Overcoming institutional voids as a pathway to becoming ambidextrous: The case of China's Sichuan Telecom

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Abstract

The paper examines how firms develop supply chain financing model to help overcome institutional voids (IVs) and become ambidextrous. This study presents a case analysis of a novel supply chain financing model instigated and implemented by China's Sichuan Telecom (ST) to help supply chain partners overcome IVs in their environments. We identified three unique stages in the evolution of the supply chain ambidextrous financing model: drivers for change (including identifying suppliers' problems and constraints), designing and implementing the supply chain ambidextrous financing model, and the tripartite performance effects. The analysis demonstrated how ST utilized its market power, resources and network ties to harness expertise and competences of small and medium-sized enterprises (SMEs) to overcome IVs and become ambidextrous. Sichuan Telecom aided the SMEs in solving the financing problem through order-based supply chain financing. Based on the analysis, we outline implications of this case for theory and policy.

Keywords: Supply chain collaboration; ambidextrous business model; supply chain financing model; SMEs; China

1 Introduction

Collaboration with supply chain partners can create the conditions for firms to develop more integrated operations and lay foundations for innovation (Soosay et al., 2008; Wong et al., 2013). One important strand of the existing research (Luo, 2006) has hinted that large firms can support supply partners in helping them fill institutional voids (IVs) such as lack of access to institutional support, lack of financial credit availability and weak legal enforcement mechanisms can hamper less powerful and resource-poor firms' ability to compete and sustain their operations (Chung and Luo, 2008; Luo et al., 2009), navigate IVs and develop competitive advantage. For decades, levelling the playing field between large and small firms in gaining access to finance has posed major challenges to firms and policy makers (Beck and Demirguc-Kunt, 2006). Supply chains' operational and financial frictions such as imperfect financial market, high cost of administering loans to small firms with significant concerns of default risks are glaring, particularly in emerging markets (Lai et al., 2009; Khanna and Palepu, 1997). The management literature has long advocated collaboration between members and partners as a means of overcoming such challenges (Harland, 1996). Yet, although these multiple streams of research have recognised the benefits of supply chain collaboration (Soosay et al., 2008), scholars have remained relatively silent on how firms harness their operational resources and capabilities to enhance partners' ability to fill IVs in emerging economies and become ambidextrous (e.g. Khan et al., 2018). This omission is surprising given the potential value of supply chain collaborations and linkages in the pursuit of competitive advantage in emerging markets (Parmigiani and Rivera-Santos, 2015).

Strategy literature has suggested that organizational ambidexterity as a dynamic capability can be developed to help organizations overcome such challenges (O'Reilly and Tushman, 2007; Jansen, Tempelaar, Van den Bosch and Volberda, 2009; Xing, Liu, Tarba and Wood, 2016), yet we have limited understanding of the processes leading to becoming ambidextrous or developing an ambidextrous business model, particularly in resource-constrained environments (Wang et al., 2018). Although some scholars

have suggested that to manage the tension inherent in pursuing ambidexterity top managers are required to develop design creative "organizational solutions" (Zimmermann, Raisch & Cardinal, 2018), the precise mechanisms and triggers for doing so remains underexplored. Existing studies have mainly focused on understanding the drivers of ambidexterity within the firm boundaries, and there has been limited attention paid to understanding how firms develop ambidexterity within other collaborating partners such as exploiting supply chain relationships for ambidexterity leading to a new set of business models (e.g. Benner and Tushman, 2015; Birkinshaw and Gupta, 2013; Heavey and Simsek, 2017; Foss and Saebi, 2017; Zott et al., 2011). Recent research has extended ambidexterity to the buyer suppliers' relationships context (e.g. Aoki and Wilhelm, 2018). Recently Mom et al. (2018) suggested a need for multilevel insights about how ambidexterity impact on organizational outcomes. Given that organizational ambidexterity plays a role in determining firm success or survival (Junni, Sarala, Taras, & Tarba, 2013; Wang et al., 2018), there is a need to explore how ambidextrous business models can be developed across those markets facing significant IVs. Despite the progress of current research on business models and how firms can balance conflicting demands for various business models (e.g. Markides, 2013), our understanding around the underlying processes of business model innovation (BMI) is relatively underdeveloped (Teece, 2010; Foss and Saebi, 2017).

Against this backdrop, the purpose of this paper is to examine how firms develop supply chain financing (SCF) model to help overcome IVs and become ambidextrous (Andriopoulos and Lewis, 2010; Benner and Tushman, 2015; Gibson and Birkinshaw, 2004; Raisch and Birkinshaw, 2008). We focus specifically on the SCF model to equip supply chain partners based in emerging economies to overcome voids such as lack of financial intermediaries and poor financial credit availability facing small and medium-sized enterprises (SMEs). Scholars have noted the important role of ambidexterity in enhancing firm's performance (e.g. Jansen et al., 2006; Lavie et al., 2010; Wang et al., 2018). Thus, developing BMIs which integrate both exploitative and exploratory learning activities can be quite important, especially in

dynamic contexts such as those observed in emerging markets (c.f. Winterhalter et al., 2016; Wang et al., 2018).

To exemplify our theoretical analysis, we utilize the case of Sichuan Telecom's SCF model and its effects on its own and partners' ambidexterity. In so doing, we articulate the processes entailed in connecting less powerful and resource-poor supply chain partners to powerful players in gaining access to talent and resources to overcome IVs, thus becoming ambidextrous. Sichuan Telecom is actually a subsidiary of China Telecom. In addition to possessing one of the highest numbers of IPTV users in China, including around two million 4K users, Sichuan Telecom has also remodelled its copper-cable bearer networks into full optical networks to pave the way to offer 4K video (Mobileeurope, 2015).

Viewing the SCF model as a problem-solving approach and BMI (e.g. Casadesus-Masanell and Zhu, 2012; Spieth et al., 2014; Zott and Amit, 2015), we develop a model which demonstrates how this process unfolded and the effects it had on the partners. By BMI, we are referring "to the search for new logics of the firm and new ways to create and capture value for its stakeholders; it focuses primarily on finding new ways to generate revenues and define value propositions for customers, suppliers, and partners" (Casadesus-Masanell and Zhu, 2013, p. 464). BMI requires the allocation of resources and fostering an environment which is conducive to experimentations in order to deal with disruptive changes (Gilbert, 2005; see also Khanagha et al., 2014). Against such a backdrop, firms based in emerging economies face unique challenges due to their weak resource base regarding whether to have dedicated units which focus on exploitative and exploratory-oriented business models (Lavie et al., 2010; Markides, 2013; Zott and Amit, 2010). On the other hand, firms may opt for temporal, domain or contextual separation based ambidextrous BMI (Lavie et al., 2010; Lavie et al., 2011; Wang et al., 2018). It is in such contexts that Khanagha et al. (2014:322) highlight the need for recursive iterations between different modes of separated and integrated structures in line with the emergent nature of strategic intent toward the new

business models. Yet, our understanding about the different modes for BMI adopted by firms across their network partners is limited. The BMI-related discussion has not featured much in the ambidexterity literature (Raisch and Birkinshaw, 2008), yet firms can achieve ambidexterity through BMI (Winterhalter et al., 2016). Similarly, the research on ambidexterity has paid insufficient attention to the firm's wider ecosystems (O'Reilly and Tushman, 2013, p. 333), including the supply chains' partners' context. The present paper aims to address these gaps.

Our study makes several key contributions to the literatures on ambidexterity, BMI and IVs. First, in light of growing interest in organization ambidexterity (Ahammad, Lee, Malul and Shoham, 2015; Junni et al., 2013; Lavie et al., 2010; Luger, Raisch and Schimmer, 2018; Mom, Chang, Cholakova & Jansen, 2018), scholars have paid limited attention to organizational-level processes towards developing and embedding ambidextrous expertise within firms and across their network partners (e.g., Aoki and Wilhelm, 2018; O'Reilly and Tushman, 2013). Indeed, recent research has indicated that little is known about how firms' activities evolve to become more ambidextrous (Luger et al., 2018). We demonstrate how firms can develop a new business model which is more attentive to supply chain partners' needs in resource-constrained environments – the ones observed in emerging markets (c.f. Khanna and Palepu, 1997). In addition, although scholars have highlighted the importance of BMI (e.g. Casadesus-Masanell and Zhu, 2012; Chenhall and Moers, 2015; Chesbrough, 2010; Spieth et al., 2014; Zott and Amit, 2015; Foss and Saebi, 2017), relatively few scholars have examined the process and architecture of SCF innovation, particularly in the context of emerging economies where supply chains, especially small suppliers face both operational and financial frictions. We fill this void by identifying how the new SCF model was utilized to fill IVs in the marketplace. Thus, developing such process architecture paved the way for Sichuan Telecom to forge stronger and closer linkages with its partners. In addition, by integrating business models and IVs research, we deduce a new perspective of how firms utilize their powers and network ties to create an SCF model for ambidexterity and conditions for partners to overcome IVs. Thus, our study sheds important light

on the theoretical contention that IVs can incentivise firms to develop new business models for ambidexterity and for entrepreneurship to occur (Tracey and Phillips, 2011).

Furthermore, much of the institution-based view literature (Peng, 2014) has viewed IVs as impediments to economic development and entrepreneurial development (Khanna and Palepu, 1999, 2006). We deviate from this stream of research by demonstrating how such voids could incentivise firms to collaborate with wider supply chain partners and adopt ambidextrous approaches to improve their competitiveness, thus demonstrating the positive externalities of IVs. Moreover, unlike most prior scholarly works on business models and innovation, this study articulates how close supply chain partners can incentivise larger partners to support and nurture smaller players to improve their ambidexterity for competitiveness and mitigate operational and financial frictions prevalent in the case of emerging markets. In this direction, we develop a sequential model which links the separate but interrelated activities connected to SCF as process-oriented studies are rare in the business model context.

