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合作經驗對策略聯盟績效影響—公司規模、產業之調和效果

The Wealth Effect of Cooperation Experience on Strategic Alliance– the Moderating Role of Firm Size and Industry

張懷文

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摘　要

本研究主要探討合作經驗對策略聯盟績效之影響，以中國公司為實證研究對象，來驗證過去相關領域研究結果在新興經濟體的適用性。本研究由 SDC 資料庫中，收集了 285 筆參與成員包含中國上市公司的合作案作為最終分析樣本，其中 166 次合作案之參與公司擁有策略聯盟經驗，其餘 119 次的參與公司則無相關經驗。

研究採用事件分析方法，以合作案宣告後，公司股價依資本資產定價模式得出的異常報酬作為合作案之預期績效。研究結果顯示擁有策略聯盟經驗與合作案的績效有正面關係，並進一步發現公司規模與處於高科技產業，皆會強化此經驗效果的正面影響。

關鍵字：合作經驗、策略聯盟、合資、財富效果、異常報酬、中國

ABSTACT

The main objective of this research is to investigate the wealth effect of cooperation experience on strategic alliances. This research run an empirical study, focus on China context to test the universal applicability of previous researches. The final sample contains 285 alliances formed by at least one Chinese listed company, among all these alliances, 166 of them are experienced ones, and 119 are in-experienced ones.

This research followed typical event study method, use the abnormal return generated from CAPM as the measurement of the alliances expected performance. The result shows positive wealth effect of inter-firm cooperation experience on strategic alliances. Furthermore, the result shows those firms with larger firm size or within the high-tech industry benefit more from those experience effect.

Key words: Cooperation Experience, Strategic Alliance, Joint Venture, Wealth Effect, Abnormal Return, China Context

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Chapter 1 Introduction

1.1 Research Background

In this rapid changing enviroment, firms are facing more and more competition, therefore, how to gain the competitive advantage and out-perform their competitiors have become vital for their survival. Previous researches found resource is needed in keeping firms' daily work running, at the same time, it is needed in sustaining existing advantages or building more capabilities for the future to enhance competitive advantage (Barney, 1991; Das & Teng, 2000). But, sometimes the required resources such as knowledge is not lie within the firm, make it necessary for firms to acquire the resources externally and learn from others (Ulrich & Barney, 1984).

Inter-firm cooperation is an important way of gaining resources outside the boundary of the firm (Ireland, Hitt, & Vaidyanath, 2002), it can take a variety of forms, including but not limited to, joint ventures, minority equity alliances, R&D contracts, joint R&D, joint production, joint marketing and promotion, enhanced supplier partnership, distribution agreements, and licensing agreements (Gates, 1993; Rangan & Yoshino, 1996).

Scholars argued that inter-firm alliances is a favored tactic in gaining resources and building knowledge across borders (Almeida, Song, & Grant, 2002). Compare to market transaction, alliances give participants the chance to work closer together with

a longer time, thus provide more opportunity to learn from others (Inkpen & Pien, 2006). Compare to Merger and Acquisition (M&A), alliances can provide firms the access to resources and a channel to learn knowledge similar to M&A, but with smaller investment.

While alliances provide many benefits to the partners, they were reported to have failure rates as high as 70%, with many not achieving the intended outcomes (Das & Teng, 2000). It may due to the fact that, forming alliances also induces some costs (Park & Zhou, 2005; White, 2005), gaining resource do not mean gaining new capabilities, the access to knowledge do not definitely mean the successful acquiring of that knowledge.

Since the cost of forming alliances is needed, but the value of it is uncertain, it is important for managers to know the key success factors of inter-firm collaboration in this rapid changing global environment, to help their firms delivering adequate value to customers, replenishing their base of skills, and/or safeguarding their abilities to increase long-term shareholder value.

