

Summer 6-30-2018

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Yi Chen

Center for Fiscal and Financial Development in Haixi, Minjiang University, Fuzhou, China

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Recommended Citation

Chen, Yi, "E-commerce Service and Supply Chain Finance in Rural China : A Value Captured Perspective" (2018). *WHICEB 2018 Proceedings*. 51.

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E-commerce Service and Supply Chain Finance in Rural China: A Value Captured Perspective

Yi Chen

Center for Fiscal and Financial Development in Haixi, Minjiang University, Fuzhou, China

Abstract: From a value captured perspective, we aim to examine e-commerce service facing the problem of a lack of supply chain finance. Based on multiple case studies, we explore how to capture value via e-commerce service efficiently. Using the data from a randomly sampled questionnaire survey in rural China, we would address the value co-creation process within supply chain finance. The e-commerce industry is in need to collaborate and combine with supply chain finance in order to maintain the value transformation.

Keywords: e-commerce, supply chain finance, value captured

1. INTRODUCTION

In terms of market development, China's urban e-commerce market is approaching to the saturation after recent years of explosion and some e-commerce giant's groups have already turned towards the rural area for new market exploring. In 2016, the number of online shoppers in less developed areas in China has reached 77.1 million, which resulted in 40.6% increase against the number of 16.9% in urban areas ^[1]. E-commerce industry are experiencing a booming stage and has gradually become the new growth driven. However, some rural inland counties still face the severe challenge of accessing internet, service and supply chain finance, etc.

Government sectors have released related policies and documents, together with financial support of 20 million RMB per perished county for five years to accelerate the development procedure. With the comparatively lower income level, infrastructure deficiency and dispersed logistics, majority of less developed counties are the main reasons which rural areas have failed to attract investors and brick-and-mortar retailers whereas the limited products' variety and inflated prices also influenced demand of rural consumers^[2].

In view of the above analysis, this paper engages with the discussion around e-commerce service to address two research questions and represents the following theoretical contributions: (1) What's the role of supply chain finance in e-commerce service during the value co-creation process? (2) How does e-commerce service capture values?

The research would address the value co-creation process within supply chain finance. During the field works and investigations, service entities were found to be the value connectors who take responsibility for integrating customers' demand, delivering political announcements, transforming one-time financial support into long-term value creation opportunities and precisely match all aspects of information. It is an extremely comprehensive process which requires the high level of operating skilled labors, the large volume of data collection, professional data analyzing and sufficient financial fund.

2. THEORETICAL BACKGROUND

Researchers have examined the E-commerce service and supply chain finance along two dimensions: value networks and service supply chain. Scholars in the field of supply chain management have brought the concept of supply chain network structure with direct interactions and indirect interactions of suppliers and customers ^[3].

Lusch, Vargo and Tanniru believe that the process of marketing and supply chain management will converge with value network, which is embedded in S-D logic^[4]. The value network connects loosely coupled value proposing actors to interact with institutions and technology to co-create values and exchange service offerings. It contains multiple supply chains where firms with competitive relationships often have the same suppliers and result in forming an even larger and more encompassing net. Through establishing a highly-structured network economy, organizations which seem unrelated to each other can obtain the opportunity to build connections^[5]. Therefore, supply chains in network might become more adaptable, fluid and dynamic.

Achrol and Kotler have also stated that only vertically integrated hierarchy with knowledge enriched and turbulent environment is not enough for firms to grow since they are overcommitted to upstream and downstream technologies^[6]. Instead, value network provides a wider stage with more complex situations for companies to learn and adapt, which may also encourage and urge them to become more critical about survival and growth.

However, when firms adopt the perspective of value network, supply chain as the traditional focal construct have not been replaced but enhanced by better integration between customer and marketing^[7]. In general, supply is a product-centric or firm-centric concept, whereas value is more likely to be customer- and service-centric. Based on S-D logic, customer is the only entity who can co-create value and assess value by using market offerings practically in reality. Other researchers hold different perspectives where company exist as a collection of commerce services, which can be integrated to satisfy consumer's needs^[8]. The term of value has also been considered as the connection between suppliers and customers^[9].