The rest of this article is organised into the following four sections. The Conceptual Background section briefly reviews the literature on business models, IVs and supply chains. The next section describes the case context and outlines the approaches to data collection and analysis. The Findings section presents our findings on BMI as a means of filling IVs. We conclude by setting out the public policy and managerial implications of the study.

2 Institutional voids, business model and supply chain collaboration: an integrative review

2.1 Institutional voids

Institutional voids refer to "the absence of the institutions that facilitate economic activity, as well as the absence of an associated set of rewards and sanctions to enforce those rules, norms and belief systems" (Tracey and Phillips, 2011, p. 31). For decades, scholars have recognised IVs as a major challenge facing businesses in emerging markets (Khanna and Palepu, 1999, 2006; Hoskisson et al., 2013; Mair et al., 2012).

Grounded in the theory of IVs (Khanna and Palepu, 1997, 1999; Ofori-Dankwa and Julian, 2013) is the suggestion that regulatory uncertainties and lack of market support mechanisms that characterised emerging economies can constrain a firm's ability to acquire resources, forge ties and gain access to financial credit (Amankwah-Amoah and Debrah, 2017; Peng, 2014). Past studies have demonstrated that IVs can hamper small firms' ability to gain access to scarce human capital and finance resources to remain competitive (Amankwah-Amoah, 2016; Fogel, Hawk, Morck and Yeung, 2006; Luthans and Ibrayeva, 2006; Manolova et al., 2008; Peng, 2014), and become ambidextrous (Khan et al., 2018). Broadly speaking, banks or lenders in emerging economies often decline loan applications to informationally opaque firms or charge them excessively higher interest rates to account for possible high default risk (Fanta, 2016). Besides being denied access to finance, young and resource-poor SMEs may also be required to pay higher rates for loans by lenders (Ortiz-Molina and Penas, 2008). In addition, lack of financial intermediaries in emerging economies can further exacerbate the cost of acquiring finance (Khanna and Palepu, 1997), thus hindering SMEs' growth and innovation.

A relevant stream of research is on inter-firm relationships between supply chain members, which has surged in the operations management and strategy disciplines (Liu, Luo and Liu, 2009). Prior studies indicate that networks can provide partners along the supply chain with access to both tangible resources (e.g. capital) or intangible resources such as know-how, information and legitimacy (e.g. Dyer and Singh, 1998; Dyer and Hatch, 2006; Wu et al., 2006; Rungtusanatham et al., 2003). One stream of research has suggested that bridging or filling the IVs would require the development of a new business model and relationships, which develops deeper and stronger linkages with the supply chain partners (Chung and Luo, 2008; Liu et al., 2009; Luo, Chung and Sobczak, 2009).

A business model refers to the logic of the business manifested in how firms configure activities, utilize resources and build relationships in an attempt to create and capture value for their stakeholders (e.g. Foss and Saebi, 2017; Spieth et al., 2014; Zott and Amit, 2010; Zott et al., 2011). Scholars have

indicated that firms should keep changing and adapting their business models keeping in view the changing business environment (e.g., Achtenhagen et al., 2013; Doz and Kosonen, 2010). As such, the business model can be seen as "a system that is made up of components, linkages between components, and dynamics", which emphasises the complementarity between a firm and its partners including suppliers and customers (Afuah and Tucci, 2001, p. 3; Amit and Zott, 2010). Firms can use such business models to become ambidextrous, especially those operating in institutional void conditions as these firms suffer due to their weak resource base and lack of support from formal institutions. It is in such contexts that BMI is considered as a "design or architecture of the value creation, delivery, and capture mechanisms" of a firm (Teece, 2010: p. 172), and as affecting firms' performance "even under varying environmental regimes" (Zott and Amit, 2007, p. 181). Yet the underlying processes of BMI are not well known and established within the extant literature (e.g. Khanagha et al., 2014; Markides, 2013; Winterhalter et al., 2016). It is suggested BMI that "complements the traditional subjects of process, product, and organisational innovation" (Zott et al., 2011, p. 1032). Thus, BMI can entail both exploration and exploitation activities, but how firms can balance conflicting demands and structural separation of different business models remains underexplored (e.g. Markides, 2013; Winterhalter et al., 2016). Keeping in view its role in developing sustainable competitive advantage, current research highlights a pressing need to develop a fine-grained understanding about BMI (c.f. Foss and Saebi, 2017).

2.2 Organizational ambidexterity

The research on organizational ambidexterity also provides a useful backdrop to the emergence or development of new business models and processes (Gibson and Birkinshaw 2004; Tushman and O'Reilly, 1996). Ambidexterity refers to the ability of a firm to balance conflicting demands of exploration and exploitation and simultaneously pursue both (Andriopoulos and Lewis, 2009, 2010; Benner and Tushman, 2015; Gibson and Birkinshaw, 2004; O'Reilly and Tushman 2013; Mathias et al., 2017). Organizational ambidexterity can be viewed as a dynamic capability (O'Reilly and Tushman, 2007), such as "the routines

and processes by which ambidextrous organizations mobilize, coordinate, and integrate dispersed contradictory efforts, and allocate, reallocate, combine, and recombine resources and assets across differentiated exploratory and exploitative units" (Jansen et al., 2009, p. 797). Through exploitative and exploratory learning, organizations are able to cumulate knowledge to innovate (Atuahene-Gima and Murray, 2007). By simultaneously exploring and exploiting market opportunities, firms are better able to improve their competitiveness and maintain fruitful relationships with partners (Luger et al., 2018; see also Wassmer, Li and Madhok, 2017). Indeed, forging collaboration with partners is increasingly predicated on firms' ability to engage in both explorative and exploitative activities. Some studies have demonstrated that ambidexterity can act as an effective mechanism through which entrepreneurial orientation and human capital contribute to organizational performance (Zhang, Edgar, Geare and O'Kane, 2016). Over time, ambidextrous firms develop capacity to learn and improve their effectiveness (e.g. Junni et al., 2013; O'Reilly and Tushman, 2013). Thus, ambidexterity lens provides important insight to understand how firms develop exploitative and explorative business models (e.g., Winterhalter et al., 2016). Below, we discuss the literature on business models.

2.3 Business model

Prior research has emphasised that a business model entails two unique features. First is the cognitive form, which illustrates the assumptions about stakeholders such as top executives, customers and competitors (Casadesus-Masanell and Zhu, 2010). It can be seen as "a structural template of how a focal firm transacts with customers, partners, and vendors, which captures the pattern of the firm's boundary spanning connections with factor and product markets" (Zott and Amit, 2008, p. 5). Second is the activity-system form, which entails organizational activities including resource configurations to create and capture value (Najmaei et al., 2014). A stream of research pertaining to business models has emphasised that, innovation can arise out of necessity and the harsh institutional setting of the developing world (see Radjou et al., 2012). Another relevant feature of emerging economies is the pervasiveness of resource scarcity

(Mair et al., 2012; Sharma and Iyer, 2012). Resource scarcity can force firms to seek new ways of minimising misallocation of resources as well as amplifying the effects of existing limited resources (Cunha et al., 2014). Accordingly, rather than becoming a liability, resource scarcity becomes a trigger for firms to innovate (see Radjou et al., 2012). The notion that resource scarcity can incentivise firms to innovation to improve efficiency, navigate the "rules of the game" and bypass resource constraints is not new to firms in emerging economies (Sharma and Iyer, 2012). In addition, firms could be motivated to seek to identify innovative solutions that address their current and future needs.

Taken together, the business model can be viewed as the content, structure and governance of transactions with the focal firm and its partners designed to support the firm in creating, delivering and capturing value (Teece, 2010; Saebi and Foss, 2015). A notable effect is that a business model offers an opportunity for value creation through four value drivers: novelty, lock-in, complementarities and efficiency (Amit and Zott, 2001; Zott and Amit, 2010). Yet firms could face challenges in managing conflicting business models simultaneously (e.g. Khanagha et al., 2014). Such challenges are pervasive particularly in the context of emerging economies due to IVs.

Past studies have indicated that the formal and informal institutions that characterised both developed and developing nations can create conditions that hinder or facilitate innovation and adoption of new business approaches (Silvestre, 2015). Given that firm size remains one of the decisive obstacles in obtaining access to finance, large firms can equally utilize their market power and resources to overcome this institutional void (Beck and Demirguc-Kunt, 2006). In the financial sector in emerging economies characterised by underdeveloped or limited disclosure systems, collateral security may be required to help bridge the legitimacy and resource gap to gain access to finance (Fanta, 2016). Given power along the supply chain is unequally distributed, this may mean powerful and resource-rich firms doing more in initiating and implementing new business models in order to enhance efficiency by lowering transaction costs (Zott and Amit, 2013). In collaborative domains, firms' partners may provide such collaboration to

enable partners to gain access to scarce financial resources at reasonable rates. Accordingly, small business financing models may emerge through collaborations between partners. Based on the above, we deduced that a business model entails components such as connected activities, resources and capabilities which underpin the system and its scope to overcome IVs (see Figure 1). These ultimately influence the firms' ability to develop a robust BMI architecture and develop competitive advantage. In this direction, we employ the case of the SCF model to demonstrate how its adoption and implementation unfolds.

