

The Legitimacy of Clustered Firms: A Dynamic Perspective

Sze-Ting Chen^{1*}, Ren-Cheng Zhang², Kai Yin Allison Haga³

¹ Master of Business Administration Program, CHINA-ASEAN International College, Dhurakij Pundit University, Bangkok, Thailand.

² Master of Education Management Program, CHINA-ASEAN International College, Dhurakij Pundit University, Bangkok, Thailand.

³ International Master Program in Asia-Pacific Affairs, School of Social Science, National Sun Yat-Sen University, Kaohsiung, Taiwan.

* Corresponding author. Tel.: 2-2954-7300, email: d974010008@gmail.com

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Abstract: A country's competitive advantage is often characterized on a specific industry in which firms are drastically inclined to clustering together. The previous literature has limited discussion on how the clustered firms through constantly renovate their own abilities and by complying with the institutional legitimacy to gain recognition and support among the other members of the cluster so that they can gain access to cluster's resources to create and maintain its competitive advantage. Although there are researches focusing on how industrial structure help clustered firms to generate competitive advantages, some empirical studies show that in a fast-changing environment, firms usually fail to adapt to sudden policy or technological changes. Thus, based on dynamic absorption capacity and institutional legitimacy, this study seeks to explore how the clustered firms absorb, learn, integrate and exploit new abilities continuously, as well as develop and utilize external knowledge and capabilities to adapt to rapid environmental changes. In addition, emerging economies have attracted an increasing amount of attention because of rapidly expanding economies and rapid-growth markets provide tremendous business opportunities, especially the China which affects many countries' economies in the world. The results of this study express that the dynamic absorptive capabilities have positive effect on a clustered firm's performance, but if a clustered firm always conform to institutional legitimacy which will result in performance dilemma, which is different from other previous research.

Key words: Dynamic absorptive capability, institutional legitimacy, organizational performance, performance dilemma.

1. Introduction

It has long been noted that industries have a tendency to cluster together [1]. To explain this phenomenon, researchers have noted that the involved companies benefit from clustering in a variety of ways. These benefits include improvements in the ability to keep abreast of technological innovation. In addition, because of geographical proximity, firms can communicate frequently, allowing them to obtain knowledge related to market, technology, and competition [2], [3]. Frequent communication and interaction help improve cooperation performance [4]. Firms can streamline the supply chain, streamline the sales chain, and benefit from the surrounding infrastructure and related institutions that naturally result from the forming of a cluster [1], [5], [6]. Although a number of studies have explored the effect of clustering

upon productivity, competitiveness, and performance, there is often the assumption that all of the participating firms obtain equal benefits [3], [7], [8]. Despite the above advantages, clustering does not always prove to be advantageous for the companies involved. Consequently, real-world firms do not always elect to locate within a cluster because some of the detrimental factors are the challenge of maintaining technological and corporate secrets when located in close proximity to one's competitors [8]-[10], the high competition for suppliers and for brainpower when employees can switch companies without relocating [9], and the competition for customers [11].

In addition to the above-mentioned advantages and disadvantages to clustering, there are also institutional considerations, such as conform to environmental expectations, zoning rules, and preferential availability to resources. Developing nations, in particular, often introduce incentives for foreign investment by establishing industrial zones. These industrial clusters create unique business environments. For participating companies, the advantages of low-cost labor and limited regulation are balanced against uncertain governmental policies. Among developing nations, China has been a notable recipient of foreign investment. This investment has, in fact, focused on industrial and technology parks, due both to the advantages of clustering and to the nature of Chinese governmental policies.

In term of theory development, this research first explores the literature related to dynamic absorption capacity which combine absorptive capacity and dynamic ability. Zahra & George [12] define ACAP as a set of organizational routines and processes by which firms acquire, assimilate, transform, and exploit knowledge to produce a dynamic organizational capability. According to the Zott [13], dynamic capabilities are embedded in organization processes and are directed enabling organizational change and evolution. These abilities can also help firms reconfigure resource and adapt quickly to a fast-changing environment in order to maintain a permanently competitive advantage. Nevertheless, in discussing competitive advantage, it is necessary to understand the development of strategic management. Barnard [14] was the first in advancing strategy management research. Over the past 40 years, the study of strategic management can be roughly divided into three periods: early development period, industrial organization economics period, and Resource-Based View [RBV] period. Obviously, in the 1990s when strategic management research entered into the period of RBV, its connotation focuses on the idea that firms can gain competitive advantage by having unique resource [15], [16], but the later Resource-Based Theory [RBT] consider the competitiveness developed by static resource, regardless of how great its usefulness, it will become unsustainable because of the imitation of competitors [17]. Also, such competitiveness is unable to respond to the rapidly changing environment of the 21st century. Dynamic capabilities, however, are a new source of competitive advantage, which can be obtained through creation and evolution of resource integration power, resource learning power, and resource reconfiguration power. Teece *et al.* [18] considered that dynamic capability refers to the ability of vendors to integrate, establish, and reorganize internal and external resources in responding to the external rapid changes in the environment.

Indeed, it has been pointed out that not all firms benefit equally from being located within an industrial cluster, even when the firms are of similarly size [9], [19], [20]. McCann and Folta, in their reviewed article, advocate for more analysis of which characteristics allow a firm to maximize the potential benefits provided by locating within a cluster. Therefore, this paper attempts to extend our understanding by examining firms' institutional legitimacy to see whether it can help the clustered firms to gain support and recognition from other cluster members for more technological gains and cooperation chances. In fact, legitimacy can be viewed as a strategic resources which can help firms to generate significant economic benefits and competitiveness [21]. Therefore, we treat legitimacy as a means to help clustered firms gain competitiveness, not just resources. Based on these arguments, this paper develops a theoretical

framework that identifies the specific conditions under whether the dynamic absorptive capabilities and legitimacy are likely to assist firms within cluster to improve performance and sustain competitive advantage. Our purpose is not to supplant strategic and operational explanations of clustered firms, but rather to extend recent efforts to synthesize capability, resources and institutional perspective by suggesting that they complement rather than compete with a legitimacy explanation of clustered firm performance.

2. Theoretical Background

2.1. The Capability-Oriented Perspective for Clustered Firms in Emerging Economy

The potential advantages of clustering include the followings: richness in surrounding resources and complete industrial supply chain. Because of the convenience of one time purchase enough for everything, it attracts more customers. These effects can provide a significant competitive advantage to the participants [22]. But clusters can also foster an environment of imitation from nearby competitors. So, the advantage of knowledge decreases rapidly. Moreover, because of the frequent changes of government policy in an emerging economy, such institutional instability causes RBV theory [15], [17], [23] which is suitable for static environment, not able to the needs of the clustered firms that operate inside those emerging economics with rapid environmental changes. Therefore, by adding the dynamic surface consideration of the dynamic absorptive capability, our analysis should be more align with the real world situation. For example, Zott [13] stressed that dynamic capabilities are embedded into the routine processes that enable a firm's organizational change and development. These capabilities allow firms to reconfigure their resources and adapt to changing markets to achieve competitive advantages. In addition, market uncertainty and rapid growth imply that more opportunities exist in emerging economies [24]. Thus, building capabilities becomes more necessary to help the firm attenuate market threats and benefit more from market opportunities. Above all, dynamic absorptive capability is the ability for clustered firms to organize external knowledge into internal resources [or knowledge] and integrate resources according to the changes in the market and environment. We posit that in order to reap the cluster benefits and mitigate the cluster costs mentioned above, firms must have both particular capabilities and established institutional legitimacy to obtain competitive advantages.

