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Supply Chain Finance Business Model Innovation: Case Study on a Chinese E-Commerce-Centered SCF Adopter

Lele Zhou and Hyangsook Lee *

Graduate School of Logistics, Incheon National University, Incheon 22012, Republic of Korea
* Correspondence: hslee14@inu.ac.kr

Abstract: SCF (Supply Chain Finance), as an emerging technology-driven financial optimization approach, has grown quickly worldwide with the development of information technology. China is one noteworthy country influenced by SCF development; its traditional financial market structure dominated by banks is undergoing change. The E-commerce-centered SCF has evolved into the representative capital provider in the new financial "Blue Ocean" market. For capturing competitiveness, Chinese JD (Jingdong) SCF practice backed to JD E-commerce is a typical example involving business model innovations, but with few previous related studies on this aspect. Therefore, to fill the research gap, this paper introduces a hybrid theoretical analysis of the BMC (Business Model Canvas) considering a three-layer strategic innovation structure and financial analysis regarding a modified competitive advantages-gaining model to comprehensively explore the recent innovative development and transformation of JD SCF business based on the perspective of competitive advantages. This study identifies JD SCF's two times of business model innovations that benefit from its sustainable development; verifies that "cost", "differentiation", and "focused strategy" are three means for JD SCF practice gaining competitiveness at different development stages and simultaneously emphasizes that the latter two are influenced by business model innovation. The mixed analysis work in this paper may contribute both theoretical and practical implications.

Keywords: E-commerce-centered SCF; business model innovation; competitive advantage; BMC; financial analysis

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1. Introduction

1.1. Background

Along with the development of information technology, Supply Chain Finance (SCF) has gained increasing popularity globally and thrives under the backdrop of the fourth industrial revolution. SCF is a new concept in financial areas based on the theory of supply chain management (SCM) and financial supply chain management (FSCM) for the effective integration of supply chain (SC) and finance [1]. SCF has many new characteristics and goes beyond traditional SCM and FSCM. SCF seeks to further optimize the financial flows of SC by simultaneously pursuing improved internal financial processes and efficient external financing opportunities [2,3]. As a financial solution provided by financial organizations, technology providers, or other parties for capital optimization in the SC [4–6], SCF could offer benefits in reducing financing costs, accelerating working capital liquidity, and improving the business efficiency of buyers and sellers linked in a sales transaction [7,8]. With the potential advantages recognized by people, SCF volumes have presented a significant growth pattern worldwide. Even though the COVID-19 epidemic has severely impacted the global economy since late 2019 and early 2020, the global SCF volume growth rate still shows a rapid expansion trend with an increasing percentage of 38% in 2021 over 2020 [9]. Table 1 below shows that Asia offered the strongest growth tendency (43%), followed by Africa (40%), America (37%), and Europe (35%) in 2021 [9].

Table 1. Worldwide SCF Growth Volumes 2015–2021 (USD bn).

	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**Increase 2021 vs. 2020**
Asia	55	71	99	128	168	227	324	43%
Africa	5	7	11	12	16	21	29	40%
Europe	100	135	162	203	257	337	455	35%
America	170	235	290	400	530	726	995	37%
TOTAL	330	448	562	743	971	1311	1803	38%

Source: [9].

China is one of the earliest countries to actively engage in SCF business; its continuously increasing SCF market scale has made a contribution to Asia's SCF market size growth. The SCF volumes in the Chinese market reached RMB 36.9 trillion by the end of 2022, with an average growth rate of 16% over the past 5 years [10]. This growth rate will continue until 2027, making China become one of the world's largest countries for SCF development [10] and deserving to be raised global concerns.

Simultaneously, the market structure of financial providers has altered, together with the growing development of the SCF industry in China. The traditional banks are no longer the dominant ones for offering financial assistance; many other burgeoning financial optimization approaches and SCF adopters have emerged. Specifically, financial technology operation companies, E-commerce platforms, third-party logistics companies (3PLs), technology service providers, and some industry giants have entered the capital service market. All the above newly formed financial players demonstrate that the financial market has been opened up as a "Blue Ocean" with the core value of capturing and obtaining competitiveness [11,12], expanding the unknown market, creating new demands, and pursuing differentiation at some cost.

1.2. Research Aims

As a financial business derived from the E-commerce platform, E-commerce-centered SCF has been the most critical component of financial providers in the "Blue Ocean" of the capital-providing market in China. Relying on the world's largest share of E-commerce transactions, which reached RBM 43.83 trillion in 2022 [13], Chinese E-commerce-centered SCF is expanding with a strong development momentum, with examples including Alibaba and JD.COM. Gupta and Chen [14] pointed out that E-commerce-centered SCF in China has become the most popular financing mode, favored by a large number of SMEs centered on the E-commerce SC. In China, the E-commerce company representatives include Alibaba, JD (Jingdong), Suning, PDD (Pinduoduo), and others. Alibaba is an E-commerce giant with a 56% market share [15], having an absolute market monopoly. In contrast, JD held an approximate 17.1% market share in 2020 [15], constantly ranking as the second-largest E-commerce player in China during the past ten years. Given the enormous market share gap of the parent E-commerce platform on which it is based, JD SCF, backed by the second-ranked JD.COM group, has consistently displayed performance of leading, superior, and "not giving in to defeat" since its establishment as a financial start-up in 2012, which has raised concerns among analysts and academics throughout the world. Chen et al. [6] conducted research based on a semi-structural questionnaire survey to investigate influencing factors of JD SCF adoption as well as the relationships on competitive advantage gaining between JD SCF and its parent E-commerce platform. Wang [16] and Guo [17] also took JD SCF practice as the case to explore the financial risk influencing factors and methods for improving risk management. He [18] focused on JD SCF's technology investment, credit and policy system contribution, and risk prevention. Although these studies use the JD SCF case as a "breakthrough" point and reveal some detailed insights for SCF practice in E-commerce platforms in China, they still are not comprehensive enough because the majority of the research focus lies on the exploration of the emergence of motives and the existing forms of its early stages. In other words, as a dynamically developing industry, JD

SCF practices are changing quickly [6], but few studies have been conducted to examine the recent development pattern of JD SCF practices and their causes.

Looking at recent trends of JD SCF practice, its innovative and dynamic development track based on its inner desire to conquer competitors and gain higher profitability [19] in the capital-providing market impresses people. In particular, two business model transformation events that switch among three different JD SCF carriers of JD Finance (JDF), JD Digits (JDD), and JD Tech. (JDT) have pushed JD.COM and its SCF business expansion to the global search hotspots. Taking the financial restructuring of JD Finance (JDF) in 2017 and the renaming from JD Digits (JDD) to JD Tech. (JDT) in 2021 as two time boundaries, one finds that in the early period (October 2012–June 2017), JD SCF practice played as one sub-business unit through JDF under the JD.COM group, focusing on providing financial products and services. Subsequently, in the later period (July 2017–January 2021), the upgraded JDD aimed to offer an SCF innovation guarantee mechanism based on an independent organization with the combined power of "Finance + Technology + Digitalization". Then, the recent time span (February 2021–present) witnessed the newly formed JDT amidst a wave of more innovative technology focused on further providing an industry-oriented SCF guarantee mechanism followed by a credo of "understanding + technology". Indeed, from a sub-business unit to an independent organization aiming to offer a general or industry-oriented guarantee mechanism, the JD SCF practice has experienced two transformations or so-called business model innovations. However, do these business model creative conversions really result in sustainable strategic development and competitive advantage for the JD SCF practice itself? No sufficient research has been done on this aspect, especially from the perspective of competitive advantages.

Thus, to fill the research scarcity, this paper views JD SCF as a new type of financial start-up and deepens the related case study with two "breakthrough points" of the JD SCF business, re-structuring in 2017 and organization renaming in 2021, to explore the dynamic business model innovations and sustainable development of JD SCF practices with its strategies for obtaining competitive advantages and sustainability, taking business innovation into account. This research adopts a distinctive case study through a hybrid theoretical analysis of the BMC (Business Model Canvas), considering a three-layer strategic innovation structure and financial analysis regarding a modified competitive advantage-gaining model. Two-fold contributions relating to both theoretical and practical implications were also carried out. On the one hand, by filling a theoretical gap, this study will benefit relevant researchers in the field. On the other hand, by extending the analysis of recent transformation events in the case of JD SCF practice, it will also benefit E-commerce-centered SCF operators by offering novel ideas on how to increase their competitiveness through business model innovation. Two detailed research questions (RQs) designed for this paper are listed below.

RQ1: Does the business model innovation benefit from JD SCF's practice keep sustainable strategic development?
RQ2: How does JD SCF practice acquire a long-lasting competitive advantage in the financial providing market (consider the influence of business model innovation)?

1.3. Paper Layout

After the introduction, Section 2 explains the theoretical background. This part reviews the concepts of SCF (Supply Chain Finance), financial "Blue Ocean" Market, and Business Model Innovation. After this, Section 3 introduces the methodology of the case study with detailed conducting process guidance. Subsequently, in Section 4, a distinctive case study centered on JD SCF practice, involving both BMC and financial analysis, is carried out. Following this, Section 5 presents the case discussion, and Section 6 draws conclusions.

2. Theoretical Background

2.1. Supply Chain Finance (SCF)

The history of SCF can be traced back to the 1970s; however, the recent industry expansion is most likely the result of the global financial crisis in 2008, which promoted SCF to become a popular research topic among academic institutions and scholars. Many scholars have conducted SCF-related research from various perspectives, including "optimization" [20,21], "integration" [22], "cost reduction" [5,23], "value creation" [24–26], the "ecological system/model" [1,8,27], "SC risk management" [6,28], "financial technology" [29,30], "global supply chain network" [31,32], and other dimensions. Below, a few of the most common definitions quotes of SCF based on different visions are summarized (Table 2). Although the definition of SCF varies widely, the most famous cited SCF definition is based on Gelsomino et al.'s [4] theory, which states that SCF has two dimensions "Financial-oriented" and "Supply Chain-oriented". "Financial-oriented" refers to the financial solutions, tools, technology (Fintech), activities, and relationship maintenance that take financial aspects into account [21,33]. "Supply Chain-oriented" mainly means the financing objects or actors that arise around the main body of the SC, as well as the role of collaboration among the SC [4,22].

