

International joint ventures (IJVs),
asymmetric relationships, innovation, and performance:
An empirical study of Chinese automotive industry

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ABSTRACT

International joint ventures (IJVs) are an important way for firms to establish strategic alliance. For firms which have different organizational and cultural backgrounds, corporation becomes even more important. The status of cooperation between partners will affect knowledge sharing or transfer in IJVs, thereby influencing the innovative ability. Ultimately, it will have impacts on IJVs performance. From the perspective of asymmetric relationships between partners, this research hopes to find the impacts of the relationships on innovation and IJVs performance. The listed IJVs in Chinese automotive industry are chosen as samples. The study proposes hypotheses based on the social exchange theory. By verifying the hypotheses, the specific relationship between asymmetry, innovation and IJVs performance will be obtained, thereby further clarifying the development direction of the international joint venture.

Keywords: International Joint Venture, Asymmetry, Innovation, Performance.

1. Introduction

1.1 Background and Motivation

The IJV is an equity-based strategic alliance between international partners. The establishment of IJVs can help companies create economies of scale and reduce operational risks, while companies can learn new knowledge and technology (Beamish and Lupton, 2009). Besides, by combining the resources and capabilities of two or more companies, partners in IJVs can achieve goals that they cannot achieve on their own. Therefore, the establishment of IJVs has become a strategy for companies to ensure survival and maintain development. Commonly, IJVs are formed by companies with different organizational and cultural characteristics. These factors will have effects on the development of IJVs, so cooperation between partners becomes even more vital.

IJVs in emerging markets established by foreign firms and local firms are characterized by asymmetric relationships between partners, unlike in IJVs in a developed country context. And it has become an increasingly complex issue in recent years. Generally, in IJVs in emerging markets, foreign partners have certain advantages in resources and technology. Similarly, local partners are prominent in local markets and network. Meanwhile, due to the different cultural backgrounds and management modes of foreign and local partners, the information exchange within IJVs will be affected. Owing to these, the asymmetric relationships will arise in various aspects, such as resource, information, financial strength, and power. Since the asymmetric relationship exists in many significant elements that affect the development of IJVs in emerging markets, this research considers the asymmetric relationship as the factor of IJVs performance, while studying its relationship with innovation in IJVs.

1.2 Research Questions

The research question is what impacts of asymmetric relationships will have on IJVs innovation and IJVs performance. This research studies the relationship between

partners from the perspective of the asymmetric relationship. Also, since knowledge has direct impacts on innovation in firms, the research reflects the knowledge exchange by studying innovation in IJVs.

Researches on IJVs focused on issues about the success factors of IJVs, how macro factors affect the performance of IJVs, and the importance of knowledge in IJVs. Some empirical researches focused on identifying the relevant outcome of IJVs, such as innovation (Chan, Luk, and Wang, 2005), IJVs performance (Luo, Shenkar, and Nyaw, 2001), stability (Fang and Zou, 2010), and survival (Delios and Beamish, 2001). However, most of these studies analyzed one or two aspects of IJV outcomes separately. There is no systematic analysis of the sequence of different outcomes, such as innovation and overall performance. Another research topic concerning IJV performance is how macro factors such as institutional regimes and national cultures influence the formation and performance of IJVs (Tihanyi, Griffith, and Russell, 2005; Beugelsdijk et al., 2018). While those studies have implicated that there could be information asymmetry between partners with different culture background, few studies investigated the multi-faceted aspects of asymmetric relationships. Besides, some researchers emphasized the importance of knowledge access, knowledge sharing, knowledge transfer, and knowledge protection within IJV, which are considered to be critical success factors of IJVs and determinants of IJVs instability (Steensma and Lyles, 2000; Oxley and Wada, 2009).

According to the discussion above, the existing research mainly studies the factors affecting the development of IJVs and the importance of knowledge within IJVs. However, the relationship between these aspects of IJVs is not considered. For example, cultural background as a macro factor may lead to asymmetric relationships between partners. How does this asymmetric relationship affect IJVs performance? Another example is, the spread of knowledge can have an impact on the innovation of IJVs. In the presence of an asymmetrical relationship, will innovation buffer its impact on IJVs performance? Still, the research gap exists in considering the relationships among

cooperative relationship, knowledge, and IJVs performance.

1.3 Research Objectives

This study considers the asymmetric relationship between partners as a factor affecting IJV performance and studies its impact on IJV performance. At the same time, the effect of the asymmetric relationship on innovation is studied. Asymmetric relationships have impacts on IJV innovation, further affecting IJV performance. By studying the relationship between the three, the influence of the cooperation status between the partners on the development of IJV will be obtained, which will give the guidance of the future development direction of IJV.

1.3.1 Asymmetry in IJV partners

The existing literature has given some thoughts on the impact of asymmetric relationships on IJV performance (Meschi et al., 2017). This research proposes that the asymmetric relations between partners in IJVs not only have effects on innovation but also have impacts on IJV performance. By testing the relationships between these three terms, it can help partners find methods to adjust partnerships, thereby improving IJV innovation and IJV performance.

In this study, the asymmetry between partners will be proposed as the main factor of innovation and IJV performance. The asymmetric partnership will be investigated from different perspectives, such as *resource, information, and financial strength*. IJVs are a model for cooperation between various partners. Compared with foreign partners, local partners in emerging economies (e.g., China) may have insufficient resources and technology. As a result, their partnerships are likely to be asymmetric in terms of resource endowments, and local partners may rely on resources such as knowledge and technology of foreign partners'. Similarly, foreign partners require access to local information for localized marketing and operation (Sun et al. 2012). More importantly, it is widely believed that IJVs can promote the launch of new products, but less is known about whether the asymmetric relationship between such partners is beneficial

to the development of IJVs, and what impacts on the performance of IJVs. Besides, the asymmetric financial strength of partners in international joint ventures is also a crucial component of asymmetric partnerships. High financial strength is the source of informal power in the exchange relationship. These present a significant research gap.