Based on the data in Securities Data Corporation's (SDC) Worldwide Mergers, Acquisition, and Alliances database (SDC database), more than 5000 alliances were formed by Chinese firms between 1999 and 2009, expressed the popular use of alliance activities. Among these alliances, although some firms ally with others only

for one time, nearly 1000 firms keep engaging in multiple alliances. The prevailing of alliance activities give rise to my research interest.

Due to the contrast possible effects on alliances, numerous scholars have devoted to investigate the multiple facets of alliances, including the motivation of alliance formation (Curtin, 1987; Kogut & Singh, 1988), the impact of alliances forming (Anand & Khanna, 2000; Chan, Kensingerc, Keownd, & Martin, 1997; Chang, Chen, & Lai, 2008a; Mcconnell & Nantell, 1985), and the factors affecting alliances performance (Almeida et al., 2002; Chang & Chen, 2002; Das & Teng, 2000; Gerwin, 2004; Lu & Xu, 2006; Murray, Kotabe, & Joe Nan, 2005).

Although many studies have been put forward to explain why such alliances may affect firm value, most of these studies did not consider the multiple alliances behavior. Few studies have discussed the prior experience effect of alliance on performance (Anand & Khanna, 2000; Chang et al., 2008a; Chyan, Yau-De, & Han-Jen, 2007), and found firm size and industry will affect the experience effect (Anand & Khanna, 2000; Chyan et al., 2007). However, these studies did not deeply investigate the way size and industry affect experience effect, nor did they discuss the reason of size and industry influences.

Besides, previous researches mainly focused on firms in developed countries, seldom on emerging ones. Base on the huge differences between developed and

emerging countries such as economic growing rate, culture, basic construction, and related regulations, the generalization of these researches need to be confirmed.

The aforementioned gaps in the recent researches give rise to my research motivations. Since China is the biggest emerging economy, keeps growing in a surprising speed, becoming a much influential player in the world, I decided to run an empirical study, focus the analysis on the behavior of Chinese firms to test the universal applicability of previous researches. To go a step further, I will examine the size and industry effect on experience, to give us a deeper understanding on factors affecting multiple alliances performance, and discuss the source of these influences.

1.2 Research Objective

Many previous researchers have found the forming of SAs have positive effect on firms' performance in terms of creating abnormal return on their stock prices, and prior alliance experience will strengthen this effet (Anand & Khanna, 2000; Chang et al., 2008a; Chyan et al., 2007), but leaving a gap on discussing the source of such experience effect and a focus on emerging countries. Considerig the market imperfection in emerging economies, where there may exist inefficient product/factor markets, weak contract enforcement mechanisms, and strong interventions imposed by governments, the rule apply in developed economies may not be able to transplanted directly to emerging economies. To shed new light on this area, this

research will focus on Chinese firms to test the universal applicability of previous researches, and make a deep research on experience effect to alliance performance.

To summarize, the research objectives in this research including:

1. Find out the effect of alliance experience on abnormal return of alliance announcement. Check whether experience really have a positive effect on alliance performance.
2. Find out the moderating role of firm size on the relationship between alliance experience and abnormal return of alliance announcement, does size really matter in learning from experiences? In what way?
3. Find out the moderating role of industry type on the relationship between alliance experience and abnormal return of alliance announcement, does industry type really matter in learning from experiences? In what way?

1.3 Research Procedure

Here briefly illustrate the flow of this research structure:

Chapter one is the introduction, introdue the research background, what business environment stimulate the research motivation, and the objective of this research.

Chapter two is literature review, illustrate what have been found in previous researches regarding alliances, the related theories used, and the hypothesis developing process. Building hypothesis based on classical theories and past

researches make the logic more solid, and provide a resonable research direction.

Chapter three talk about the research design method, and the reason of using it. Research design including the framework of research, the data collection procedures, the measurement of variables used, the statistic methods used, and final sample.

After that, chapter four is to interpret the research result. List the findings of descriptive statistics and regression, as well as the correlation result, and discuss the major findings of this research.