Table 2. Selected Representative SCF definitions.

Scope	Selected Representative References	Definition Quotes (Exemplary)
optimization	Camerinelli [21], Supply Chain Finance Community [20]	"SCF benefits capital flows optimization and liquidity value modification by offering various products or services to facilitate the management of physical and information flows by financial institutions in the SC" [21].
integration	Pfohl and Gomm [22]	"SCF as the inner-company optimization of financing through integrating financing processes with customers, suppliers, and service providers to increase the value of all participating companies" [22].
cost reduction	Petr et al. [23], Omran et al. [5]	"SCF is an interesting approach used by many focal firms to optimize the flows and allocation of financial resources in the supply chain, leading to higher profits and cost reduction in company financing" [5].
value creation	Hofmann [25], Walters [24], Wuttke et al. [26]	"SCF is an approach for two or more organizations in a SC, including external service providers, to jointly create value through means of planning, steering, and controlling the flow of financial resources on an inter-organizational level" [25].
ecological system/model	C. S. Lin and Lin [8], Shen et al. [1], C.-Y. Lin [27]	"The SCF ecosystem is a fresh type of financial provider that has the potential to make the SC more efficient by offering cheaper prices or credit to SMEs in the system" [8].
SC risk management	X. Chen et al. [6], X. Zhao et al. [28]	"SCF necessitates financial institutions to carry out a thorough assessment of SCF clients, taking into account the risk dimensions, the environmental dimension, and the operational dimension" [28].
financial technology	Fellenz et al. [29], Soni et al. [30]	"Financial technology (FinTech) innovation has also contributed to the adoption of SCF by delivering financial services using information technologies (IT) and simplifying loan and transaction processes for SMEs" [30].
global supply chain network	X. Wan and Qie [32], Carnovale et al. [31]	"In the global SC network, SCF platforms have become an important means of precise poverty alleviation" [32].

In addition to the above understanding views, SCF, as a set of technology-based financing solutions [7], can also be studied in both a broad and narrow sense. In a broad sense, SCF is primarily reflected in both levels of "supply chain" and "finance" [4], existing in the whole supply chain (SC) operation. Gelsomino et al. [4] and Omran et al. [5] believed that four flows of logistics, capital, information, and commodity could be integrated through SCF, leading to financial cost reduction and value creation for the SC. While in a narrow sense, SCF as a particular financial solution or a settlement method is offered by certain organizations in the SC, such as financial institutions, 3PLs, software suppliers, etc. [5,8], understanding SCF from a narrow sense would further promote the SCF practice classification. Jia et al. [34] and Ma et al. [35] believed that "manufacturer-centered", "bank-centered", "3PL-business", and "SC actor-centered" are the four main SCF business models which are based on the difference of leading players. Similarly, Chen et al. [6] also noted that there are four types of core organizations adopting SCF, primarily relating to (1) 3PLs, (2) B2C/C2C and B2B E-commerce platforms, (3) manufacturers with strong bargaining power and favorable credit, and (4) professional software providers. Namely, in addition to traditional banks, many other organizations, including E-commerce platforms, have started to participate and become financial service providers [36].

2.2. Financial "Blue Ocean" Market

Kim and Mauborgne [11] put forward "Red Ocean" and "Blue Ocean" to distinguish the market type. "Red Ocean" means the existing known market space, where competitors compete to seize the market and even take the action of "cutting throats" to suppress each other. The term "Red Ocean" comes from a description of fierce competition that makes the ocean blood red. On the contrary, "Blue Ocean" refers to an uncharted market area where competition is based on new and undeveloped activities. Like the "Blue Ocean", the unknown market's opportunities and profit growth chances are vast, deep, and powerful [11]. Following this, Kim et al. [12] also pointed out that through the approach of the "Blue Ocean" and its strategies, new markets and industries are formed with new demand creation while not fighting for competitors.

Turning to the Chinese financial circumstances, the traditional financial service market is dominated by state-owned banks, large joint-stock commercial banks, and local commercial banks. This kind of conventional financial market can be compared to the "Red Ocean". However, with the advent of the new financial approach of SCF, banks are no longer the dominant financial service providers. The financial market has evolved into a new "Blue Ocean" [37], with numerous new participants such as E-commerce platforms, software providers, 3PLs (Third Party Logistics), industry giants, etc. [6,34,35].

2.3. Business Model Innovation

A business model innovation relates to carrying out a new business model in an organization and a new way of creating and capturing values [38]. Sometimes, it also involves inventing or replacing products or processes by improving organizational priorities [39]. The creation or replacement process may reflect changes in the business model's core components, such as resources, competencies, organizational structures, and value propositions [40]. The goal of business model innovation is to pursue competitive advantages and bring forth new ideas in operations, products, or services [41], which in turn may benefit from earning a higher rate of economic profits. In other words, pursuing higher profitability and obtaining more value through business model innovation and increasing competitive advantages may finally promote organizations' sustainable development.

However, as for how to truly achieve business model innovation, Baden–Fuller [42] and Simanis and Hart [43] addressed that business model innovation has two types of outside-in and inside-out methods. An outside-in approach explores external chances for innovation by seeking different idealized business ways or model archetypes for an organization [44]. In contrast, an inside-out strategy starts with the existing business model to explore the model's potential changes [45]. In general, business model innovation plays a significant role in recognizing new resources and capturing value, thereby assisting organizations in keeping a sustainable competitive position [39] no matter through the inside-out or outside-in approach.

3. Methodology

The primary research method in this paper is a descriptive case study. As Eisenhardt [46], Eisenhardt and Graebner [47], Baxter and Jack [48], and Pratt [49] stated, case study methodology is appropriate for revealing the "how" and "why" of questions in complex real-life. When the case is distinctive or preliminary, a single and in-depth case study is suitable [50,51]. For carrying out a case study, Simons [52], Yin [53], and Stake [54] believed that it has six steps (1) determining and defining research questions, (2) selecting cases and data analysis techniques, (3) preparing to collect data, (4) data collection, (5) data evaluating and interpreting, and (6) case analysis and discussion. While other scholars, including Meyer [55], considered four aspects of a case study (1) case selection, (2) sampling time, (3) case study area and field, and (4) data collection and handling process.

3.1. Research Framework

After referring to procedures pointed out by previous researchers, this paper designs a detailed case study in five steps: (1) case selection, (2) analysis techniques (models) preparation, (3) data collection, (4) case analysis, and (5) case discussion. Together with other parts of "background study", "literature review", "RQs put forwarding", and "conclusions", the research framework is formed as below (Figure 1).

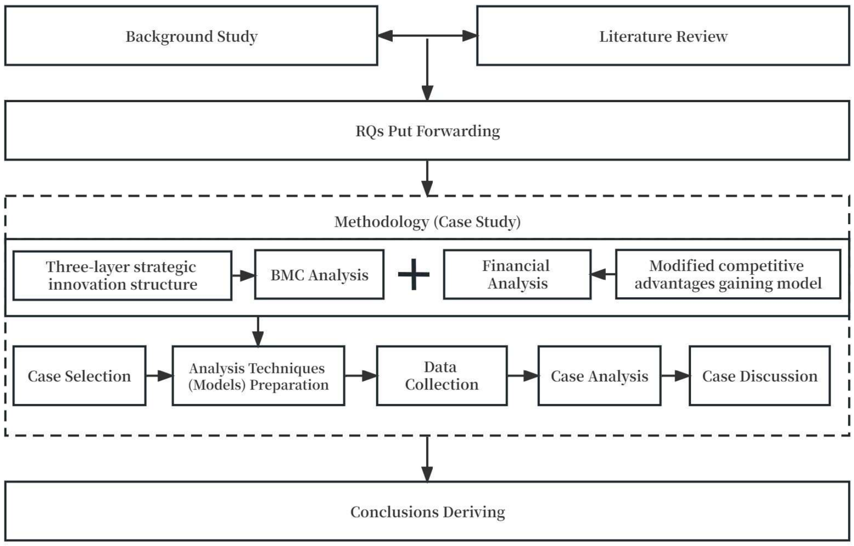

Figure 1. Research Framework.

3.2. Case Selection

Choosing the case of JD SCF practice follows two principles of representativeness and completeness mentioned by Chen et al. [6]. As to representativeness, JD.COM, one of China's well-known E-commerce companies founded by Richard, Qiangdong, and Liu in Beijing in 2004, has gained enormous international attention, particularly since it went public on the Nasdaq on 22 May 2014. Even though it has been hit hard by the COVID-19 outbreak since the end of 2019, JD.COM's net revenue reached RMB 745.8 billion on 31 December 2020 [56], second only to Alibaba, continuously ranking second among China's top 10 E-commerce companies [57]. Backed by the JD group, JD SCF practice, as one forerunner of E-commerce-centered SCF adopters, has built a combined financing-related framework to cover all the essential transaction nodes in the SC under the prerequisite of its sophisticated logistics infrastructure, which prevents other businesses from easily replicating it. Many academics and professionals also regard JD SCF as representative of an innovative online financing approach [6,16–18]. Turing to the completeness, the ecological layout of JD SCF and its products and services seems to be more complete and comprehensive than other E-commerce-centered SCF adopters [6]. As JD's President, Liu [58], acknowledged, except for the business of payment, JD's involvement in SCF started in 2012, earlier than its biggest competitor, Alibaba's, access to similar financial services. The ecological layout of JD now includes nine significant sectors, including SCF, consumer finance, wealth management, crowdfunding, securities, insurance, payment, financial technology, and rural finance. In contrast, the deployment of Alibaba's finance business sector includes five segments, payments, microfinance, financial guarantee, Internet insurance, and investment. Although

Alibaba Finance occupies an important position in China's new "Blue Ocean" market of financial providers due to its parent E-commerce monopoly status, its SCF-related business seems less rich and complete than JD to some degree. In addition, JD also prefers to pay attentions to the creative development and expansion of its financial business for bringing a spectacular performance, which has led to two famous SCF innovation transformations, namely, the restructuring in 2017 and the renaming in 2021.