Insert Figure1 about here

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3 Research setting and context: The case of Sichuan Telecom

To ensure analytical clarity, we limited our analysis to Sichuan Telecom's SCF model. Sichuan Telecom (based in Chengdu, Sichuan Province) is a subsidiary of China Telecom Corporation Ltd. Sichuan Telecom was acquired by China Telecom in 2008 and is now the main telecommunication service provider in the region, employing over 21,000 staff. China Telecom was ranked 142th in the Fortune Global 500 companies in 2017 and is listed on both the New York Stock Exchange and the Hong Kong Stock Exchange. It is one of the largest information service operators in the world, with 124 million access lines in service users, 128 million wireline broadband subscribers and 229 million mobile subscribers as at July 2017. Some of the unique expertise of Sichuan Telecom lies in the provision of network services for data, voice, data and broadband. Its services include telephone landlines, mobile phones, internet broadband and information communication solutions for different business requirements. In some ways the Sichuan telecom market exemplified key features of the global telecom industry. First, the unbalanced economic development with per capita GDP of Chengdu and Panzhihua of around US$ 5,000, in comparison with that of Bazhong and Guangyuan which is around US$ 1,500 (Chen, 2015) means that services to these different geographical areas needs to be tailored to attract customers. According to the statistics provided by Sichuan Telecom, in addition to Huawei, ZTE and some other large telecommunications equipment

providers, there are over 2,000 SME suppliers. These suppliers also face the same challenges as most SMEs in China in accessing credit. For traditional banking, applicants are required to have loans guaranteed with fixed assets, or a guarantor who has a good credit record. The banks are more willing to issue loans to the large state-owned companies such as Sichuan Telecom and offer premier interest rates because of high fixed-asset value and state-owned company status. However, unlike most SMEs in China, these large companies often do not seek loans because of the excellent cash flow they have.

In order to provide these comprehensive information services, Sichuan Telecom has hundreds of suppliers across various industry sectors including telecommunication equipment manufacturers, software companies, information technology companies and other service providers. In 2005, Sichuan Telecom established a procurement centre which was mainly responsible for purchasing and supplier management. Through the procurement centre, the total purchasing value reached $2.2 billion in 2016. Table 1 provides a list of some salient events in China Telecom and Sichuan Telecom respectively.

Insert Table 1 about here

Following the announcement of restructuring of the telecom industry by the Chinese government, major telecom providers such as China Telecom, China Mobile and China Unicom were able to secure a 3G license for their operations and provide fixed-network services. Prior to this, the operators were restricted mainly to mobile services. The launch of one of China's first commercial 4K TV networks in 2014 also added an additional offering of 4K ultra-HD video to its five million broadband subscribers (Jinyun and Zhen, 2015). For major players in the supply chain such as Sichuan Telecom, the ability to mitigate both upstream and downstream financing risks motivated its decision to design and implement the financing model. For leading emerging economies such as China and India, credit availability continues to represent a major impediment to SMEs' expansion and threat to their survival. Against this backdrop, Sichuan Telecom's SCF model was partly designed to help the local supply chain partners overcome this void. The

current relationship between Sichuan Telecom, banks, and small and medium-sized suppliers is illustrated in Figure 1.

3.1 Research design and methodology

Given that operations management, and small business and strategy researchers have failed to offer a robust explanation for how firms create a new business model to overcome IVs (Zott and Amit, 2015), we adopted a single-case approach to provide the in-depth analysis required (Barratt, Choi and Li, 2011; Meredith, 1998; Yin, 2003). The use of a single-case approach is appropriate given the limited knowledge on the subject and the need for a fresh perspective on a largely overlooked area of research (Eisenhardt, 1989; Woodside, 2010). Similarly, Punch (2005, p. 147) suggested that case-study research is appropriate where the accumulated academic "knowledge is shallow, fragmentary, incomplete or non-existent". Given that the unit for analysis is examining a business model in a focal firm and its exchange partners (Zott and Amit, 2008; Saebi and Foss, 2015), we focused on Sichuan Telecom and its suppliers in the context of the SCF platform. Such an approach provides a much needed fine-grained view of BMI in the case of emerging economies.

3.2 Data sources

We adopted a three-stage approach to data collection. First and most importantly, 40 interviews were conducted with the project managers, designers, general managers and non-managerial staff involved in developing and implementing the SCF model in Sichuan Telecom. The protocol was created and refined in English, and then the Chinese co-authors translated the protocol into Mandarin for the initial interviews. In addition, we also interviewed supply chain partners to gauge their perspective on the design, implementation and effects of the programme on their activities. In these cases, multiple interviews were conducted with each participant to help gain a better understanding of how the implementation was

unfolding, its effects and remedial actions. Second, during the formation, development, implementation and review stages of the SCF model, the authors carried out observations with all the key participants of the projects. Finally, archival data such as company history, company reports, report on clients, performance reports and posters were obtained from the firm. The reports' sources span several years and were analysed by the authors. The use of this source was "particularly suited to generating developmental explanations, in other words, explaining processes of change and evolution" (Welch 2000, p. 198). By integrating the insights from the observations, the interview data and secondary sources, we were able to deduce the findings below. We started examining the SCF platform from when it was established in 2009. In all, 70 relevant interviews were conducted with the suppliers and senior managers at Sichuan Telecom. Table 2 provides details of the informants. Regarding interview questions, informants were asked about the processing leading to the introduction of the model, designing the business model and implementation of the model which took around five months. The small businesses were also asked about financing difficulties, constraints to the businesses and the possible effects of SCF models. Two of the researchers examined the documents on multiple occasions to ensure reliability and validity of interview findings. Their language skills in English and Mandarin equipped them in helping to translate and interpret some of the data.

Insert Table 2 about here

3.3 Data analysis

Having recorded and transcribed the data, we began by coding the interview data along the themes noted above which capture the essence of the model (Van Maanen, 1979). We were then able to construct a clear narrative of the model which reflected the perspectives of the firm and its partners. We also constructed a case history of the firm to form the basis of the analysis. The multi-lingual expertise of some of the authors proved particularly useful in transcribing and translating comments from the informants. One of the authors

conducted the interview to ensure validity and coherence while two of the multilingual research team focused on not only checking and cross-checking the data and transcript but also ensuring that meanings were not lost during the transcribing and analysis phase. Through multiple meetings and interviews with the suppliers, the firm identified financing as a major barrier to their expansion and ability to continue services to Sichuan Telecom. These culminated in the development of the three stages which capture the evolution of the model.

4 Findings: Evolution of the supply chain financing model

Below we tease out the key characteristics of the stages.

4.1 Stage1: Drivers for change

4.1.1 Dimensions of financing constraints for SMEs

Although SMEs play an important role in most developed and developing economies, they often struggle to get loans from banks. This is no exception for SMEs in China. According to the State Administration for Industry and Commerce, 99% of the 10 million registered enterprises are SMEs. SMEs contribute over 60% of national GDP and provide nearly 80% of employment opportunities. Despite their significant contribution to China's social and economic development, SMEs face many challenges in running their operations, in particular in accessing credit from state-owned commercial banks and the high borrowing cost of their financing. Banking in the area is dominated by the big four commercial banks (i.e. the Bank of China, the China Construction Bank, the Industrial and Commercial Bank of China, and the Agricultural Bank of China) who are often reluctant to lend to SMEs. In contrast, the state-owned companies have much easier access to credit than SMEs given their ties to state officials. Indeed, nearly 85% of loans were issued to the state-owned companies and often the borrowing rates are much lower than those given to SMEs (Cary, 2013).

In recent years, gaining access to financial credit has become a strategic and operational imperative for many small businesses in order to grow and develop new products and services. Accordingly, firms that are unable to gain access by relying on their own resources are forced to use collateral or rely on third parties to underwrite the loan (Charles and Mori, 2016). The financing needs of SMEs have some unique characteristics: low amount, high frequency and high risk of default. From the banks' perspective, their financing needs are less attractive than the state-owned companies or big enterprises. In addition, SMEs based in emerging markets lack collateral assets and track record which further hinders their ability to gain finance. Therefore, banks often charge a higher interest rate with more restrictive conditions when issuing loans to SMEs. In much of the developing world, land is often deemed acceptable collateral (Beck and Demirguc-Kunt, 2008).

Despite their entrepreneurial spirit, strong market adaptability and operational flexibility, the SMEs in emerging economies face many difficulties in accessing their credit limit; their capability in developing and expanding their businesses and lack of access to finance also hamper their innovations. The problem of financing difficulties of SMEs and the consequential impact on the economy and society have caused serious concern among the stakeholders. In spite of the importance of such arrangements to the survival of SMEs in emerging markets, many still fail to mobilize adequate support to fill this institutional void. In some cases, where the small firms provide essential services to major firms, their collapse can distort the operations of the supply chain partners resulting in the disruptions of value chain activities across network partners. Despite the efforts made by the Chinese government and financial institutions in the past few years, the financing gap for SMEs still persists as a systematic issue in China unless there is an effective way of bridging the financing gap between the demand of SMEs and the supply of financial institutions. Given that small businesses have historically faced major obstacles in obtaining access to finance due to the high risk of failure and default, banks are generally reluctant to grant loans to them. This, in tandem of bureaucratic bottlenecks, lack of financial intermediaries and red tape, curtails their development and

ability to flourish and engage with both exploitative and exploratory activities. It is therefore not surprising that many turn to formal and informal sources to obtain finance.