2.2. Dynamic Absorption Capacity and Institutional Legitimacy: Basic Definitions

Institutional legitimacy refers to the social justification or publicly validated of an actor or activity [25]. The process of social validation is to identify the special ability of firms in providing goods and services. Institutional legitimacy, also defined as a generalized perception that actions are desirable or appropriate within some socially constructed system of norms, values, beliefs, and definitions, is vital for organizational survival and success [26]-[29]. Actors can use collective action to foster such cognitive and social, political legitimacy [30], [31]. In our previous work, we found a correlation of a firm's institutional legitimacy to both the prevalence and efficacy of its corporate ties [21]. The intuition is that other companies are more open to interacting with a trusted cluster member, it has the limiting assumption that the firm will have the capacity to make effective use of [i.e., absorb] the knowledge obtained from the resulting corporate ties.

Cohen & Levinthal [32] emphasize how important a company's level of knowledge and experience is for its ability to absorb external knowledge from the environment. They use the cost of R & D and the amount of training of employees to measure the absorptive ability for knowledge. [32] They defined absorptive capacity as the ability to recognize the value of new external knowledge, assimilate it, and apply it to commercial ends. Absorptive capacity measures a firm's ability to identify external knowledge and to reconfigure internal procedures to integrate that knowledge [33]. Zahra & George [12] define absorptive

capacity is the set of organizational routines and processes by which firms acquire, assimilate, transform and exploit knowledge. A firm's absorptive capacity has been identified as being critical to its competitive advantage and innovation capability [32], [34].

By focusing on internal organization, the concept of absorptive capacity is a resource-based view [RBV]. The RBV is in contrast to other approaches that analyze SCA more externally, in terms of strategic positioning in the market. In the RBV, it is particularly argued that those resources that are valuable, rare, inimitable, and non-substitutable [i.e., VRIN resources] are the most important [16], [17]. By definition, such VRINs are rare and hard to imitate, so the advantage that they afford is likely to be sustainable. Thus, VRINs contribute to a firm's sustainable competitive advantage [SCA].

Teece, Pisano and Shuen proposed that the RBV be extended to account for the operating environment. Whereas a successful firm in a slow-changing industry will apply careful analysis and internal reviews before adopting change, firms in fast-changing industries must react more quickly, more from guesswork and experience, and with more consequent uncertainty of outcome. The awareness of the needs of operating in fast-changing business environments introduces the concept of dynamic response to the field of absorptive capacity theory [i.e., dynamic absorptive capacity, DACAP] [12]. Eisenhardt & Martin [35] state when firms absorb environmental knowledge, they must integrate the absorbed knowledge with internal resources into conversion, to cope with the challenges of rapid environmental change.

3. Theory and Hypotheses

3.1. Industry Cluster vs Dynamic Absorptive Capacity

Since Marshall published his research on industrial districts, researchers have drawn on his research and attempted to explain geographical clustering from different perspectives. For example, Polder & St. John indicated that industry clustering is a highly competitive environment. Some research studies focused on the agglomerating effects, such as: specialized labor, supply pools, surrounding resources and knowledge spillover [8], [3]. The implicit assumption is that all of the firms in a cluster, regardless of their capabilities, can gain the same benefits. However, others note that information and resource differences exist within a cluster [8], [36]. For example, Bell [37] finds that centrality in the managerial tie networks is also important, so therefore not all companies in a cluster benefit equally. In fact, it has been found that clustered firms do not necessarily perform better than isolated competitors [9].

We suggest that the current ambiguity regarding the performance of clustered firms can be better explained by the non-ideal classification of externalities and agglomeration costs. In this research, we categorize agglomeration into passive externalities and active externalities. A firm can benefit from passive externalities as long as it is located in a particular cluster. We propose that it is strategic externalities, rather than Marshallian externalities, that allow a firm to outperform another in its cluster. Leonard-Barton [38] argued that when an organization neglects to respond to dramatic changes in the external environment, which will let a firm become a core rigidity. In response to this problem, Teece, Pisano and Shuen proposed the notion of dynamic ability, which would constantly renew capacity and adapt firms to integrate and reconstruct both external and internal skills and resources within the organization.

Eisenhardt and Martin proposed that there are two differences between RBV and Dynamic Capability: [a] RBV's VRIN is a source of long-term competitive advantage, but in a dynamic market it is unable to identify the source of the advantages, and [b] The logic of the strategy of the RBV's interdependent path can't adapt to the changes of dynamic markets, and is unable to forecast either how long to maintain the existing strengths or the source of possible advantages in the future. Actually, in a rapidly changing market, the best strategy is to apply some unpredictability that is not easy to simulate.

After synthesizing the importance of firms' dynamic absorptive capability in facing environmental

changes, it is natural to wonder how clustering can help firms obtain this dynamic absorption capacity? There are two aspects of how an industrial cluster helps firms to improve their dynamic absorptive capacity:

- 1) Through passive externalities, such as the shared infrastructure: Government investments in infrastructure will help accelerate economic growth and increase competitive advantages. In addition, the common technical labor pool and the presence of related and supporting industries, such as universities and research institutions, which will help clustered firms obtain dynamic absorptive capability.
- 2) Through active externalities: Companies within clusters can join the supply chain so as to achieve boundary management [39], which allows the companies of the same clusters to transfer knowledge and technology. When a company is the recipient of knowledge spillover, it increases the potential absorptive capacity. Frequent interaction within clusters also helps the companies obtain the latest information. Moreover, firms within clusters can also make their own investment in research and development, or in employee training in advanced technology.

Giuliani [40] argued that cluster absorptive capacity entails two interrelated aspects: [a] the formation of linkages with extra-cluster sources of knowledge [i.e. the extra-cluster knowledge system]; and [b] the structural characteristics of the intra-cluster knowledge system [41]. In addition, it is easy to find professionals in clusters considering the proximity because of a variety of knowledge and information flow within clusters; that is, skills and experience can be shared. The professionals themselves learn more quickly and improve learning performance, which enhance absorption of existing knowledge and technology. Each individual's ability accumulates to the absorptive capacity of enterprises, thereby promoting a better absorptive capacity of the whole.

3.2. Potential Absorptive Capacity [PACAP] vs. Clustered firms' Performance

Zahra and George re-conceptualized absorptive capacity [ACAP] as a dynamic capability assisting firms to create and utilize outside knowledge, which according to the Zott that dynamic capabilities are embedded in organization's processes and are directed enabling organizational change and evolution, they divided the absorptive capacity into potential absorptive capacity [PACAP] and realized absorptive capacity [RACAP]. The former being a measure of the ability to acquire and assimilate knowledge, and the latter being a measure of the ability to use that knowledge to reorient strategies and reallocate resources towards the development of new processes or new products.