Concluded by Burton, et al.^[10], firms make appropriate value from rest of actors in value network and thus create tensions that can offset servitization efforts or even destroy values for all participants. Tensions are reviewed between each actor in network, as well as groups and individuals within those actors. The study identified five broad groups of tensions: direct challenge to expertise, pressure to learn, cost-focused challenges, process-change risk Aversion and external actor impacts on value creation and from which they can be categorized as internal tensions (e.g. threats to personal dominance of activity) and external tensions (e.g. regulatory issue). Most of tensions operate at the micro-environmental level, restricted to firms' servitization value network. In reaction towards the potential issues, actors might invest in new resources, build stronger relationships or share a wider service vision across the network. Although the study was based on manufacturing industry, the findings can still offer constructive suggestions to e-commerce value network buildings.

In sum, the theories above are complementary to each other, forming an explanation framework for theorising about e-commerce service in China. Based on the theoretical frame, explanations of e-commerce service require to illuminate the mechanism of it.

3. METHODOLOGY

3.1 Case study methods and sampling

The paper adopted a multiple case study methods since the existing researches on county-level e-commerce service platform are still in the early stage and few theories can become supportive. Conger^[11] also stated that quantitative research itself is insufficient to investigate the phenomenon which consist of multiple levels with dynamic and symbolic components, especially in studying the links among behavioural, interpersonal, organizational and environmental levels. Moreover, multiple cases strengthen the result by replicating the patterns, therefore improve the robustness of findings. With the aim of addressing a conceptual framework or theory of value co-creation model of e-commerce service platforms within the niche area. Patton^[12] has conducted further theories that there are no rules of determining the size of the sample and the validity, meaningfulness and insights have deeper relationships with the analytical capabilities.

Our unit of analysis is value co-creation process of the case study companies. By combining data from four SMEs which specialized as e-commerce service providers in various counties, the study attempted to extract the unknown added and marginal value creation theory. SMEs tend to build contract with the third-party service providers more often since they may not have sufficient resource and scale to operate their own sectors while strategic plans are in need. Having values created through diversified channels proves that the e-commerce ecosystem has entered the more mature stage and that the online commerce service model has gradually stepped into offline model (O2O). The investigations of each case growth path have justified the assumption as well, from which most of e-service corporation have attempted to take control of several crucial products' supply chains operations; the selection of the cases reflects the diversity of the counties in China: All CITY (Nanchang), SOWIN (Lishui), WENYUAN (Linan), GANJIE (Suichang) and LECUNTAO (Taiyuan).

Established in, 2014, ALLCITY E-commerce Group is a comprehensive county-level e-commerce service provider with 139 current employees in Nanchang, Jiangxi. SOWIN Group has established a subsidiary company called Lishui Rural E-commerce Co.Ltd. with local government with the aim of offering public service in 2013, tendering and bidding for subject of project operations. WENYUAN was established in 2009 and has already founded 26 branches in China. Under the operation of specialized rural ecosystem model, the company has contributed to 18 counties and 5 impoverished villages' economic and cultural development. GANJIE was the first comprehensive e-service company in China and started operating from 2010. Until 2015, under control of 88 local county operation stations cross China, 6000 service centres were set up in each village providing public service, data collection and goods distribution. LECUNTAO Group is the only one that located in North-western area during the investigation among the five cases and all the other companies are distributed in South-eastern area.

All the companies are different in size, functions and growth history. Beside the core commerce unit of e-service platform, the investigations have also covered at least one commerce unit within the ecosystem circle, which include government department, individual e-commerce companies, traditional companies and third-party online platforms.