4.1.2 Diagnosing the constraints

During this stage, the firm concluded that simply holding onto existing markets and partners would be better enhanced by helping suppliers to develop. Given that such SMEs in an emerging economy do not possess audited financial statements and are not scrutinised by rating agencies, they often lack the legitimacy to be able to attract finance even when they have contracts at hand. Given the information asymmetry that characterises this potential transaction, collateral security is seen as an effective mechanism to mitigate credit risk (Bester, 1987). Owing to the high interest rates and denial of access to bank loans and financial institutions, many small suppliers had been forced to rely on informal sources of finance such as friends and family. According to one interviewed supplier:

> "*We consider all possible ways of accessing financing including venture capital, business loans and even usury. Private lending has much higher interest rates than bank loans. It was common before for SMEs using private lending when there is less market competition and firms have higher profit margins. Now we cannot afford the cost of private lending because of an intensified market competition and lower profit margins."*

Sichuan Telecom sought to address the difficult problem of SME financing by introducing the order-based SCF model. For the SMEs, the absence of collateral often means their loan applications are likely to be unsuccessful and therefore expansion is curtailed. The study revealed that one factor that makes collateral unique is that the demands tend to be much higher compared with the degree of collateralization in developed economies with well-developed financial and disclosure systems. The absence of collateral and denial of loans were a common problem noted by the small businesses. It was discovered that the suppliers of Sichuan Telecom face particularly difficult challenges in accessing formal financing due to the high risk of their line of business and lack of information about their credit worthiness. Most of the partners are financially constrained and informationally opaque which curtails their ability to secure loans or avoid

being charged excessive rates. Under this scenario, collateral would be adequate to secure loans. However, many of the firms along the supply chain have few to non-existent tangible and intangible resources to act as collateral. The analysis of the organizational problems and supply chain inefficiencies demanded a change in emphasis, which shifted the organizations from self-interest to the plights of supply chain partners. In this sense, Sichuan Telecom spotted an opportunity to be able to act as an intermediary by underwriting supply chain partners with contracts in hand to enable them to gain access to financial credit. Such an intermediary role is vital in emerging markets due to the absence of well-functioning financial intermediaries (Khanna and Palepu, 1997).

As the purchasing manager of Sichuan Telecom noted, lack of financial credit availability is a major issue and he determined to find a suitable solution for Sichuan Telecom's suppliers to access affordable financing. Through investigation, he found that at present, there were three kinds of common SCF model in China: respectively, accounts receivable financing, warehouse financing and confirming warehouse financing – but the effect was not ideal. Because the traditional core enterprise SCF needed core enterprise to guarantee SMEs' default, the core enterprise needs to bear joint and several liabilities in case of focal SMEs getting into default. For core enterprise, in addition to improving the stability of supply for the SMEs' financing, there were increased risks to bear and communication costs to pay while there were no real earnings. The purchasing manager emphasised during the interview:

> "*The disadvantage of existing SCF models is the implementation does not achieve risk reduction, but merely transfers the banks' risk to the guarantors. Many firms are not willing to guarantee bank loans for other firms since they do not see any benefit but risk arising from it."*

Combined with the actual situation, Sichuan Telecom believed that they could utilize a relatively mature supplier management platform eSRM system to establish an information platform for the small and medium-sized suppliers and banks. To the banks, Sichuan Telecom underwriting meant that they could extend loans without demands that the small firms produce collateral. This kind of supply chain contractual

relationship-supported guarantee paved the way for the small businesses to gain access to finance. It was broadly viewed as a reasonable substitute. To the resource-poor and informationally opaque new firms, the backing of Sichuan Telecom was key to their competitiveness and success. Based on the analysis, the following proposition is offered:

> **Proposition 1:** *Resource scarcity is more likely to trigger close relationships between focal firms and their smaller supply chain partners, which is conducive to the development of* ambidextrous *BMIs that address their current and future needs.*

4.2 Stage 2: Designing and implementing the SCF model

The foregoing phase analysis led to the identification of problems such as lack of public legitimacy, inability to gain access to finance and threat to the organizations' survival which all demanded leveraging the resources, reputation and prestige of Sichuan Telecom to underwrite and underpin their operations. This also meant taking a public stance in their support. Our analysis indicates that Sichuan Telecom utilized its market power, prestige and resources to design and implement the system. Through repeated communication with banks and small and medium-sized suppliers, one of the executives proposed the order-based SCF model. After learning about the programme, representatives of the parties all expressed their recognition and affirmation of this model. After a series of preparation and systematic developments, the platform obtained the national software copyright in 2010.

In May 2010, the supply chain of the financing service platform was launched, providing the "order-based SCF" featured business model. The system was awarded the Communication Industry Innovation Award by the National Communications Industry Association. The closed loop of the order-based SCF model is illustrated in Figure 2. The SCF model was designed with the aim of providing a bridge for small businesses to gain access to financial credit. The SCF platform works in collaboration with local banks by underwriting the business of suppliers holding orders to facilitate loans to the small businesses. This is a

process of leveraging the resources and expertise of Sichuan Telecom to enable the business to overcome voids as depicted in Figure 2. The representatives of the parties all expressed their recognition and affirmation for this model. As a key representative of Sichuan Telecom noted:

> "*The supply chain finance model builds an information platform for SMEs and banks. In some way, it reflects the corporate social responsibility of Sichuan Telecom. Through it, SME suppliers have sufficient funds to ensure their supply to Sichuan Telecom. As a result, it provides the material reliability to Sichuan Telecom's service quality. It plays a significant role in improving the competitiveness of the whole telecommunication supply chain.*"

In business processes, the order-based SCF model seamlessly integrates the business processes of these tri-parties – Sichuan Telecom, suppliers and banks – forming a complete supply chain closed-loop business process. Such a business model serves dual purpose which enables the ecosystems' partners to exploit the capabilities of network partners for exploitative and explorative activities. Built on their electronic supplier relationship management system, "eSRM", a tailored information platform for SCF service was developed according to the characteristics of the telecommunication industry.

Insert Figure 2 about here

The key processes involved in the order-based supply chain finance model are illustrated in Figure 3. The main features included integrating banks into the supply chain management system, which provides an information platform for SME suppliers and banks. It also enables the participating parties, including Sichuan Telecom, SME suppliers and banks to access the real-time information on operational processes, e.g. orders, inventories, production plans and deliveries. Besides providing the unique service of order-based SCF, it also supported an effective and efficient way of verifying orders, auditing loan applications and releasing funds. It puts emphasis on the importance of using supply chain knowledge for improved financing decision. As one SCF project member from Sichuan Telecom described:

"*The collected supply chain information is not only utilized for operational planning purposes but also for improving financial decisions."*

Through the investigation of financing of small and medium-sized suppliers, it fostered a much closer relationship between Sichuan Telecom, the bank, and small and medium-sized suppliers for the exploitation of bridging and bonding resources and capabilities which are vital to become ambidextrous. These extended network relationships were conducive for the effective development of BMI. The novel design of business models in turn facilitate exploitation and exploration as well as innovation across network (Wei et al., 2014).

Insert Figure 3 about here

For traditional bank financing, the applicant has to guarantee loans with fixed assets, or requires a co-signer in the traditional loans. The banks are willing to make loans and offer preferential policies to the large state-controlled companies just like Sichuan Telecom because of its finance record. However, these companies are not seeking loans for the excellent cash flow they have. As noted previously, SMEs in China generally have fewer fixed assets and struggle to find co-signers. Although the government has introduced a series of policies to support the SMEs' financing, banks remain reluctant to lend to the SMEs. The SCF model provides structure and governance of transactions with Sichuan Telecom and its partners (including banks and suppliers) working together in creating, delivering and capturing value of this new eco-system. The efficient design of platform-oriented business model reduces transaction costs which enhances the efficiency of the supply chain partners (e.g., Zott and Amit, 2007, 2013). This suggests the following proposition:

Proposition 2: *Innovations such as the order-based supply chain finance model that are driven by "IVs" and address their current and future needs will be more likely to yield little or no resistance during the implementation stage.*

4.3 Stage 3: Tripartite performance effects

The data indicated that Sichuan Telecom had over 2,000 suppliers and an annual procurement budget of over $2.2 billion after the implementation of the SCF model. The SCF platform provided the commercial banks with a new pool of potential customers with financing needs. Through the SCF model, banks were no longer simply emphasising the scale, fixed assets and financial performance as indicators of individual firms' performance. In contrast, attention was diverted to the firms' trading partners and transactional relationships. Accordingly, the focus had shifted from the assessment of individual firms to the competitiveness of the value chain partners, market position and supply chain management. In contrast to the fixed assets or corporate guaranteed loans, which often transfer the risks to guarantors, the SCF model helps the participating banks reduce the risk of bad loans. The amount of bank loans is dependent on the value of orders received from Sichuan Telecom and the loans will be repaid when the payments to these orders are released from Sichuan Telecom. One representative of SMEs asserted:

> "*Now, we can apply for bank loans with the order received from Sichuan Telecom. Banks also trust us more with Sichuan Telecom's verification on the order information. This is an excellent model which really solves our problem of financing difficulty.*"

By the end of 2016, our data indicated that the participating banks had issued Sichuan Telecom's suppliers with loans of over $475 million without incurring any default loan. From the supply chain's perspective, the order-based SCF model seamlessly integrated business processes of the participating parties (Sichuan Telecom, suppliers and banks), forming a complete supply chain closed-loop business process. Such integration improved the information, and the money and material flows which are essential for the success of any supply-chain-led exploitative and exploratory innovative activities. First, through the SCF platform, all the parties are able to access the relational and transactional information, e.g. contracts, orders and inventories. The improved information visibility across the supply chain not only

helped the supply chain partners to plan their production and coordinate the supply chain but also enabled the banks to assess the credit risk when issuing loans to SME suppliers.

The data demonstrated that the banks are more willing to issue loans to SMEs' suppliers through the SCF platform because of lower risk, since the loan decisions are based on the transactional relationship between ST and their suppliers in the context of Sichuan Telecom's purchasing orders. The enhanced information and money flows will lead to a better material flow throughout the supply chain and, as a result, improve the performance of the whole supply chain. One representative of the Sichuan branch of China Construction Bank asserted:

> "*This supply chain finance model eliminates the information asymmetry between us and SMEs. It reduces the risk of bad loans, which effectively solves the dilemma that banks want to lend but do not dare to lend*."