Giuliani and Elisa argued that the dynamic growth of a cluster depends on its absorptive capacity, conceived as the capacity of clusters to absorb, diffuse and creatively exploit knowledge that is acquired from extra-cluster sources [42]. The extent of access to external knowledge is important to a firm's potential absorptive capacity [9]. The benefits of such external knowledge include not only the potential to improve production and marketing, but also to inspire an organization's own creativity. Product knowledge resides mainly in technological and manufacturing platforms. Knowing of the potential advantages of external knowledge, companies may form business partnerships. Although such partnerships have the undesirable potential to expose information to competitors, a properly managed partnership provides synergistic benefits to all partners. One way to minimize unwanted knowledge spillover is modularize products that can be exploited in multiple businesses. This concept is similar to Markides and Williamson's [43] dynamic view of synergy as asset fission and asset creation, whereby a company's competence is used to build new assets, which create opportunities for growth.

It is worth considering how PACAP is influenced by the external business environment of an emerging economy. Many such environments are characterized by rapid change, weak institutions, and tight clustering with fierce competition. In such an environment, a firm must be able to dynamically adapt in

order to thrive [44]. The dynamic capabilities embedded in the organizational process allow for organizational change and evolution [45]. Eisenhardt & Martin also note that the volatility of the environment can itself serve as a catalyst for innovation. By combining absorptive capabilities with dynamic capabilities, a firm can continuously learn technical and market knowledge. Accordingly, we formulate the following hypothesis:

Hypothesis 1: *Potential absorptive capacity [PACAP] benefits the organizational performance of firms within clusters in an emerging economy.*

3.3. Realized Absorptive Capacity [RACAP] vs Clustered Firms' Performance

Realized absorptive capacity measure the extent to which an organizational framework allows available external knowledge to be applied [12]. This involves the transformation and application of such knowledge [termed as transformative capacity and exploitative capacity, respectively]. According to Szulanski [46], knowledge transfer is a process of dyadic exchanges of knowledge between the source and the recipient; from initiation to integration, which knowledge internalization makes the information and skills acquired to guide the firm's future strategic actions. Kim [47] points out that the ability to solve problems is built upon a continuous renewal of knowledge. As employees change jobs and time passes, knowledge can be lost if not maintained. Moreover, such preexisting knowledge is necessary for absorbing new knowledge [12]. Because existing knowledge may become out of date, conversion and utilization are important for firms in a rapidly changing environment [35]. Recently, scholars have proposed the absorptive capacity as a firm's ability to utilize external knowledge [34]. A cluster offers easier access to new techniques and information, but it also makes it harder to maintain privacy of internal knowledge. Internalized knowledge helps an organization to be responsive to environmental, institutional, and market pressures. Absorbed knowledge becomes a transformative force, exposing new opportunities to increase competitiveness.

To summarize, RACAP is likely to be an important factor in firm performance, specifically in clusters in emerging economies. The specific characteristics of such an environment may contribute to the importance of RACAP [48]. To start, note that a key known advantage of clusters is their high PACAP, owing to the easy of observing nearby competitors or hiring their employees [49]. Although individual firms can take steps to improve their PACAP, it remains likely that all firms will have significant PACAP, even if primarily from passive cluster effects. From this starting point, next note that the cluster's high PACAP across many firms indicates that there may be significant competitive advantage for those firms that are able to realize that potentially absorbable knowledge [i.e., firms with high RACAP]. Also note that the unstable business climate of an emerging economy increases pressures to adapt and compete. The competitive environment of a cluster in an emerging economy may heighten the importance of the competitive advantage offered by a firm's RACAP. Moreover, given that preexisting internal knowledge has been shown to be important for applying new knowledge, past success in absorbing knowledge may indicate effective organizational practices that will similarly aid in absorbing knowledge in the future. We therefore hypothesize that:

Hypothesis 2: *Realized potential absorptive capacity [RACAP] benefits the organizational performance of firms within clusters in an emerging economy.*

3.4. Performance of Clustered Firms: An Institutional View

Institutional theorists proposed that organizational actions are driven by social expectation and justification [50], [51]. The focus of institutional theory is on emphasizing the connection between the

organization and the environment. Among organizations, they will form a network because of a common sense of mission or existing social norms, values, and meaning [52]. For example, a firm's engagement in social responsibility may not be from a profit-earning perspective, but because of the requirements of the social environment and the expectations of the local residents. If most of the companies nearby are all engaged in social responsibility, the firm may naturally view social responsibility as a matter of necessity.

Generally speaking, the economists' institutional perspectives emphasize on regulatory factors, believing that the organization is obeying the mandatory pressure of the system by adjusting its organizational structure or behavior. In other words, organizations would comply with the laws and regulations of institutional environment in order to avoid sanction or punishment, as well as expect to gain the legitimacy of the organization. For example, for the clustered firms, in order to justify their strategic actions and behaviors, they would consider that the institutional environment [e.g., government of the host country, society, local residents] may impose significant pressures on organizations. These pressures, in turn, motivate clustered firms to increase their legitimacy to conform to institutional rules, regulations, norms, and expectations [53]. Political Scientists, however, argue that an institution is mainly governed by normative factors, emphasizing that through socialization process, organizations may accept social obligations and commit to shared values. Therefore, organizational behavior must be recognized institutionally and conform to the standard of appropriateness of the institution. In other words, the foundation of the organization's legitimacy is based on ethics. Zukin and Dimaggio [54] proposed that all economic activities should be embedded within a broader social or institutional context of societal norms, rules, and expectations. For the sociologists and cognitive psychologists, they emphasize cognitive-cultural and value factors, which are put forward by [55] as the new institutionalism. The reason why the institution can shape the organization, they believe, is related to social actors' cognition, values, and cultural factors. When actors follow the institutional environment and achieve isomorphic through imitation, the structure and actions of the organization can be aligned with the correctness determined by the system. In other words, the foundation behind organizational legitimacy comes from cultural support and recognition.

DiMaggio & Powell and Scott think that owing to the pressure of extensive social expectation, institution can shape the structure and behavior of the organization through three mechanisms: 1] coercive isomorphism, which is similar regulatory factors similar to those proposed by economics; 2] normative isomorphism, which is similar to normative factors proposed by political scholars; 3] imitating isomorphism, which is similar to cognitive-cultural and value factors proposed by sociologists and cognitive psychologists. The isomorphic power of these institution will make organizations in the same institutional environment generate similar strategies and behavior patterns because of their perceptions of the same regulatory, normative, and cognitive powers.

In order to understand the isomorphic power of the institution to organizational structure and action, DiMaggio & Powell think that it is better to use organizational fields as analysis units of the institutional environment. Organizational fields refer to a cluster of organizations that include suppliers, resources, buyers, and related institutions. This paper regards the institutional environment in which the clustered firms are located as a unique organization field, which is composed of Taiwanese, Chinese manufacturers, local government agencies, upstream and downstream suppliers, buyers, and related institutions. Therefore, clustered firms are bound to be affected by coercive isomorphism, normative isomorphism, and imitating isomorphism of China's local institutional environment.

According to Scott, firms have difficulty surviving without recognition from the institution of group members. In order to survive and grow, firms must not only operate efficiently and competitively, but they should also obtain legitimacy from the institutional environment [50]. According to the institutional perspective [28], [50], [56], legitimacy signals are taken for granted but are necessary for access to

resources, acceptance, recognition, and protection from authorities. In the case of an emerging economy host country, the firms within a cluster may be subject to different social codes and possess differentiated social identities.