3.2 Data collection

The research has conducted 15 interviews working at all the levels across the 5 cases, which including a) board directors, commerce unit director, customer service director, creative directors, quality managers and branch managers from e-service platforms; b) county level government departments and public associations' managers; c) individual production companies; d) e-commerce corporations who involved in the value creation and exchange relationships.

Data collection procedures adopted qualitative triangulation techniques. Denzin has suggested that triangulation is highly convincible in terms of combining data sources to study the same social phenomenon^[13]. Instruments included face to face interviews, private seminars, telephone semi-structured open ended interviews, company documents and archival data from credible organizations and websites. All interviews were recorded, translated and transcribed from Chinese to English for the interviews organized in oral mandarin.

3.3 Data analysis

Both within case analysis and cross case analysis were generated for the 5 cases. Within case analysis is a form of pattern recognition, where emerged themes can be categorized and incorporated with data-drive inductive approach of Boyatzis^[14]. Therefore, we might conclude a pattern of information that organizes and explains the possible observations to the minimum and interprets aspects of phenomenon to the maximum. The themes emerged from within case analysis then might form a broader concept for synthesis in cross-case

analysis. Integrations of data then start collapsing, merging and filtering themes that best represented the value creation model, which leave the stand-alone themes for further discussion.

4. FINDINGS

4.1 Value Missed for being lack of supply chain finance

In general, the missed values here refers to the value creation opportunities which are not realistic to be created with a specific company's current situation or have been left out when formulating operation strategies. However, in theory all the miss value opportunities can effectively contribute to value co-creations and are still possible to be utilized when the corporations become mature enough to enter the next stage^[15]. All the cases under evaluation are facing the same issue of acquiring sufficient financial funding or capital raising sources to a certain extent, from which LECUNTAO have the least problem. After analysing the information, the research found that proper implicated strategies and the large scale the company has covered might be benefited from its start-up strategy that focused on taking control of supply chains finance. As for innovative company like GANJIE, who originated the e-commerce service firm, has contrived multiple projects at the early stage and could be able to generate sufficient support in forms of crowd funding.

4.2 Cross-case Value Co-Creation Analysis

In general, the missed values here refers to the value creation opportunities which are not realistic to be created with a specific company's current situation or have been left out when formulating operation strategies. However, in theory all the miss value opportunities can effectively contribute to value co-creations and are still possible to be utilized when the corporations become mature enough to enter the next stage. All the cases under evaluation are facing the same issue of acquiring sufficient financial funding or capital raising sources to a certain extent, from which LECUNTAO have the least problem. After analysing the information, the research found that proper implicated strategies and the large scale the company has covered might be benefited from its start-up strategy that focused on taking control of both uplink and downlink supply chains management. As for innovative company like GANJIE, who originated the e-business service firm, has contrived multiple projects at the early stage and could be able to generate sufficient support in forms of crowdfunding.

Table 1 Cross-Case comparison of value missed and destroyed

Value Co-creation Corporations	Missed Value	Destroyed Value
ALLCITY	Manufactured products downlink; Supply chain finance	Cold-chain raw food supply
WENYUAN	Supply chain financet, Cross boarder E-commerce	Manufactured products downlink;
SOWIN	Manufactured products downlink; Marketization operation	Social network marketing; B2C retailing
GANJIE	Crowd funding; Supply chain finance	Goods dominant logic value system; Manufactured products management
LECUNTAO	Supply chain financet; Cold-chain transportation	B2C dominant agricultural products uplink; Systematically public training program

4.3 Core Value Captured by adopting supply chain finance

There are three innovative value co-creation approaches concluded by adopting supply chains finance: online to offline (O2O) commerce model, social network and big data analytics in terms of disadvantaged group alleviation

The value might be delivered and transferred to both side. On the one side, service providers might receive extensive brand recognition and reputations which go along with actual financial support to practice the program. Funds are then converted into special training plans; household hardware facilities support or even available paid jobs afterwards. Instead of direct limited financial support, the service provided towards those disadvantaged groups have benefited wider range of people and offered them the chance to live a self-sufficient life which also deepen social value creation and result in a more stable social environment. On the other side, vulnerable groups finally have the chance to realize self-fulfilment—which is considered as the highest-level value creation from individual’s view. Abilities and skill will be the most valuable tool to sustain their life without attaching to others and all the benefit might partially reflected from monthly income and actual transactions.

