. 10. Furthermore, future research directions and comparisons of previous reviews are also provided.

5.1 The Updated Research Framework of SCF

Based on our content analysis, we now form the research framework of SCF. Fig. 10 shows an overall view of the updated SCF research framework. We split the main body of the framework into two parts: the foundation part and the application part. To establish a stable and solid foundation, knowledge related to the SCF concept definition and exploration dimension consists of three sub-dimensions (SCF definitions, Financial supply chain management, Sustainable supply chain finance) are required. The knowledge related to the FSP dimension

containing the topics of ordinary FSPs and innovative FSPs, and the basic knowledge of the current mainstream SCF instruments such as trade credit should be well understood. Compared with previous work, we highlight the sustainable supply chain finance and innovative FSPs in our framework in response to the environmental requirements and business changes. These three dimensions connect with each other. As for the application part, starting with the SCF adoption dimension, the applications of SCF are constituted in the rest of the dimensions as shown in Fig. 10. This structure also implies that the research on each dimension is always interwound with other dimensions. For example, the study of one specific SCF instrument will go through the concept dimension, adoption dimension, risk management dimension, etc., thus generating various or uniform results depending on the features of multiple SCF instruments.

Within this framework, we made two reclassifications in this field. Firstly, in relation to the FSP part, we newly classified two categories, i.e., the ordinary FSP (e.g., bank) and the innovative FSP (e.g., 3PL and Fintech) as a result of SCF development. Secondly, in terms of the SCF instruments, we recognised the mainstream instruments dominated current research, i.e., trade credit, reverse factoring, inventory financing, buyer financing, purchase order financing, while others which are not specifically mentioned in this paper such as dynamical financing, factoring, etc. can be viewed as non-mainstream SCF instruments accordingly. In particular, within the mainstream instruments, we now further reclassify them into two groups. For the instrument which can be achieved through internal arrangement without a third party's involvement, we name it as a non-FSP dominated financing instrument, like trade credit and buyer financing. For the instrument whose implementation needs an independent third party outside the chain, such as a bank, we name it as an FSP dominated financing instrument. One reason for this classification is that based on our content analysis, the FSP's role is significant in providing capital and determining the critical parameters hence resulting in different payoffs for each party, so, considering each party's own situation, whether choose an outsider or not is

a first issue faced by all parties when they are enrolled in an SCF contract. Another reason is that based on our observations, there is so much literature available when discusses the comparisons of these two groups like buyer financing vs. reverse factoring, trade credit vs. purchase order financing, thus this classification can help researchers well distinguish the two groups and compare their profits in certain conditions further.

Based on this framework, for future researchers, they first can have a preliminary view of SCF research. Then, using this framework and combining it with Table 2, the researchers can locate the specific papers to know the exact details within each dimension. We suggest the future researchers could learn the basics such as the definitions, the archetypes of SCF instruments, the relationships among each party, etc. from the foundation part at the initial stage if they have no knowledge about SCF. If they have accumulated fundamental understanding of SCF, no matter from this framework or somewhere else, they also can focus on the application part to know what the current main applied research dimensions are and find a particular topic they are interested in. By referring to this framework and Table 2, future researchers can certainly know what others have already done and which part is still inadequate and worth further studying, thus avoiding repetition and making more contributions in this field simultaneously.

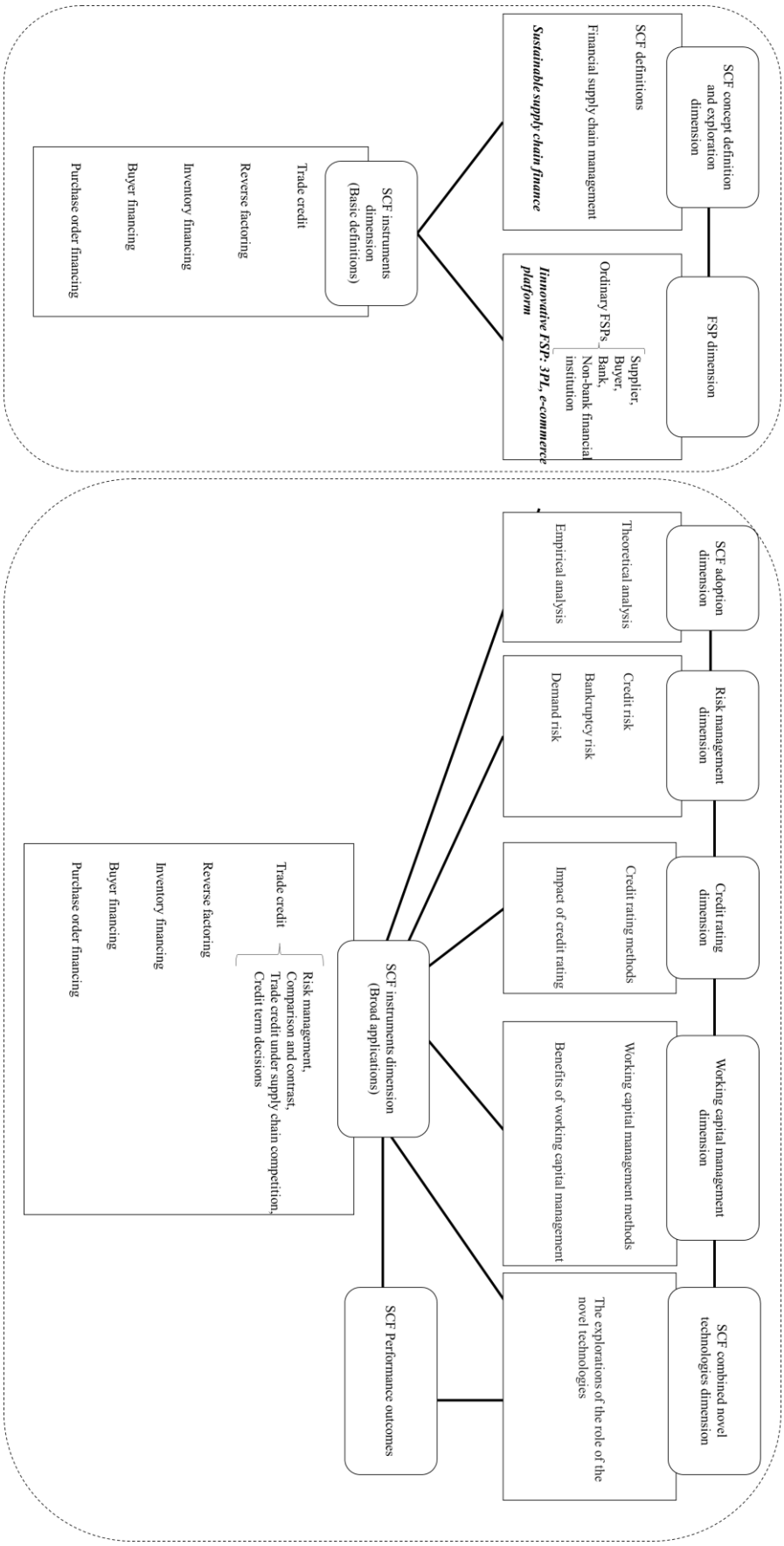

Figure 10 The research framework of SCF

5.2 Current Dominant Methods Used in SCF Research

Table 3 summarises the dominant methods applied in SCF studies. It explicitly demonstrates that the intent of these methods is directly split into two perspectives: the empirical analysis perspective and the theoretical perspective.

Table 3 Dominant methods used in SCF research

Intent	Category	Methods	Articles	Key sources
Empirical analysis	Statistics	Regression analysis	15	Huang et al. (2019), Giannetti and Saidi (2019), Yang and Birge (2018), Casalin et al. (2017), Kolay (2016), Wang et al. (2015), Ali et al. (2018), Song et al. (2019), Zhang et al. (2019), Tunca and Zhu (2018)
		Estimation	3	Tunca and Zhu (2018), Cen et al. (2016), Agostino and Trivieri (2014)
		Robustness	3	Wuttke et al. (2019), Lee et al. (2018)
		$\chi 2$ distribution	2	Huang et al. (2019)
		T-test	2	Wang et al. (2020)
		Correlation analysis	2	Wetzel and Hofmann (2019)
		Coefficient of variations	2	Serrano et al. (2018)
		Reliability and validity analysis	2	Ali et al. (2018)
		Common method variance	2	Song et al. (2019)
		Monte Carlo simulation	2	Lekkakos et al. (2016)
	Data collection	Interview	7	Chen et al. (2019b), Liebl et al. (2016)
		Questionnaire	4	Huang et al. (2019)
		Interpretive structural modelling	3	More and Basu (2013), Ma et al. (2020)
		Survey	2	More and Basu (2013)
Theoretical analysis	Stochastic process	Stochastic model	5	Wang et al. (2019), Kim and Shin (2012), Yan and Sun (2013),
		Innovation adoption model	2	Wuttke et al. (2013b)
		Diffusion model	2	Iacono et al. (2015)
	Game theory	Newsvendor model	11	Deng et al. (2018), Chen et al. (2019a), Kouvelis and Zhao (2012), Wu et al. (2019), Reindorp et al. (2018), Yang and Birge (2018), Serrano et al. (2018), Lekkakos et al. (2016)
		Equilibrium	9	Tunca and Zhu (2018), Deng et al. (2018), Chen et al. (2019a), Wang et al. (2019), Wu et al. (2019), Yang and Birge (2018)
		Stackelberg game	9	Chen and Cai (2011), Yan and Sun (2013), Li et al. (2019), Yan et al. (2019), Kouvelis and Zhao (2018), Deng et al. (2018), Chen et al. (2019a)
		Backward induction	4	Yan and Sun (2013), Sung and Ho (2019)
		Principal-agent theory	3	Martin and Hofmann (2019)
		Pareto improvement region	3	Yan et al. (2019), Deng et al. (2018), Chen et al. (2019a)