We apply institutional theory to the cluster environment, because institutional factors are essential to clustered firms in emerging economies. Specifically in China, institutions are weak, because of the collateral political systems, the uncertain of an economy in transition, and an increasing government influence on firm operations. Firms operate within a political environment, must consider that environment to survive and develop [54]. In order to create and sustain their competitive advantages, firms need to capture nonmarket resources through proactive networking [57] with cluster's members, and to participate in activities in clusters to increase recognition and legitimacy. These legitimacies allow firms to obtain resources [21]. Hence, firms can deploy their newly complementary resources and combine them with their existing resources under the turbulence and uncertainty of emerging economies to create successful competitive advantages. However, for a non-democratic political system, if the government policies and institutions lack legitimacy from the public, not only the regime may face the risk of collapse, but also the firms may perform poorly if they follow the government policies fully. Here is an example of an unpopular policy in China: the Chinese government requires those foreign enterprises who invested in China to give the Chinese communist party sharing holding right. Therefore, the following hypothesis is proposed:

Hypothesis 3: *In an emerging economy with an undemocratic system, institutional legitimacy may have a negative effect on clustered firms' performance.*

3.5. Dynamic Absorptive Capacity vs Institutional Legitimacy

Dynamic capabilities are a source of competitive advantage. They can be obtained through creation, evolution, and reintegration with other resources. Teece *et al.*, [18] pointed out that dynamic capability refers to the ability of firms to integrate, establish, restructure internal and external resources, and adapt to rapid changes in the environment. Deeds *et al.* [58] believe that high-tech manufacturers can continue to develop new products because of their dynamic capabilities. Dynamic capabilities include learning mechanisms and absorptive capabilities [32].

Kogu and Zander put forward combinative capabilities. In recent years, scholars extend dynamic capabilities to international expansion [59]. Nevertheless, these related studies do not suggest how to measure dynamic capabilities, and where can they specifically be reflected? Integrating the views of the these scholars, this paper believes that the content of dynamic absorptive capability should include the ability of continuous learning and absorption of knowledge, internalization ability, the ability to integrate resources, the ability to re-configure resources, and the ability to utilize and exploit resources.

What is the relationship between dynamic absorptive capability and institutional legitimacy? Through the understanding of dynamic absorptive capabilities, we can find that the dynamic absorptive capability of firms is closely related to the acquisition of their resources. Generally speaking, firms have limited resources and are looking for opportunities to collaborate or ally with the others. Nevertheless, due to the complexity and uncertainty of the clustering environment of the emerging economics, as well as the existence of speculation, if the clustered firms want to acquire long-term stable cooperation and complementary resources, obtain knowledge, and share information, they must spend time and effort to participate in the activities within the cluster so that through regular communication and good interaction, they may gain legitimacy and recognition and use the resources within the cluster.

By strengthening the institutional legitimacy and enhancing cooperation, firms can obtain knowledge and crucial resources from other members of the cluster, as well as complement each other efficiently. Firms'

possession of abundant resources is the necessary condition for dynamic absorptive capability. Rao believes that legitimacy is critical to the early establishment of an organization. Organization brings the norm into its structure to gain legitimacy so that it can be transformed as gaining much-needed resources [60]. Moreover, firms in industry clusters can have a symbiotic relationship. This will clearly increase the potential capacity for absorbing new knowledge. To gain legitimacy, firms will comply with the requests of the institutional environment. Firms may participate in the activities of the cluster, so as to garner more support and recognition from the cluster members, thereby currying favor for sharing information and technical exchanges that will enhance the dynamic absorptive capacity. Even though firms may need to allocate significant time and resources to these endeavors, it ultimately contributes to survival. In conclusion, the realized absorptive capacity measures the critical ability to quickly recognize the value of an external resource, to assimilate and integrate, and to exploit it in generating a new and complementary resource to promote the organizational performance [32], [61]. It therefore seems likely that firms in clusters can take advantage of institutional legitimacy to obtain the resources necessary for the exploitation of new products development. Thus, we posit that, for clustered firms in emerging economies, conforming to the regulations required to obtain institutional legitimacy is especially important, because it facilitates the obtaining of special resources from realized absorptive capacity and potential absorptive capacity.

Hypothesis 4: *Within clusters in emerging economies, a firm's institutional legitimacy has a positive impact on the potential absorptive capability.*

Hypothesis 5: *Within the cluster in emerging economies, a firm's institutional legitimacy has a positive impact on the realized absorptive capability.*

4. Research Methods

4.1. Sample and Data Sources

The raw data were collected through a questionnaire survey [from 2016 to 2017] from all the bicycle companies which set up in between 1979 to 2010 in a Tianjin cluster.

Tianjin is the center of China's bicycle industry. The average annual output accounts for about half of China's total bicycle production. Since the "China Bicycle Kingdom" project was fully launched, the investment in the first phase had already exceeded RMB 4 billion. Through the construction of industrial culture, cultivating first-class brands and new materials, and new technological research and development, this project provided a new model, new motivation, and new base for product innovation for the development of Tianjin bicycle industry, making the Tianjin cluster a new engine for driving industrial innovation and development. After nearly a decade of rapid growth, the Tianjin bicycle industry has become a large-scale agglomeration industrial district, forming a development model of high concentration, high-speed expansion and a strong clustering advantage. We then applied random stratified sampling to select 800 firms which must be located within a cluster or an economic zone were contacted. To avoid single source bias, the surveys were distributed with a request that they be completed by two separate employees familiar with the topics addressed in the survey; one was to be a top executive president, vice-president, director, or general manager and the other was to be a mid-level manager.

4.2. Measurement

Whenever possible, preexisting survey questions were used for this present research. To validate the dimensionality and reliability of the data collected for measuring these constructs, confirmatory factor analysis [CFA] was used. To measure the extent of dynamic absorptive capacity, we adapt two dimensions of

dynamic absorptive capacity, including potential absorptive capability [PACAP] and realized absorptive capability [RACAP]. Three questions were adapted from Cohen and Levinthal [32], Zahra & George [12], Jansen *et al.* [62] for PACAP. The questions explore whether a clustered company has ability to acquire, assimilate and exploratory learning. Because the existing knowledge base of the company may be outdated, it is necessary for it to have continuous learning ability and absorb outside knowledge. Four of the questions were identified as unreliable, because their factor loading were below 0.5. For the remaining and validated question, the Cronbach's coefficient is 0.72 and the coefficient of KMO and Bartlett is 0.71.

To measure the extent of RACAP for clustered firm we developed seven questions from Zahra & George [12], [63]. The questions explore whether a clustered company has ability to transform, reconfigure, exploit, and commercialize. Because of the fierce competition within a cluster, any knowledge can easily be peeked at a close range by other competitors. Thus, the company's ability to re-configure its new knowledge [knowledge configuration ability] is very important. After deleting five items because their factor loading values were below 0.5, the dimensionality and reliability of this construct was validated, with a Cronbach's coefficient of 0.67 [which is acceptably close to 0.7] and a KMO and Bartlett coefficient 0.72.

Institutional legitimacy was measured by eight items adapted from prior studies [2], [50], [64]. These questions seek to measure how a clustered firm's rational decision-making processes compare to other companies, whether the firms will adjust strategies to comply with local stakeholders, and whether the firms are subject to pressure from customer and the other clustered members' expectations. Of the original eight items, four were rejected for having factor loading below 0.5. For the remaining four question, internal consistency was confirmed by a Cronbach's coefficient value of 0.64, and sample adequacy was confirmed by a KMO and Bartlett coefficient of 0.70.