By 2016, the online suppliers had reached more than 2,200 and the number of the banks from China Construction Bank (CCB) to 10 major commercial banks operating in Sichuan Province. It had released bank credit of nearly $900 million and $475 million loans, and there was no default loan. From Sichuan Telecom's perspective, the new model reduced the supply disruption risk and ensured the on-time delivery of quality products as their suppliers are able to access urgently required finance more easily through the SCF platform. The SCF model also enabled Sichuan Telecom to make the most out of their existing IT infrastructure and to foster a close partnership with its suppliers and banks. Banks pay Sichuan Telecom 20% of the revenue generated from loans to ST's suppliers through the SCF platform. Since the launch, Sichuan Telecom had reduced its procurement costs by up to 21% and the capital required for its inventory by 16% by the end of 2016.

More importantly, Sichuan Telecom can leverage its market position and financial capability to make financing credit more accessible and affordable to its suppliers. Accordingly, the SCF model helps Sichuan Telecom to integrate its supply chain and improve its suppliers' capability, and therefore improve

the competitiveness of the whole supply chain. The cumulated knowledge through explorative and exploratory activities enable Sichuan Telecom to continue innovating and improving their completeness while maintaining good relationship with its supply chain partners.

From the SME suppliers' perspective, the SCF model provided an alternative way to access credit compared to fix assets or corporate guaranteed loans. Due to long payment cycles, many SMEs often find a funding cap when they receive large equipment orders from Sichuan Telecom. Some of them may have difficulties in passing the back audit or obtaining sufficient financing because of a lack of fixed assets. Using the purchasing contract with Sichuan Telecom, SMEs can apply for loans from the participating banks through the SCF platform without going through the lengthy and tedious loan-approval processes of traditional bank-loan applications. Once the order is fulfilled, Sichuan Telecom will pay money directly to the bank. In addition, the loans obtained through the SCF model have much lower interest rates compared to private lending.

Overall, the SCF platform helps SME suppliers to gain bank credit with more favourable conditions in a short timescale and, therefore, enables them to complete orders and expand their supply capacity and capability. It must also be pointed out that whilst SMEs solved the problem of no easy access to finance, banks solved the problem of not daring to lend due to the asymmetric information, while Sichuan Telecom ensured supplies and enhanced competitiveness. Through tripartite discussion, these three parties concluded that the design idea of the model is reasonably practicable. Hence, the following proposition is offered:

> **Proposition 3:** *The development of ambidexterity through the inter-firm collaborating partners to overcome IVs is more likely to generate positive tripartite performance effects, particularly in the context of emerging economies.*

5 Discussion and implications

This article presented a process stage model of how a firm can utilize its resources, expertise and market power to enhance the competitiveness of supply chain partners by helping them to overcome IVs and become ambidextrous through the development of unique activity-based BMI (Markides, 2013; Winterhalter et al., 2016; Zott and Amit, 2013). There has been limited integration of business model and ambidexterity literature (e.g. Khanagha et al., 2014; Markides, 2013). In this article, we draw insights from the literature on IVs, business models and ambidexterity to provide a process-based view for the development of an activity-based unique business model which helps supply chain partners navigate IVs in emerging markets and develop exploitative and exploratory activities (e.g., Wei et al., 2014). We utilized the case of Sichuan Telecom to shed light on processes in identifying the problem, and designing and implementing the SCF model which has both novelty and efficiency elements to reduce transaction costs and enhance exploitative and explorative activities (Zott and Amit, 2013; Wei et al., 2014). We identified three unique stages in the evolution of the SCF model: drivers for change including identifying suppliers' problems and constraints, designing and implementing an SCF model, and the tripartite performance effects.

One key observation was that the programme sought to reduce risk to enhance the competitiveness of the partners rather than transfer risk. In view of the importance of innovating with partners rather than relying on firms' capabilities and resources alone (Chesbrough, 2010), this study demonstrates how an innovative business model could emerge as an outcome of firm–supplier interactions, resource scarcity pressures and IVs. The conceptualization, design and implementation of the financing model have been beneficial to most SMEs and Sichuan Telecom. This means access to finances at a fraction of the original interest rates and costs. The desire to mitigate risk of failure by shoring up the capabilities and expertise of the partners also played a key role in the introduction of the SCF model. By viewing the SCF model as a BMI (e.g. Casadesus-Masanell and Zhu, 2012; Chesbrough, 2010; Foss and Saebi, 2017; Zott and Amit,

2015), the study demonstrated the effects of this model in the stages as an activity-based, network-oriented BMI. Different from some of the existing literature that focuses on the role of technological innovation in supply chain finance practices (Pfohl and Gomm 2009; Zhao et al., 2015), our research findings, from the theoretical lens of ambidexterity and institution void, explain how the order-based supply chain model as a BMI incentivises large and small supply chain partners to overcome resource scarcity and improve their exploitative and explorative capabilities for competitiveness.

5.1 Implications for theory

These findings provide important theoretical implications. First, this research complements the existing literature on organization ambidexterity (Ahammad et al., 2015; Bresciani, Ferraris & Del Giudice, 2018; Junni et al., 2013; Luger et al., 2018; García-Granero et al., 2018; Mom et al., 2018; Stokes, Smith, Wall, Moore, Rowland, Ward and Cronshaw, 2018) by demonstrating how new BMIs can be developed when engaging in explorative and exploitative activities with external stakeholders such as supply chain partners and financial institutions. Although some scholars have indicated that innovative financing instruments as essential in creating pathways for SMEs to access to finance (Beck and Demirguc-Kunt, 2006), the precise mechanisms for doing so remain largely overlooked. In this direction, we offer a phase model which deepens our understanding of the processes, decisions points and implementation of the SCF model. Furthermore, we contribute to the literature on strategy by demonstrating how a collaborative approach to problem solving can be channelled towards filling IVs. Thus, we deepen our understanding of strategising with supply chain partnerships (Soosay et al., 2008; Wong et al., 2013) and user-firm-led innovations (Von Hippel, 2005). In addition, despite the challenges posed by IVs, limited research has examined steps towards filling the void through BMI (Khanagha et al., 2014; Zott et al., 2011). In addition, despite the scholarly calls to focus on business models across different contexts (Markides, 2013; Zott and Amit, 2007), there has been relatively limited studies which have examined business models and ambidexterity

in the emerging economies' supply chains context. Thus, the present study provides important insights on this topic.

Related to above, we delineate the processes through which IVs can be bridged by utilising resources and capabilities of alliance partners for BMIs (e.g. Winterhalter et al., 2016). This is the first study to explore how a new business model, specifically the SCF model, can emerge as an outcome of IVs. Future researchers could use our framework and test propositions in different industrial settings to develop a better understanding of how overcoming IVs can become a viable pathway to becoming ambidextrous. Insights drawn from such analyses can help firms develop strategies for transforming the resource scarcities such as lack of institutional support or financial credit into the development of exploitive and explorative capabilities and the improvement of business competitiveness.

5.2 Managerial implications

Notwithstanding the contributions to theory, there are some practical implications. First, although the financing model has played a pivotal role in the development of SMEs in Sichuan, it is essential that the financing model does not create a sanctuary for inefficient and stagnant firms who are incapable of obtaining finance from the open market. Accordingly, there is a need for a mechanism of fast-growing and emerging large firms to transition out of the system to make way for other smaller firms. This would also reduce the financial liabilities of Sichuan Telecom. In addition, the analysis suggests that managers are more likely to leverage their market power and resources endowment to improve the competitiveness of suppliers when the long-term outlook of suppliers threatens their own survival chances. By forging closer relationships with supply chain partners, firms could turn underperformance into superior performance. Our results demonstrate that using the SCF model is an effective mechanism in overcoming IVs. To ensure successful implementation of BMIs, firms must engage in skills development to prepare partners for the changes.

From a public policy standpoint, there is a need for government to improve the business environment, and legal and financial institutions to remove obstacles to gaining finance and create conditions for small firms to develop. It has been widely acknowledged that business competition has already evolved from the competition between enterprises to the competition between supply chains. It is inevitable that, to solve the operation management problems of enterprises from the perspective of the supply chain, multilateral cooperation can be sustained only in the case of win-win situations (see Zhou et al., 2014). Information sharing is at the core of the order-based SCF model, which is an important part of supply chain collaboration.

5.3 Limitations and future research

There are some limitations emerging from the analysis and addressing these limitations points to interesting avenues for future research. First, given that we developed a three stage model of evolution of the SCF model, future studies could explore whether similar organization exhibit the same stages. Future studies could also develop scales to examine the extent to which IVs drives adoption of ambidextrous financing model. Second, this is a single-case study focusing on one industry which limits generalisability to other industrial and organizational settings. Future research efforts could be directed towards exploring this issue using cross-industry settings such as renewable energy, ICTs and automotive. Third, another limitation of the study is the focus on merely looking at the triggers to innovation and its short/medium-term and direct effects without accounting for the intermediate and long-term effects. It might be useful for future research to explore whether these effects are prevalent after say a decade and how the BMIs affect the stakeholders' inter-firm relationships. Fourth, future studies need to pay greater attention to network level variables such as network density, structure as well as the role of strong and weak ties and their impact on business models and ambidexterity. Such studies could integrate institutions-based view with networks and examine business models and ambidexterity across ecosystems. Lastly, the paper should be viewed as a preliminary

attempt to examine the evolution of the SCF model and its effects for firms. We hope this study fosters new research on the subject.

References

Achtenhagen, L., Melin, L., Naldi, L., 2013. Dynamics of business models–strategizing, critical capabilities and activities for sustained value creation. *Long. Range Plan. 46*(6), 427-442.