5.3 Comparing the Findings with Previous Literature Reviews

As we mentioned early in the Introduction, there are a totally 6 qualified review papers identified. Bals (2019) and Jia et al. (2020a) both established a conceptual framework of SCF by analysing 243 papers and 71 papers, respectively. However, their research focuses are totally different from ours. Jia et al. (2020b) investigated the combination of SCF and sustainable development and formed a novel framework called SSCF (sustainable supply chain finance). Xu et al. (2018) conducted a systematic literature review and bibliometric analysis

and identified four dominant research clusters in terms of SCF instruments. Gelsomino et al. (2016) focused on the explanation of the SCF definition and pinpointed the current gaps and future research directions of SCF by reviewing 119 papers published from 2000 to 2014. Chakuu et al. (2019) explored the relationship between the mechanisms, actors and instruments in SCF by evaluating 126 publications. Compared with previous works, we comprehensively studied all aspects of SCF, specifically, all aspects of recent contributions in SCF. Different research focuses lead to different results, which not only means there are no repetitive issues between these reviews but also denotes that our work adds further contributions in this field. The detailed comparisons in terms of focus and individual contributions are presented in Table 4.

Table 4 Comparisons of literature reviews

	Time range	Focus	Contributions
Gelsomino et al. (2016)	2000-2014	SCF conceptions and instruments	• Provided a definition of SCF from two major perspectives: the "finance oriented" perspective and the "supply chain oriented" perspective
Xu et al. (2018)	1970–2016	SCF instruments	• Identified four research clusters • Proposed seven future research directions
Bals (2019)	2007-2017	Business ecosystems of SCF	• Formed SCF framework from business ecosystems perspective • Proposed two future research directions
Chakuu et al. (2019)	1995-2017	Relationship between involved parties under SCF	• Identified three main archetypes for the relationship
Jia et al. (2020a)	2000-2018	Information processing capacity of SCF	• Formed SCF framework from information processing perspective • Proposed seven future research directions
Jia et al. (2020b)	2003-2018	Sustainable SCF	• Summarised SSCF motives, practices and outcomes • Identified the enablers and barriers of SSCF • Formed the conceptual framework of SSCF
Our review	2010-2021(4)	All aspects of SCF, particularly, the recent contributions	• Synthesised nine research dimensions in SCF domain • Summarised the recent contributions in each dimension • Updated SCF framework based on recent research • Reclassified the category of FSPs and SCF instruments • Summarised the dominant methodologies used in recent research • Proposed five future research directions

5.4 Future Directions

By checking through our coding system, we located the current research gaps in SCF research and identified that current researchers hope to conduct further analysis in several new directions:

(1) New technologies applied in this field (machine learning, blockchain, etc.). Although we regard technology-related research as one of the current research dimensions, i.e., the SCF combined novel technologies dimension, the technology is continuously updating and evolving. We still consider technology induced SCF research as a promising and everlasting future direction. For example, since the credit risk is viewed as the dominant risk in SCF, thus yielding some critical issues like a lower credit rating, a high probability of fraud, and an undeveloped credit guarantee system, which severely impairs the overall supply chain performance and even results in supply chain disruptions. By applying data-driven technology such as machine learning, researchers expect that the credit risk can be forecast more accurately so that the risk can be mitigated. In addition, to improve the efficiency and security of numerous daily transactions, blockchain technology can be applied in the SCF settings to acquire additional benefits under different financing schemes (Yu et al., 2020; Pournader et al., 2020; Kamble et al., 2019).

(2) The adoption of multiple SCF instruments. We found that in light of the SCF adoption, current research is more concentrated on the study of the relatively earlier SCF instruments (i.e., trade credit and reverse factoring). Since different instruments have distinct characteristics, for example, a supplier will accept a POF contract only when the supplier is profitable under this setting with proper appropriate parameters such as the wholesale price and the bank interest rate. Whereas for buyer financing, a buyer may finance suppliers with a higher interest rate than that with a bank to obtain more benefits, impeding the supplier's participation. Moreover, we find the industrial features may influence the types of SCF adoption and the involved parties may customise the financing schemes depending on their essences for conducting business. For instance, a recent research study by Yi et al. (2021) examined the profits and the preferences of various financing schemes for different parties in an agricultural supply chain. We thereby suggest that all supply chain actors' adoption

behaviours of various financing types or even their combinations should be investigated further to acquire a more exhaustive understanding of SCF adoption.

(3) Comprehensive empirical analysis is still needed. Due to the emerging essence of SCF, limited available data results in limited empirical analysis on SCF. Thus, we recommend that more empirical analysis should be conducted in the future to verify the efficiency of various financing instruments and the associated theories that emerged from the previous/existing research when multiple data sources are available. Further, the emerging findings obtained from the empirical study should also pay equal attention to their theoretical justification.

(4) The applications of SCF under various environmental contexts. We found most of the papers concentrate on a single market condition, e.g., the developed economies, due to the early expansion in these developed regions. Hence, the results of SCF application may be different in the emerging markets, i.e., the developing economies, due to the government policy and cultural differences. In addition to the market condition, the industry variations (e.g., manufacturing industry, service industry, agricultural industry, etc.), model settings (e.g., dynamic vs. static, simultaneous game vs. sequential game), supply chain settings (i.e., lean vs. agile) may generate distinct results when implementing SCF schemes. We expect further research in diverse settings could both enlarge the generalisability of the overall findings and provide additional and surprising insights.

(5) The impacts of SCF on supply chain capabilities. We found that almost all of the selected papers yielded the results based on an essential assumption that there are no significant environmental disruptions in the supply chain. However, as we all know, the Covid-19 has caused enormous problems across the globe, especially for the global supply chains, i.e., production and logistics stagnation, payment delay, stockout, etc. This previously omitted

disaster exposes the frail and weak supply chain capabilities in handling emergent and severe supply chain disruptions. Therefore, supply chain capabilities including supply chain flexibility and supply chain resilience need considerable attention nowadays. As an innovative solution, how SCF can better revitalise the global supply chains and how SCF can improve the supply chain capabilities in the presence of global disasters are worth further and comprehensive studying.

6. Conclusions

SCF as an innovative solution to coordinate the financial flow, product flow and information flow along the supply chain, has been drawing increasing attention from academic researchers and industrial practitioners in the last decade. As it is essentially an interdisciplinary discipline, SCF attempts to optimise the supply chain performance and to better control working capital level at the interface of supply chain operations management and finance management. The aim of the present research is to explore the detailed mechanisms contained in the SCF structure and provide fresh insights in the academic fields. Via a systematic literature review with 99 selected papers selected from two search engines (i.e., ProQuest and Web of Science), we first conducted a descriptive analysis to demonstrate the features of the current research. Followed by comprehensive content analysis, we totally identified nine research dimensions revolving around the SCF topic. One of the most significant findings emerging from the content analysis was that it overall illustrated the current research achievements containing the detailed mechanisms among all participants in SCF practices. Finally, we integrated these new achievements to form an updated SCF research framework consisting of the foundation part and the application part, summarised the dominant methods used in current SCF research, and compared our work with previous reviews and provided future directions.

These findings contribute in two ways to our understanding of SCF. Firstly, from the theoretical contributions' perspective, this paper synthesised nine research dimensions in SCF domain, summarised the recent contributions extracted from the chosen papers, updated the SCF research framework, reclassified the category of FSPs and SCF instruments, summarised the dominant methodologies used in recent research and proposed five future research directions. In addition, compared with the previous literature reviews, our work comprehensively studied all aspects of SCF rather than focusing narrowly, especially during the last decade. By referring to our framework and Table 2, future researchers can certainly know what others have already done and which part is still inadequate and worth further studying, thus avoiding repetition and simultaneously making more contributions in this field. Secondly, from the practical contributions' perspective, the industrial practitioners may pay closer attention to the application part of the SCF research. Hence, they can regard the present research as a guide to learn the benefits generated from SCF adoption, the improved supply chain performance under multiple SCF instruments, and the current challenges and opportunities of SCF, etc. via referring to the upgraded SCF research framework and the content analysis.

In spite of its significant contributions, this study is not without limitations. Partially consistent with Bals's (2019) limitations, due to the rigorous selection criteria, we did not review papers that were not included in qualified journals and other types, such as official reports and conference papers, which might shed further light on the SCF topic. As such, the present research seeks to serve as a verified and sufficiently mature study supported by theoretical conclusions in the existing literature. The research framework may also be ever-evolving, depending on future developments.

Acknowledgement:

The work described in this paper was substantially supported by a grant from the Research Committee of The Hong Kong Polytechnic University under student account RK37.

Declarations of interest: none

Word count: 13696

References:

Ali, Z., Gongbing, B. and Mehreen, A., 2018. Does supply chain finance improve SMEs performance? The moderating role of trade digitization. *Business Process Management Journal*.