1.3.2. Innovation in IJV

In this research, we explore the extent to which innovation is a critical motivation in IJVs. The IJV is a crucial channel for partners to learn from each other and transfer knowledge. To some extent, the process of enterprise internationalization is the process of learning and knowledge transfer (Tsang, 2000). IJVs provide a platform for both parties to study each other so that both enterprises have the opportunity to acquire knowledge from their partners and improve their capabilities (Zander and Kogut, 1995). On the one hand, foreign enterprises can learn the management knowledge of international alliances and access to the local network through IJVs (Tsang, 2002). On the other hand, the local partners can learn the advanced technology, management experience, and governance model from foreign companies, to promote their development. Thereby, the improvement of both partners can help the technological upgrading and structural adjustment of IJVs.

The most common outcome of knowledge exchange is innovation. A good process of knowledge exchange can have positive impacts on IJVs innovation. Similarly, in a scenario where knowledge exchange is not smooth, the development of innovation will be hampered (Martin and Emptage, 2019). Innovation is the development and commercialization of ideas that bring new products, services, and processes which benefit the company (De Leede and Looise, 2005). The innovation process includes a range of activities such as discovering new market opportunities, adjusting production processes and product characteristics, establishing new market channels, absorbing and integrating knowledge (Zhou and Li, 2008). Strong innovation capabilities mean that companies can conduct more efficient innovation processes that improve innovation performance. In other words, strong innovation capabilities can help companies launch

new ideas and products faster and better. Many IJVs place a high value on knowledge and innovation and see them as an essential part of their strategy (Nonaka and Takeuchi, 1995). They view knowledge and innovation as a critical source of maintaining their competitive advantage (Nonaka and Takeuchi, 1995).

1.3.3 Innovation and IJV performance

This study focuses on the extent to which innovation, conducted under asymmetric relationships between IJV partners, affect IJV performance. Performance is vital for IJVs. Excellent performance can further promote the development of IJVs. The unsatisfactory performance will have effects on the development of IJVs and may even lead to the termination of IJV. There is little empirical evidence to support the assertion that there is a positive relationship between IJV innovation and IJV performance. Although several studies have examined factors that may affect IJV innovation (Zejan, 1990; Belderbos, 2003), few have studied the impact of IJV innovation on performance. Based on past researches (Geringer and Hebert, 1991), there are two main methods to investigate IJVs performance. One is to use objective metrics of IJV performance. Another is to measure the parent company's subjective satisfaction with IJVs subjectively. This research plans to adapt to the first method. It means IJV performance will be studied by using objective performance metrics, such as management efficiency, capital efficiency, and profitability.

1.4 Theory

This study builds on the social exchange theory. From the perspective of social exchange (Blau, 1964), the main concepts that characterize relationships between IJV partners include power, asymmetry, reciprocity, dependence, control mechanisms, and trust (Das and Teng, 2002). For example, when one party has stronger financial strength than the other party, it will generate financial asymmetry. The asymmetric relationship will make one party require more demands from the other party. It will result in power asymmetry. The dominant party has greater control and decision-making power in IJVs.

This asymmetric partnership may have a positive impact on the joint venture, or it may hurt IJVs performance, and may even lead to the termination of IJVs. Based on the above discussion, this study suggests that the asymmetry relationship between partners has a close relationship with the development of IJVs. The relationship between asymmetric partnerships and IJVs performance deserves to be studied.

Based on the social exchange theory, this research focus on the effects of asymmetric relationships on IJV innovation and IJV performance. The answer to this question is not straightforward. Meanwhile, this research is relevant to IJVs in emerging markets. Foreign partners are often more potent in technology and resources, and local partners are more dominant in terms of local markets and network. Owing to these, the asymmetric relationships will exist between foreign partners and local partners. This asymmetric partnership violates the principle of reciprocity, which is the basic building block in social exchange theory.

This research will build on the social exchange theory. Social exchange theory focuses on the interactions between partners in IJVs (Kwon, 2008). It holds that partners recognize that they have an ongoing relationship which will continue to interact in the future, and line with the establishment of reciprocal. Such behavior helps to enhance IJVs performance. Besides, social exchange theory suggests that exchange relations develop based on interdependence. In such a context like IJVs in emerging markets, the rise of asymmetric relationships can possibly destroy the interdependence. This creates conflict. This study needs to study the impact of asymmetric relationships on IJVs, to provide suggestions for alleviating the relationship between partners in IJVs.

1.5 The Empirical Context

This research takes the Chinese automotive industry as the empirical context. On the one hand, because the IJV has played an important role in promoting the development of the Chinese automotive industry, the development of IJVs in the Chinese automotive industry has now reached a turning point. Future directions and trends need to be

studied. On the other hand, the asymmetric relationship between partners in Chinese auto joint ventures is more prominent. The foreign partners have advantages in terms of resources and technology, and the Chinese partners are predominant in terms of the local market. For example, SAIC Volkswagen Automotive Co., Ltd is an IJV established by SAIC Motor Corporation Limited and Volkswagen Group. In the process of cooperation, the asymmetric relationship exists between the two parties in terms of development strategy, management methods, and management emphasis. The asymmetry between partners affects the overall development of IJV.

A good understanding of the innovation capability and overall performance of IJVs in China is essential for IJVs to better adapt to development trends and to further the rise of IJVs in emerging markets. As emerging markets move towards the center of the world economy, the development and diffusion of innovation contribute to their long-term success and sustainability. In particular, China hopes to transform from the world's manufacturer to the world's innovator (Casey and Koleski, 2011). Since companies are the main participants in achieving innovation, the objectives of innovation policy are companies. The Chinese government has attracted a large number of foreign investment through the implementation of the "exchange market for technology" policy, and many IJVs have been established. IJVs play a vital role in the rapid development of China's economy. China is one of the most important emerging markets. With China's 30-year transition to a market economy, China has undergone a significant restructuring on the innovation system. In 2006, China further announced the "National Medium- and Long-Term Science and Technology Development Programs (2006-2020)", which focused on the strategic role of innovation, setting long-term goals and specific measures.