Afuah, A., Tucci, C.L., 2001. Internet business models: A strategic management approach. New York: Irwin/McGraw-Hill.

Ahammad, M. F., Lee, S. M., Malul, M., Shoham, A. 2015. Behavioural Ambidexterity – The impact of financial incentives on employee motivation, productivity and performance of commercial bank. *Hum. Res. Manag.* 54 (S1), s45–s62.

Amankwah-Amoah, J. 2016. An integrative process model of organisational failure. *Journal of Business Research, 69*, 3388-3397.

Amankwah-Amoah, J., Debrah, Y., 2017. Toward a construct of liability of origin. *Ind. Corp. Change* 26(2), 211–231.

Amit, R., Zott, C., 2001. Value creation in e-business. *Strateg. Manag. J.* 22(6/7), 493-520.

Amit, R., Zott, C., 2012. Creating value through business model innovation. *MIT Sloan Manag. Rev.* 53(3), 41–49.

Andriopoulos, C., Lewis, M.W., 2009. Exploitation-exploration tensions and organizational ambidexterity: Managing paradoxes of innovation. *Organ. Sci. 20*(4), 696-717.

Andriopoulos, C., Lewis, M.W., 2010. Managing innovation paradoxes: Ambidexterity lessons from leading product design companies. *Long. Range Plan. 43*(1), 104-122.

Aoki, K., Wilhelm, M., 2018. The Role of Ambidexterity in Managing Buyer–Supplier Relationships: The Toyota Case. *Organ. Sci.* 28, 965-1167.

Atuahene-Gima, K., Murray, J. Y. 2007. Exploratory and exploitative learning in new product development: A social capital perspective on new technology ventures in China. *J Inter. Mark.* 15(2), 1–29.

Barratt, M., Choi, T. Y., Li, M., 2011. Qualitative case studies in operations management: Trends, research outcomes, and future research implications. . *J. Oper. Manag.* 29(4), 329-342.

Beck, T., Demirguc-Kunt, A., 2006. Small and medium-size enterprises: Access to finance as a growth constraint. *J. Bank. Finan.* 30(11), 2931-2943.

Beck, T., Demirgüç-Kunt, A., 2008. Access to finance: An unfinished agenda. *World Bank Econ. Rev.* 22(3), 383-396.

Benner, M.J., Tushman, M.L., 2015. Reflections on the 2013 Decade Award—"Exploitation, exploration, and process management: The productivity dilemma revisited" ten years later. *Acad. Manag. Rev. 40*(4), 497-514.

Bester, H., 1987. The role of collateral in credit markets with imperfect information. *Euro. Econ. Rev.* 31(4), 887-899.

Bresciani, S., Ferraris, A., & Del Giudice, M. 2018. The management of organizational ambidexterity through alliances in a new context of analysis: Internet of Things (IoT) smart city projects. *Technological Forecasting and Social Change*, *136*, 331-338.

Casadesus-Masanell, R., Zhu, F., 2010. Strategies to fight ad-sponsored rivals. *Manag. Sc.* 56(9), 1484-1499.

Casadesus-Masanell, R., Zhu, F., 2013. Business model innovation and competitive imitation: The case of sponsor-based business models. *Strateg. Manag. J.* 34(4), 464-482.

Charles, G., Mori, N., 2016. Effects of collateral on loan repayment: Evidence from an informal lending institution. *J. Afric. Bus.* 17(2), 254-272.

Chen, X., 2015. Optimizing MPBSM Resource Allocation Based on Revenue Management: A China Mobile Sichuan Case. *Hindawi Publishing Corporation, Mobile Information Systems*, 10.

Chenhall, R. H., Moers, F., 2015. The role of innovation in the evolution of management accounting and its integration into management control. *Account. Organ. Soci.* 47, 1-13.

Chesbrough, H., 2010. Business model innovation: opportunities and barriers. *Long. Range Plan.* 43(2), 354-363.

Chung, C. N., Luo, X., 2008. Institutional logics or agency costs: The influence of corporate governance models on business group restructuring in emerging economies. *Organ. Sci.* 19(5), 766-784.
Doz, Y.L., Kosonen, M., 2010. Embedding strategic agility: A leadership agenda for accelerating business model renewal. *Long range planning*, *43*(2-3), 370-382.
Dyer, J.H., Hatch, N.W. 2006. Relation-specific capabilities and barriers to knowledge transfers: creating advantage through network relationships. *Strateg. Manag. J. 27*(8), 701-719.
Dyer, J.H., Singh, H. 1998. The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Acad. Manag. Rev. 23*(4), 660-679.
Eisenhardt, K. M., 1989. Building theories from case study research. *Acad. Manag. Rev.* 14(4), 532-550.
Fanta, A. B., 2016. Complementarity between Relationship Lending and Collateral in SME Access to Bank Credit: Evidence from Ethiopia. *J. Afric. Bus.*17(3), 308-318.
Fogel, K., Hawk, A., Morck, R., Yeung, B., 2006. Institutional obstacles to entrepreneurship. In M. Casson, B. Yeung, A., Basu, & N. Wadeson (Eds.), The Oxford handbook of entrepreneurship (pp. 540–579). Oxford: Oxford University Press.
Foss, N.J., & Saebi, T., 2017. Fifteen years of research on business model innovation: How far have we come, and where should we go? J. Manag. *43*(1), 200-227.
García-Granero, A., Fernández-Mesa, A., Jansen, J. J., & Vega-Jurado, J. 2018. Top management team diversity and ambidexterity: The contingent role of shared responsibility and CEO cognitive trust. *Long Range Planning*, *51*(6), 881-893.
George, G., Bock, A.J., 2011. The business model in practice and its implications for entrepreneurship research. *Entrepreneurship Theory and Practice*, *35*(1), 83-111.
George, G., McGahan, A. M., Prabhu, J., 2012. Innovation for inclusive growth: Towards a theoretical framework and a research agenda. *J. Manag. Stud.* 49(4), 661-683.
Gibson, C. B., & Birkinshaw, J. 2004. The antecedents, consequences and mediating role of organizational ambidexterity. *Acad. Manag. J.* 47, 209-226.
Gilbert, C.G. 2005. Unbundling the structure of inertia: Resource versus routine rigidity. *Acad. Manag. J. 48*(5), 741-763.
Glaser, B. G., Strauss, A. L., 1967. *The discovery of grounded theory: Strategies for qualitative research*. London: Wiedenfeld & Nicholson.
Harland, C. M., 1996. Supply chain management: relationships, chains and networks. *British J. Manag.* 7, S63-S80.
Heavey, C., Simsek, Z., 2017. Distributed cognition in top management teams and organizational ambidexterity: The influence of transactive memory systems. *J. Manag. 43*(3), 919-945.
Hoskisson, R.E., Wright, M., Filatotchev, I., Peng, M.W. 2013. Emerging multinationals from mid-range economies: The influence of institutions and factor markets. *j. Manag. Stud. 50*(7), 1295-1321.
Jansen, J. J., Tempelaar, M. P., Van den Bosch, F. A., Volberda, H. W. 2009. Structural differentiation and ambidexterity: The mediating role of integration mechanisms. *Organ. Sci. 20*(4), 797-811.
Jansen, J.J., Van Den Bosch, F.A. and Volberda, H.W., 2006. Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. *Manag. Sci. 52*(11), 1661-1674.
Jinyun, H., Zhen, L., 2015. Is Your Network Ready for 4K? http://www.lightreading.com/ document.asp?doc_id=712825.
Junni, P., Sarala, R. M., Taras, V., Tarba, S. Y. 2013. Organizational ambidexterity and performance: A meta-analysis. *Acad. Manag. Persp. 27*(4), 299-312.
Khan, Z., Rao-Nicholson, R., Tarba, S.Y., 2018. Global networks as a mode of balance for exploratory innovations in a late liberalizing economy. *J. World Bus.* 53(3), 392-402
Khanagha, S., Volberda, H., Oshri, I., 2014. Business model renewal and ambidexterity: structural alteration and strategy formation process during transition to a Cloud business model. *R&D Manag. 44*(3), 322-340.
Khanna, T., Palepu, K. G., 2006. Emerging giants: Building world-class companies in developing countries. *Harvard Bus. Rev.* 84 (10), 60–70.
Khanna, T., Palepu, K., 1997. Why focused strategies may be wrong for emerging markets. *Harvard Bus. Rev.* 75(4), 41-48.
Khanna, T., Palepu, K., 1999. Policy shocks, market intermediaries, and corporate strategy: The evolution of business groups in Chile and India. *J. Econ. Manag. Strat.* 8(2), 271-310.