Amankwah-Amoah, J. and Debrah, Y.A., 2010. The protracted collapse of Ghana Airways: Lessons in organizational failure. *Group & Organization Management*, *35*(5), pp.636-665.

Bals, C. 2019. Toward a supply chain finance (SCF) ecosystem–Proposing a framework and agenda for future research. *Journal of Purchasing and Supply Management,* 25**,** 105-117.

Be Nguema, B, Gongbing, B.I., Akenroye, T.O. and Elbaz, J., 2021. The Effects of Supply Chain Finance on Organizational Performance: A Moderated and Mediated Model. *Supply Chain Management: an International Journal*. Vol. ahead-of-print.

Berger, A.N. and Udell, G.F., 2006. A more complete conceptual framework for SME finance. *Journal of Banking & Finance*, *30*(11), pp.2945-2966.

Blackman, I.D., Holland, C.P. and Westcott, T., 2013. Motorola's global financial supply chain strategy. *Supply Chain Management: An International Journal*.

Budin, M. & Eapen, A. 1970. Cash generation in business operations: some simulation models. *The Journal of Finance,* 25**,** 1091-1107.

Burkart, M. and Ellingsen, T., 2004. In-kind finance: A theory of trade credit. *American economic review*, *94*(3), pp.569-590.

Camerinelli, E., 2009. Supply chain finance. *Journal of Payments Strategy & Systems*, *3*(2), pp.114-128.

Caniato, F., Gelsomino, L. M., Perego, A. & Ronchi, S. 2016. Does finance solve the supply chain financing problem? *Supply Chain Management: An International Journal*.

Caniato, F., Henke, M. and Zsidisin, G.A., 2019. Supply chain finance: historical foundations, current research, future developments. *Journal of Purchasing and Supply Management*, *25(2)*, pp.99-104.

Cen, L., Dasgupta, S., Elkamhi, R. and Pungaliya, R.S., 2016. Reputation and loan contract terms: The role of principal customers. *Review of Finance*, *20*(2), pp.501-533.

Chakuu, S., Masi, D. and Godsell, J., 2019. Exploring the relationship between mechanisms, actors and instruments in supply chain finance: A systematic literature review. *International Journal of Production Economics*, *216*, pp.35-53.

Chartered Association of Business Schools, 2018. Academic journal guide 2018.

Chen, X. and Cai, G.G., 2011. Joint logistics and financial services by a 3PL firm. *European Journal of Operational Research*, *214*(3), pp.579-587.

Chen, X., Cai, G. and Song, J.S., 2019a. The cash flow advantages of 3PLs as supply chain orchestrators. *Manufacturing & Service Operations Management*, *21*(2), pp.435-451.

Chen, X., Liu, C. and Li, S., 2019b. The role of supply chain finance in improving the competitive advantage of online retailing enterprises. *Electronic Commerce Research and Applications*, *33*, p.100821.

Chen, Y.J., Tsai, H. and Liu, Y.F., 2018. Supply chain finance risk management: Payment default in tourism channels. *Tourism Economics*, *24*(5), pp.593-614.

Cowton, C.J. and San-Jose, L., 2017. On the ethics of trade credit: Understanding good payment practice in the supply chain. *Journal of business ethics*, *140*(4), pp.673-685.

Dekkers, R., de Boer, R., Gelsomino, L.M., de Goeij, C., Steeman, M., Zhou, Q., Sinclair, S. and Souter, V., 2020. Evaluating theoretical conceptualisations for supply chain and finance integration: A Scottish focus group. *International Journal of Production Economics*, *220*, p.107451.

Demica, 2012. *The Hidden Player: Sizing The Invoice Finance Market*. [online] Treasury-management.com. Available at: <https://www.treasury-management.com/article/4/236/1967/the-hidden-player-sizing-the-invoice-finance-market.html> [Accessed 17 June 2020].

Deng, S., Gu, C., Cai, G. and Li, Y., 2018. Financing multiple heterogeneous suppliers in assembly systems: Buyer finance vs. bank finance. *Manufacturing & service operations management*, *20*(1), pp.53-69.

Denyer, D. and Tranfield, D., 2009. Producing a systematic review.

Devalkar, S.K. and Krishnan, H., 2019. The impact of working capital financing costs on the efficiency of trade credit. *Production and Operations Management*, *28*(4), pp.878-889.

Fayyaz, M.R., Rasouli, M.R. and Amiri, B., 2020. A data-driven and network-aware approach for credit risk prediction in supply chain finance. *Industrial Management & Data Systems, 121(4),* pp. 785-808.

Gelsomino, L.M., de Boer, R., Steeman, M. and Perego, A., 2019. An optimization strategy for concurrent Supply Chain Finance schemes. *Journal of Purchasing and Supply Management*, *25*(2), pp.185-196.

Gelsomino, L. M., Mangiaracina, R., Perego, A., Tumino, A. & Ellinger, A. 2016. Supply chain finance: a literature review. *International Journal of Physical Distribution & Logistics Management*.

Giannetti, M. and Saidi, F., 2019. Shock propagation and banking structure. *The Review of Financial Studies*, *32*(7), pp.2499-2540.

Grüter, R. and Wuttke, D.A., 2017. Option matters: valuing reverse factoring. *International journal of production research*, *55*(22), pp.6608-6623.

Gustin, D., 2014. Purchase order finance, the tough nut to crack. *Accessed at August*, *20*, p.2015.

Haley, C. W. & Higgins, R. C. 1973. Inventory policy and trade credit financing. *Management science,* 20**,** 464-471.

Hoberg, K., Protopappa-Sieke, M. and Steinker, S., 2017. How do financial constraints and financing costs affect inventories? An empirical supply chain perspective. *International Journal of Physical Distribution & Logistics Management*.

Hofmann, E., 2005. Supply chain finance: some conceptual insights. *Beiträge Zu Beschaffung Und Logistik*, pp.203-214.

Hofmann, E., 2009. Inventory financing in supply chains. *International Journal of Physical Distribution & Logistics Management*.

Hofmann, E. and Bosshard, J., 2017. Supply chain management and activity-based costing. *International Journal of Physical Distribution & Logistics Management*.

Hofmann, E. and Johnson, M., 2016. Supply Chain Finance–some conceptual thoughts reloaded. *International Journal of Physical Distribution & Logistics Management*, *46*(4), pp.1-8.

Hofmann, E. and Kotzab, H., 2010. A supply chain-oriented approach of working capital management. *Journal of business Logistics*, *31*(2), pp.305-330.

Hua, S., Sun, S., Liu, Z. and Zhai, X., 2021. Benefits of third-party logistics firms as financing providers. *European Journal of Operational Research*, *294(1)*, pp.174-187.

Huang, Q., Zhao, X., Zhang, M., Yeung, K., Ma, L. and Yeung, J.H.Y., 2019a. The joint effects of lead time, information sharing, and the accounts receivable period on reverse factoring. *Industrial Management & Data Systems*.

Huang, S., Fan, Z.P. and Wang, X., 2019b. Optimal operational strategies of supply chain under financing service by a 3PL firm. *International Journal of Production Research*, 57(11), pp.3405-3420.

Iacono, U.D., Reindorp, M. and Dellaert, N., 2015. Market adoption of reverse factoring. *International Journal of Physical Distribution & Logistics Management*.

Jia, F., Blome, C., Sun, H., Yang, Y. & Zhi, B. 2020a. Towards an integrated conceptual framework of supply chain finance: An information processing perspective. *International Journal of Production Economics*, 219**,** 18-30.

Jia, F., Zhang, T. and Chen, L., 2020b. Sustainable supply chain Finance: Towards a research agenda. *Journal of Cleaner Production*, *243*, p.118680.

Kamble, S., Gunasekaran, A. and Arha, H., 2019. Understanding the Blockchain technology adoption in supply chains-Indian context. International Journal of Production Research, 57(7), pp.2009-2033.

Kelly, A., Morris, H. and Harvey, C., 2009. Modelling the Outcome of the UK Business and Management Studies RAE 2008 with reference to the ABS Journal Quality Guide. *Association of Business Schools*.

Kitchenham, B., Brereton, O.P., Budgen, D., Turner, M., Bailey, J. and Linkman, S., 2009. Systematic literature reviews in software engineering–a systematic literature review. *Information and software technology*, *51*(1), pp.7-15.

Kolay, M., Lemmon, M. and Tashjian, E., 2016. Spreading the misery? Sources of bankruptcy spillover in the supply chain. *Journal of Financial and Quantitative Analysis*, *51*(6), pp.1955-1990.

Kouvelis, P. and Xu, F., 2021. A supply chain theory of factoring and reverse factoring. *Management Science*.

Kouvelis, P. and Zhao, W., 2018. Who should finance the supply chain? Impact of credit ratings on supply chain decisions. *Manufacturing & Service Operations Management*, *20*(1), pp.19-35.

Kouvelis, P. and Zhao, W., 2012. Financing the newsvendor: supplier vs. bank, and the structure of optimal trade credit contracts. *Operations Research*, *60*(3), pp.566-580.

Lam, H.K.S and Zhan, Y, 2021. The impacts of supply chain finance initiatives on firm risk: evidence from service providers listed in the US. *International Journal of Operations & Production Management*, Vol. ahead-of-print No. ahead-of-print.

Lam, H.K., Zhan, Y., Zhang, M., Wang, Y. and Lyons, A., 2019. The effect of supply chain finance initiatives on the market value of service providers. *International Journal of Production Economics*, *216*, pp.227-238.