1.6 Methodology

This research is an empirical study of the Chinese automotive industry. It uses quantitative analysis method to study the relationships between asymmetric relationships, innovation, and IJV performance. The initial plan of data collection can

be divided into five steps. The first step is to find the list of Chinese listed automotive firms and pick up firms which are IJVs. Then, each firm needs to be searched on the State Intellectual Property Office (SIPO) and find basic information about each patent. The third step is to search each patent again by another link on SIPO and get the citation record. Next, the data need to be organized into forms and classified into three types. Finally, specific research variables should be identified by observing data. By analyzing the data in models, such as regression models, and combining the hypotheses based on the social exchange theory, the relationship between the asymmetric relationships, innovation, and IJV performance, will be verified.

1.7 Contribution

1.7.1 Conceptual Contribution

This research makes contributions to depth study on different types of asymmetry as factors of innovation and performance within IJVs. The asymmetric relationships mainly include information asymmetry, partner resource symmetry, and financial asymmetry. The factors of these types of asymmetry are explained. Meanwhile, the kinds of innovation and performance in IJV in emerging markets are introduced.

1.7.2 Empirical Contribution

The research considers the asymmetry as an issue that is relevant to IJV innovation and IJV performance. The relationship between asymmetry, IJV innovation, and IJV performance is not straightforward. Past studies have been weak in predicting IJV performance. This research will suggest under what partner relationships IJVs are likely to be successful. Besides, the research context is the Chinese automotive industry. The study can give guidance on the development of IJVs in emerging markets.

2. Literature Review

The joint venture is an enterprise or partnership formed by two or more companies, individuals, or organizations (Young and Bradford, 1977). Investors share ownership and profits, legally manage the business entity, and assume operational risks (Root, 1988). The parties in joint ventures jointly operate, jointly control, share risks, and profits to achieve a particular strategic goal. Meanwhile, parties in joint ventures seek mutual resources and learn knowledge from each other through cooperation. IJV is an equity-based strategic alliance between international partners. It differs from the joint venture in that at least one parent company's headquarters is outside the country in which the joint venture is located (Shenkar and Zeira, 1987). IJV has the following characteristics. It is an independent company with at least two parent companies. One of the parent companies is a foreign company. The parent companies jointly contribute capital, and the capital contribution ratio is limited. The parent companies share decision-making power (Groot and Merchant, 2000; Osland and Cavusgil, 1998). In emerging markets such as China, IJV is a particularly valuable platform for both parties. For local partners, they can adopt advanced technology and management capabilities from foreign partners. For foreign partners, they can access to local networks and expand local markets (Fang and Zou, 2010).

2.1 Past research on IJV performance

2.1.1 Different types of IJV performance

IJV performance can be embodied in these aspects, such as IJV management efficiency, capital efficiency, and profitability (Ainuddin et al., 2007). Measuring performance in an international business environment is particularly challenging due to cross-border changes in computing standards, the nature of business boundaries, and the geographic scope of operations (Hult et al., 2008). Also, the formation of IJV is not always to achieve traditional business objectives, such as profit and market share, but to attain qualitative goals such as organizational learning, choice of cooperation or prevention of competition (Contractor and Lorange, 1988). Some researchers believed that business performance might vary depending on the measurements used. Abdel

Maksoud, Asada, and Nakagawa (2008) argued that traditional accounting methods do not provide clear information about organizational effectiveness and competitiveness. Similarly, Ratnatunga and Montali (2008) thought that financial performance indicators are not sufficient when companies begin to use shareholder value as their primary long-term goal. Mohr (2006) pointed out that there is no research to correctly analyze the differences in the way partners measure IJV performance. Therefore, the measurement of IJV performance should be viewed from different perspectives. Although there are a large number of studies focusing on international business performance (Hult et al., 2008), and IJV performance, only a few studies have analyzed how companies choose their performance measurement.

2.1.2 Different factors of IJV performance

IJV performance can be affected by many factors, including enterprise strategy, market environment, partner selection, and parent company's control over IJV, etc. Generally speaking, it can be summarized into three types: factors related to the parent company, factors related to IJV and external factors.

The factors related to the parent company mainly include the internal characteristics of the parent company and the matching degree between the parent company. From the perspective of the interior characteristics of the parent company, there is no uniform conclusion on the impact of the size of the parent company on IJV performance. Some scholars thought that the larger the foreign parent company, the worse the performance of IJV (Isobe, Makino and Montgomery, 2000). Some scholars believed that the larger the host country's parent company is, the stronger the cooperation with foreign companies will be, which will restrict the cooperation between the two sides. Thus harming the performance of IJV (Merchant , 2002), But there are also some scholars' research suggested that there is no significant correlation between the two. From the perspective of the degree of matching between the parent companies, there is also no consistent conclusion on the influence of the cultural distance between the parent

companies on the performance of IJV. In terms of stability to measure IJV performance, Sim and Ali (2000) believed that the cultural distance between parent companies could promote the stability of IJV. Other researchers thought that there is a negative correlation between the two, that is, the higher the cultural distance between parent companies, the more unfavorable to the stability of IJV (Luo and Park, 2004). If financial metrics are used to measure performance, existing research assumes that there is no significant relationship between the two.

The factors related to IJV mainly include IJV's characteristics, contract factors, management characteristics, supervision and control, and human resources. For example, some studies suggested that foreign parent leading decision-making favor IJV performance (Eroglu and Yavas, 1996), while others argued that foreign parent leading decision-making are not conducive to IJV performance (Beamish, 1986). Besides, external factors include industry characteristics and the policy environment.

In general, in the study of various factors mentioned above, most studies focused on the impact of the cultural distance between parent companies and IJV's characteristics on IJV performance. The factors of production, technology, R&D strategy, and management characteristics are less studied. However, it is generally believed in the strategic alliance literature that these factors have a significant impact on the management and development of the alliance. Also, from the perspective of global management, the parent company's attitude towards cooperation, the relationship with partners, and the strategic goals of the partners should be further studied.

2.1.3 IJV performance in emerging markets

Several factors are affecting IJV performance (Reus and Rottig, 2009), including equity imbalances and contract renegotiations (Gaur and Lu, 2007), bargaining power and management controls (Yan and Gray, 1994), the role of key stakeholders (Brouthers and Bamossy, 1997). Recent researches highlighted other factors affecting IJV performance, especially in emerging markets, such as autonomy (Newbury, Zeira and

Yehekel, 2003), R&D intensity and ownership structure (Zhang, Li, Hitt, and Cui, 2007), products Innovation (Zhou and Li, 2008), cultural differences between partners (Meschi and Riccio, 2008), resources and entry strategies (Gaur, Kumar and Singh, 2014), knowledge transfer (Khan, Shenkar and Lew, 2015).