Khanna, T., Palepu, K., 2005. *Spotting institutional voids in emerging markets*. Watertown, MA, U.S.A. Harvard Business School Press.
Lai, G., Debo, L.G., Sycara, K., 2009. Sharing inventory risk in supply chain: The implication of financial constraint. *Omega*, 37(4), 811-825.
Lavie, D., Kang, J., Rosenkopf, L. 2011. Balance within and across domains: The performance implications of exploration and exploitation in alliances. . *Organ. Sci. 22*(6), 1517-1538.
Lavie, D., Stettner, U., Tushman, M.L. 2010. Exploration and exploitation within and across organizations. *Acad. Manag. Annals*, *4*(1), 109-155.
Lee, H. L., 2004. The triple-A supply chain. *Harvard Bus. Rev.* 82(10), 102-113.
Liu, C., 2016. Sustainability of rural informatization programs in developing countries: A case study of China′ s Sichuan province. *Tele. Poli.* 40(7), 714-724.
Liu, Y., Luo, Y., Liu, T., 2009. Governing buyer–supplier relationships through transactional and relational mechanisms: Evidence from China. *J. Oper. Manag. 27*(4), 294-309.
Luger, J., Raisch, S., Schimmer, M. 2018. Dynamic balancing of exploration and exploitation: The contingent benefits of ambidexterity. *Organ. Sci.* https://doi.org/10.1287/orsc.2017.1189
Luo, X. R., Chung, C. N., 2013. Filling or abusing the institutional void? Ownership and management control of public family businesses in an emerging market. *Organ. Sci. 24*(2), 591-613.
Luo, X., Chung, C. N., 2005. Keeping it all in the family: The role of particularistic relationships in business group performance during institutional transition. *Adm. Sci. Q. 50*(3), 404-439.
Luo, X., Chung, C. N., Sobczak, M., 2009. How do corporate governance model differences affect foreign direct investment in emerging economies? *J. Int. Bus. Stud. 40*(3), 444-467.
Luo, Y., 2006. Opportunism in inter-firm exchanges in emerging markets. *Manag. Organ. Rev. 2*(1), 121-147.
Luthans, F., Ibrayeva, E. S., 2006. Entrepreneurial self-efficacy in Central Asian transition economies: quantitative and qualitative analyses. J. Int. Bus. Stud. *37*(1), 92-110.
Mair, J., Martí, I., Ventresca, M.J., 2012. Building inclusive markets in rural Bangladesh: How intermediaries work institutional voids. *Acad. Manag. J. 55*(4), 819-850.
Malik, A., Pereira, V., Tarba, S., 2017. The role of HRM practices in product development: Contextual ambidexterity in a US MNC's subsidiary in India. *Inter. J. Hum. Res. Manag.* 1-29.
Manolova, T. S., Eunni, R. V., Gyoshev, B. S., 2008. Institutional environments for entrepreneurship: Evidence from emerging economies in Eastern Europe. *Entrepreneurship Theory and Practice*, *32*(1), 203-218.
Markides, C.C., 2013. Business model innovation: What can the ambidexterity literature teach us?. *Acad. Manag. Perspectives*, *27*(4), 313-323.
Mathias, B. D., Mckenny, A. F., Crook, T. R., 2017. Managing the Tensions between Exploration and Exploitation: The Role of Time. *Strat. Entre. J. https://doi.org/10.1002/sej.1287*
Meredith, J., 1998. Building operations management theory through case and field research. *J. Oper. Manag. 16*(4), 441-454.
Mobileeurope., 2015. China Telecom and Huawei claim world's first live 4K broadcast. http://www.mobileeurope.co.uk/press-wire/china-telecom-and-huawei-claim-world-s-first-live-4k-broadcast.
Mom, T. J., Chang, Y. Y., Cholakova, M., & Jansen, J. J. 2018. A multilevel integrated framework of firm HR practices, individual ambidexterity, and organizational ambidexterity. *Journal of Management*, 0149206318776775.
Najmaei, A., Rhodes, J., Lok, P., 2014. Exploring the dynamism of complementarities in executives' business modelling knowledge structures: Insights from Australian strategic leaders. *J. Strat. Manag.*7(4), 398-421.
North, D. C., 1990. *Institutions, institutional change, and economic performance*. Cambridge, UK: Cambridge University Press.
O'Reilly, C. A. III, Tushman, M. L. 2013. Organizational ambidexterity: Past, present and future. *Acad. Manag. Persp.* 27(4),324–338.
Ofori-Dankwa, J., Julian, S. D., 2013. Dynamism, capital structure, and performance in a sub-Saharan economy: Extending the institutional difference hypothesis. *Organ. Sci. 24*(5), 1422-1438.
Ortiz-Molina, H., Penas, M. F., 2008. Lending to small businesses: The role of loan maturity in addressing information problems. *Small Bus. Econ. 30*(4), 361-383.

Parmigiani, A., Rivera-Santos, M., 2015. Sourcing for the base of the pyramid: Constructing supply chains to address voids in subsistence markets. *J. Oper. Manag. 33*, 60-70.
Peng, M. W., 2014. *Global Business*. 3rd edition. Cincinnati: Cengage Learning.
Pfohl, H. C., Gomm, M., 2009. Supply chain finance: optimizing financial flows in supply chains. *Logistics Res.* (3-4), 149-161.
Punch, K. F., 2005. *Introduction to social research—Quantitative & qualitative approaches*. London: Sage.
Radjou, N., Prabhu, J., Ahuja, S., 2012. *Jugaad innovation: Think frugal, be flexible, generate breakthrough growth*. John Wiley & Sons.
Raisch, S., Birkinshaw, J., 2008. Organizational ambidexterity: Antecedents, outcomes, and moderators. *J. Manag. 34*(3), 375-409.
Rungtusanatham, M., Salvador, F., Forza, C., Choi, T. Y., 2003. Supply-chain linkages and operational performance: A resource-based-view perspective. *Inter. J. Opera. Prod. Manag. 23*(9), 1084-1099.
Saebi, T., Foss, N. J., 2015. Business models for open innovation: Matching heterogeneous open innovation strategies with business model dimensions. *Euro. Manag. J. 33*(3), 201-213.
Sharma, A., Iyer, G. R., 2012. Resource-constrained product development: Implications for green marketing and green supply chains. *Indus. Market. Manag. 41*(4), 599-608.
Silvestre, B. S., 2015. Sustainable supply chain management in emerging economies: Environmental turbulence, institutional voids and sustainability trajectories. *Inter. J. Prod. Econ.167*, 156-169.
Soosay, C. A., Hyland, P. W., Ferrer, M., 2008. Supply chain collaboration: capabilities for continuous innovation. *Supply Chain Manag. 13*(2), 160-169.
Spieth, P., Schneckenberg, D., Ricart, J.E., 2014. Business model innovation–state of the art and future challenges for the field. *R&D Manag. 44*(3), 237-247.
Stokes, P., Smith, S., Wall, T., Moore, N., Rowland, C., Ward, T., & Cronshaw, S. 2018. Resilience and the (micro-) dynamics of organizational ambidexterity: implications for strategic HRM. *Inter. J. Human Resource Management*, 1-36.
Teece, D.J. 2010. Business models, business strategy and innovation. *Long Range Plan. 43*(2-3), 172-194.
Tracey, P., Phillips, N., 2011. Entrepreneurship in emerging markets. *Manag. Inter. Rev. 51*(1), 23-39.
Tushman, M. L., O'Reilly, C. A. 1996. Ambidextrous organizations: Managing evolutionary and revolutionary change. *California Manag. Rev.* 38(4) 8–30.
Van Maanen, J., 1979. The fact of fiction in organizational ethnography. Adm. Sci. Q. *24*(4), 539-550.
Von Hippel, E., 2005. *Democratizing Innovation*. Boston, MA: MIT Press.
Wang, S.L., Luo, Y., Maksimov, V., Sun, J., Celly, N., 2018. Achieving temporal ambidexterity in new ventures. *Journal of Management Studies*, in press.
Wassmer, U., Li, S., Madhok, A., 2017. Resource ambidexterity through alliance portfolios and firm performance. *Indus. Market. Manag.* 38(2), 384-394.
Wei, Z., Yang, D., Sun, B., Gu, M., 2014. The fit between technological innovation and business model design for firm growth: evidence from C hina. *R&D Management*, *44*(3), 288-305.
Welch, C., 2000. The archaeology of business networks: the use of archival records in case study research. *J. Strat. Market. 8*(2), 197-208.
Winterhalter, S., Zeschky, M.B., Gassmann, O. 2016. Managing dual business models in emerging markets: an ambidexterity perspective. *R&D Manag. 46*(3), 464-479.
Woodside, A. G., 2010. *Case study research: Theory, methods and practice: theory, methods, practice*. Bingley, UK: Emerald Group Publishing.
Wong, C.W., Wong, C.Y., Boon-itt, S., 2013. The combined effects of internal and external supply chain integration on product innovation. *International Journal of Production Economics*, *146*(2), 566-574.
Wu, F., Yeniyurt, S., Kim, D., Cavusgil, S. T., 2006. The impact of information technology on supply chain capabilities and firm performance: A resource-based view. *Indus. Market. Manag. 35*(4), 493-504.
Xing, Y., Liu, Y., Tarba, S., & Wood, G. (2016). A cultural inquiry into ambidexterity in supervisor–subordinate relationship. *Inter. J. Hum. Res. Manag.* 1-29.
Yin, R. K., 2003. *Case study research: Design and methods*. Third edition, Thousand Oaks, CA: Sage Publications.
Zhang, J.A., Edgar, F., Geare, A. and O'Kane, C., 2016. The interactive effects of entrepreneurial orientation and capability-based HRM on firm performance: The mediating role of innovation ambidexterity. *Indus. Market. Manag.* 59, 131-143.

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. *Indus.* Manag. Data Sys., 115(9), 1683-1703.

Zhou, K. Z., Zhang, Q., Sheng, S., Xie, E., Bao, Y., 2014. Are relational ties always good for knowledge acquisition? Buyer–supplier exchanges in China. . *J. Oper. Manag. 32*(3), 88-98.

Zimmermann, A., Raisch, S., & Cardinal, L. B. 2018. Managing persistent tensions on the frontline: A configurational perspective on ambidexterity. *Journal of Management Studies, 55*(5), 739-769.

Zott, C., Amit, R., 2007. Business model design and the performance of entrepreneurial firms. *Organ. Sci. 18*(2), 181-199.

Zott, C., Amit, R., 2008. The fit between product market strategy and business model: implications for firm performance. *Strateg. Manag. J. 29*(1), 1-26.

Zott, C., Amit, R., 2010. Business model design: an activity system perspective. *Long. Range Plan. 43*(2), 216-226.

Zott, C., Amit, R., 2013. The business model: A theoretically anchored robust construct for strategic analysis. *Strategic Organization*, *11*(4), 403-411.