Lamoureux, J.F. and Evans, T.A., 2011. Supply chain finance: a new means to support the competitiveness and resilience of global value chains. *Available at SSRN 2179944*.

Lee, H.H., Zhou, J. and Wang, J., 2018. Trade credit financing under competition and its impact on firm performance in supply chains. *Manufacturing & Service Operations Management*, *20*(1), pp.36-52.

Lekkakos, S.D., Serrano, A. and Ellinger, A., 2016. Supply chain finance for small and medium sized enterprises: the case of reverse factoring. *International Journal of Physical Distribution & Logistics Management*.

Li, H., Mai, L., Zhang, W. and Tian, X., 2019. Optimizing the credit term decisions in supply chain finance. *Journal of Purchasing and Supply Management*, *25*(2), pp.146-156.

Liebl, J., Hartmann, E., Feisel, E. & Ellinger, A. 2016. Reverse factoring in the supply chain: objectives, antecedents and implementation barriers. *International Journal of Physical Distribution & Logistics Management*.

Ma, H.L., Wang, Z.X. and Chan, F.T., 2020. How important are supply chain collaborative factors in supply chain finance? A view of financial service providers in China. *International Journal of Production Economics*, *219*, pp.341-346.

Martin, J. and Hofmann, E., 2017. Involving financial service providers in supply chain finance practices. *Journal of Applied Accounting Research*.

Martin, J. and Hofmann, E., 2019. Towards a framework for supply chain finance for the supply side. *Journal of purchasing and Supply Management*, *25*(2), pp.157-171.

More, D. & Basu, P. 2013. Challenges of supply chain finance. *Business Process Management Journal*.

Moretto, A., Grassi, L., Caniato, F., Giorgino, M. and Ronchi, S., 2019. Supply chain finance: From traditional to supply chain credit rating. *Journal of Purchasing and Supply Management*, *25*(2), pp.197-217.

Peura, H., Yang, S.A. and Lai, G., 2017. Trade credit in competition: a horizontal benefit. *Manufacturing & Service Operations Management*, *19*(2), pp.263-289.

Popa, V., 2013. The financial supply chain management: a new solution for supply chain resilience. *Amfiteatru Economic Journal*, *15*(33), pp.140-153.

Pournader, M., Shi, Y., Seuring, S. and Koh, S.L., 2020. Blockchain applications in supply chains, transport and logistics: a systematic review of the literature. International Journal of Production Research, 58(7), pp.2063-2081.

Protopappa-Sieke, M. and Seifert, R.W., 2017. Benefits of working capital sharing in supply chains. *Journal of the Operational Research Society*, *68*(5), pp.521-532.

Reindorp, M., Tanrisever, F. and Lange, A., 2018. Purchase order financing: Credit, commitment, and supply chain consequences. *Operations Research*, *66*(5), pp.1287-1303.

Serrano, A., Oliva, R. and Kraiselburd, S., 2018. Risk propagation through payment distortion in supply chains. *Journal of Operations Management*, *58*, pp.1-14.

Shou, Y. Shao, J. and Wang, W., 2021. How does reverse factoring affect operating performance? An event study of Chinese manufacturing firms. *International Journal of Operations & Production Management*, Vol. ahead-of-print No. ahead-of-print.

Sokolinskiy, O., Melamed, B. and Sopranzetti, B., 2018. Precautionary replenishment in financially-constrained inventory systems subject to credit rollover risk and supply disruption. *Annals of Operations Research, 271*(2), pp.971-997.

Song, H., Li M., and Yu, K., 2021. Big data analytics in digital platforms: how do financial service providers customise supply chain finance? *International Journal of Operations & Production Management*, Vol. ahead-of-print No. ahead-of-print.

Song, H., Lu, Q., Yu, K. and Qian, C., 2019. How do knowledge spillover and access in supply chain network enhance SMEs' credit quality?. *Industrial Management & Data Systems*.

Song, H., Yu, K. and Lu, Q., 2018. Financial service providers and banks' role in helping SMEs to access finance. *International Journal of Physical Distribution & Logistics Management*.

Su, Y. and Lu, N., 2015. Simulation of game model for supply chain finance credit risk based on multi-agent. *Open Journal of Social Sciences*, *3*(01), p.31.

Sugirin, M., 2009. Financial supply chain management. *Journal of Corporate Treasury Management*, *2*(3).

Sung, H.C. and Ho, S.J., 2019. Supply chain finance and impacts of consumers' sustainability awareness. *The North American Journal of Economics and Finance*.

SUPERVISION, B.C.O.B., 1999. Principles for the management of credit risk, consultative paper. *Basle, July*.

Tang, C.S., Yang, S.A. and Wu, J., 2018. Sourcing from suppliers with financial constraints and performance risk. *Manufacturing & Service Operations Management*, *20*(1), pp.70-84.

Tang, W., Li, H. and Cai, K., 2020. Optimising the credit term decisions in a dual-channel supply chain. International Journal of Production Research, pp.1-18.

Tseng, M.L., Lim, M.K. and Wu, K.J., 2019. Improving the benefits and costs on sustainable supply chain finance under uncertainty. *International Journal of Production Economics*, *218*, pp.308-321.

Tseng, M.L., Wu, K.J., Hu, J. and Wang, C.H., 2018. Decision-making model for sustainable supply chain finance under uncertainties. *International Journal of Production Economics*, *205*, pp.30-36.

Tunca, T.I. and Zhu, W., 2018. Buyer intermediation in supplier finance. *Management Science*, *64*(12), pp.5631-5650.

Van der Vliet, K., Reindorp, M.J. and Fransoo, J.C., 2015. The price of reverse factoring: Financing rates vs. payment delays. *European Journal of Operational Research*, *242*(3), pp.842-853.

Vázquez, X.H., Sartal, A. and Lozano-Lozano, L.M., 2016. Watch the working capital of tier-two suppliers: a financial perspective of supply chain collaboration in the automotive industry. *Supply Chain Management: An International Journal*.

Wandfluh, M., Hofmann, E. & Schoensleben, P. 2016. Financing buyer–supplier dyads: an empirical analysis on financial collaboration in the supply chain. *International Journal of Logistics Research and Applications,* 19**,** 200-217.

Wang, F., Yang, X., Zhuo, X. and Xiong, M., 2019. Joint logistics and financial services by a 3PL firm: Effects of risk preference and demand volatility. *Transportation Research Part E: Logistics and Transportation Review*, *130*, pp.312-328.

Wang, Z., Wang, Q., Lai, Y. and Liang, C., 2020. Drivers and outcomes of supply chain finance adoption: An empirical investigation in China. *International Journal of Production Economics*, *220*, p.107453.

Watson, J. and Everett, J., 1993. Defining small business failure. *International Small Business Journal*, *11*(3), pp.35-48.

Wetzel, P. and Hofmann, E., 2019. Supply chain finance, financial constraints and corporate performance: An explorative network analysis and future research agenda. *International Journal of Production Economics*, *216*, pp.364-383.

Wu, D., Zhang, B. and Baron, O., 2019. A trade credit model with asymmetric competing retailers. *Production and Operations Management*, *28*(1), pp.206-231.

Wuttke, D.A., Blome, C. and Henke, M., 2013a. Focusing the financial flow of supply chains: An empirical investigation of financial supply chain management. *International journal of production economics*, *145*(2), pp.773-789.

Wuttke, D.A., Blome, C., Foerstl, K. and Henke, M., 2013b. Managing the innovation adoption of supply chain finance—Empirical evidence from six European case studies. Journal of Business Logistics, 34(2), pp.148-166.

Wuttke, D.A., Blome, C., Heese, H.S. and Protopappa-Sieke, M., 2016. Supply chain finance: Optimal introduction and adoption decisions. *International Journal of Production Economics*, *178*, pp.72-81.

Wuttke, D.A., Rosenzweig, E.D. and Heese, H.S., 2019. An empirical analysis of supply chain finance adoption. *Journal of Operations Management*, *65*(3), pp.242-261.

Xu, X., Chen, X., Jia, F., Brown, S., Gong, Y. and Xu, Y., 2018. Supply chain finance: A systematic literature review and bibliometric analysis. *International Journal of Production Economics*, *204*, pp.160-173.

Yan, N., He, X. and Liu, Y., 2019. Financing the capital-constrained supply chain with loss aversion: Supplier finance vs. supplier investment. *Omega*, *88*, pp.162-178.

Yan, N. and Sun, B., 2013. Coordinating loan strategies for supply chain financing with limited credit. OR spectrum, 35(4), pp.1039-1058.

Yang, S.A. and Birge, J.R., 2018. Trade credit, risk sharing, and inventory financing portfolios. *Management Science*, *64*(8), pp.3667-3689.

Yi, Z., Wang, Y. and Chen, Y.J., 2021. Financing an Agricultural Supply Chain with a Capital-Constrained Smallholder Farmer in Developing Economies. *Production and Operations Management*.

Ying, H., Chen, L. and Zhao, X., 2020. Application of text mining in identifying the factors of supply chain financing risk management. *Industrial Management & Data Systems*, *121(2)*, pp. 498-518.

Yu, Y., Huang, G. and Guo, X., 2020. Financing strategy analysis for a multi-sided platform with blockchain technology. *International Journal of Production Research*, pp.1-20.