The final part in chapter five is the conclusion, it summarize the conclusion, the research limitation, and discuss the implication in real business situation.

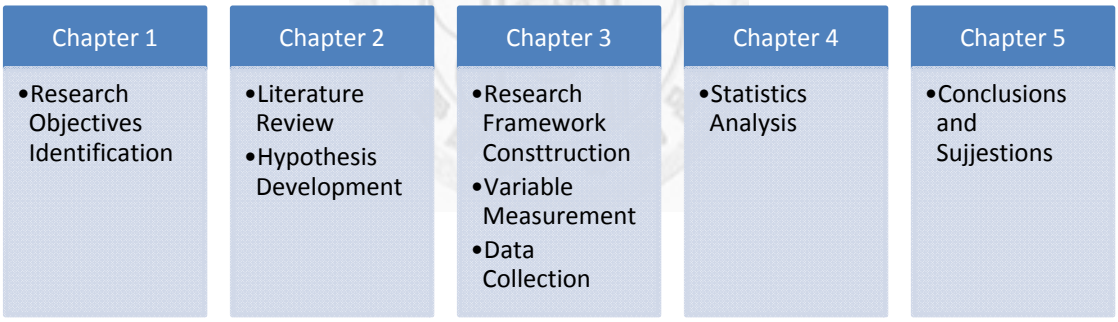

Figure 1-1 Research Flow

Chapter 2 Theory and Hypothesis

2.1 Strategic Alliances

Numerous scholars have devoted to investigate the different facets of alliances, including the motivation of alliance formation, the usage of alliance, the performance of alliance, and the factors affecting alliances performance.

In alliances formation motivation, some scholars argued that firms seek to ally with each other due to the need of resources, they found inter-firm cooperation are more likely to be formed when both firms are in vulnerable strategic positions either because they are competing in emergent or highly competitive industries or because they are attempting pioneering technical strategies (Eisenhardt & Schoonhoven, 1996). Many other researches confirmed this argument, argued that companies can develop capabilities for new products development by forming alliances (Das & Teng, 2000; Doz & Hamel, 1998; Gerwin, 2004; Lorange, Roos, & Bronn, 1992).

Other scholars found the motivation of alliances can be discussed in another point of view - for cost and risk reduction. Since the investment or commitment on alliances is smaller than M&A, firms can use alliance as a toehold investment for the future M&A action, thus reduce the potential risk of current investment (Kogut, 1991). Still another scholars explained the formation of alliances is under the motivation of minimize the transaction cost (Geyskens, Steenkamp, & Kumar, 2006).

Another main stream of inter-firm cooperation research lies on the performance of alliances and factors affecting alliance performance. Among these studies, some of them found positive relationships between alliances formation and firm performance (Anand & Khanna, 2000; Chan et al., 1997; Chang & Chen, 2002; Mcconnell & Nantell, 1985), when others found the announcement of alliances is associated with neutral or negative abnormal return (Chang & Chen, 2002; Lee & Wyatt, 1990). Still many studies devoted to examine the factors affecting alliance performance, and found variables such as firm relative size, business relatedness, nationality, alliance type and relationship type have significant explanatory power (Chang & Chen, 2002; Ireland et al., 2002; Lu & Xu, 2006).

Although a number of previous researches have been put forward to explain the motivation of corporations allying with each other and why such alliances may affect firm value, most of the studies mainly focused on the individual alliances formed by different firms at a specific point of time, the longitudinal analysis of focal firm's multiple alliances behavior did not receive fully concern. Since the engagement of firms in a wide array of strategic alliances has become a ubiquitous phenomenon in today's business landscape, it is important to do the investigation in this area to fill the gaps of previous studies.

Among the few existing researches concerning the multiple alliances behavior,

some of the scholars use the alliances portfolio concept to discuss the emergence of multiple alliances. These scholars have argued many different motivations for firms to form alliances. One of the main motivations for firms to build alliance portfolios is the management of risk and uncertainty. By pursuing multiple goals through a number of simultaneous alliances, firms can spread the risk and potentially overcome uncertainty and obtain greater alliance benefits overall (Hoffmann, Fischbeck, Krupnick, & McWilliams, 2007).