Interdependence or governance structures are not sufficient to enable joint ventures to successfully conduct business in emerging economies (Isobe et al., 2000). The turbulent economic and political environment in emerging economies has made the behavior of partners in IJVs more opportunistic. In an evolving alliance, both partners must make efforts to increase mutual trust and promote mutual commitment. In emerging economies, the impact of environmental uncertainty on relational capital and IJV performance cannot be ignored. Despite the valuable contributions of these studies, there is still no clear understanding of the process of relationship development between partners involved in IJVs in emerging markets and the impact of such partnerships on IJV performance.

2.2 Past research on innovation in IJV

2.2.1 Different types of IJV innovation and innovation process

Innovation is the core issue of management research. It is seen as the creation of new ideas and their implementation in new products, services, or processes (Tabeau, Gemeser, Hultink and Wijnberg, 2017). The Oslo Manual (OCDE, 2005) identified four types of innovation from the perspective of the firm: product, process, marketing, and organizational innovation. Product innovation refers to changes in the quality of goods or services. Process innovation represents a change in production or delivery methods. Marketing and organizational innovation involve the implementation of new marketing and organizational methods. These four types of innovation have varying degrees of novelty and can, therefore, be incremental or radical innovations (Chiva et al., 2014).

The IJV innovation process is related to many factors. Sartor and Beamish (2014)

argued that the internal and external factors of the company have an impact on the organization's innovation process. Previous research (Lodh, Nandy and Chen, 2014) proposed the role of ownership structure, which allows companies to direct the required resources necessary for innovation activities in the organization. Besides, Sariol and Abebe (2017) found a strong correlation between power and innovation activities. In addition, existing research has found that knowledge sharing is essential for innovation process in organizations (Sanz-Valle, Naranjo-Valencia, Jiménez-Jimenez, and Perez-Caballero, 2011). If the parent company creates a pleasant learning environment for the joint venture, the partners can learn from each other, or learn from external organizations (such as suppliers, distributors, customers and competitors) ,and then transform the newly acquired knowledge advantage to innovation (Fang, Fang, Chou, Yang, and Tsai, 2011). Jimenez-Jimenez and Sanz-Valle (2011) suggested that organizational learning can help to raise the level of innovation.

2.2.2 IJV innovation in emerging markets

In emerging economies, IJVs are a vital tool for local partners to gain expertise in R&D and technology management from foreign partners. And IJVs are also a significant channel for foreign partners to learn local business practices, customer characteristics, and government relationships from local partners (Lane and Lubatkin, 1998; Wong and Leung, 2001). By establishing IJVs, partners can jointly acquire new knowledge and develop organizational systems, rules, routines, and processes which are specific for IJVs. In other words, partners integrate existing knowledge, create new knowledge bases for IJVs, and institutionalize new knowledge in the context of IJV (Fang and Zou, 2010). The shared knowledge generated by joint learning will create an interdependence that will help to stabilize the joint venture. Promoting knowledge sharing can help companies fill gaps in knowledge, improve innovation performance, and improve efficiency. Innovation is defined as a new concept for IJVs that creates added value directly for the business or indirectly creates added value for the customer. This added value, which is reflected in the product, process, service or work

organization, management, or marketing system, has a significant impact on IJVs performance. Zhang (2007) argued that IJV is an important tool for local firms to gain access to advanced technologies and innovations. Foreign enterprises provide advanced technologies for IJVs to enhance their absorptive capacity. It is a process of knowledge transfer and accumulation. The strong absorptive capacity can help IJVs improve innovative capability (Zhang, Li, Hitt, and Cui, 2007). Most of the literature focused on the impact of knowledge exchange or learning on partnerships and IJVs stability. More researches about the effects of partnerships on innovation and IJVs performance needs to be conducted.

2.3 Chapter Conclusion

2.3.1 Summary of existing perspectives

The current literature studied the types of IJV performance, the influencing factors, and the situation in emerging economies. Due to the research background and the different research methods, the results are inconsistent. Researches on innovation focused on the types and processes of innovation. There are few studies on the relationship between innovation and IJV performance. The empirical results of the relationship between innovation and performance have produced controversial results (Rosenbusch, Brinckmann, and Bausch, 2011). Some studies showed that there was a close relationship between innovation activities and firm performance in IJVs (Gunday, Uluseay, Kilic, and Alpkkan, 2011; Azar and Drogendijk, 2014; Silva, Styles, and Lages, 2017;). Danneels (2002) found that product innovation could improve companies' competitiveness and help them update their business activities and performance. On the other hand, Silva et al. (2017) found that market innovation has a negative impact on performance. Li et al. (2017) suggested that institutional factors and environmental vitality regulate the relationship between innovation and performance. But some researchers (Santos et al., 2014) found no significant relationship between innovation and financial performance. For instance, Tabeau et al. (2017) stated that innovation does not lead to better performance. There are some researches about the classification

of asymmetry relationships and their situation in emerging economies. The relationship between asymmetric relationships and IJV performance remains unclear.

2.3.2 Research Gap

As the discussion above, the research gap can be found in the research area about asymmetric relationships, innovation, and performance in IJVs. The measurement of performance in IJVs is inconsistent. The relationship between asymmetric relationships, IJV innovation, and IJV performance is unclear. Notably, the discussion about the impact of the asymmetric relationship on IJV innovation, and IJV performance has not been stated very clear. By this research, it is hopeful that these research gaps can be filled. The study can contribute to the future development direction of IJVs in emerging markets, especially in dealing with partnerships, promoting IJVs innovation, and improving IJVs performance.