Yu, W., Wong, C.Y., Chavez, R. and Jacobs, M.A., 2021. Integrating big data analytics into supply chain finance: The roles of information processing and data-driven culture. *International Journal of Production Economics*, 236, p.108135.

Zhang, T., Zhang, C.Y. and Pei, Q., 2019. Misconception of providing supply chain finance: Its stabilising role. *International Journal of Production Economics*, *213*, pp.175-184.

Zhao, X., Yeung, K., Huang, Q. and Song, X., 2015. Improving the predictability of business failure of supply chain finance clients by using external big dataset. *Industrial Management & Data Systems*, *115*(9), pp.1683-1703.

Zhu, Y., Zhou, L., Xie, C., Wang, G.J. and Nguyen, T.V., 2019. Forecasting SMEs' credit risk in supply chain finance with an enhanced hybrid ensemble machine learning approach. *International Journal of Production Economics*, *211*, pp.22-33.

Table 1 Overview of key coding terms and merged dimensions

SCF dimensions	Articles	Key coding terms	Key references
1) SCF concept definition and exploration	18	Supply chain network, corporate performance, concentration of suppliers and customers, reputation, sustainable supply chain finance, theoretical conceptualizations for supply chain and finance integration	Shi et al. (2020), Wetzel and Hofmann (2019), Casalin et al. (2017), Cen et al. (2016), Blackman et al. (2013), Kim and Shin (2012), Ali et al. (2018), Tseng et al. (2018), Hofmann and Johnson (2016), Carnovale et al. (2019), Zhang et al. (2019), Caniato et al. (2019), Babich and Kouvelis (2018) Wuttke et al. (2013a)
2) FSP	7	Financial service providers, 3PLs as supply chain orchestrators, the market value of service providers	Ma et al. (2020), Song et al. (2018), Martin and Hofmann (2017), Lam et al. (2019), Chen (2019), Wang et al. (2019)
3) SCF instruments	40	Trade credit model, purchase order financing, vendor managed inventory (VMI) system, buyer investment, the price of reverse factoring, operational decision and financial decision, inventory financing, coordination under SCF, line of credit, supplier finance vs. supplier investment, buyer Finance vs. Bank Finance, financing the newsvendor	Wu et al. (2019), Reindorp et al. (2018), Peura et al. (2017), Birim and Sofyalioglu (2017), Kolay et al. (2016), Marchi et al. (2016), Van der Vliet et al. (2015), Agostino and Trivieri (2014), Yan and Sun (2013), Liebl et al. (2016), Hoberg et al. (2017), Sokolinskiy et al. (2018), Cowton and San-Jose (2017), Lekkakos et al. (2016), Li et al. (2019), Yan et al. (2019), Tunca and Zhu (2018), Deng et al. (2018), Lee et al. (2018), Kouvelis and Zhao (2012)
4) SCF adoption	11	Managing the innovation adoption of supply chain finance, optimal introduction and adoption decisions, drivers and outcomes of supply chain finance adoption	Wuttke et al. (2013b), Wuttke et al. (2016), Caniato et al. (2016), Martin and Hofmann (2019), Chen et al. (2019), Wang et al. (2020)
5) Risk management	9	Prediction of business failure, forecast the SMEs' credit risk, moral hazard problem	Giannetti and Saidi (2019), Wang et al. (2015), Pellegrino et al. (2019), Zhu et al. (2019), Sung and Ho (2019)
6) Credit rating	4	Credit constraint companies choose low profit trade activities, knowledge spillover, credit rating method in SCF	Manova and Yu (2016), Song et al. (2019), Moretto et al. (2019)
7) Working capital management	4	Working capital of suppliers, benefits of working capital sharing in supply chains, working capital management, cash to cash cycle	Vazquez et al. (2016), Protopappa-Sieke and Seifert (2017), Hofmann and Kotzab (2010)
8) SCF combined novel technologies	9	Novel technology, big data analytics, information technology, trade digitalisation, machine learning	Song et al. (2021), Zhao et al. (2015), Caniato et al. (2019), Yu et al. (2021), Fayyaz et al. (2020), Ying (et al., 2020), Lam and Zhan (2021), Zhu et al. (2019), Ali et al. (2018)
9) SCF Performance Outcomes Dimension	11	Empirical study, data availability	Shou et al. (2021), Be Nguema et al. (2021), Song et al. (2021), Lam and Zhan (2021), Martin and Hofmann (2017), Tunca and Zhu (2018), Wetzel and Hofmann (2019), Wang et al. (2020), Dekkers et al. (2020), Ma et al. (2020), Zhang et al. (2019)

Table 2 Recent contributions within each dimension

SCF dimensions	Sub-dimension	Key contributions from recent research	Supportive key references
1) SCF concept definition and exploration	SCF Definitions	● Identified the basic structure of SCF incorporating actors, instruments, enablers and inhibitors of SCF adoption.	Chakuu et al. (2019); Hofmann (2005); More and Basu (2013); Wuttke et al. (2013a)
		● Defined the general conception, the predominant role and the scope of SCF.	Gelsomino et al. (2016); Hofmann and Johnson (2016); Dekkers et al. (2020); Zhang et al. (2019)
	Financial Supply Chain Management	● Emphasised the difference between FSCM and SCF.	Sugirin (2009); Popa (2013); Wuttke et al. (2013a); Liebl et al. (2016); Chakuu, et al. (2019); Gelsomino et al. (2016); Hofmann and Johnson (2016)
		● Concluded the successful experience of FSCM application.	Blackman et al. (2013)
	Sustainable Supply Chain Finance	● Combined SCF with sustainable development and summarised the SSCF motives, practices, outcomes, enablers, barriers.	Jia et al. (2020b)
		● Measured and analysed the benefits and costs of SSCF.	Tseng et al. (2019); Tseng et al. (2018)
2) FSP	Ordinary FSPs	● Understood the role of FSPs when providing SCF services.	Martin and Hofmann (2017); Ma et al. (2020)
		● Identified the challenges of FSPs.	Euro Banking Association (2014)
		● Identified the benefits of FSPs when providing SCF services.	Lam et al. (2019); Steeman (2014); Herath (2015); Martin and Hofmann (2017)
	Innovative FSPs	● Understood the 3PL's role as a FSP under various settings.	Chen and Cai (2011); Huang et al. (2019); Chen et al. (2019a); Hua et al. (2021); Wang et al. (2019); Song et al. (2018)
3) SCF instruments	Trade Credit	● Defined the general conception of trade credit, e.g., net term and two-part term.	Kouvelis and Zhao (2018); Peura et al. (2017); Yang and Birge (2018); Lee et al. (2018); Devalkar and Krishnan (2019); Chen et al. (2018); Tang et al. (2020)
		● Understood the impacts of trade credit on risk generation, risk propagation, risk sharing, ethical issues.	Serrano et al. (2018); Kolay et al. (2016); Yang and birge (2018); Cowton and San-Jose (2017); Agostino and Trivieri (2014)
		● Explored the benefits of trade credit in the presence of competition.	Peura et al. (2017); Lee et al. (2018); Wu et al. (2019)
		● Made comparisons between trade credit and other SCF instruments and concluded the benefits of trade credit under certain conditions.	Kouvelis and Zhao (2012); Yan et al. (2019)
		● Optimised the credit term setting in trade credit contract.	Li et al. (2019)
	Reverse Factoring	● Defined the general conception of RF.	Grüter and Wuttke (2017); Liebl et al. (2016); van der Vliet et al. (2015); Wuttke et al. (2013a); Wuttke et al. (2019); Milne (2009); Gelsomino et al. (2019); Klapper (2005)
		● Identified the objectives of RF.	Liebl et al. (2016)
		● Concluded the benefits of RF under certain conditions.	Lekkakos et al. (2016); Kouvelis and Xu (2021)
		● Optimised the payment term setting in RF contract.	Van der Vliet et al. (2015)
	Inventory Financing	● Defined the general conception of inventory financing.	Yang and Birge (2018); Hoberg et al. (2017); Berger and Udell (2006); Gelsomino et al. (2019); Yan and Sun (2013); Chen and Cai (2011); Hofmann (2009); Gelsomino et al. (2019)
		● Optimised the key parameters settings in inventory financing contract such as credit line, wholesale price and order quantity.	Yan and Sun (2013)
		● Made comparisons between different SCF instruments in terms of benefits.	Gelsomino et al. (2019)
	Buyer Financing	● Identified the immediate role of buying financing.	Deng et al. (2018); Tunca and Zhu (2018)
	Purchase Order Financing	● Defined the general conception of POF.	Tang et al. (2018); Reindorp et al. (2018); Gustin (2014)
		● Concluded the benefits of POF under certain conditions.	Reindorp et al. (2018); Tang et al. (2018)
4) SCF adoption	Theoretical Analysis of SCF Adoption	● Concluded the drivers and inhibitors of SCF adoption.	Chakuu et al. (2019); Wang et al. (2020); Huang et al. (2019); Iacono et al. (2015); Wuttke et al. (2016)
	Case Studies of SCF Adoption	● Found the evident results of SCF adoption and proved the theoretical analysis.	Wuttke et al. (2013b); More and Basu (2013); Caniato et al. (2016); Martin and Hofmann (2019); Chen et al. (2019b); Wuttke et al. (2019)
5) Risk management	Credit Risk	● Improved the forecast methods of credit risk evaluation in SCF.	Zhu et al. (2019)
		● Examined the moral hazard problem contained in SCF.	Sung and Ho (2019)
		● Studied the detailed scenarios that how credit risk could be mitigated in SCF.	Giannetti and Saidi (2019); Chen et al. (2018)
	Bankruptcy Risk	● Identified different drivers that could induce bankruptcy in SCF.	Sokolinskiy et al. (2018); Zhao et al. (2015)
6) Credit rating	Various Credit Rating Methods	● Formed the effective credit rating methods.	Moretto et al. (2019); Song et al. (2019); Cen et al. (2016);
	Impact of Credit Ratings on Supply Chain Decisions	● Identified the impact of credit rating on supply chain decisions.	Kouvelis and Zhao (2018)
7) Working capital management	Working Capital Management Methods	● Formed the effective working capital management methods.	Hofmann and Kotzab (2010); Ali et al. (2018); Vázquez et al. (2016)
	Benefits of Collaborative Working Capital Management	● Identified the benefits of collaborative working capital management.	Protopappa-Sieke and Seifert (2017); Wetzel and Hofmann (2019)
8) SCF combined novel technologies	The Explorations of the Role of the Novel Technologies	● Identified the key role of novel technologies in improving the performance in SCF.	Song et al. (2021), Zhao et al. (2015), Caniato et al. (2019), Yu et al. (2021), Fayyaz et al. (2020), Ying (et al., 2020), Lam and Zhan (2021), Zhu et al. (2019), Ali et al. (2018)
9) SCF performance outcomes		● Found the evident results of improved performance and proved the theoretical analysis.	Shou et al. (2021), Be Nguema et al. (2021), Song et al. (2021), Lam and Zhan (2021), Martin and Hofmann (2017), Tunca and Zhu (2018), Wetzel and Hofmann (2019), Wang et al. (2020), Dekkers et al. (2020), Ma et al. (2020), Zhang et al. (2019)