3.3. Analysis Techniques (Models) Preparation

Motivated by the RQs presented in this research, the study analysis techniques used for the JD SCF case include a series of mixed theoretical methods of BMC analysis with attention to a three-layer strategic innovation structure and financial analysis based on the view of competitive advantage gaining.

3.3.1. Business Model Canvas (BMC) Analysis

As a representative inside-out approach for business model innovation [45], the BMC (Business Model Canvas), which was put forward by Osterwalder [59], is prevalent among organizations for helping to make sense of "doing business" and understanding a firm's business model (Figure 2). BMC is a visual tool with nine structured elements, including value proposition, customer relationship, channels, customer segment, key activities, key resources, key partners, cost structure, and revenue structure [59]. BMC provides a new easy way to illustrate the potential interconnections and impacts on value creation [45,60].

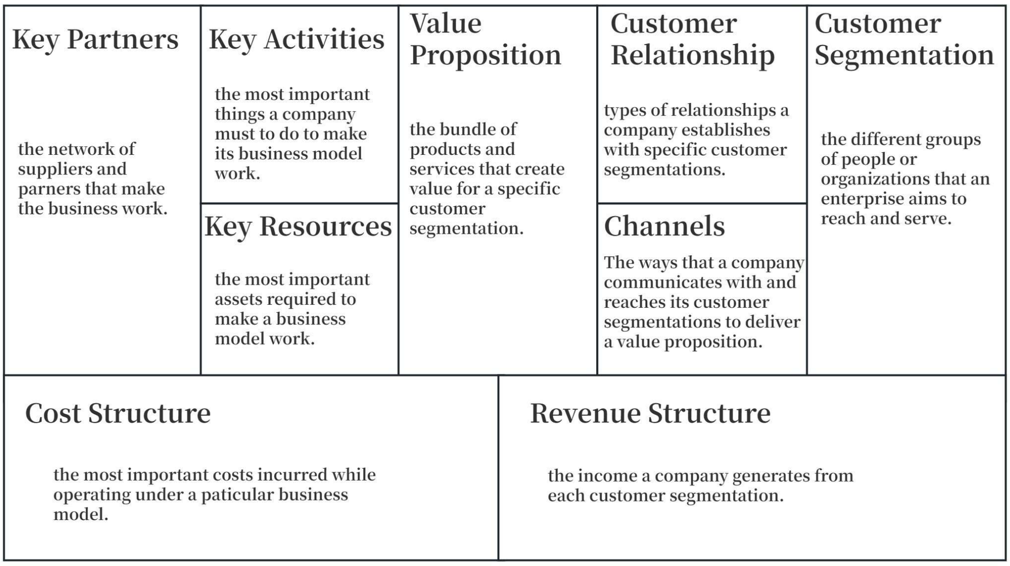

Figure 2. Business Model Canvas. Source: cited from Osterwalder [59].

According to BMC's internal logic proposed by Osterwalder [59], Jing and Zhang [61] further refined those nine blocks with their business rationale into the BMC-based three-layer strategic innovation structure. Three innovative levels in this structure are named "strategic decision-making", "strategic execution", and "financial performance". Under this structure, the starting point is around "strategic decision-making", which means enterprises begin with the value of deciding the goods or services they offer to clients, namely, making the "value proposition" clear. Then, based on the value presented, companies further decide what to do and how to accomplish it. Subsequently, the identified "value proposition" in the business canvas can be taken as a "demarcation line", guiding businesses to the next strategic executive-level innovation with two types of executive forces. On the right side of the "demarcation line", enterprises recognize target customers through "customer segmentation" and maintain "customer relations" with various "channels"; on the left side of the "demarcation line", enterprises integrate key capabilities ("resources", "partners", "activities") using cooperation to build core businesses and expand networks with cost investments. After that comes the financial performance innovation level, which can be viewed as the result of strategic decision-making through strategic execution. This level primarily involves the profit generated by the difference between revenue and cost. In brief, the BMC-based three-layer strategic innovation structure is shown below in Figure 3.

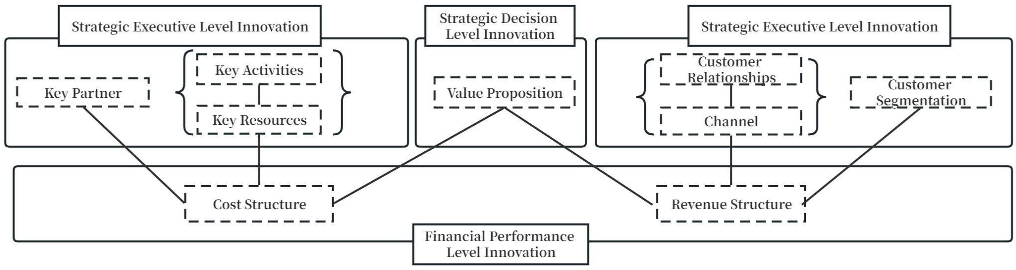

Figure 3. BMC-based Three-Layer Strategic Innovation Structure.

3.3.2. Financial Analysis

Understanding BMC with a three-layer strategic innovation structure, companies may gain a clear sense of how to maximize the difference between "revenue" and "cost" blocks through innovation-driven strategic management [62] for moderating the capability-performance relationship and carrying out a distinct development with the achievement of the highest innovation level of financial performance and competitive advantages. However, the approaches for pursuing financial performance and competitive advantages are not limited to three traditional methods of "cost", "differentiation", and "focused strategy" that were addressed by Porter [19] and Jurevicius [63]. As identified by Pohle and Chapman [41] and Amit and Zott [39], business model innovation is another important way that may benefit from higher rates of economic profits earning, new resource recognizing and values capturing, as well as eventually organizations' long-term competitiveness and sustainable development achievement.

Therefore, when chasing competitive advantage through business model innovation, the emphasis should be put on how business model innovation influences organizations' cost, differentiation, and focused strategies. Moreover, these influences may result in long-term changes in capacity–performance relationships and bring competitive advantages and sustainability to a company [41]. As to visually examining the status of competitive advantage gaining and financial performance innovation, financial analysis with financial indicators and data checking seems necessary. In this paper, in order to examine the effects of business model innovation on "cost", "differentiation", and "focused strategy", the financial analysis of revenue, liquidity, and profits is integrated into the modified competitive advantages gaining model based on the inner logic of gaining competitive advantage (Figure 4).

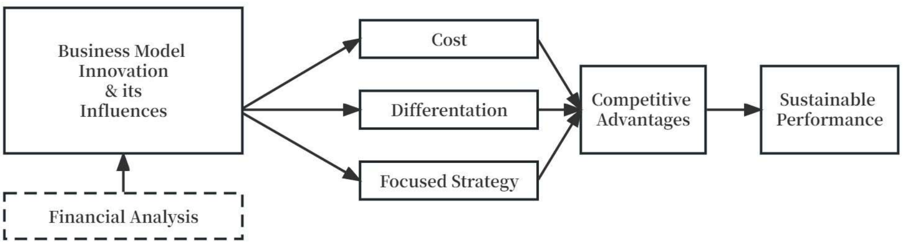

Figure 4. Competitive Advantages Gaining Model.

3.4. Data Collection

Driven by the RQs and the research framework designed in the early part of this paper, the following case analysis started by gathering a large amount of data sources involving numerical, textual, and observational types [53,64]. Following the principle for improving the quality of empirical studies, including case studies, put forward by Yin [53], adopting multiple sources of evidence is a key strategy for enhancing research reliability and validity. The primary data collection source in this paper includes five paths: (1) official documents (e.g., the annual public report of JD.COM), (2) previous scholars' research, (3) non-official news and reports, (4) specialized institutions' reports (e.g., Emarketer), and (5) national or governmental statistical documents. In this research, publicly available information is essential because it ensures a complete understanding of the case company. Not only that, the main case analysis techniques in the process rely on model matching and explanatory building [53,64]. As to model matching, visualized theoretical architecture of BMC and the competitive advantages-gaining model are used as the underlying framework; the three-layer strategic innovation structure and financial analysis also are combined, respectively. By using this hybrid method, each unique technique can complement the others and ultimately increase the effectiveness of qualitative data analysis. As to explanatory building, this case study mainly through describing and comparing the BMC surroundings and its nine blocks one by one over the three different JD SCF carriers of JDF, JDD, and JDT, examines changes and variations in the practice of JD SCF's pursuit of competitiveness. Moreover, to compensate for the lack of scientific statistics in this descriptive case study, financial data related to revenue, liquidity, and profitability are also introduced to further explore the relationship between the innovation of JD SCF's business model and the acquisition of competitive advantage for increasing research objectivity.

4. Case Study

4.1. Case Description

JD.COM is a Fortune Global 500 company and a member of the NASDAQ 100. As one of the biggest online retailers in China, JD.COM conducts its business in a range of industry areas, including E-commerce, logistics, finance, cloud computing, intelligent technology, and others. JD SCF is new creation related to business strategies in the financial sector raised by JD.COM since 2012. Tracing back the development history of JD SCF, one discovers that, along with the dynamic development environment, the JD SCF operation carrier is not fixed and has changed from JD Finance (JDF) to JD Digits (JDD) and then to JD Tech. (JDT). The transformation of JD SCF operation carriers is shown in Figure 5.