3. Theoretical Background

3.1 An introduction of social exchange theory

Social exchange theory focuses on the relationships and interactions between partners in IJVs (Kwon, 2008). In IJVs, partners recognize that they have an ongoing relationship which will continue to interact in the future, and in line with the establishment of reciprocal and communication relationships (Kenrick et al., 2010). By completing their tasks, they help partners achieve their goals and develop norms, and all partners should effectively accomplish their tasks (Fauchart and Cowan, 2014). They can usually monitor each other's performance. They may impose sanctions on poorly performing parties and give feedback on how they can function more effectively in the future (Tjosvold, 2015). Such behavior helps to enhance IJVs. Besides, social exchange theory holds that trust is the most important key factor in relationship exchange (Blau 1964; Lambe et al., 2001). Trust is described as trusting the reliability and integrity of the partners (Morgan and Hunt, 1994). Research on IJVs has emphasized the importance of developing social capital, especially trust. Many studies

consider trust to be a critical factor in improving IJVs performance (Baughn et al., 2011; Deitz et al., 2010).

Homans (1958) proposed the concept of social behaviors based on exchange. Social exchange theory is a psychological and sociological theory that studies the social behaviors in the interaction of two parties. It views social interactions as based on the resources or behaviors of value over time (Cook, K.S., 2013). The theory includes four key assumptions (Molm and Cook, 1995). They are: (a) the motivation of behaviors is to increase benefits and avoid losses; (b) exchange relations develop based on interdependence; (c) parties keep repetitive exchange relations with specific partners over time; (d) valued outcomes obey the economic law of diminishing marginal utility.

A basic principle of social exchange theory is that as time goes by, the relationship between partners develops into trust, loyalty, and mutual commitment. Therefore, both parties need to comply with specific exchange rules. Interdependence is regarded as a defining characteristic of social exchange (Molm, 1994). Reciprocal interdependence emphasizes contingent interpersonal transactions. One party's actions lead to the other's reactions. If a person provides benefits, the recipient should respond in the same way (Gergen, 1969). Reciprocal exchange is considered as one that does not include explicit bargaining (Molm, 2000, 2003). One party's actions depend on the other's behavior. Due to this, interdependence reduces risk and encourages cooperation (Molm, 1994). This is in line with one of the four key assumptions of the theory. The motivation of behaviors is to increase benefits and avoid losses. To sum, social exchange theory views the alliance as a series of repeated exchanges and focuses on the process in which partners become mutually inter-dependent. And thus the law of reciprocity dominates in the analysis of alliance performance. It contrasts with economic theories which focus on one-off, separate exchanges. For reaching beneficial agreements, parties of exchange may also follow negotiated rules (Cook, Emerson, and Gillmore, 1983). Compared with the reciprocal exchange, negotiation agreements are often more explicit. The obligations and duties in agreements are more transparent and detailed

(Cropanzano and Mitchell, 2005). In general, reciprocity produces a better working relationship than negotiations. It makes individuals more trusting and committed to each other (Molm, Takahashi, & Peterson, 2000). Also, exchanges through negotiations result in more useless power used and less equality (Molm, 1997).

3.2 Asymmetry in social exchange theory

Asymmetric relationships between partners can change over time. This asymmetric partnership violates the principle of reciprocity. Social exchange theory believes that the behavior of partners is characterized by exchange relations. In the exchange relationship, reciprocity is the basic building block (Blau, 1964; Homans, 1958). Inter-organizational communication is a continuous process of reciprocity, and individual behavior depends on the rewards of others (Molm, 2003). When at least one partner in the exchange relationship acts, and another partner reacts, a new round of exchange begins (Cropanzano and Mitchell, 2005). Since partners are uncertain about their debt to each other, they continue to generate and reinforce a strong sense of responsibility for debt repayment (Muthusamy and White, 2005). As long as the exchange model is considered fair, partners are more likely to take further reciprocal actions (Luo, 2008). On the contrary, when one party does not repay its debts during the cooperation process, it violates the principle of reciprocity. For example, one party continues to provide resources to the IJVs while another party does not repay. The reciprocal behaviors between partners will be destroyed. At this point, an asymmetrical relationship will arise between partners.

3.3 Past research on asymmetry in IJV

3.3.1 Information Asymmetry

Information asymmetry means that the parties have different understandings of relevant information in the market economy activities. People who have sufficient information are often in a favorable position, while those with inadequate information are in a relatively disadvantageous position (Reuer and Koza, 2000). If one party uses this

asymmetry to mislead the other party, this asymmetric information between potential partners will become a problem. For example, one partner in IJV may deliberately provide misleading or incomplete information about the resources it has. In this case, this partner may intentionally and unethically use information asymmetry to achieve the desired results. Various measurement methods for information asymmetry are proposed in the literature. For example, information asymmetry tends to decrease with companies size (Vermaelen, 1981), increase with R&D expenditure (Aboody and Lev, 2000), and grow with growth opportunities (Smith and Watts, 1992).

3.3.2 Partner Resource Asymmetry

Partner resource asymmetry refers to the differences in resources provided by partners. It can be explained from the resource-based view (RBV). RBV emphasizes that each partner will bring valuable resources to the joint venture. It is then suggested that such a resource portfolio should provide a joint venture with a competitive position, especially when there is potential complementarity between resources contributed by different partners (Das and Teng, 2000). The greater the resource asymmetry between IJV partners, the higher the unreliability of their resource portfolio (Hill and Hellriegel, 1994).

3.3.3 Financial Strength Asymmetry

Financial strength asymmetry means that one of the partners has stronger financial strength than another. When this asymmetry arises, the stronger party may consider the lack of financial strength of the partner as a risk factor associated with its ability. The higher the perceived risk, the stronger and more demanding it is for the weaker party. This situation has the opportunity to result in power asymmetry. Power asymmetry means that one party has influence or control over the other. When there is such an asymmetric relationship, communication between partners will be hindered. Only by reducing or avoiding such relationship can the alliance work well.