Table 3 Dominant methods used in SCF research

Intent	Category	Methods	Articles	Key sources
Empirical analysis	Statistics	Regression analysis	15	Huang et al. (2019), Giannetti and Saidi (2019), Yang and Birge (2018), Casalin et al. (2017), Kolay (2016), Wang et al. (2015), Ali et al. (2018), Song et al. (2019), Zhang et al. (2019), Tunca and Zhu (2018)
		Estimation	3	Tunca and Zhu (2018), Cen et al. (2016), Agostino and Trivieri (2014)
		Robustness	3	Wuttke et al. (2019), Lee et al. (2018)
		$\chi 2$ distribution	2	Huang et al. (2019)
		T-test	2	Wang et al. (2020)
		Correlation analysis	2	Wetzel and Hofmann (2019)
		Coefficient of variations	2	Serrano et al. (2018)
		Reliability and validity analysis	2	Ali et al. (2018)
		Common method variance	2	Song et al. (2019)
		Monte Carlo simulation	2	Lekkakos et al. (2016)
	Data collection	Interview	7	Chen et al. (2019b), Liebl et al. (2016)
		Questionnaire	4	Huang et al. (2019)
		Interpretive structural modelling	3	More and Basu (2013), Ma et al. (2020)
		Survey	2	More and Basu (2013)
Theoretical analysis	Stochastic process	Stochastic model	5	Wang et al. (2019), Kim and Shin (2012), Yan and Sun (2013),
		Innovation adoption model	2	Wuttke et al. (2013b)
		Diffusion model	2	Iacono et al. (2015)
	Game theory	Newsvendor model	11	Deng et al. (2018), Chen et al. (2019a), Kouvelis and Zhao (2012), Wu et al. (2019), Reindorp et al. (2018), Yang and Birge (2018), Serrano et al. (2018), Lekkakos et al. (2016)
		Equilibrium	9	Tunca and Zhu (2018), Deng et al. (2018), Chen et al. (2019a), Wang et al. (2019), Wu et al. (2019), Yang and Birge (2018)
		Stackelberg game	9	Chen and Cai (2011), Yan and Sun (2013), Li et al. (2019), Yan et al. (2019), Kouvelis and Zhao (2018), Deng et al. (2018), Chen et al. (2019a)
		Backward induction	4	Yan and Sun (2013), Sung and Ho (2019)
		Principal-agent theory	3	Martin and Hofmann (2019)
		Pareto improvement region	3	Yan et al. (2019), Deng et al. (2018), Chen et al. (2019a)

Table 4 Comparisons of literature reviews

	Time range	Focus	Contributions
Gelsomino et al. (2016)	2000-2014	SCF conceptions and instruments	• Provided a definition of SCF from two major perspectives: the "finance oriented" perspective and the "supply chain oriented" perspective
Xu et al. (2018)	1970–2016	SCF instruments	• Identified four research clusters • Proposed seven future research directions
Bals (2019)	2007-2017	Business ecosystems of SCF	• Formed SCF framework from business ecosystems perspective • Proposed two future research directions
Chakuu et al. (2019)	1995-2017	Relationship between involved parties under SCF	• Identified three main archetypes for the relationship
Jia et al. (2020a)	2000-2018	Information processing capacity of SCF	• Formed SCF framework from information processing perspective • Proposed seven future research directions
Jia et al. (2020b)	2003-2018	Sustainable SCF	• Summarised SSCF motives, practices and outcomes • Identified the enablers and barriers of SSCF • Formed the conceptual framework of SSCF
Our review	2010-2021(4)	All aspects of SCF, particularly, the recent contributions	• Synthesised nine research dimensions in SCF domain • Summarised the recent contributions in each dimension • Updated SCF framework based on recent research • Reclassified the category of FSPs and SCF instruments • Summarised the dominant methodologies used in recent research • Proposed five future research directions