Organizational performance was measured by four items derived from prior studies [65], [66]. These questions compare performance vs competitors, in terms of profitability and sales growth, cash turnover, financial goal achievement, and risk management. The Cronbach's coefficient value is 0.73. We performed principal components factor analysis with varimax rotation. The results support one factor with eigenvalue greater than 1 and explain 70.60 percent of the variance.

A five-point Likert-type response scale ranging from 1 [disagree extremely] to 5 [agree extremely] was used to evaluate each item. To ensure the consistency between the English and Chinese language, the translation and back-translation procedures [67] were employed to enhance translation quality. Before beginning to conduct the large-scale survey, a pretest was conducted. We found no item with an item-to-total value below 0.30 by reliability analysis. The measurement items are summarized in the Appendix. To verify the validity of the survey answers, we follow the methodology of many prior researchers, wherein data are validated by observing four psychometric properties: convergent factor loadings; internal consistency; sampling adequacy; and confirmation that the independent variables are represented by a particular factor. As for the first property, it is verified for our data, because all of our factor loadings were found to converge to within 0.001. As for the second property, internal consistency is validated if the Cronbach's α coefficient exceeds 0.70 [Cronbach, 1951]. As for the third property, a sample is adequate if the KMO and Bartlett coefficient exceeds 0.6. As for the fourth property, it requires that factor loadings exceed 0.5. Survey questions that do not meet these criteria need to be removed from the analysis.

5. Analyses and Results

Data analyses. This study used the two-step approach suggested by Anderson and Gerbing [68]. The first step uses CFA to validate the psychometric properties of the measurement scales. The second step then uses structural equation modeling [SEM] to examine the proposed hypotheses. The statistical software LISREL 8.72 was used for our data analysis.

The correlations, means, and standard deviations of the proposed constructs are presented in Table 1. As shown in Table 1, all Cronbach values were acceptable [ranging from 0.61 to 0.773]. Correlations with individual compositional reliability [CR] values and average variation extractions [AVE] were computed among potential absorptive capacity, realized potential absorptive capacity, institutional legitimacy and organizational performance. The CR values of the four potential variables are .688, .610, .691, and .773 – all of which are higher than the .60 evaluation criteria. However, the AVE value does not reach the standard of 0.5. According to the recommendation of Hair *et al.* [69], pp. 808, the standardization factor loading must reach at least 0.50, that is, the standard value of AVE is 0.5, but at least 0.25, so the AVE value of this study is still acceptable.

In addition, the discriminant validity was supported because that no confidence interval of correlation contained value of one [68]. Overall, the psychometric property requirements of measurement scale used in this study were confirmed by examining reliability and validity corporately. Finally, since all measurements were collected in the same survey instrument, the single factor test was conducted to address the issue of common method variance [70]. The original measurement model was compared to the single factor model [i.e. all scale items were loaded on one factor] in terms of the goodness of model fit.

5.1. Reliability and Validity

The Table 2 shows the test results of the overall fit of the theoretical model and the observation data. The fit indices indicate that the model is well-fitted to the data, the chi-square value reaches a significant level $\chi^2 [77] = 109.513$, $p = .009$; non-normed fit index [NNFI]=0.960, Comparative Fit Index [CFI]=0.959; root mean square error of approximation [RMSEA]=0.040, which is lower than the adaptation standard of 0.8; standardized SRMR=0.045, less than 0.05, the model is a good fit [71]; GFI = .950, AGFI = .922, Both are higher than the adaptation standard of .90. In terms of relative fitness, CFI = 0.959, IFI = .960, NNFI=0.960; all of them are higher than the adaptation criteria of .90. For the last two parsimonious fit indices, which are PCFI = .703 and PGFI = .609, both of them are higher than fit indices .50. The above results indicate that there is an excellent overall fitness of causal model and observation data, which is suitable for explaining the observation data of the clustered firms' performance that are affected by dynamic absorptive capability and institutional legitimacy.

Table 1. Composite Reliabilities, AVEs and Correlations among the Latent Constructs

D	1	2	3	4	5	6
1. PACAP	1.000					
2. RACAP	.392**	1.000				
3. Legitimacy	.015	.154*	1.000			
4. Performance	.265**	.280**	-.043	1.000		
5. interaction 1	-.101	-.178**	-.150*	-.235**	1.000	
6. interaction 2	-.086	-.025	.069	.067	.498**	1.000
MEAN	3.909	4.021	3.718	3.868	.061	.065
SD	.474	.476	.534	.491	.291	.258
Number of items	3	2	4	4	1	1
CR	.688	.610	.691	.773	--	--
AVE	.424	.443	.360	.462	--	--

Notes: Correlations shown in bold are statistically significant at $p < .01$. The diagonal elements in bold represent the square roots of the average variance extracted [AVE]. The non-diagonal elements represent the correlations among the constructs. CR: composite reliability.

5.2. Hypotheses Testing

As stated above, the hypotheses were tested by SEM. Fig. 1 and Table 3 summarizes the results of

standardized estimates. Fig. 1 and Table 3 show the fully standardized path coefficient values of the estimated parameters in the causal model of dynamic absorptive capability and institutional legitimacy affecting the performance of clustered firms. The three explanatory variables have significant effects on the direct effect. H1 proposed that the potential absorptive capability was positively related to organizational performance [$\beta=.271, t=2.236, p<0.01$], H1 was supported.

Table 2. Summary of Goodness-of-Fit [GFI] Indices for SEM

Index	Value of index
χ^2	109.513
Degrees of freedom	77
Normed chi-square	1.422
RMSEA	.040
NNFI	.960
GFI	.950
CFI	.959
SRMR	.451
PCFI	.703
PGFI	.609

H2 predicted that the realized absorptive capability would positively influence the clustered firm's performance. The results indicated a positive and significant impact of RACAP upon organization performance [$\beta=.262, t=2.152, p<0.01$], H2 was therefore supported.

For institutional legitimacy- organization performance path, H3 hypothesized a positive relationship between institutional legitimacy and organization performance. The results found a significant direct effect on the performance of clustered firms [$\beta=-.204, t=-2.44, p<0.01$], which indicating that as the institutional legitimacy increases, the organizational performance decreased. H3 was therefore supported. H4 proposed that the interaction between potential absorptive capability [PACAP] and institutional legitimacy positively affect clustered firm's performance [$\beta=-.319, t=-3.985, p<0.001$], but the effect is also negative. The result rejected H4. H5 hypothesized that the interaction between dynamic absorptive capability [RACAP] and institutional legitimacy. The results found a positive and impact of interaction between RACAP and clustered firm's performance [$\beta=.29, t=3.809, p<0.001$], thereby supporting H5.

Fig. 1 and 3 present the fully standardized path coefficient values for each estimated parameter in the causal model of dynamic absorptive capability and institutional legitimacy affecting the performance of clustered firms. In terms of direct effects, the three explanatory variables have significant impact. H1 proposed that the potential absorptive capability was positively related to organizational performance.