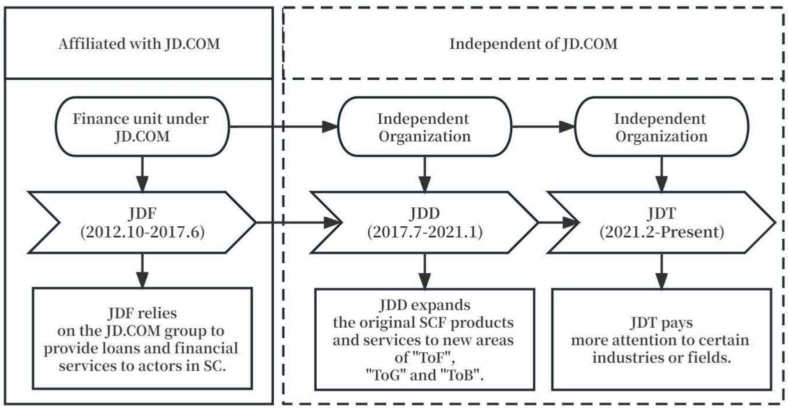

Figure 5. The transformation of JD SCF operation carriers.

JDF mainly refers to the financial business module named JD Finance under the JD.COM group during the period between October 2012 and June 2017. JDF had cooperated with nearly 400 financial institutions, such as banks, insurance firms, and fund companies by the end of 2017 [65], providing professional financial products and services to users. JDF launched its first SCF product, "JingBaoBei", in November 2012, which can be considered a landmark for JD.COM entering the SCF field.

JDD primarily means the independent organization built as JD Digits since the business restructuring of JDF in July 2017. Driven by the combined power of "Finance + Technology + Digitization", many new technologies (e.g., Big Data, AI, LoT, etc.) and differentiation strategies have been introduced into JDD [66]. In addition to retaining original SCF products and financial services as the core business part, JDD has further expanded its business into three lines: (1) “T2F” (digital solutions to financial institutions), (2) “T2B” (digital solutions to businesses and enterprises), and (3) “T2G” (digital solutions to the government).

JDT is the newly independent company called JD Tech., which was further upgraded based on JDD in February 2021 under the latest technological innovation wave from general “Finance + Internet” to deeper “Finance + Digitalization” [67]. JDT began to dig into the SCF business by focusing on specific industries, such as agriculture and port industries, with the goal of becoming an industry-oriented SCF technological guarantee mechanism provider [67] with domain expertise and understanding.

4.2. BMC Analysis

In this section, to maintain the study consistency, the BMC analysis with nine blocks description and matching is based on the same research subject, namely, the operator of JD SCF practice, which later evolved as JDF, JDD, and JDT according to different development periods. In addition to the timeline of business development’s consistency, different study evidence may increase the research consistency [64]; therefore, the consistency of this part is also guaranteed by the variety of textual and numerical data references.

4.2.1. Value Proposition

According to the logic of financial business development proposed by Liu, the CEO of JD.COM, the value proposition of JDF is to play the role of a bridge to provide SCF opportunities for businesses (suppliers/third-party merchants) on the E-commerce platform while simultaneously meeting the financing consumption demands of a large number of E-commerce consumers [68]. Namely, JDF’s most fundamental value proposition is based on leveraged assets under the JD platform and its brand to offer financial solutions for a two-sided market (suppers, customers) with the significant influence of the network effects. Before restructuring in 2017, JDF had constructed nine business sectors, including SCF, consumer finance, wealth management, crowdfunding, securities, insurance, payment, financial technology, and rural finance. After that, JDF upgraded and transformed into an independent organization called JDD. The creative restructuring promoted the powerful combination of “Finance + Technology + Digitization”, reflected in Chen [69] saying, “The JDF innovation has always been based on data and technology, following the essence of finance and providing finance to assist in improving efficiency, reducing costs and increasing revenue” [69]. As a result, the value proposition for the upgraded JDD changed to offer reliable, safe, and whole-supply-chain-related guarantee mechanisms relating to SCF products, services, tools, technologies, and personnel. Based on that, in February 2021, the newly renamed JDT further preferred to be positioned in a niche sector (e.g., agriculture, port industry, etc.) and stressed its “value proposition” should be an industry-oriented SCF technological mechanism provider based on the previous development of JDD.

4.2.2. Customer Relationship

The key to customer relationships in the JD SCF business is to let financial demanders obtain capital quickly, economically, and safely. Prior to restructuring in 2017, most customers who adopted JD SCF came from JD SC itself, and customer relationship maintenance was primarily accomplished through SCF product differentiation and information building. JDF assessed the applicants with qualifications (e.g., upstream suppliers, third-party merchants) based on continuously collected information and data on the JD SC platform. According to it, JDF focused on customers’ specific needs, offering financing products with personalized interest rates and loan term options. Five SCF representative products of “JingBaoBei”, “JingXiaoDai”, movable property financing, “YiDai”, and “JD Kuaiyin” can be applied for on the Internet at any time at any location, with rapid lending speed. “JingBaoBei” can be completed in only three minutes from application to receipt. Once the loan is completed, the information system automatically triggers the repayment details, including the loan amount, repayment date, principal and interest, etc. In addition, the information system also pushes other financial advertisements for products and services that may be in demand depending on demanders' data during the loan period. All of the above product-oriented efforts aiming to give financial demanders a pleasurable experience seem to be the key to developing and maintaining customer relationships before June 2017. However, after July 2017, in addition to keeping a competitive advantage in product differentiation and information sharing, the upgraded JDD also poured more technology power to consolidate as a "Finance + Technology + Digitization" company. For retaining and acquiring more customers, the business field of JDD was expanded by technology innovation and service variety to "T2F", "T2B", and "T2G". Namely, the customer relationship management objectives were no longer limited to business clients; they also extended to financial institutions and governments. Recently, after transforming into JDT in February 2021, the vision of JD SCF practice changed to being an "SCF technological mechanism provider that understands industries". At this point, the customer relations maintenance of JDT based on JDF and JDD advancements began to pay more attention to assisting certain industrial groups in developing certain SC financial technology platforms.

4.2.3. Channels

Advertisements broadcast in mass media such as TV and search engines on the Internet may accelerate access to SCF products and services provided by JDF, JDD, or JDT. With the popularity of smartphones and mobile terminals, apps downloaded from Android and ISO systems also are important ways to approach JD SCF practice. Meanwhile, setting up an official account on social media (e.g., Weibo, WeChat) is another effective channel to get more people to know about JD SCF-related products and services. Furthermore, the JD platform's network and brand effects are based on the organization's "trust" culture, which may benefit from developing efficient marketing methods such as viral marketing. Specifically, "word-of-mouth" viral marketing by users (suppliers, customers) who had a pleasant and satisfying experience may raise awareness of JD SCF's products or services among more potential customers. In addition, JDF/JDD/JDT is backed by the JD.COM group and has promoted public recognition of the brand through sponsorship of various activities and events. In particular, the issues of restructuring of JDF in 2017 and renaming from JDD to JDT in 2021 have attracted industry and media attention to further develop the awareness of JD SCF practice among the public.

4.2.4. Customer Segmentation

The customer segmentation for JD SCF practice mainly involves two parts of upstream suppliers and downstream customers. The JD.COM group's annual report [56] revealed that the number of suppliers grew from around 7200 in 2014 to more than 30,000 in 2020, and the number of third-party merchants increased to approximately 300,000 in 2020, which is 5 times more than in 2014. Here, both suppliers and third-party merchants can be considered as the "B (Business)" in the upstream SC, and all of them are eligible for SCF services and products (see Table 3).

Table 3. Suppliers and third-party merchants of JD.COM from 2014 to 2020.

	2014	2016	2017	2018	2019	2020
Suppliers	≥7200	≥12,000	≥15,000	≥19,000	≥24,000	≥30,000
Third-party merchants	≥60,000	≥120,000	≥170,000	≥210,000	≥270,000	≥300,000

Source: data cited from the annual report of JD.COM (2015, 2017, 2018, 2019, 2020, 2021).

For the "C (Consumer)" downstream of the SC, the annual active customer accounts increased from 29.3 million in 2012 to 471.9 million in 2020 (see Table 4).

Table 4. Annual Active Customer Accounts of JD.COM from 2014 to 2020 (Unit: Million).

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Annual Active Customer Accounts	29.3	47.4	96.6	155	226.6	292.5	305.3	362	471.9

Source: data cited from the annual report of JD.COM (2015, 2017, 2018, 2019, 2020, 2021).

However, after the restructuring in 2017, along with the change of value proposition of JD SCF practice, the target customers are no longer limited to the internal SC partners. In the JDD period, the customer segmentations extended to external business actors, financial institutions, and even governments through the operational strategies of “T2F”, “T2B”, and “T2G”. While in the subsequent phase of JDT’s development, it was found that the targeted customers were further expanded into certain specific industries (e.g., agriculture, port) to develop the SCF technological assurance mechanism.

4.2.5. Revenue Structure

Charging a certain percentage of interest and service fees to customers are the primary ways that JD SCF practice made money before 2017, when it was in the JDF period. Take three SCF-related products as examples. The annual interest rate for “JingBaoBei” was around 9%; for “JingXiaoDai”, it ranged from 14% to 24%; and for “movable property financing”, its daily interest rate reached 0.033% with a maximum loan term of 90 days. However, after the separation from JD.COM in July 2017, the newly upgraded JDD deals with initial JD SCF business related to JDF and JD.COM through nonrecourse securitization for consolidating the market position of JD SCF practice with revenue increasing; on another side, JDD expands fees and revenue sources through extending its business sector into “T2F”, “T2B”, and “T2G”. Statistics on JDD’s financial report for 2019 [70] showed that JDD’s revenue reached RMB 0.79 billion in 2019. Moreover, the JD SCF-related revenue in JDD increased continuously into 2020 and the future in the post-COVID-19 era. As time progressed to the most recent date of February 2021, accompanied by a growth strategy of “becoming an SCF technological mechanism provider that understands the industry”, JDD changed to JDT, seeking to capture revenue streams in specific industry chains. By the end of 2021, despite undergoing a new round of upgrades, JDT’s annual revenue also climbed to RMB 0.9 billion [71].