3.3.4 Asymmetry in IJVs in emerging markets

Many studies argued that issues related to partners are critical to the success of IJVs (Ireland, Hitt, and Vaidyanath, 2002; Zeng and Chen, 2003). Given that IJVs are rarely established between firms with the same company-specific characteristics or equivalent resource base, researchers have shown strong interest in the performance implication of partner diversity and the asymmetry of partnerships (Iriyama, Shi, and Prescott, 2014). For example, from the learning perspective, differences in partner resources provide more space for learning between partners (Harrison et al., 2001). In IJVs co-established by both partners from developed countries and developing countries respectively, learning motivation is strong because of their high degree of partner asymmetry in technology and host country knowledge (Steensma and Lyles, 2000). Previous studies in this area have achieved inconsistent and even contradictory conclusions. Some studies argued that asymmetric relationships between partners have positive impacts on the survival of IJVs (Hill and Hellriegel, 1994; Kogut, 1988), while some studies reported no significant relationships between asymmetric partnerships and IJVs survival (Park and Ungson, 1997). Therefore, the impact of asymmetric partnerships on IJVs needs to be further studied.

4. Research context

4.1 IJVs in China

Sino-Polish Ocean Shipping Corp, which was founded in 1951, was the first IJV in China. It was a sea-going shipping company established by China and Poland (Sohu, 2018). In the 1960s and 1970s, China also established some IJVs with Albania and Tanzania. However, these IJVs had little impact on the development of the Chinese economy. The rise of IJVs in China was after China's reform and opening in 1978. In 1983, the number of IJVs in China exceeded 100. In 1988, the number of companies exceeded 10,000. IJVs developed in many industries, such as textiles and manufacturing (Ma et al., 2015).

With the deepening of global economic integration and industrial division, the automotive industry of emerging countries, represented by China, Brazil, and India, has developed rapidly. Their market position in the global automotive market has been gradually enhanced (Yang et al., 2017). The strong automotive countries such as the United States, Japan, Germany, and France have been affected by the economic crisis, and the output has fluctuated significantly, but the overall development is stable. After nearly ten years of rapid development, the Chinese automotive industry has returned to a steady growth state (Yang et al., 2017). However, there are still gaps between the Chinese automotive industry and the strong automotive countries in R&D capacity, supply system, and production mode.

The IJV plays a significant role in the development of automotive innovation capabilities in the host countries like China. About the development of IJVs in the Chinese automotive industry, in the 1990s, the Chinese government has clearly stated that the automotive industry is a national pillar industry (Thun, 2004). Foreign automotive companies are banned from investing independently in China. More specifically, although the Chinese government carried out the “exchange market for technology” strategy to facilitate indigenous firms to pursue innovation by collaborating with developed-country partners (Zheng, 2014), the wholly foreign-owned vehicle manufacturers have only been allowed to enter China by partnering with Chinese state-owned enterprises through the establishment of joint ventures (Motohashi and Yuan, 2010). As a result, a large number of IJVs have emerged in this context.

The details can be seen from the tables below. These two tables are created by data collected from the website of the National Bureau of Statistics of China. Table 1 is about the total numbers of enterprises in the manufacture of automobiles and total numbers of enterprises in the manufacture of automobiles with Hong Kong, Macao, Taiwan, Foreign Funds. Table 2 is about total assets in the manufacture of automobiles and total assets of enterprises in the manufacture of automobiles with Hong Kong, Macao, Taiwan, Foreign Funds. Since the data still need to be sorted out, the specific number of joint ventures haven't been gotten yet. However, it still can find IJVs develop rapidly in the Chinese automotive industry from these tables.

Table 1

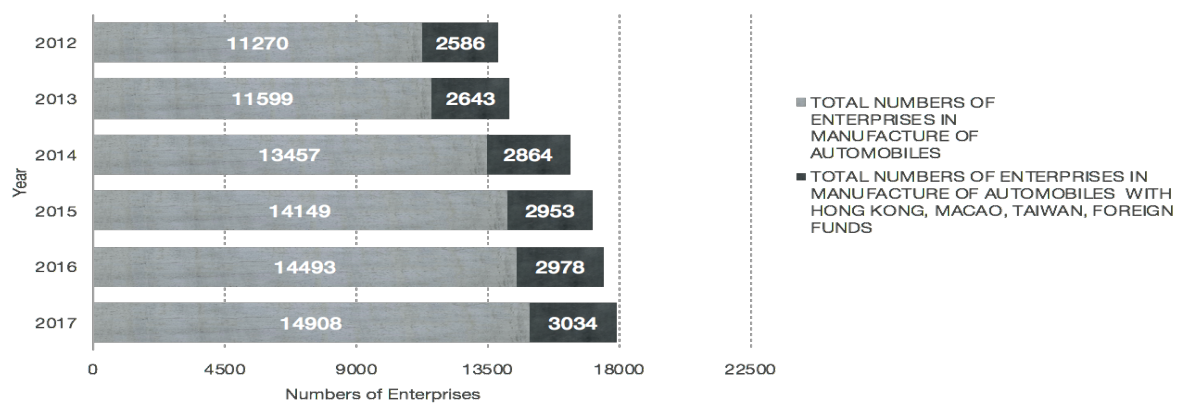
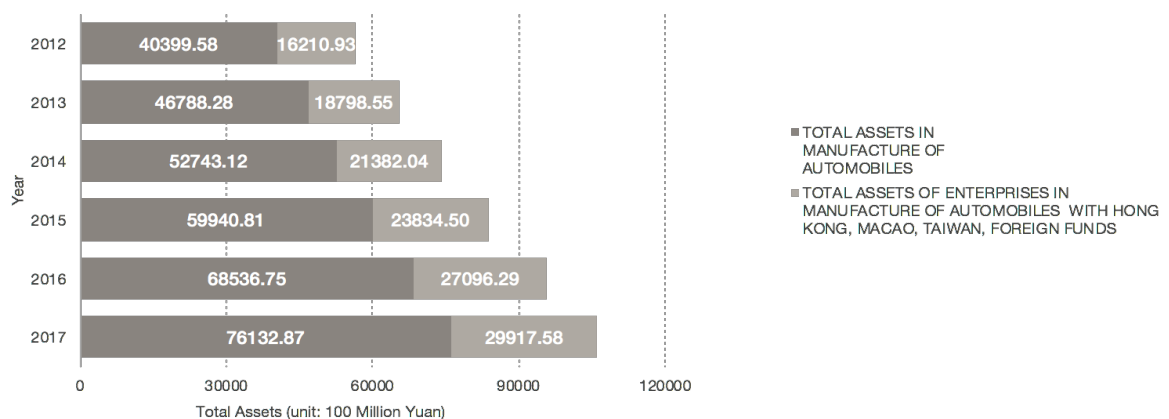


Table 2



Source: Main economic indicators of automobile manufacturing enterprises, National Bureau of Statistics of China (2012. 07 – 2017. 07)

4.2 Asymmetry issues in the China context

In China, the following asymmetry issues exist in IJVs. From the perspective of strategic objectives, the primary purpose of foreign partners is to open up the market, so the market interests are the most important for them. However, the Chinese partner believes that economic development is a top priority for enterprise development. So the asymmetric relationship will arise. Also, due to the differences in culture and working methods between Chinese and foreign partners, information cannot be effectively transmitted, which may result in information asymmetry. Besides, it is more evident that the foreign party has more resources on technology, and the Chinese partner has more local market resources. When their cooperation is not very smooth, the asymmetry of partner resources will also arise.