Our analysis shows that value co-creation from big data occurs not from the data itself or individual data scientists, but mainly through the proper methods of data management, where companies are able to contextualize, experiment and execute data on a regular base. Therefore, the e-commerce service providers play the significant role along value creation chains as who might be capable of extracting delivering valuable information to upstream-downstream industries.

Value added and personalized service is recommended through data analyzing, such as, account management, online store design and transactions preference to assist sellers and public sectors.

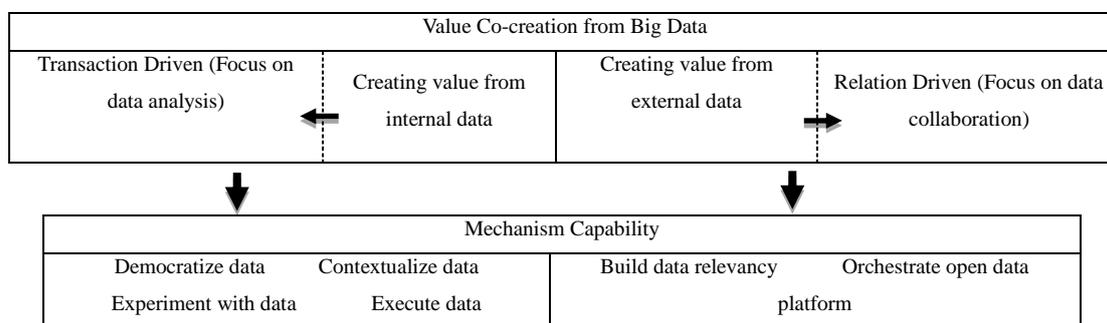


Figure 1. Value Co-creation Procedure from Big Data

Thirdly, the data generated might assist firms to understand supplier or customer’s needs. The utilization of external data network mainly refers to higher co-created value through collaborations in comparison to the value harnessed through internal sources. It is all about mixing and matching, different trends and patterns are discovered follow various orders and with the aim of grow the whole market, all the service platforms can create synergistic bundles and achieve higher value premiums.

Base on above finding, we propose that: First, the less dependent of e-commerce service entities on public and government sectors, the more opportunities of value creation the company might have. Second, most financial value captured by service providers is created from controlling supply chains and business extension to offline real economic sectors. Third, the more information and big data resource an internet service entity controls, the better opportunity it may have to create more values in both terms of volume and quality.

5. DISCUSSION

5.1 The less dependent of e-commerce service entities on public and government sectors, the more opportunities of value creation the company might have.

To further illustrate the assessments from findings, four propositions are concluded for theory-building from which the research findings are extracted and purified. Value is a comprehensive concept that could be created in many various forms and increasing or diminishing along the transformation. The study has generated the complemented version of the original conceptual framework from which three propositions are concluded in the following paragraphs.

The first proposition will be developed and concluded from the participant's perspective of value creation procedure with each internet service company. According to the findings in Section 4, some of the service platforms operate as "the third-hand" of local government and public sectors, instead of operating as a market-oriented enterprise. The strategies of those companies intended to rely more on government financing or public funding which then being transferred into different forms of values and benefit target groups live in less developed areas, such as knowledge and skills' training, individual store' s opening, e-commerce related job offering, etc.