4.2.6. Key Resource

The key resources that JD SCF practice owns mainly refer to its tangible and intangible assets, including continuous innovation ability, advanced SC system, and brand power. The continuous innovation ability mainly reflects that JDF/JDD invests more than 70% of employees in R&D and professional areas. The prospectus of JDD [72] showed that the R&D and professionals number related to JD SCF business was 6969 in June 2020, but this number was 6937, 5658, and 3953, respectively, at the end of 2019, 2018, and 2017. This preference for innovative talents would continue in the upgraded JDT in February 2021. JDF/JDD/JDT are very keen on introducing new technology. Particularly after July 2017, new technologies, including 5G, LoT, biotech, and blockchain, were applied to SCF practice and committed to offering a technology-oriented guarantee mechanism. Furthermore, the JD.COM group established a leading AI laboratory in Silicon Valley in December 2018 to research and develop advanced technologies such as biometrics, natural language processing, and robotics to underpin the JD SCF practice. In addition, compared to JDF, the JD SCF practice in JDD and JDT periods tends more toward intellectual property rights protection. The patent database of Patsnap illustrates that JDD and JDT filed 1527 patent applications between 2018 and 2021. While the advanced SC system relates to the established advanced logistic system of the JD group, which can accurately access data and information collected from the JD Mall, JD logistics, and JD.COM group. As a result, JDF/JDD/JDT gained control over capital and commodity flows, breaking the limitation of only providing financial services to SC actors within the JD E-commerce platform. Moreover, brand power primarily involves the effects brought by the JD brand, including the JD trademark, patent, copyright, and domain name. More and more new users are attracted because of the JD platform's brand and network effects. The constantly strengthened organizational culture of "trust-oriented" and "technology-leading" and the charming leadership of JD group's CEO, Liu, can also be regarded as critical resources of JD SCF practice.

4.2.7. Key Activities

No matter as a sub-business unit called JDF under JD.COM before June 2017 or as an independent company named JDD or JDT after July 2017, the critical activities of JD SCF practice roughly include: updating and maintaining the relationship with the JD.COM platform, providing and optimizing user experience, developing and segmenting products, formulating continuous innovation ability, managing organization, and grasping SCF market shares. Updating and maintaining the relationship with the JD.COM platform might ensure that the finance demanders within/without JD-centered SC could easily access JD SCF products and services with the public's awareness improving. Besides, providing and optimizing customer (finance demander) experience helps to solve complex problems of users' funds rising. In addition, JD SCF practice also focuses its activities on developing, subdividing, and extending products or services to multi-areas by innovation, offering financial demanders a variety of capital options according to the different circumstances, such as enterprise-scale, subordinate industry, credit information, operation situation, and repayment ability. All these benefit from developing the long-term creative capacity to manage a business and seize SCF market shares in an environment where JD SCF business is entrenched. Moreover, the restructuring in 2017 and renaming in 2021 also can be regarded as innovation events in the business model transformation of JD SCF practice because since then, the JD SCF business has expanded beyond its current market and customers, reaching the new "Blue Ocean" through differentiated "T2F", "T2B", and "T2G" strategies, as well as some specific industries using focused tactics.

4.2.8. Key Partners

The key partners of JD SCF practice include the JD.COM group, banks, securities, insurance companies, upstream suppliers or third-party merchants, downstream customers, and other financial demanders, etc. Before June 2017, JD SCF practice was implemented by JDF, a sub-business unit under the JD.COM group, using its brand and network effects to increase the popularity among financial demanders within the JD-oriented SC to adopt SCF products and services. The SCF product "JingBaoBei" is a typical example of a self-funded SCF product from the JD.COM group, which could be loaned with no mortgage guarantee. Simultaneously, JDF could have relatively easy access to external financing due to being backed by the JD.COM group. The JD.COM group raised a round of financing of RMB 6.65 billion in 2016, and the post-transaction valuation of this financing to JDF was RMB 46.65 billion [65]. Then, another B-round financing agreement was signed in 2018, raising RMB 13 billion with an estimated value of RMB 133 billion to support JD SCF development [56]. After July 2017, JD SCF started to be operated by JDD, an independent organization with a desire to provide financial guarantee mechanisms by digging deep into the data values. Therefore, in addition to retaining its traditional partners before June 2017, JDD also expanded its cooperation fields to "global Internet", "finance", "city", "transportation", and "energy" by importing new technology [65]. The objects of cooperation were no longer limited to individuals and enterprises but also financial institutions and governments. Furthermore, this cooperation strategy has been further deepened into specific industry chains in the JDT vision beyond 2021 of organization renaming, seeking to put an industry-understanding-oriented SCF technological guarantee mechanism into practice.

4.2.9. Cost Structure

JD SCF's cost structure is primarily comprised of fees for the operation, maintenance, "R&D", innovation, service, and transaction. As a financial innovator in SCF's "Blue Ocean", ongoing creativity and "R&D" appear to be critical, which necessitates significant investment, particularly in retaining the information system and upgrading the online operation platform on a continuous basis to maintain the current popular trend and simplify the entire transaction process efficiently. Meanwhile, accompanied by the innovative events of restructuring in 2017 and renaming in 2021, JD SCF's business transformation and expansion are driven by technical innovations carried out to seize bigger SCF market shares, which invariably results in higher-cost expenditures. Furthermore, to keep the organization competitive position, JD SCF practice also pays a tremendous amount for highly innovative and efficient working talents. In addition, to enhance JD SCF's awareness for the public, it also sponsors various activities and puts advertisements through mixed mass media. All the above undoubtedly increases operating costs for JD SCF practice. With the exception of the aforementioned, an agreement on JD's financial business had been inked when JDF split from the JD.COM group in 2017. Namely, once the newly transformed independent organization of JDD/JDT realizes the cumulative pretax profit on JD SCF practice, it should contribute 40% of the pretax profits to the JD.COM group, which is also plainly a large expense for JDD/JDT.

However, when these nine blocks are combined back to the BMC while taking into account the three-layer strategic innovation structure mentioned by Jing and Zhang [61], three modified BMC depictions in different development phases of JDF, JDD, and JDT are carried out as shown in Figures 6–8, respectively.

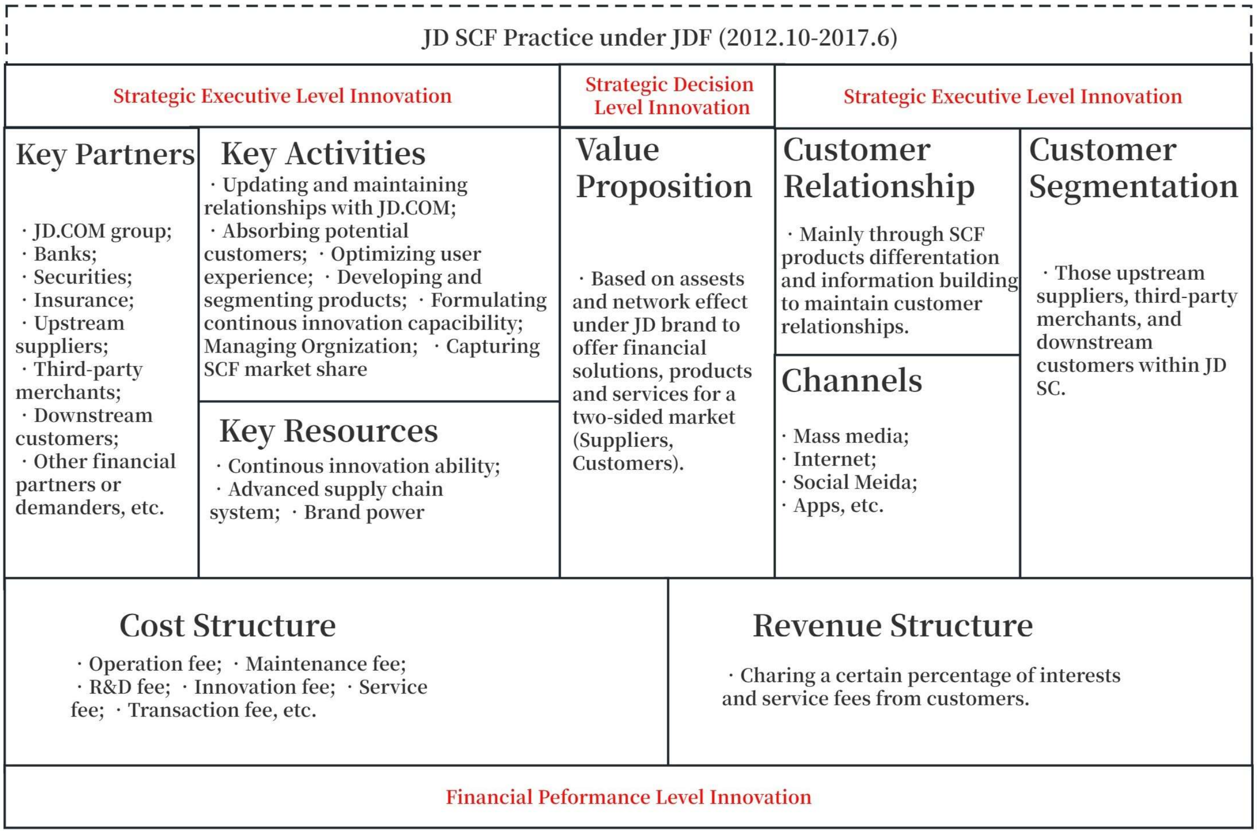

Figure 6. BMC-based Three-Layer Strategic Innovation Structure of JDF.