Also another view from a learning perspective argued that building an alliance portfolio can provide benefits beyond the single alliance level. Multiple simultaneous alliances with different partners can help firms to create a more substantial experience base to accelerate their learning on how to design and manage strategic alliances (Anand & Khanna, 2000). Since alliances are generally viewed as strategically critical mechanisms to access valuable partner resources to overcome internal resource constraints, an alliance portfolio and thus the simultaneous access to a broad range of valuable network resources from different partners can be an effective means to enhance a firm's resource stock and capacity to earn relational rents (Gulati & Sytch, 2007; Lavie, 2006).

Other scholars discussed the multiple alliances behavior from the experience point of view, providing empirical evidence to show the effect of prior experience to

alliances performance. Most of the findings showed the alliances are more valuable for the partnering firms that have a greater level of prior experience in inter-firm collaboration (Chang et al., 2008a; Chang, Chen, & Lai, 2008b; Chang & Huang, 2002; Kale, Dyer, & Singh, 2002), because the risk of opportunistic behavior from alliance partners can be reduced as firms develop experience in anticipating the contingencies and responding to them in an effective manner.

Nevertheless, some studies found sometimes experience did not bring extra value to the partnering firms (Goerzen, 2007; Knoke, 2009), when firms keep engaging in alliances with the same partner, although the trust and confidence among actors were enhanced, liability and lock-in lock-out effect would also emerge to erode the expected value (Gulati, Nohria, & Zaheer, 2000).

These studies gave us a more clear view of multiple alliances effect on firm performance. However, most of the analysis is in developed economies context, making the general applicability of the findings may be somewhat limited. Moreover, the empirical research in these alliance research areas has only started to accumulate in the more recent years and that there is still not very much of it compared to other research areas in the field of strategic alliances, leaving a wide range of research.

Here listed the result and objective country of previous researches regarding inter-firm cooperation experience on alliance wealth effect as below:

Table 2-1 Research results of cooperation experience on alliance wealth effect

Experience Effect	Reference	Country
+	Chang et al., 2008a	Japan & US
+	Chang et al., 2008b	US
+	Kale, Dyer, & Singh, 2002	US
-	Goerzen, 2007	Japan
+/-	Knoke, 2009	Asia, Europe, and US
Not significant	Chang & Huang, 2002	Taiwan

The above table clearly shows the lack of previous researches on China study. Since China is the biggest emerging economy, keeps growing in a surprising speed, becoming a much influential player in the world, but having many different characteristics as to Western and developed countries, the behavior of Chinese company and market need to be deeply investigated.

The aforementioned gaps in the recent researches give rise to my research motivations. In this research, I proposed to run an empirical study, to investigate the performance of alliances, to examine differences of alliance performance between experienced firms and un-experienced firms, to test the reasonability of firms in doing multiple alliances, and focus the analysis on the behavior of Chinese firms to test the universal applicability of previous researches.

2.2 Theoretical Background

2.2.1 Resource Based View (RBV)

To account for the emergence of inter-firm alliances as well as their operation, authors from a broad range of backgrounds have proposed a number of theories and models. The transaction cost economics argued that, firms enter into alliances is under the motivation of minimize the transaction cost (Geyskens et al., 2006), the strategic behavior scholars argued that alliance formation is a strategic behavior firms use to gain competitive advantage (Hagedoorn & Duysters, 2002). Scholars also use social exchange theory to explain the performance of alliances and suggested that social interaction and exchange between partners is an imperative for alliance success (Yang, 2009). Power-dependence theory (Pfeffer & Nowak, 1976) and game theory also play a role in strategic alliances researches, where the former proposed that alliances is a strategy firms use to manage the inter-organizational inter-dependence, while the latter argued that participants in alliances will interact with each to take advantage. These theories, especially the dominant transaction cost view, have proven to be useful in understanding the phenomenon of strategic alliances, however, they do not clearly identify the important role of partner firm resources in theorizing about strategic alliances.