It can be seen from the cross-case analysis table above that government and public institutions have been the main participant during the general value co-creation procedure, as the investor and supporter for disadvantaged groups alleviation and online to offline business extensions, where values are transferred from centralized economic values towards decentralized tangible and intangible values. Meanwhile, it is the value receiver with the implication of big data analysis, who obtain the transferred database or statistics and then reuse them to promulgate updated versions of policies and regulations, thus consist the benignant circle for sustainable value co-creations. However, with the relatively tight regulatory control and manipulations, the value co-creation process is limited to a certain amount and involvements of other organizations are restricted due to potential political and social obstacles.

In terms of rural banking institutions effect on value' s generating process, a comparatively heavier proportion of government supervision will probably result in less rural commercial institutions' financing which could be given to e-commerce start-ups or service entities. It might be plausible under a circumstance that with the strong interference and control from local government, the overall efficiency is reduced through tedious processes with related administrative functions. Typically, the above estimations are currently only applicable to rural financial institutions rather than large state-banks. With further evaluation, our study has reached the same conclusion. Among the five cases, LECUNTAO and SOWIN Group are the only two companies that started with comparatively independent value creation strategy, which result in generating relatively larger value than other three firms within the same time span. Among the four key values captured, value co-creation through disadvantaged group alleviation has the most intimate connection with public sectors, where ALLCITY and WENYUAN have devoted the most into. Consequently, the theoretical inference precisely matches with data analyzing results. Therefore, we may propose that value co-creation is a process which requires connections through multiple channels rather than focusing too much on national public support and be "the third-hand" of government sector.

5.2 Most financial value captured by service providers is created from controlling products' supply chains and business extension to offline real economic sectors.

Taking control of products' supply chains and other offline real economic sectors may realize marketers' long-term objectives from creating social values by building brand awareness to the financial values reflected by actual payments transfer. Through the process, retailers and e-commerce platforms will have the ability to 'close

the loop' on marketing investment and obtain a more accurate return on investment (ROI) on customer' s retention and acquisition, especially by collaborating with service providers in a multi-channel environment. With 54% of all the transactions were made over mobile applications, value creations through social networks are proved to be one of the main trend in the future.

With the purpose of strengthening value generating process, the study concludes three key points to become further constructions. First of all, the interaction between online and offline business operations. It has been found that the most often appeared missed value is the value could be produced with supply chain management of the products which service platforms are in responsible to promote or build their own brand with. Companies such as SOWIN, ALLCITY and LECUNTAO have focused relatively more on products offline management. They trace the production to the source to ensure the overall quality, adjust logistics strategies and improved its efficiency, together with online promoting or marketing plans. During the process, interaction and fluent contacts with each entity is significant to ensure values can be sustained transferred to next link. The interaction seems to be the key to integrating O2O industrial chain with the main objective of matching with customer' s needs and create a more comfortable environment, which indirectly accelerates the value creation process.

Secondly, only surface and low technical services are not enough to maintain the operation, instead, the more comprehensive business model could be developed, such as house rental service, socializing car rental services and news media sharing services (Zhang, 2011). Flexible profit mode might also contribute to the higher efficiency. The user-oriented fees might be split between customers and merchants, depending on specific conditions for a win-win situation. As both previous academic papers and our research findings have shown the similar results, the proposition 2 here might become a useful view for companies to refer to.

6. CONCLUSIONS

The research has addressed the value co-creation process within supply chain finance. During the field works and investigations, service entities were found to be the value connectors who take responsibility for integrating customers' demand, delivering political announcements, transforming one-time financial support into long-term value creation opportunities and precisely match all aspects of information. It is an extremely comprehensive process which requires the high level of operating skilled labors, the large volume of data collection, professional data analyzing and sufficient financial fund. All the requirements are compulsory to be involved in the process of generating useful values and ensure those values are effectively itinerant.

The e-commerce industry is in need to collaborate and combine with supply chain finance in order to maintain the value transformation. Together with a rational and efficient implication of information processing systems, higher volume and quality of values could be created.

ACKNOWLEDGEMENT

This research was supported by the Fujian Provincial Department of Science & Technology under Grant 2017R0081.

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