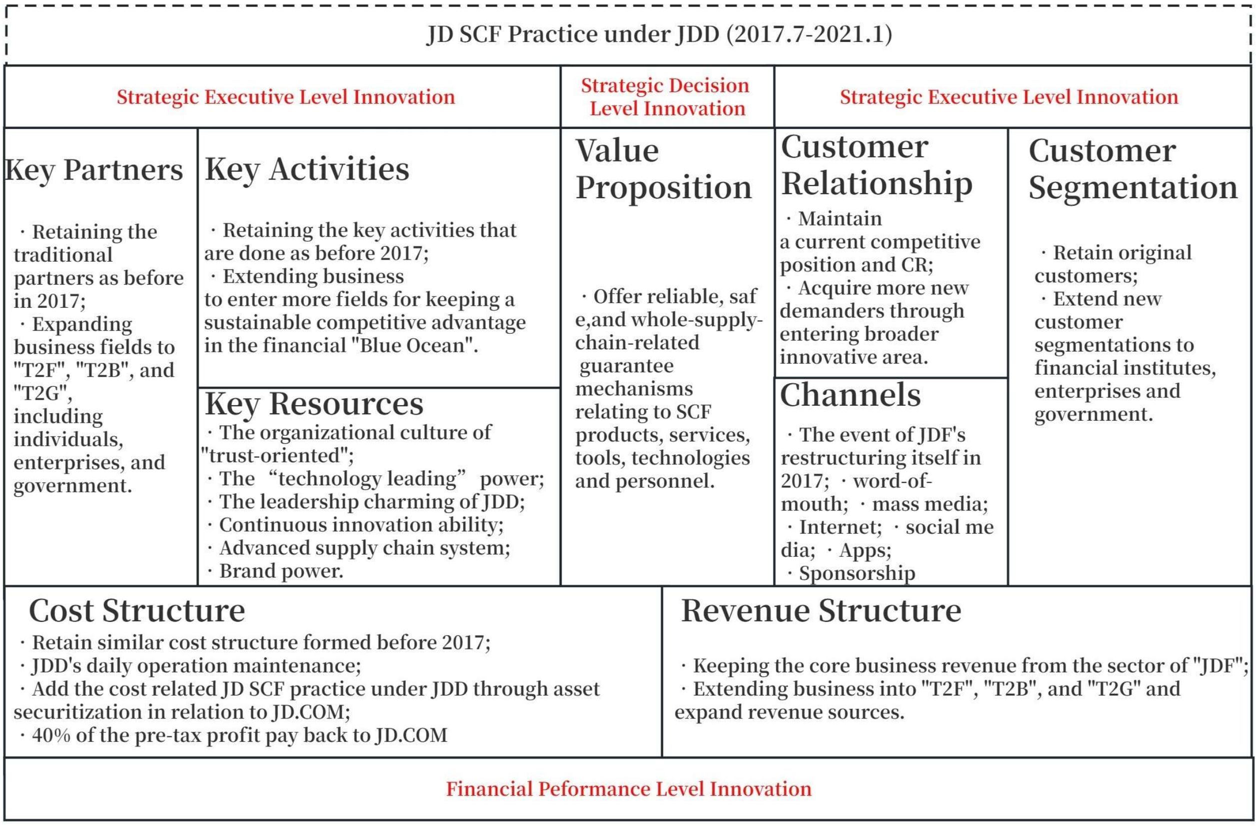

Figure 7. BMC-based Three-Layer Strategic Innovation Structure of JDD.

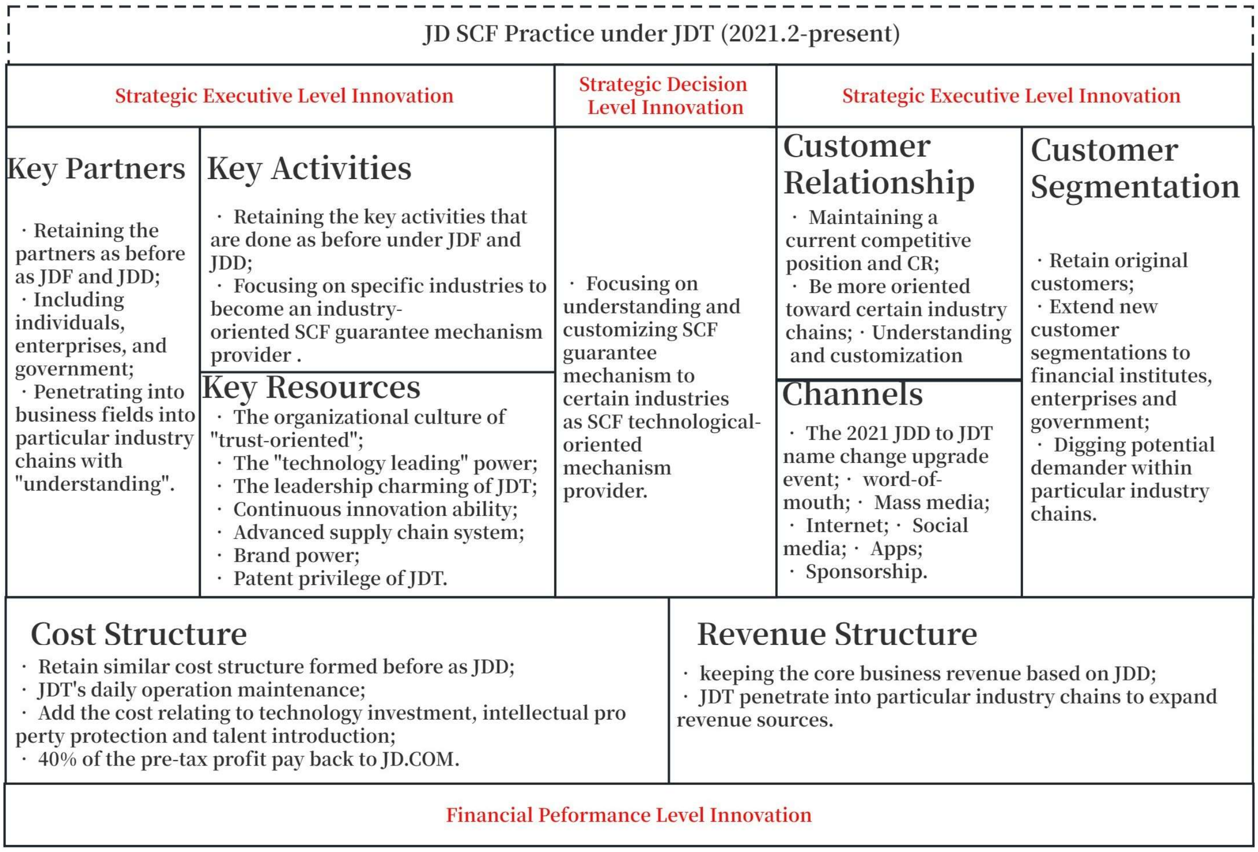

Figure 8. BMC-based Three-Layer Strategic Innovation Structure of JDT.

4.3. Financial Analysis

In this section, financial data and analysis related to revenue, liquidity, and profitability are also introduced to compensate for the lack of scientific statistics in this descriptive case study. However, considering the JD.COM group restructuring events and the relationship between JD SCF operators that are affiliated with JD.COM, the file for the collection of financial data would be different. In other words, the financial documents for JDF are mainly based on the annual financial report of JD.COM, while for JDD and JDT, financial materials also include independent organization financial reports and prospectuses.

4.3.1. Net Revenue and GMV

Since the JD.COM group adopted SCF practice in October 2012, the "net revenue" of the JD.COM group has shown a rapid growth trend, from RMB 41.38 billion in 2012 to RMB 951.6 billion in 2021. Meanwhile, the metric of "GMV" (gross merchandise volume) also climbed from RMB 73.3 billion in 2012 to RMB 3334.8 billion in 2021, increasing nearly 45.49 times [56,65,66,73–76]. Here, the GMV is the total value of all orders for products and services placed on JD.COM, including the value from orders on JD websites, mobile apps, and orders from third-party websites. Undoubtedly, as the second giant in China's E-commerce market, the development of JD.COM is steadily rising (Table 5).

Table 5. Net Revenue and GMV of JD.COM (Unit: RMB Billion).

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Net Revenue	41.38	69.34	115	181.3	258.3	362.3	462	576.9	745.8	951.6
GMV	73.3	125.5	242.5	590.6	939.2	1294.5	1676.9	2085.4	2612.5	3334.8

Source: data cited from the annual report of JD.COM [56,65,66,73–76].

4.3.2. Liquidity: Inventory and Accounts Payable

The inventory consists of products available for sale and other packing materials of JD.COM, and it increased significantly from RMB 4.75 billion (31 December 2012) to RMB 75.60 billion (31 December 2021). Corresponding to this period, the inventory turnover days for JD.COM were around 35 days, ranging from 34.1 days in 2012 to 30.3 days in 2021 (Table 6) [56,65,66,73–76].

Table 6. The inventory and Inventory Annual Turnover Days of JD.COM (For the year ended 31 December, Unit: RMB Billion/Days).

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Inventories	4.75	6.39	12.19	20.54	28.91	41.7	44.03	57.93	58.93	75.60
Inventory Annual Turnover Days	34.1	34.2	34.8	36.4	37.6	38.1	37.3	35.8	33.3	30.3

Source: data cited from the annual report of JD.COM [56,65,66,73–76].

The accounts payable primarily involves the direct sales business of JD.COM with the suppliers. As Table 7 shows, the accounts payable amounted to RMB 8.10 billion in 2012, and it grew to RMB 140.51 billion in 2021. The accounts payable turnover days also changed from 42.5 days (31 December 2012) to 45.3 days (31 December 2021). However, the maximum accounts payable turnover days (60.3 days) were discovered in 2017 [56,65,66,73–76]. All these reflect significant growth in sales volumes, products sourced from the suppliers, and the operation's scale for direct sales in JD.COM to some extent.