PACAP has a significant effect on the performance of firms inside a cluster [$\beta=.347, p=0.025$], and RACAP also has a significant effect on the performance of the clustered firms [$\beta=.307, p=0.031$]; these results show that as clustered firms' dynamic absorptive capability increases, so does their competitiveness. Moreover, institutional legitimacy has a significant direct effect on the performance of firms within the cluster [$\beta=-.230, p=0.015$], and the effect is negative, indicating that as the institutional legitimacy increases, firms' performance declines. In the section of interactive effects, the interaction between PACAP and institutional legitimacy can affect performance [$\beta=-0.562, p=0.001$], and the interaction between RACAP and institutional legitimacy can also affect competitiveness [$\beta=.574, p=0.001$].

Table 3. Regression Analyses of the Models

Hypotheses	B	β	SD	t-value	p
PACAP→ Performance	0.347	0.271	0.155	2.236	0.025
RACAP→ Performance	0.307	0.262	0.143	2.152	0.031
Legitimacy→ Performance	-0.230	-0.204	0.094	-2.44	0.015
PACAP*Legitimacy→ Performance	-0.562	-0.319	0.141	-3.985	***
PACAP*Legitimacy→ Performance	0.574	0.290	0.151	3.809	***

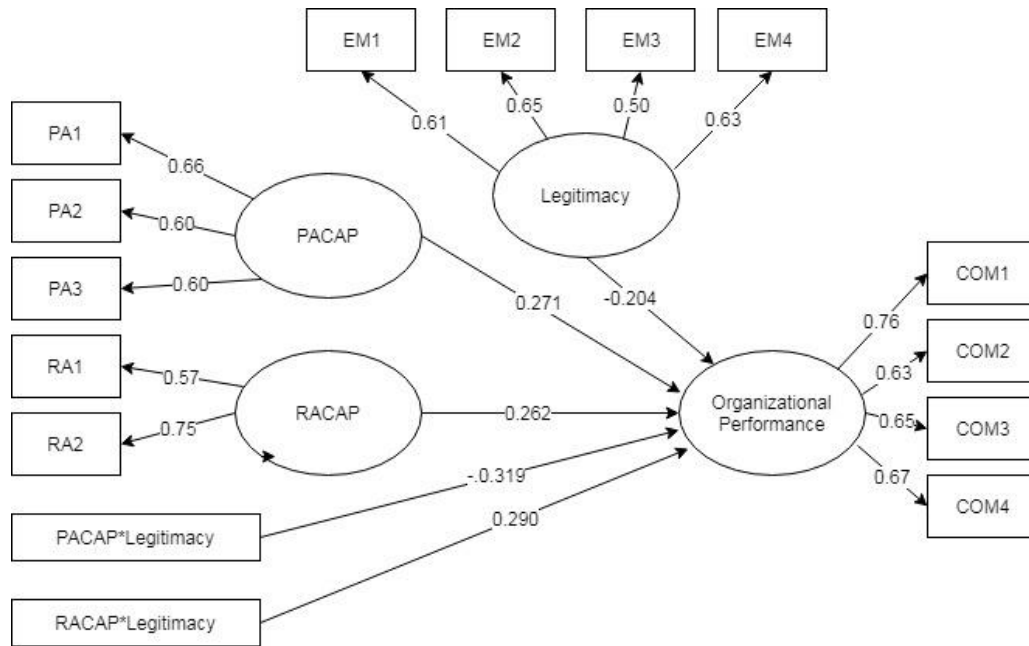


Fig. 1. Estimated SEM.

Fig. 2 and Fig. 3 are the diagrams on interactions. In Fig. 2, it shows that the interaction between PACAP and the institutional legitimacy affects the performance of firms within the cluster. In the context of low PACAP, institutional legitimacy does not have much impact on performance, but in the context of high PACAP, firms with low institutional legitimacy has higher organizational performance than firms with high institutional legitimacy. From Fig. 3, it shows that the interaction between RACAP and institutional legitimacy has the opposite effect on organizational performance. In the context of low RACAP, firms with low institutional legitimacy has higher organizational performance than those with high institutional legitimacy. Nevertheless, in the context of high RACAP, institutional legitimacy does not have much impact on the performance of firms within the cluster.

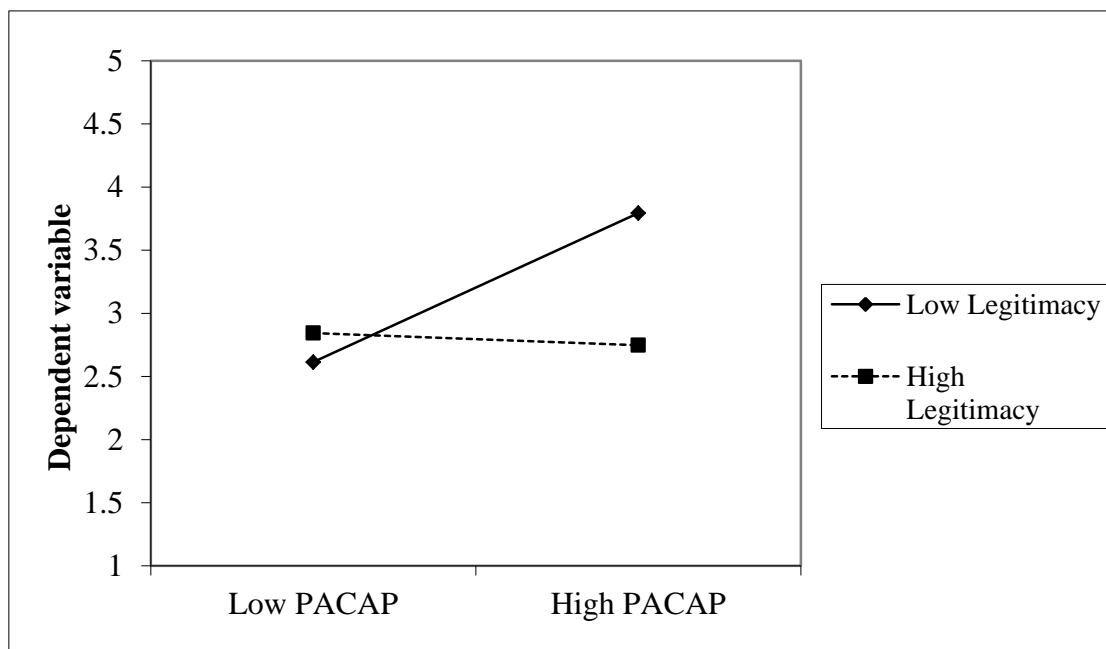


Fig. 2. Interaction between potential absorptive capability [PACAP] and institutional legitimacy.