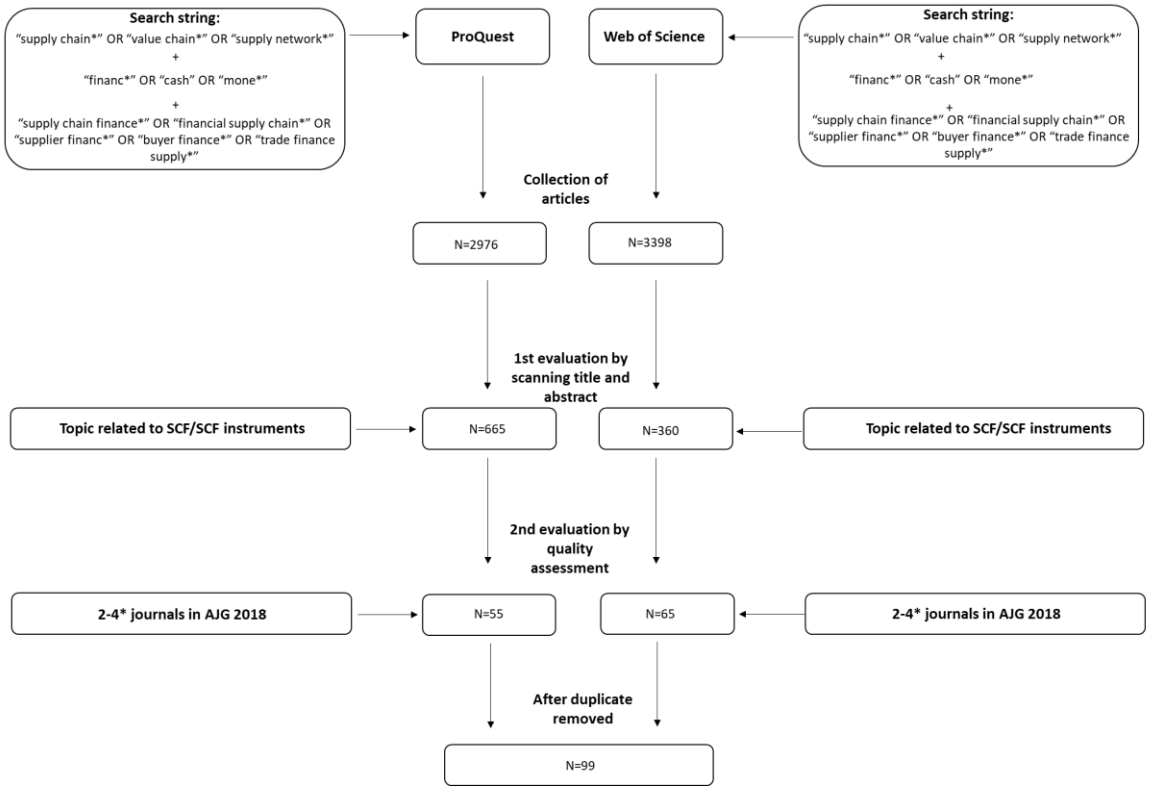

Figure 1 Paper selection process

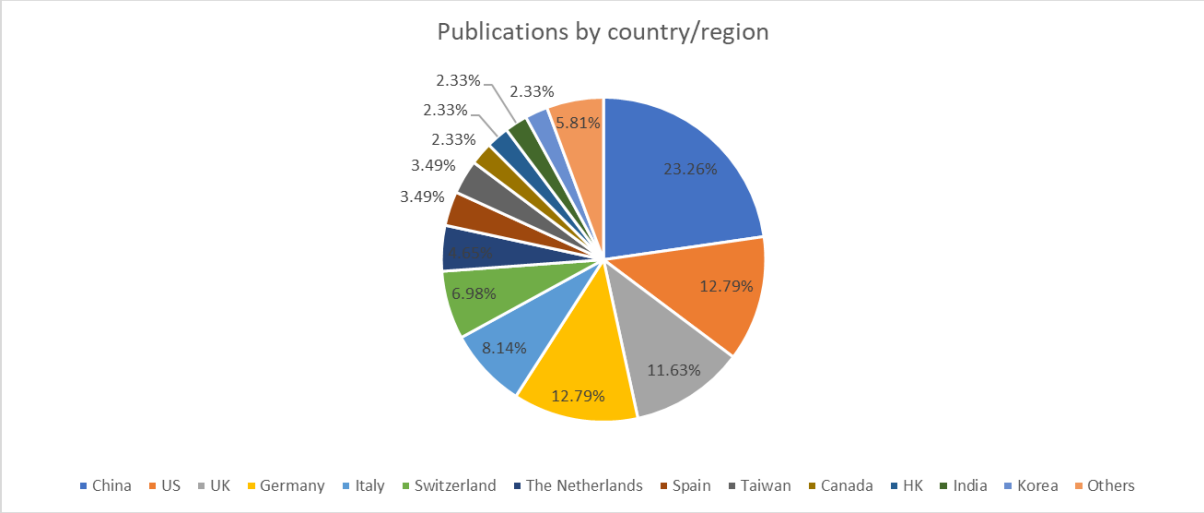

Figure 2 Publications by country/region

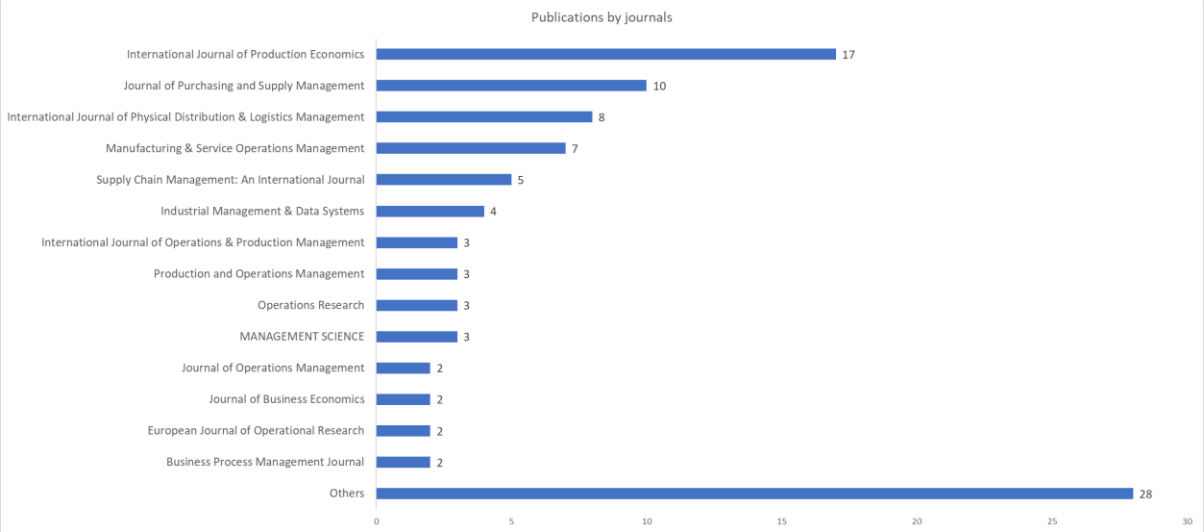

Figure 3 Publications by journal

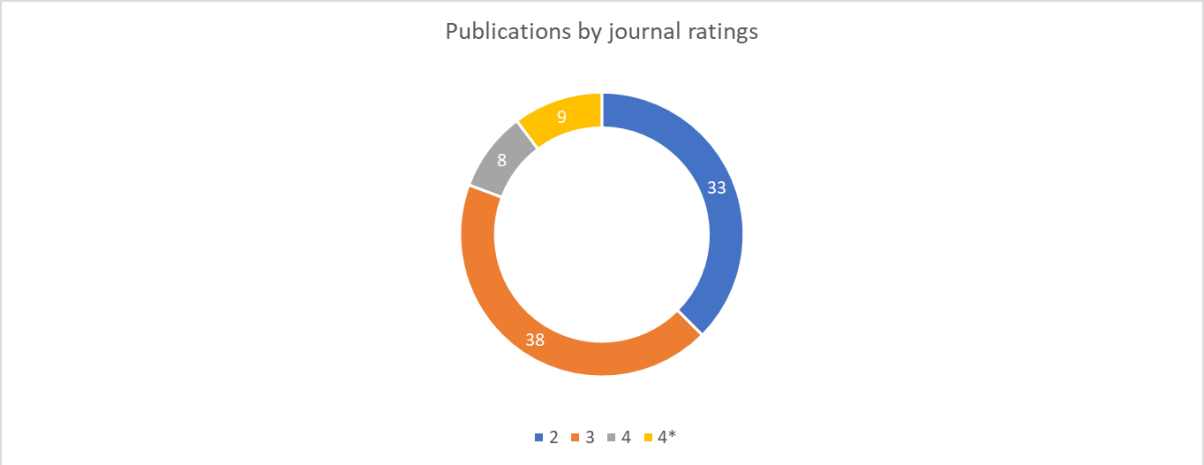

Figure 4 Publications by journal ratings

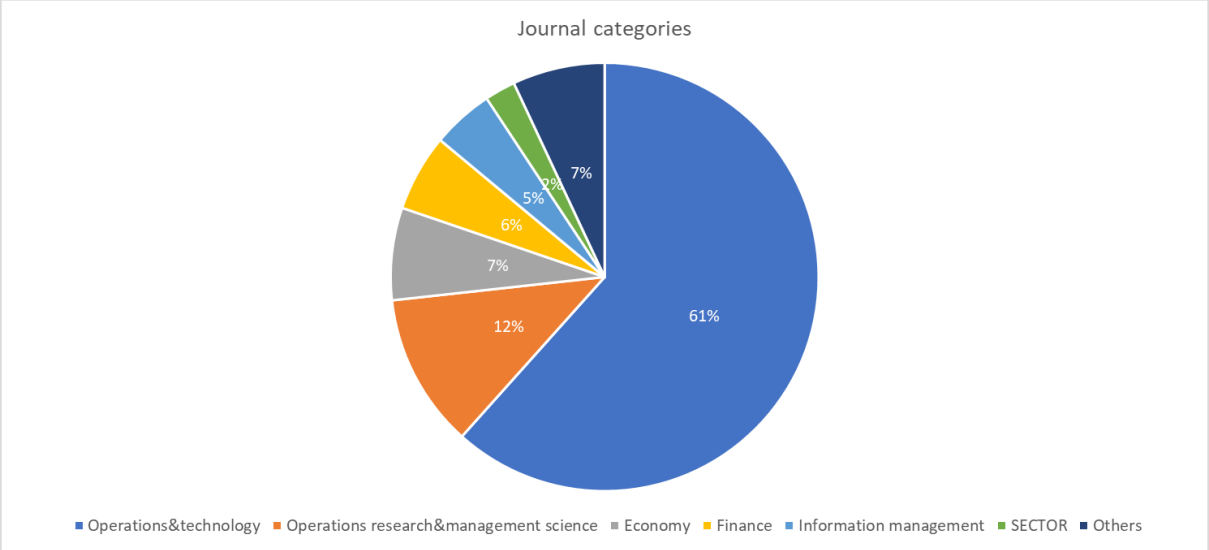

Figure 5 Journal categories

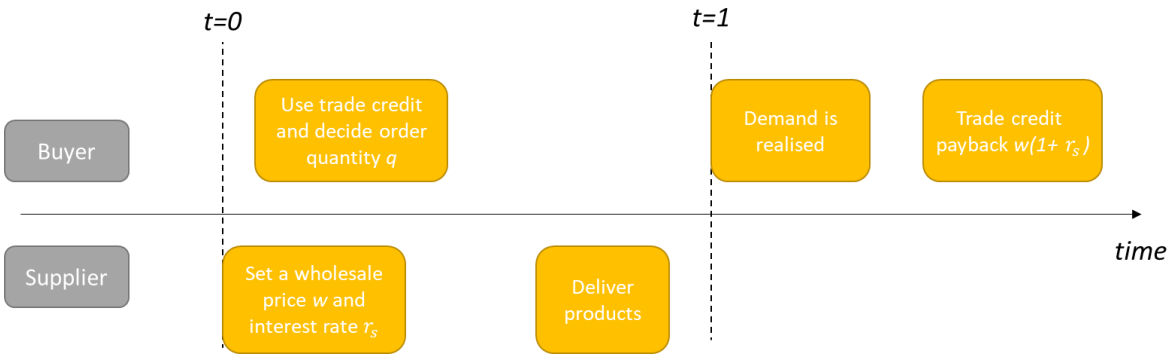

Figure 6 Sequence of events in trade credit

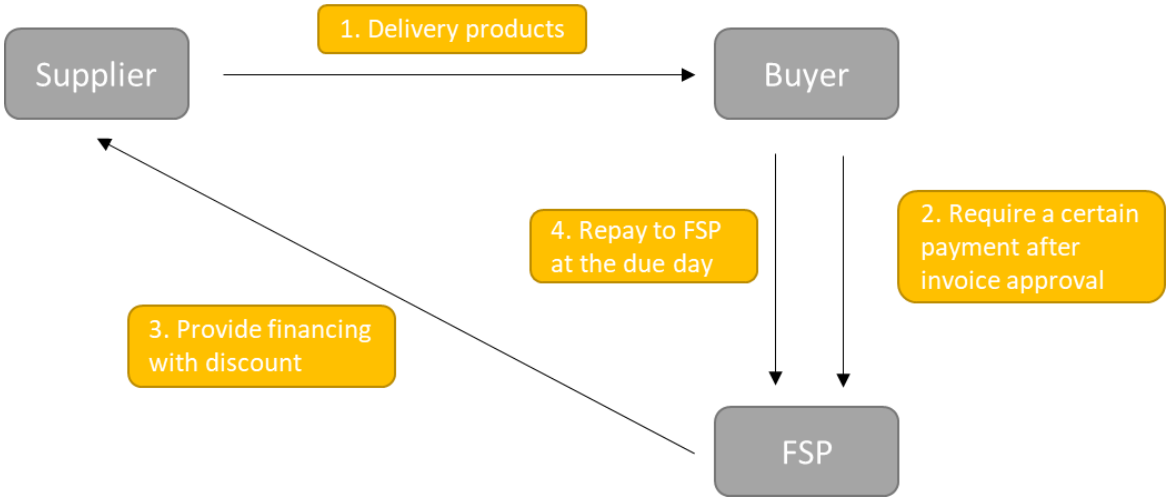

Figure 7 Sequence of RF events

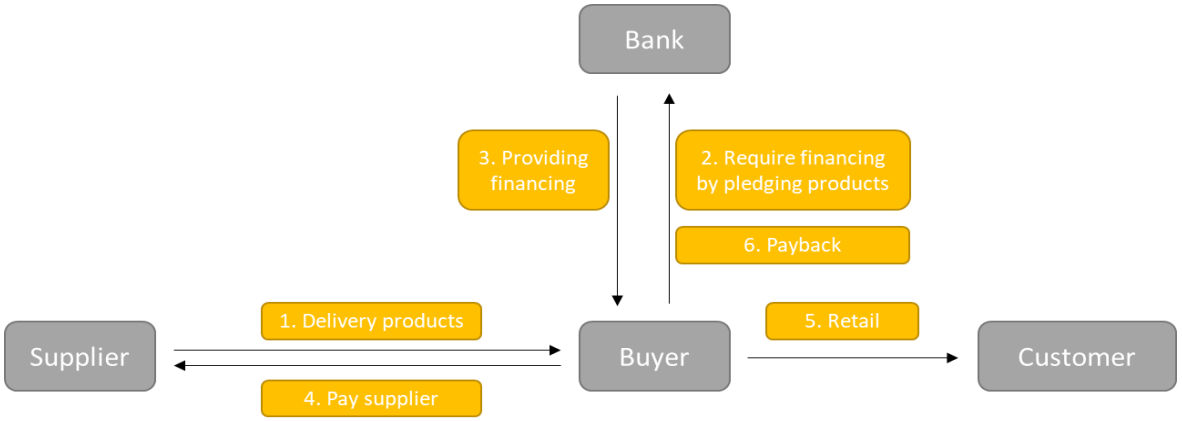