4.3.3. Profits Related to SCF Practice

In the annual reports of the JD.COM group before 2017, two indicators of "accounts receivable" and "loans receivable" are highly focused on. Both indicators revealed that JDF was the main operation carrier of SCF practice, which had developed various financial products and services, together with microcredit, to provide value-added services to suppliers, third-party sellers, and other SMEs on the JD.COM platform. Meanwhile, it also reflected that JD SCF practice was heavily dependent on the JD.COM group during the period of JDF. In the 2014 annual report of JD.COM, the data interpreted the JDF loans scale was mainly based on "accounts receivable" (RMB 2.0 billion). However, one year later, it was changed to the reclassified financial indicator of "loans receivable". The "loans receivable" displayed for the loan scale of JDF in 2015 was RMB 3.7 billion, and in 2016 was RMB 12.7 billion. Additionally, the "interest income" is another important indicator, showing the loan scale and income level between the JD.COM group and JDD/JDT. Table 8 shows that when JDF and JD.COM group had not totally completed the financial division, the interest income presented on the statement in 2017 related to JDD peaked, equaling RMB 1271.55 billion. However, as mentioned in JD.COM's 2021 annual report, when it entered the most recent new transition preparation period from JDD to JDT (2020–2021), the JD.COM interest income linked to JDT incurred in 2021 was not so high (RMB 253 million), which is likely due to JDT being in the early stages of another new round of transition planning.

Table 7. The Accounts Payable and Annual Accounts Payable Days of JD.COM (For the year ended 31 December, Unit: RMB Billion/Days).

	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Accounts Payable	8.10	11.02	16.41	31.20	46.01	74.36	80.07	90.42	106.53	140.51
Annual Accounts Payable Days	42.5	42.2	40.9	44.0	52.0	60.3	58.1	54.5	47.1	45.3

Source: data cited from the annual report of JD.COM [56,65,66,73–76].

Table 8. JD.COM's interest income related to JDD (Unit: RMB Billion).

	2015	**2016**	**2017**	**2018**	**2019**	**2020**
Interest income in relation to nonrecourse securitization debt charged to JD Digits (JDD)	26.02	371.58	702.15	527.03	37.65	-
Interest income in relation to loans provided to JD Digits (JDD)	85.7	161.6	569.4	119.05	40.63	31.01

Source: data cited from the annual report of JD.COM [56,66,75].

In addition, the independent financial report (Table 9) of JDD from 2017 to 2019 further exposed the net income related to JD's financial business after transformation and upgrading. Since July 2017, JDD has been committed to providing comprehensive digital solutions for financial institutions, enterprises, governments, and other customers based on new-generation information technologies such as Big Data, AI, cloud computing, blockchains, etc. Although the net profit of JDD was at a loss (RMB −3.82 billion) at the end of 2017, it had achieved a net profit of RMB 0.79 billion by the end of 2019, which continued until the changeover to JDT in February 2021. Subsequently, probably because the newly established JDT has only been in operation for a short time, there are no sufficient disclosed financial documents to show its financial profile. However, JDT's prospectus [77] indicated that the profitability trend for JDT during the JDD period would proceed. Therefore, referring to the above data, one knows that JD's practice in SCF and finance has continuously changed depending on the situation and developed steadily, whether it was JDF as a sub-business module before June 2017 or JDD after the transformation and upgrading in July 2017, or renamed to JDT in February 2021.

Table 9. Total Assets/Net Assets/Net Profit of JDD (Unit: RMB Billion).

	2017	2018	2019
Total Assets	77.423	71.197	52.386
Net Assets	6.846	16.958	18.444
Net Profit	−3.820	0.130	0.790

Source: the annual financial report of JDD [65,66,75] indirectly cited from Tianyancha.com [70].

5. Case Discussion

5.1. Does the Business Model Innovation Benefit from JD SCF Practice Keeping Sustainable Strategic Development?

To answer RQ1, "Does the business model innovation benefit from JD SCF practice keeping sustainable strategic development?" a BMC analysis with the consideration of a BMC-based three-layer strategic innovation structure was conducted. In particular, a comparison of the three embedded BMC illustrations of JDF, JDD, and JDT in the three-layer strategic innovation structure (Figures 6–8) not only presents JD SCF practice experienced two times of business model innovation (Figure 9) but also shows a positive possibility that the business model innovation on SCF practice may benefit the continued strategic development of JD finance business.

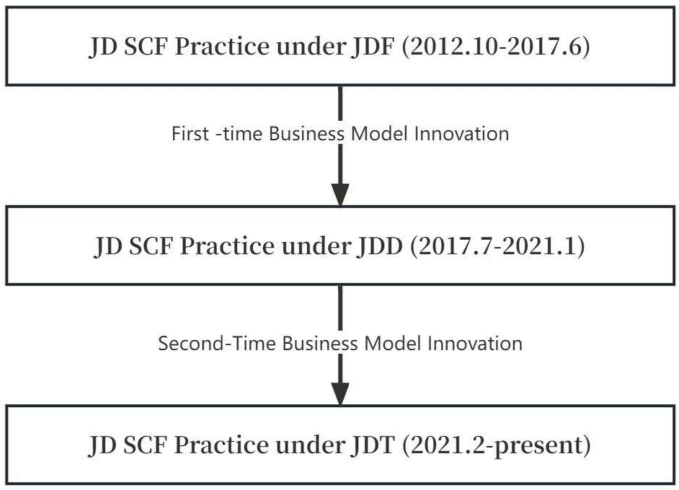

Figure 9. Two times of Business Model Innovation in JD SCF.

The JD SCF restructuring in 2017 can be seen as a first-time business model innovation for JD SCF adoption. During the transformation from JDF to JDD, the strategic decision level innovation, reflected in the changing value proposition, is upgraded from a sub-business unit focusing on providing financial services and products to an independent company named JDD marked by a portfolio of "Finance + Technology + Digitalization" with guarantee mechanism offering related to SCF implementation tools, technologies and personnel. Then, following this alteration in "value proposition", both the left and right sides of the strategic executive innovations are promoted. The left side is the innovation around cost minimization, and the right side is the innovation around revenue maximization. It finally results in financial performance innovation for seeking the most significant difference between revenue and cost. Within this first-time innovative process in implementation, JD SCF practice is demonstrated to be continuously adjusting its development strategy in accordance with the dynamic environment.

After that, the second-time business model innovation was introduced by the JD SCF practice up until the company changed its name from JDD to JDT in February 2021. The newly formed JDT would be based on the previous JDD to provide the "value proposition" around a technology-oriented guarantee mechanism with an "understanding" of a certain industry's capital needs, aiming to bring more focused and segmented approaches to the

SCF market. According to this "value proposition" change in strategic decision level, the strategic executive force for JD SCF innovation is fueled by a new wave of technological innovation, placing a greater emphasis on the introduction and investment in new technology and creative working talents, as well as expanding SCF-related products and services from the existing internal and external SC to specific industry chains (e.g., agriculture, ports, etc.). Furthermore, JD SCF practice under JDT would further prefer to bring customers a better user experience through platform system renovation. Obviously, all of these activities, in turn, are beneficial for further sustainable development of JD SCF practice and enhance the JD brand with network effects and competitiveness enhancement on a strategic performance level.

5.2. How JD SCF Practice Acquires a Long-Lasting Competitive Advantage in the Financial Providing Market (Consider the Influence of Business Model Innovation)

To answer RQ2, "How JD SCF practice acquires a long-lasting competitive advantage in the financial providing market (consider the influence of business model innovation)?" a financial analysis with regard to the modified competitive advantage model is introduced. Through financial analysis, which relates to revenue, liquidity, and profits examination, it verifies that "cost", "differentiation", and "focused strategy" are three critical approaches [19,63] that could help JDF, JDD, and JDT gain competitive advantages during different periods for JD SCF practice, respectively. It is worth emphasizing that "differentiation" and "focused strategy" could be seen as two ways influenced by business model innovation to attain competitiveness for JD SCF practice.

5.2.1. Before Business Model Innovation, JDF (October 2012~June 2017): Cost Advantage Based on Accounts Payable Turnover Days

JDF is the original SCF operator under JD.COM in the beginning period, which also can be viewed as a time without business model innovation. As JD.COM's annual report [65] noted, the original intention of JD SCF was to activate accounts payable between cash flow and suppliers. The historical financial data addressed that the accounting period and the accounts payable turnover days were the core weapon to maximize the profits and gain cost advantages of JD SCF practice in the JDF period. As Table 7 illustrates, with the growing trend of accounts payable turnover days from 2012 to 2017, the accounting period and accounts payable turnover cycle of JD.COM were also raised. To some extent, it discloses that the longer the "use" time was, the more "output" JD E-commerce would have. Because the own funds of brands, suppliers, and third-party partners on the JD.COM platform could be used for a while, and this increase in "use" days (accounts payable turnover cycle) and working capital led to JD.COM having to occupy the payments for suppliers and reduce the frequency of short-term borrowing from banks and other financial institutions. Additionally, the rising accounting period and accounts payable turnover cycle may also reveal the business scale expansion of JD.COM, which also is verified by the financial data of net revenue and GMV of JD.COM in Table 5. However, with the net revenue and GMV increase caused by business scale expansion, the percentage of accounts payable still accounted for only 20% of the net revenue of JD.COM, implying the rapid expansion of JD.COM was accompanied by the growth of operating costs. Therefore, to reduce the risk brought by longer turnover days and accounts payable, the JD.COM group had to focus on controlling inventory and its turnover cycle to avoid inferior liquidity. From 2012 to 2017, JD.COM's inventory turnover seemed well-managed, with an average annual inventory turnover days of 36.04 days (Table 6). During the period of JDF, the turnover days of accounts payable seemed the fatal factor for determining the relationship between retailers and suppliers because it shows that the longer the turnover days of accounts payable, the larger the business scale, the greater the pressure of cash flow transferred to suppliers, and the lower the efficiency of capital flow. Reflecting back to the words of Richard Liu (2015), the CEO of JD at Yale [78], "if any company in the world, especially retailers, its accounting period (the accounts payable turnover days) is less than the days of inventory turnover, the company will die, even if it has huge profits". This statement, more or less, revealed the secret of the competitive advantage of financing costs obtained by JD SCF practice through accounts payable turnover days during the JDF period once again.