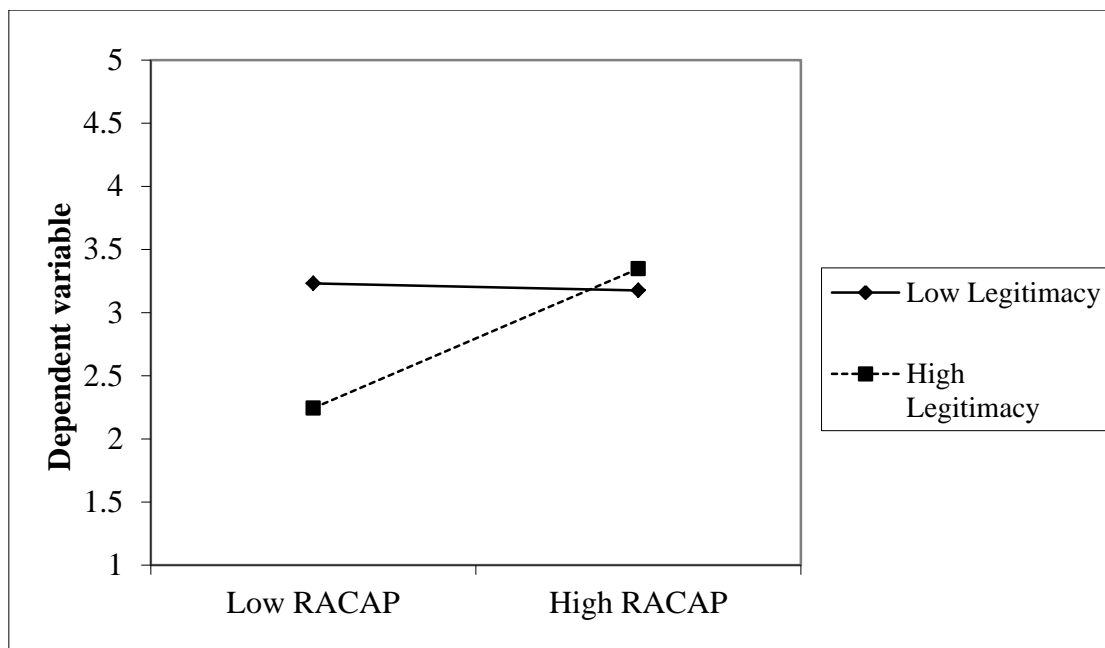


Fig. 3. Interaction between realized absorptive capacity [RACAP] and institutional legitimacy.

6. Discussion and Implication

This study explored the effects of dynamic absorption capabilities and institutional legitimacy on the organizational performances of clustered firms in emerging economies. By focusing on the competence-based and institutions perspectives at the firm level, this study provides additional empirical support for the importance of strategic management and extends the stream of literature on industry cluster in emerging economies China by examining the organizational performances. The results indicated that the dynamic absorptive capability and institutional legitimacy are also influence the organizational performance for clustered firms in emerging economies.

We developed five hypotheses to predict the direct effects of institutional legitimacy and dynamic absorptive capabilities on a clustered firm's performance. In our first set of hypotheses, we theorized on the basic direct relationships to determine how dynamic absorptive capability and institutional legitimacy contribute to a clustered firm's performance in an emerging economy China. In testing Hypothesis 1 we found support for the argument that potential absorptive capability contribute positively provides firms with the advantages to adapt and evolve in high velocity environments.

Being inside a cluster not only enhance firms' ability to acquire and assimilate outside new knowledge, which means that firms can absorb outside knowledge into the organization and become knowledge stored in the enterprise, but also allows firms to sustain a competitive advantage even in a rapidly changing environment [12].

In hypothesis 2, we observed support for the argument that realized absorptive capability will positively influence the clustered firm's performance in emerging economies. This capability refers to the ability to absorb and digest new knowledge, integrating it with the original knowledge within the firm and ultimately applying it to new processes, as well as the ability to develop and market new products. Overall, we find that the firms' operations in emerging economies need potential absorptive abilities to absorb, assimilate and consistently learn new knowledge to enhance the firm's knowledge and resources by acquiring and maintaining heterogeneous competencies. Additionally, firms need realized absorptive abilities to transform, reconfigure and exploit the incoming knowledge, integrating it and applying it to new processes

and new products and markets. Since the environment changes rapidly in the emerging economy, it is difficult for firms to predict and exploring opportunities from the environment. Thus, if firms can often absorb outside knowledge and generate knowledge new reconfigurations, it may help them to grasp new opportunities [72], which suggest that clustered firms in emerging economy must have better dynamic absorptive capabilities to absorb, transform, combine, and form a new knowledge system to respond to changes in the environment [73], [18].

In Hypothesis 3, we find that institutional legitimacy has a significant direct effect on the performance of firms within the cluster [$\beta=-.230, p=0.015$]. Since the effect is negative, it shows that as the institutional legitimacy increases, organizational performance declines. This result can be analyzed through legitimacy orientation proposed by [74]. Easton believes that “authority support” means how individuals view the authorities and their undertakers [75]. This attitude means whether the public is willing to express their own demands as a reference for political system decision-making options. In addition, Easton also proposed diffuse support, which means that the public would be willing to endure the policy output that might damage their own needs and interest. In other words, in order to gain the support from the local government and other cluster members, clustered firms may take actions that do not benefit them, and may not want to “rock the boat” by expressing their real needs. Eventually, this leads the firms to a performance dilemma.

The significant of H4, in the interactive effects section, the interaction between potential absorptive capability and institutional legitimacy can effectively affect organizational performance [$\beta=-0.562, p=0.001$]. This means that in a rapidly changing cluster environment, existing knowledge is highly prone to expiration. If firms can recognize the ability of the outside world to have valuable knowledge before the industry, for example, to get support from other firms in the group, a lot of cooperation can expand the use of resources [knowledge is also a resource]. The capacity to acquire, digest, and continuously learn may have a critical influence on firms’ ability to innovate and comparative advantage [62]. The interaction between dynamic capability application [RACAP] and institutional legitimacy can also effectively influence organizational performance [$\beta=.574, p=0.001$]. This means that the competition in the cluster is fierce and the competitors observe each other at a close geographic, which makes knowledge easily flow out, so the unique value of a firm is easy to be discounted over time. Therefore, if the firms in the cluster can absorb new knowledge from the outside, a new knowledge system formed through transformation, integration, and formation becomes more important. In addition, due to the unstable environment and institution of emerging economies, it is often difficult to pre-evaluate the results of strategies. Therefore, seeking institutional legitimacy is another important decision-making basis for organizational strategy.

6.1. Implications for Dynamic Absorptive Capability, Institutional Legitimacy, and Industrial Cluster Literature

Intellectually, there are five primary contributions of this study. First, this research summarizes and adds to the previous literature on the subjects of dynamic absorptive capability and institutional legitimacy. We have established a method of measuring industrial clusters in emerging economy, and have further explained the theoretical development of dynamic absorptive capability and institutional legitimacy. We thereby show that firms within a cluster need to more directly operationalize absorptive capacity as a capability: rather than employing proxies and prior knowledge arguments [34], p844. Furthermore, that the clustered firms should be more proactive in cultivating their potential absorptive abilities and realized absorptive abilities to improve their multiple sources and capabilities of competitive advantage.

Second, the clustered firms would generally benefit from building connections with other members inside the same cluster, from participate in cluster activities, from complying with the expectations of the

related groups and support the policies with local government to enhance institutional legitimacy. However, clustered firms should understand that if they always comply with local government policies, but do not face their own real needs, it will cause them to fall into performance dilemma. Our analysis not only helps extent the previous literature on institutional legitimacy, but also proposes an opposing view.

Third, while the previous literature on strategy management of clustered firms in emerging economies offered limited analysis of the positive impact of RBV and RBT perspective and institutional legitimacy upon organizational performance, it did not mention the reverse impact of legitimacy on performance dilemma. This study fills that gap by considering this reverse impact, so as to let clustered firms understand that they should not always submit to the requirements of the institution and do not dare to negotiate with the local related institutions or government.