The resource-based view (RBV) suggests that to be a source of competitive

advantage, a firm's resources must be valuable, rare, imperfectly imitable, and non-substitutable (Barney, 1991). RBV scholars emphasized the importance of resources, stated that firm is like a broad set of resources it owns, and with these resources, firm is able to implement strategies then improve their effectiveness and efficiency. In a research done by Das and Teng (2000), they found evidence based on this concept and stated "What a firm possesses would determine what it accomplished". According to resource based view, firm resources including all assets, capabilities, organizational process, information, knowledge (Barney, 1991).

Knowledge based view (KBV) is the extension of RBV, mentiond the most important resource in a firm is knowledge (Grant, 1996), one of the most important issue for managers is to combine all the knowledge within the firm. KBV consider obtaining unique and in-immitable knowledge the driver of firms' growth and profitability (Grant, 1996; Spender, 1996).

The process of building inter-organizational relationships can be studied as a flow of resources among organizations. For example, a joint venture is formed when "two or more firms pool a portion of their resources within a common legal organization" (Kogut & Singh, 1988), thus the acquisition of these resources could not be done efficiently by market exchange or mergers/acquisitions (M&As). Hence, in order to aggregate, share, or exchange valuable resources with other firms, entering into an

alliance appears fairly simple.

A resource-based view has the potential for helping us understand alliances better, in contrast to the transaction cost logic, which emphasizes cost minimization, the resource-based rationale emphasizes value maximization of a firm through acquiring and utilizing valuable resources. In this view, as strategic alliances are essentially the device of resource integration among firms, the determinants of alliances forming would be different from that arise from minimize transaction cost.

To match the research objectives, resource-based view is used in this research, with the assumption that the motivation of firms seeking to join multiple alliances is mainly to acquire the inimitable and non-substitutable resources. This view is quite suitable for identifying the determinants of multiple alliances formation, and the factors influencing experienced alliances performance.

2.2.2 Real Option Theory

A real option itself, is the right — but not the obligation — to undertake some business decision; typically the option to make, abandon, expand, or shrink a capital investment. Generally, an initial toehold investment was made to gain the option, and with the option, people can decided whether to exercise that option or not later, if the situation turn out to be good, the option can be exercised to earn profit, if the situation turn out to be unfavorable, the maximum loss would limited to the toehold investment.

Option provides flexibility for firms to adapt and revise later decisions in response to unexpected market developments, in this way, “option value” have been created to improve its potential revenue and limiting losses (Kester, 1984).

The real options perspective became widely used in recent researches (Reuer & Tong, 2007; Tong, Reuer, & Peng, 2008; Xu, Zhou, & Phan, 2009). In an empirical research for a sample of manufacturing firms during 1989-2000, Reuer and Tong (2007) affirmed option theory’s assertion that real option can help firms capture valuable upside opportunities. Xu, Zhou, and Phan (2009) found firms will generate a real option through the sequential acquisition mode, for the reason to reduce the negative effect comes out with information asymmetric, to lower the uncertainty and obtain sufficient information.

As alliances allowing participants to gain access to the resources with limited investment and relatively short-time commitment, real option formulation have recently become an emerging strand of thinking on strategic alliances behavior (Dalziel, 2009; Kogut, 1991; Reuer & Tong, 2007) and serve as a promising avenue to study joint venture (JV) evolution. Dalziel (2009) have used real option perspective to examine the commitment behavior in alliance relationships, suggested that commitment can be seen as a real option, and argued that firm can benefit from making commitments that engender reciprocal commitments from partner firms.