4.3 A case about asymmetry in IJV in China

SAIC Volkswagen Automotive Co., Ltd is an IJV established by SAIC Motor Corporation Limited and Volkswagen Group. In the process of cooperation, the asymmetric relationship exists between the two parties in terms of development strategy, management methods, and management emphasis. The development of IJVs in China is based on special historical conditions, so there are different strategic objectives for both investors. From the perspective of foreign investors, the establishment of IJVs in China is the first step to enter the Chinese market. Therefore, for foreign parent companies, market strategy, economic value, and the input of corporation culture all have essential strategic significance, rather than purely pursuing profit maximization. From the perspective of Chinese investors, while introducing foreign capital, it is a more important strategic goal to expand the total economic development of enterprises, and introduce advanced management experience and technologies into China. These have caused asymmetry in the strategic goals of both parties.

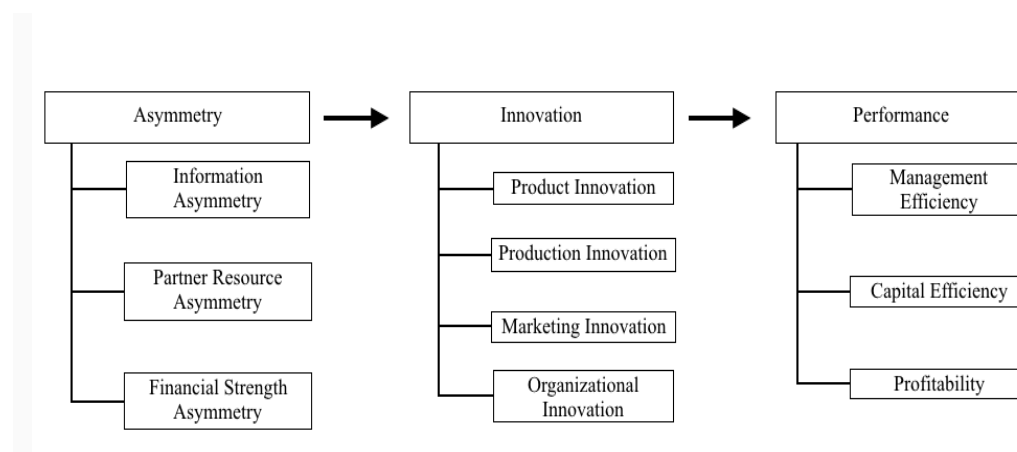
In addition, due to the long-term influence of parent company, foreign partners tend to be more direct, clear, and efficient in their work methods and attitudes. However,

because of the long-term influence of Chinese traditional culture, Chinese partners work more implicitly and tactfully. There is an absolute difference between the two working methods. This difference is also reflected in corporate governance. From the board of directors to the executive level of managers, from the executive level to the different levels of employees, there are differences in communication methods. Due to these reasons, it is a possibility that information within IJVs cannot be effectively delivered, which may result in information asymmetry in corporate governance.

Besides, the asymmetry also exists in management emphasis. In the actual operation, foreign investors emphasize financial control and technical control, which are considered to be the economic lifeline of enterprises and the focus of cross-border management. Chinese investors are required to manage in the local market, local human resources, and other aspects. These divisions are too clear in the operation process and are affected by communication mechanisms and communication conditions so that the management functions of enterprises cannot be effectively exerted. Also, in actual operation, foreign partners provide special protection for the core technologies and core research capabilities of enterprise development. It leads to partner resources asymmetry between partners. In the case of paid output, it is not completely imparted to IJV. This is not conducive to the overall growth of IJV.

5. Research Framework

Figure 1



According to figure 1, there are three key elements in this research. First, asymmetry in IJVs mainly includes information asymmetry, partner resource asymmetry, and financial strength asymmetry. Some studies about the impact of asymmetric relationships on IJV performance have not reached a consistent conclusion (Fang and Zou, 2010; Luo, Shenkar, and Nyaw, 2001). Some studies suggested that the asymmetric relationship between partners has a positive effect on the survival of IJVs (Kogut, 1988). Some studies reported that there is no significant relationship between asymmetry and IJV performance (Park and Ungson, 1997). In addition, most relevant researches are mainly to study the impact of asymmetric relationships on IJV performance directly. Therefore, this study wants to demonstrate the research process in details further. This research takes innovation as an intermediate variable and considers the impact of asymmetric relationships on innovation, thus also studying its impact on IJV performance.

Second, from a business perspective, there are four types of innovation. They are the product, process, marketing, and organizational innovation. Empirical researches on the relationship between innovation and IJV performance have produced controversial results. Some studies found that product innovation can improve a company's competitiveness and help them have better performance (Danneels, 2002). On the other hand, some studies suggested that marketing innovation has a negative impact on performance (Silva et al., 2017). Therefore, this study hopes to study the relationship between innovation and IJV performance further. This research wants to explore whether different types of innovation would have different effects on IJV performance.

Third, based on past researches, IJV performance can be reflected in management efficiency, capital efficiency, and profitability. Meanwhile, many factors affect IJV performance, including factors related to the parent company, factors related to the joint venture, and external factors. These factors have different effects on IJV performance. For example, in terms of factors related to the parent company, some studies stated that the higher the cultural distance between the parent companies, the more unfavorable

stability of IJVs (Luo and Park, 2004). From the analysis of factors related to joint ventures, foreign parents leading decision-making is not conducive to IJV performance (Beamish, 1986). This research considers asymmetry as an influencing factor and innovation as an intermediate variable to study the impact on IJV performance.