Figure 8 Sequence of events of inventory financing

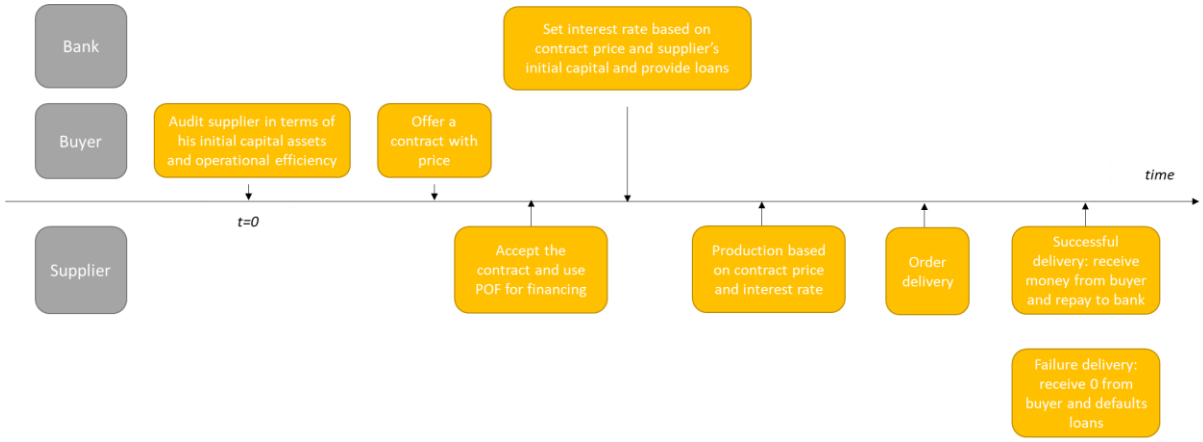

Figure 9 Sequence of events of POF

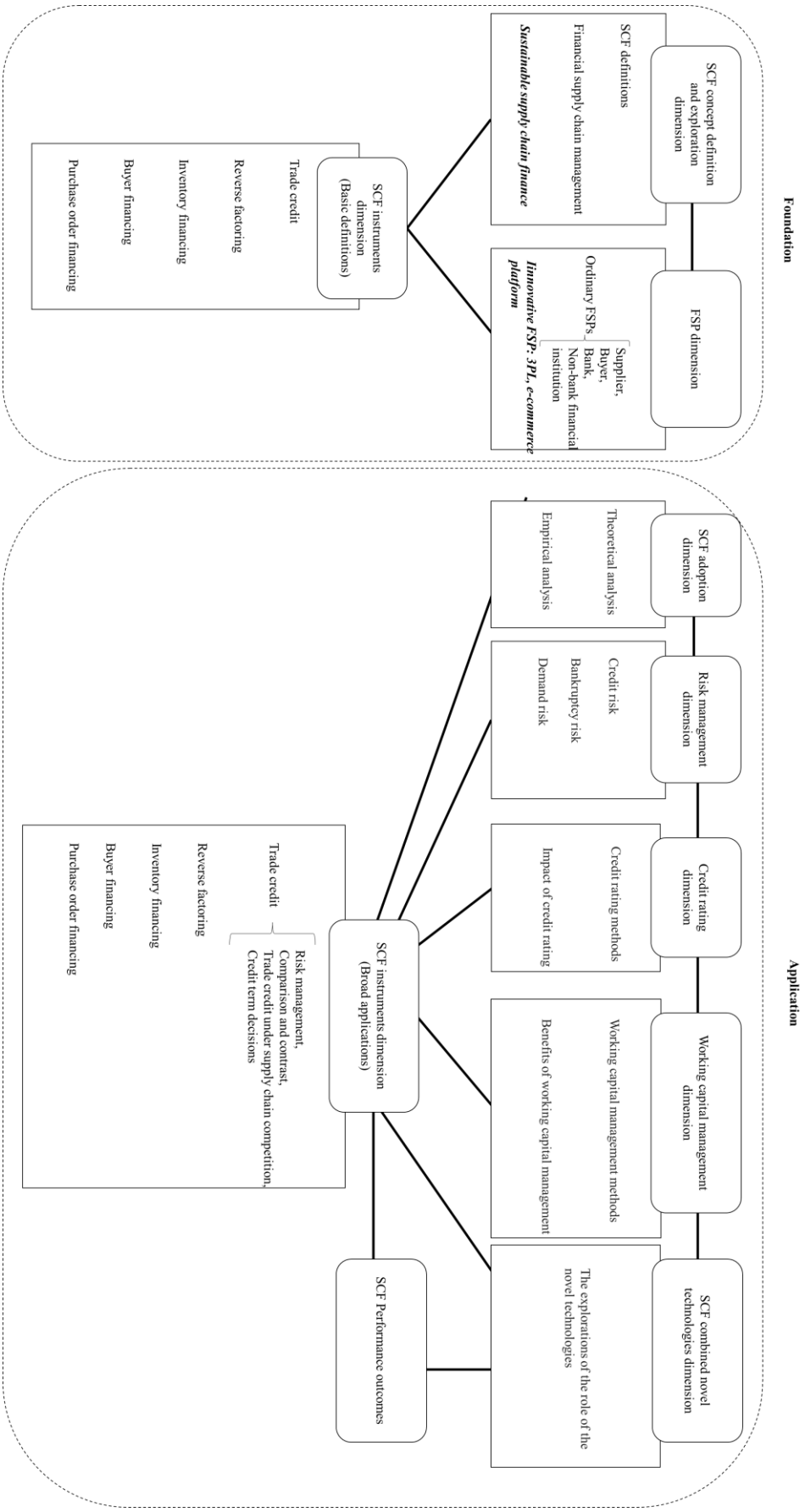

Figure 10 The research framework of SCF

Figure 1 Paper selection process

Figure 2 Publications by country/region

Figure 3 Publications by journal

Figure 4 Publications by journal ratings

Figure 5 Journal categories

Figure 6 Sequence of events in trade credit

Figure 7 Sequence of RF events

Figure 8 Sequence of events of inventory financing

Figure 9 Sequence of events of POF

Figure 10 The research framework of SCF