5.2.2. First-Time Business Model Innovation, JDD (July 2017~January 2021): Differentiation Advantage Based on the Business Expansion to "T2F", "T2B" and "T2G"

In June 2017, the JD.COM group announced the start of the divestiture and restructuring of JDF to an upgraded and independent organization named JDD. After this transformation or so-called first-time business model innovation, the newly formed JDD preferred to be positioned as a "Finance + Technology + Digitization" company and simultaneously retained the same financial services and products for those suppliers, third-party sellers, and customers linked on the JD E-commerce platform, provided by JDF. To be more specific, JDD, on one side, expanded its business by offering credit risk assessment services and securitization to purchase reliable consumer financing past due over a certificate agreed period from JD.COM group [66,75]; and on another side, JDD further aimed to offer a whole-supply-chain-oriented SCF guarantee mechanism relating to SCF products, services, tools, technologies, and personnel for guarding the implementation of SCF to further underpin the real economy centered to the JD E-commerce. To carry out a new practice of SCF, JDD paid attention to business differentiation through data, technology, and innovation. "T2F", "T2B", and "T2G" are three innovative lines created by JDD for different service fields. These "differentiations" in product lines extended SCF business into differentiated fields of financial institutions, enterprises, government, and other customers. The five main modalities of SCF practice, "JingBaoBei", "JingXiaoDai", moveable property finance, "YiDai", and "JD Kuaiyin", were still in use; however, they were upgraded during the JDD era along with new SCF services. In other words, the SCF practice during the JDD period no longer provided specialized SCF-related products or services to customers but focused on bringing an SCF guarantee mechanism for users who were centered on the whole-supply-chain area. In turn, this differentiated SCF practice within JDD was concurrently in charge of industrial clients by expanding services fields that benefited from developing new models of digital economic growth to lower costs, boost company effectiveness, and improve user experience. By the end of June 2020, the SCF business and guarantee mechanism offered by JDD covered more than 1 million small and micro businesses, 200,000 SMEs (small and macro enterprises), and 700 large commercial enterprises (Prospectus, 2020). In addition, the fast turnaround of negative facts to profit from 2017 (RMB −3.82 billion) to 2019 (RMB 0.79 billion) illustrated in Table 9 also appears to demonstrate that "differentiation strategies" were advantageous for SCF businesses' competitiveness gaining during the JDD phase.

5.2.3. Second-Time Business Model Innovation, JDT (February 2021~Present): Focused Strategy Based on "Technology + Industry + Understanding"

In response to the new wave of technological change from general "Finance + Internet" to deeper "Finance + Digitalization", the independent institution JDD was further renamed JDT in February 2021 [67], which led to the second-time business model innovation of JD SCF practice. The name change of the organization itself reflected the fact that the latest round of SCF business model innovation would rely more on technology. In addition to maintaining JDD's core strength of "Finance + Technology + Digitization" and providing a general SCF guarantee mechanism to those capital demanders centered on JD SC by the three lines of "T2F", "T2B" and "T2G", JDT's strategy for SCF development turned out to be more "focused". In one sense, JDT pays attention to the understanding of some specific industries and sectors (e.g., agriculture, ports, etc.), putting the comprehension of the "specificities" of certain industries as the basis before JDT offering an industry-oriented SCF technological guarantee mechanism (e.g., certain industry-oriented SCF products, services, tools, technologies, and personnel) to financial demanders. In another sense, JDT also emphasizes the importance of technology investment and intellectual property protection, stressing the necessity of further integrating new technologies such as AI, Big Data, cloud computing, logistics network, and blockchain techniques to carry out new rounds of SCF practice based on JDD. Although the SCF practice under JDT has not operated for a long time, "Technology + Industry + Understanding" would evolve as the "focused" key for JDT and create a new paradigm of promoting digital economy growth for certain industrial chains. According to JDT's prospectus [77], JDT had more than 600 financial clients (e.g., banks, insurance, funds, securities, trusts); more than 1.2 million business clients (e.g., SMEs, mega-business centers); and more than 40 government clients (e.g., city public service agencies) by the end of 2021. Additionally, JDT's prospectus [77] also recognized that JDT's profitability pattern from the JDD period would continue. Hence, in other words, it could be understood that the competitive advantage and sustainability gained for SCF practice during the JDT period lies more in its "focused strategies".

6. Conclusions

Influenced by the development of information technology and the fourth industrial revolution, SCF as a fully-new financial concept has attracted people's attention and changed the traditional financial market structure, in which banks were previously dominant. Various financial service providers have formed a new "Blue Ocean" of capital provision involving financial organizations, 3PLs, software suppliers, and E-commerce platforms. Among them, the SCF led by E-commerce has become a representative one. As one of the first E-commerce platforms to enter the SCF field, JD in China has received a great deal of interest recently, probably because of its two innovative transformations (restructuring in 2017 and renaming in 2021). However, there is still a significant market share disparity between JD and the dominant Chinese E-commerce business Alibaba; thus, when academics and professionals study the E-commerce industry in China, they seldom choose the case of JD, the second largest Chinese E-commerce player. Even if there are relevant studies with JD as the research object, they are all based on E-commerce development, and there are few special studies on SCF, let alone from the perspective of business model innovation. Therefore, to fill the research scarcity, this paper takes JD with its SCF practice as the case to research the development of SCF from the view of business model innovation.

For detecting whether the business model innovation on SCF practice of JD benefits it from keeping sustainable strategic development, the visual tool of BMC with the consideration of a three-layer strategic innovation structure is adopted to illustrate and compare the changing of nine blocks under three different operators of JDF, JDD, and JDT. Through this hybrid theoretical framework analysis, two times of business model transformation are confirmed to bring sustainable development for JD SCF business. The first-time business model innovation for JD SCF practice is from JDF to JDD, from a sub-business unit under JD.COM to an independent organization aiming to provide an SCF implementation guarantee mechanism relating to SCF tools, technologies, and personnel. The second business model innovation is from JDD to JDT, from an SCF general mechanism guarantee provider to an industry-oriented SCF technological mechanism supporter. While for how to obtain competitiveness to JD SCF practice, this paper introduced financial analysis with regard to the modified competitive advantage-gaining model, verifying "cost", "differentiation", and "focused strategy" are three important tools, especially the latter two are influenced by business model innovation. Especially during the period of JDF (October 2012–June 2017), JD SCF's competitive advantage is from "cost" advantage based on accounts payable turnover days on JD SC; during the period of JDD (July 2017–January 2021), JD SCF's competitive advantage is from "differentiation" strength by extending SCF business lines into T2F", "T2B", and "T2G" for providing whole-supply-chain-oriented general SCF guarantee mechanism; during the period of JDT (February 2021–present), JD SCF's competitive advantage is from "focused strategy" by offering a particular industry-oriented SCF technological guarantee mechanism with "Technology + Industry + Understanding".

By combining BMC with a three-layer strategic innovation structure, this paper maps nine blocks into JD SCF practice with three different operators of JDF, JDD, and JDT, highlighting JD SCF practice experienced two times of business model innovations. This study identifies the beneficial improvement found in BMC by investigating the business model innovation starting with value proposition at the strategic decision level and following two executive forces for maximizing the difference in financial performance. Along with the further introduction of financial analysis, this study further demonstrates that "cost", "differentiation", and "focused strategy" are three ways to acquire a competitive advantage. The latter two approaches, in particular, are shown to be susceptible to business model innovation. The authors feel this paper may contribute two-folds of theoretical and practical implications. As to theoretical contributions, the hybrid theoretical analysis that incorporates the BMC with considering three-layer strategic innovation structure and financial analysis regarding a modified competitive advantage-gaining model may offer new insights into the methodological theory for the business model innovation study in the field of SCF led by E-commerce. As to practical contributions, the recognized JD SCF's competitive advantages gaining strategies through "cost", "differentiation", and "focused strategy" during three different periods, which the latter two are influenced by business model innovation, also offer implications to other E-commerce-centered SCF operators about chasing competitiveness in the newly formed "Blue Ocean" of the financial market. It offers managers a guide for applying a business innovation strategy to pursue competitive advantages in environments of dynamic SCF development, particularly beginning with creative change from value proposition at the decision level, followed by executive behavior modification and performance alteration. However, this paper also has three research limitations, which increase the potential for future study. Firstly, the limitation lies in direct data collection underpinned by quantitative research techniques. Although this study reviews the evolution of one successful example of Chinese JD SCF practice and highlights its two times of recent innovative transformations, it still is constrained by the extensive use of indirect data; future research work should introduce more empirical quantitative methods with first-hand data collection for improving research quality. Secondly, this research lacks cross-comparison analysis. JD SCF practice as a single research objective is selected in the qualitative approach of case study in this paper; therefore, it is not possible to adequately cross-compare similar situations by using other examples to expand research from multi-perspectives. To compensate for this restriction, future research should conduct cross-studies inside and outside the E-commerce-centered SCF industry to enlarge the analysis scope. Thirdly, it may have a limitation of generalizability because, in this paper, the case selection is solely limited to certain SCF development situations generated by Chinese E-commerce, which may not be suitable for other businesses with different traits. SCF is a newly formed common financing method; the related study should not be limited to specific areas and industries, such as the context of Chinese E-commerce-centered SCF and JD SCF practice in this paper, but should break the geographical and business limits to extend research in a more comprehensive manner with generalizability enhancement in future.

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