6. Methodology

The concept and measurement of organizational performance have always been the subject of debates among researchers. The measurement of IJVs performance has become an important research topic in international business (Geringer and Hebert, 1991). There are two main ways to measure the performance of IJVs. The first approach is to use objective performance metrics, including various traditional financial indicators such as profitability, growth and cost status, the survival of IJV (Killing, 1982), its innovation capability, renegotiation of IJV contracts and dissolution (Park and Ungson, 1997). The second approach is to subjectively measure the parent company's satisfaction with IJVs performance (Killing, 1982) and the parent company's achievement of their strategic goals (Yan and Gray, 1994). Since the performance of IJVs remains a controversial topic, more influencing factors and methods of measurement need to be studied.

6.1. Sample and Data source

The listed companies that have created IJVs with any foreign partners in the Chinese automotive industry are the research samples. The IJVs will be identified by using a separate list of IJVs in China. It includes both final assemblers and suppliers. Considering the accessibility, cost, and applicability of these databases, this study decides to use China Stock Market Accounting Research (CSMAR) database and State Intellectual Property Office (SIPO) to search the company list and patent information. CSMAR database includes necessary information, financial data, and other related data of companies listed on the Shanghai Stock Exchange, Shenzhen Stock Exchange and

Hong Kong Exchanges and Clearing Limited. Then, the samples which will be researched have been identified.

According to “Guideline for the Industry Classification of the Listed companies (2012 Revision),” which is issued by the China Securities Regulatory Commission, this research is restricted to the automotive industry. It includes both parts providers and the final assemblers. The full list of Chinese automotive companies and their necessary information can be found from CSMAR database, such as short name, full name, industry name, register address, office address, the establishment of date, register capital, website and business scope. Then, the research gets the information of listed enterprises in the Chinese automotive industry. Meanwhile, the study searches the company list again by SIPO for preventing omissions. After searching, there are 1156 listed companies in the Chinese automotive industry. These samples are observed from 2000 until now. In the next stage, the sample data need to be sorted out and screened to eliminate the data that is meaningless for research. The reason is, there are listed companies with abnormal financial status or other abnormal conditions in the sample. Such listed companies have the risk of delisting. The data of such companies poses risks to research and needs to be excluded.

There are several reasons for choosing listed companies as the research samples. One is because the listed company is representative, and the situation of the whole industry can be seen by studying the listed company. Another reason is that listed companies disclose detailed financial data, such as balance sheets, statement of changes in financial position, and statement of profit distribution. The company has high transparency and is convenient for research.

About innovative data, SIPO will be used to search for patent information. Some research used SIPO to study innovation, intellectual property in China, and other aspects (Liegssalz and Wagner, 2013; Wang, 2004; Fai, 2005). The data on SIPO is open to the public so that it can be easily accessed. About the process of data collection, first,

each firm in the sample will be searched on SIPO, and basic information of each patent of each firm can be gotten, such as the name of invention, inventor, patent number and patent application date. Second, each patent will be searched again by another link on SIPO. The reason is, Chinese patent data is lacked complete citation information. So they need to be searched from another link for citation record. After this, all data will be organized into forms and classified into three types (inventions, utility models, and designs). Finally, the research variables need to be identified. However, due to full citation information and patent descriptions are not currently available for automatic processing, the process of data collection will cost much time. So, the research will try to find other measurements of innovation later.

In addition, this research thinks three types of the patent should be explained. The invention refers to new technical solutions proposed for products, methods, or improvements. The utility model refers to a new technical solution suitable for practical use proposed for the shape, construction, or combination of the products. The design refers to a new design that is aesthetically pleasing to the industrial application of the combination of the shape, pattern, and color of the product. In table 3, there are eight selected representative enterprises from the research sample and their patent numbers since 2000.

Table 3

	Invention	Utility model	Design	Total
Shanghai Automotive Industry Corporation	3029	6309	1317	10655
FAW Group	5325	8449	1622	15396
Dongfeng Motor Co.	1259	4874	1935	8068

China Chang' an Automobile Group Co., Ltd.	3229	4251	3256	10736
Beijing Automotive Industry Holding Co., Ltd.	3127	6195	1587	10909
Guangzhou Automobile Group Co., Ltd.	188	482	165	835
Chery Automobile Co., Ltd.	3085	9027	2141	14253
China National Heavy Duty Truck Group CO., LTD	1883	4827	1101	7811

Source: China and Global Patent Examination Information Inquiry, SIPO (2000-2018)

6.2. Time frame

The data used in the research can be divided into three periods (1980-1999, 2000-2008, 2009-now). From the early 1980s to the 1990s, the Chinese automotive industry had just started and developed slowly. Under such circumstances, the Chinese automotive industry seized the opportunity, opened up to the world, and fully introduced technology. This stage was a significant turning point in the development of the Chinese automotive industry. From 2000 to 2008, it was an important symbol that China became a member of the World Trade Organization. Chinese automotive industry developed rapidly. Since 2009, it has been the stage of independent innovation and development of the Chinese automotive industry. The joint venture has also proliferated (Zhao and Anand, 2005).

7. Conclusion

The main progress of this research is the literature review about asymmetry, innovation, performance in IJVs, and Chinese automotive industry. Besides, the study did data

collection and examined the relevance between data and research questions. The importance of this research can be explained in these aspects. First, considering asymmetry as a factor of innovation, and performance in IJVs. It can provide new ideas to research area about IJVs. Second, by researching asymmetry, innovation and performance, such as different types, the innovation process, the measurement of performance, and other relevant aspects, the research can provide new knowledge to IJV literature. Third, the research context is the Chinese automotive industry. The study can offer suggestions for the development of IJVs in emerging markets. The main objective of this research in the next stage is data analysis. First of all, the collection of data should be perfected, and then the integrity, relevance, and timeliness of the data need to be tested. Next, through the study of the data analysis software, the data analysis model will be established according to the research hypotheses. Finally, the managerial implications of the research will be discussed based on the data analysis results and the actual situation.

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