Fourth, most previous investigations of industrial clusters have focused mainly on the overall interest of the entire group, or only allowed firms to accept certain interests passively. In contrast, our study explores how clustered firms should actively build up their capabilities and then combine with their original passive interest to maximize the competitive advantages to reply the environment rapidly changing and institutional unstable in emerging economy.

Fifth, our study highlights the important role of institutional legitimacy upon organizational performance for clustered firms in emerging economies. Based on an institutional perspective, the legitimacy functions were analyzed, identifying the specific conditions where legitimacy serves an important role in cluster success in an emerging economy. To enrich resource-utilizing and reduce their LOF, firms should seek to increase their dynamic absorptive capability. Given that a firm's behaviors and performance are shaped by institutions [51], managers should partner with other cluster members to secure knowledge and legitimacy. This is because, compared to stimulating the existing knowledge within the enterprise, the resources required to obtain external knowledge are much less costly [71], [32].

6.2. Implications for Practical Application

There are three practical conclusions of our analysis. First, from the aspect of industrial clustering, clustered firms in emerging economies should recognize that, when firm insides cluster, it is important to build dynamic absorptive capability. The ability is a set of organization routines and processes by which firms acquire, assimilate, transform, and exploit knowledge to produce a dynamic organizational capability [12]. There, this study believes that clustered firms shouldn't only have absorptive capability or dynamic capability, they should combine these two capabilities to dynamic absorptive capability, which has enough power to respond to fast-changing, unpredictable, intense competition, and short duration of competitive advantage. Second, in facing institutional pressure, managers not only must adopt a higher degree of isomorphism decision with their cluster partners to capture the recognition and support, but also learn how to communicate and coordinate with other members of the group in order to express their own needs. Third, when the dynamic absorptive capability is continuously enhanced, it is necessary to consider institutional issues because if firms want to survive and grow, in addition to constructing operational-oriented performance and competitive advantage, they must also be able to achieve legitimacy in the institutional environment [50]. Namely, to successfully operate in a turbulent emerging environment, we suggest that merely selecting a distinctive dynamic absorptive is not enough. Clustered foreign firms operating in such environments also need to account for complex interactions, which are contingent upon the firms' institutional legitimacy.

6.3. Limitations and Future Research Directions

This study has several limitations. First, although we have planned our questionnaires for our target subjects and our researchers in the fields had a proper control over how the questions were to be answered

by our subjects, it cannot be verified if these instructions were followed in each instance. Second, this study focused only on the bicycle firms that were already located in the emerging Chinese economy and had engaged in supply chain activities. Our study did not address the heterogeneity of domestic and foreign firms, which may influence the results. Unfortunately, because of data limitations, we were not able to address this in our models. Further studies may address the effects of this heterogeneity upon performances. Third, the impacts of various factors were not investigated within the theoretical framework proposed in this study. Therefore, further clarification may be required with regard to the institution among various factors. Finally, this study only focusses on the bicycle industry, and may not fully represent the situation of other industries, particularly high-tech industries. Future research in other industries is necessary to confirm these findings. We believe that the basic idea and framework may provide strong evidence for our argument if they are applied to different fields.

Our study provides the following suggestions for follow-up. First, for accuracy and distinctness, we have only studied one industry in China. We suggest expanding the scope of study to cover other industries in China and other countries to compare results. Similarly, the study on industrial clustering should be expanded to a transnational comparative study over a different period of time. Conducting a comparative study on countries, such as Taiwan and Vietnam, where concrete results are found in the bicycle industry, can be valuable and meaningful. Second, different countries with different institutional environments may have a very different impact on business operations. Researchers may consider cross-national comparative studies. For example, a follow-up study could look at how institutional legitimacy affects clustered firms' performance when the clusters are located in different countries. Third, clustered firms need to confront many problems while operating in emerging economies. They need to consider not only the factors discussed in this study, but also localization and government policy which may affect the development for clustered firms. Due to the limit of space, this present study does not include these issues in our discussion.

7. Conclusions and Contributions

This study makes several significant contributions to the strategy management literature. First, this study connects existing theories to provide an integrated theoretical framework for understanding the roles of dynamic absorptive capabilities and institutional legitimacy for clustered firms in emerging economies. To our knowledge, this study is the first attempt to integrate dynamic absorptive capability and institutional legitimacy perspectives for the purpose of exploring the organizational performance of clustered firms in emerging economies. Therefore, we have modeled the firms' business operations and empirically tested for the respective influences of these effects. The second contribution is in the context of clustered firms in emerging economies. Recent studies have suggested that firms that are embedded in the same emerging economy often rely on the effects of institutions [72], and also increasingly rely on external knowledge to foster innovation and to enhance their performance. Our study provides evidence to this literature by examining how dynamic absorptive capabilities and legitimacy may jointly influence the performance for clustered firms in emerging economies, an area largely overlooked in prior research. The third contribution is our results reveal the specific conditions under which always comply to institutional expectation and do not indicate the company's demand may lead to a performance dilemma. The fourth contribution is that few papers have analyzed the benefits and costs of clustering firms in emerging economies. We put forward a dynamic absorptive capability and an institutional legitimacy model to study how clustered firms can avoid risk and obtain benefits by clustering in emerging economies. The fifth, this paper departs from previous studies, the previous literature on industrial clusters focused mainly on the benefits to the whole cluster, without considering how individual firms, especially clustered firms operating in emerging economies,

build up dynamic absorptive capability to cultivate their own strengths. In conclusion, this study suggests that more dynamic absorptive capabilities will benefit the organizational performance for clustered firms in emerging economies. As a result, we deepen the understanding of which capability and performance contribute to the performance of clustered firms, and how these effects occur. Our findings suggest that dynamic absorptive capability and institutional legitimacy are not only important, but are also promising areas for future research on clustered firms in China, and elsewhere.

Conflict of Interest

We hereby state that we don't have conflict of interest among authors

Author Contributions

Sze Ting Chen wrote the paper; Ren-Cheng Zhang analyzed the data; Kai Yin Allison Haga conducted the date and all of the authors had approved the final version.

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Sze-Ting Chen is director of Master of Business Administration Program in CHINA-ASEAN International College at Dhurakij Pundit University. She earned her doctorate in Dept. of Business Management in National Sun Yat-sen University, Kaohsiung, Taiwan. Her research focuses on strategy management, innovation, international finance, institutionalization etc. Moreover, her work is built on the research done on application of financial organization and SME.



Ren-Cheng Zhang is director of Master of Education Management Program in CHINA-ASEAN International College at Dhurakij Pundit University. He earned her doctorate in Dept. of Industrial Education and Technology, National Changhua University of Education. His research focuses on data analysis and market forecasts, educational testing and assessment, introduction to e-learning theory and practice instructional design for multimedia. His work is built on the research done on application of digital

learning in vocational education.



Kai Yin Allison Haga is currently teaching in the International Master Program in Asia-Pacific Affairs in the School of Social Science at the National Sun Yat-sen University, Kaohisung, Taiwan. She earned her doctorate degree in the Department of History at the College of William and Mary, Williamsburg, Virginia. Her research focuses on the topics related to Asia-Pacific Affairs, including US involvement in Korea, US and the Pacific, US-China relations, China's Economic Statecraft, East Asian Economy Development, East

Asian security and diplomatic relations, and East Asian cultural studies.