Zott, C., Amit, R., 2015. Business Model Innovation: Toward a Process Perspective. Shalley C, Hitt M, Zhou J (eds). *The Oxford Handbook of Creativity, Innovation, and Entrepreneurship*, 395. Oxford University Press: New York.

Zott, C., Amit, R., Massa, L., 2011. The business model: recent developments and future research. *J. Manag. 37*(4), 1019-1042.

Table 1: Salient events in China Telecom

Years	Salient events
2000	• China Telecommunications Corporation (China Telecom) was established on May 17, 2000 and is one of the three leading telecom operators in China.
2002	• One of the two holding companies, China Telecom Corporation Limited, went public in Hong Kong and New York in 2002.
2005	• A procurement centre was established in 2005 and was responsible for purchasing and supplier management.
2006	• The other holding company, China Communications Services Corporation Limited, launched its IPO in Hong Kong in 2006.
2007	• Sichuan Telecom procurement centre implemented supplier coordination systems (eSRM) to provide more effective supplier management.
2008	• China Telecom wrapped up the acquisition of the CDMA facilities and businesses from China Unicom, making it a full-service operator.
2009	• China Telecom was awarded a 3G mobile licence by the Ministry of Industry and Information Technology.
2010	• Sichuan Telecom launched the SCF information platform.
2012	• China Telecom's internet broadband customers exceeded 100 million; the number of mobile customers reached 160 million; and the number of fixed-line telephone customers stood at 170 million. • Six commercial banks and over 1,800 suppliers joined the Sichuan Telecom supply chain finance service platform.
2016	• Ten commercial banks and over 2,300 suppliers joined the Sichuan Telecom supply chain finance service platform.
2017	• China Telecom was ranked the 142nd world's biggest public company by Forbes, with a market value of $44.4 billion.

Source: Constructed from field notes

Figure 1: The current relationship between Sichuan Telecom, banks, and small and medium-sized suppliers

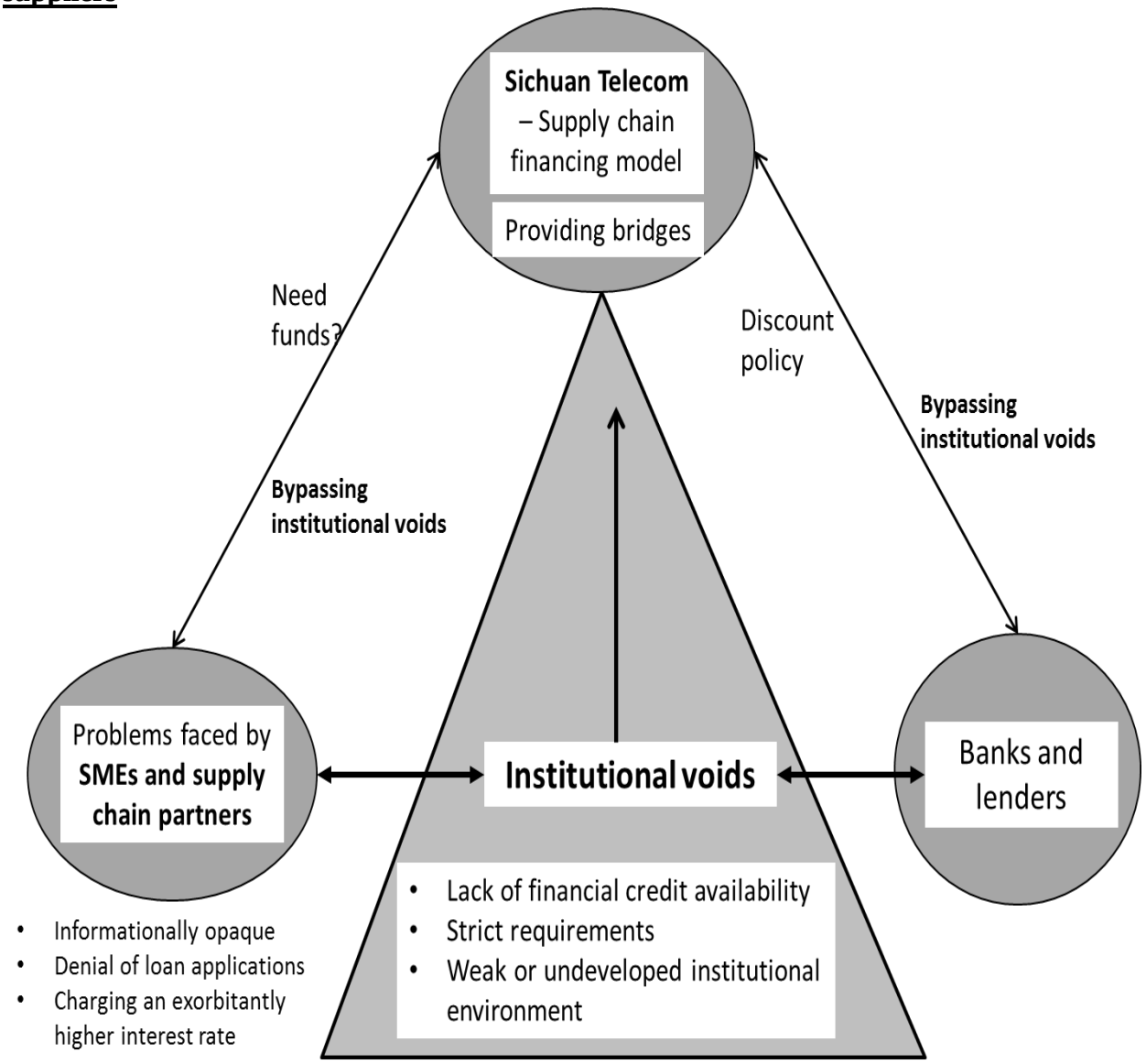

Figure 2: Closed-loop of order-based supply chain financing

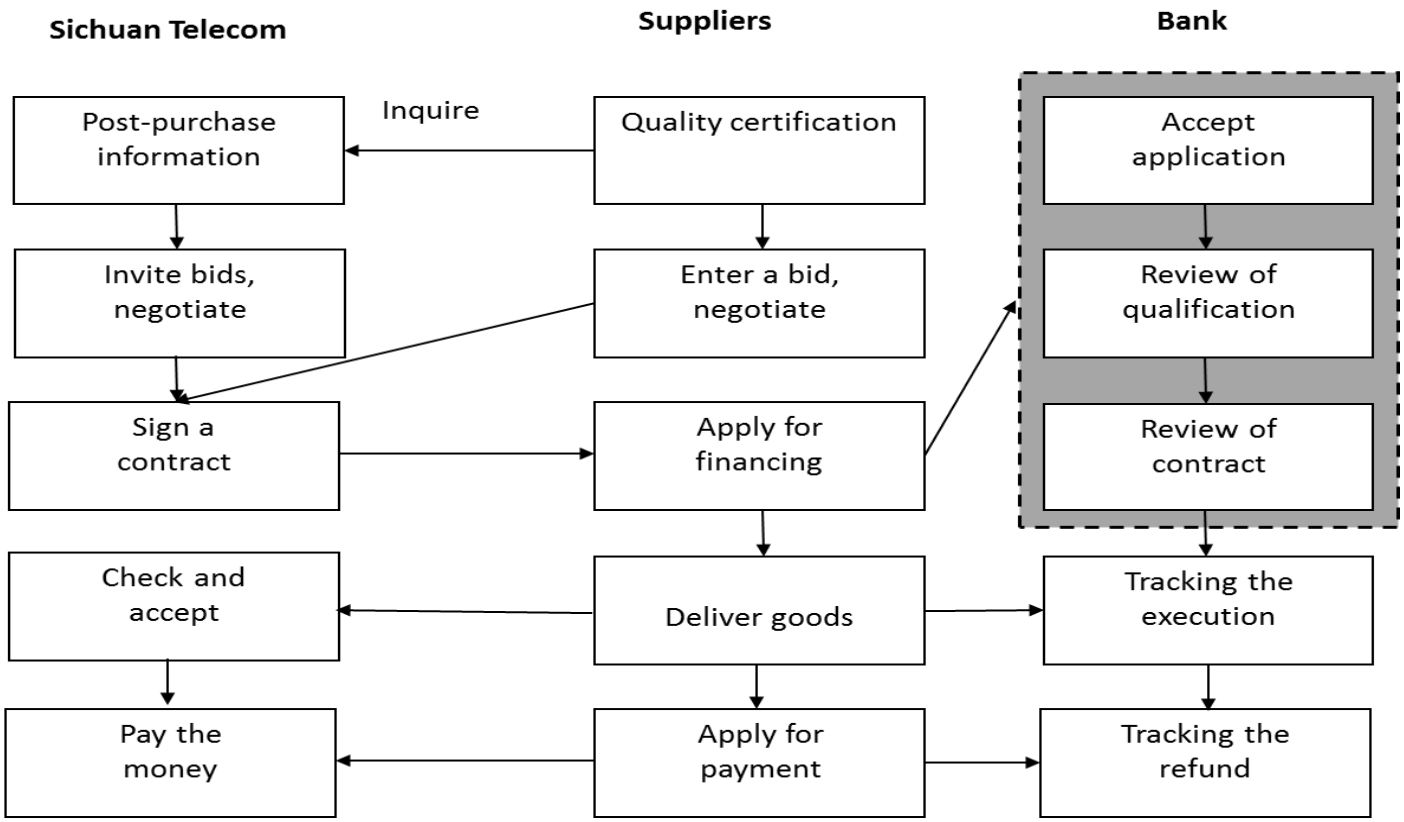

Figure 3: The service process flow of order-based supply chain finance model