Among those studies which use real option concept on alliances, Kogut (1991) argued that joint ventures are created as real options to expand in response to future technological and market developments. The exercise of the option is accompanied by an acquisition of the venture. His result shows that unexpected growth in the product market increases the likelihood of acquisition; unexpected shortfalls in product shipments have no effect on the likelihood of dissolution. This asymmetry in the results strongly supports the interpretation of joint ventures as options to expand. Another previous study also confirmed this perspective that the process form joint venture to acquisition exist the option concept (Kumar, 2005).

In acquiring needed resources, firms facing the risk of uncertainty, uncertainty of new market, as well as uncertainty of the ability to gain the knowledge. As alliances provide the option to wait, and the option to expand, it is a good way to reduce risks in resources acquiring process. As a result, the perspective of real option can help us identifying the motivation of multiple alliances formation and the performance of such alliances.

2.3 Hypothesis Development

2.3.1 Prior experience and alliance performance

Experienced firms are those with alliance experience prior to the current

cooperation, this experience could come from the collaboration with the same partner or different partners.

In each strategic alliance, firms not only gain access to originally planned resources and knowledge, but also learn the cooperation skill at the same time. Previous studies found that, with the experience in similar situation, the abnormal return of alliance announcement will be significant higher (Gupta & Misra, 2000). This could be true even if the collaborate partner is not exactly the same with the prior one (Chang et al., 2008a; Chang et al., 2008b; Kale et al., 2002), because experience provide company with the skills to avoid inter-firm conflict, help them set up a better contract to avoid future problem, give them the chance to set up a inter-firm communication and cooperation process, and increase the culture acceptance on knowledge sharing (Chyan et al., 2007).

Under the concept of resource-based view, forming alliances is a way to acquire the inimitable and non-substitutable resources, thus increase the performance of alliance participants. With alliance experience, firms are favorable in acquiring needed resources and avoid unexpected conflicts, thus increase the benefits generated from that cooperation.

From real option theory, when firms need to take risky actions such as acquiring resources outside the firm, forming alliances is a way to reduce uncertainty. With

prior alliance experience, firms could have better risk evaluation ability, thus reduce the risk accompany such alliances.

Based on above mentioned researches and rationale, I believe prior experience is good at enhancing firm abnormal return on alliance announcement, thus lead to the hypothesis:

Hypothesis 1: Firm's prior experience of inter-firm cooperation has a positive effect on abnormal return generated from alliance announcement.

2.3.2 Moderating role of firm size

Previous researchers found small firms often have limited ability to either acquire adequate information and/or utilize such information (Langley & Traux, 1994; Robertson, Swan, & Newell, 1996), another study confirmed this argument, found that firm size/age has a positive effect on JV survival (Chyan et al., 2007). Chyan et al. (2007) argued that, with greater size, firms process more resources, capabilities, information, and knowledge, making the experience effect stronger for their performance improvement. With more knowledge, firms could learn more from previous experience, thus I have the hypothesis:

Hypothesis 2: Firm size positively moderates the relationship between alliance experience and abnormal return on alliance announcement.

2.3.3 Moderating role of participant industry

High-tech industries are those in which the underlying scientific knowledge that companies in this industry use is advancing rapidly, and by implication, so are the attributes of the products and services that result from its application. From the real option point of view, forming alliances is a way to reduce risk, and the more dynamic environment in the high-tech industry means the more risk and uncertainty (Chan et al., 1997), as a result, making the experience effect more important, because one new capability gained may totally change the competitive condition.

In resource-based view, scholars argued that due to the blooming of high tech industry, firms in those industries are superior in acquiring talents, thus are processing greater learning capacity, making them benefit more from prior experience.

Synthesize the above-mentioned rationale, I have the hypothesis:

Hypothesis 3: Firm's high tech industry dummy positively moderates the relationships between alliance experience and abnormal return on alliance announcement.

Chapter 3 Research Design and Methodology

3.1 Research Framework

To make my research objectives and discussions more easily understood, I illustrate my research framework in the diagram below.

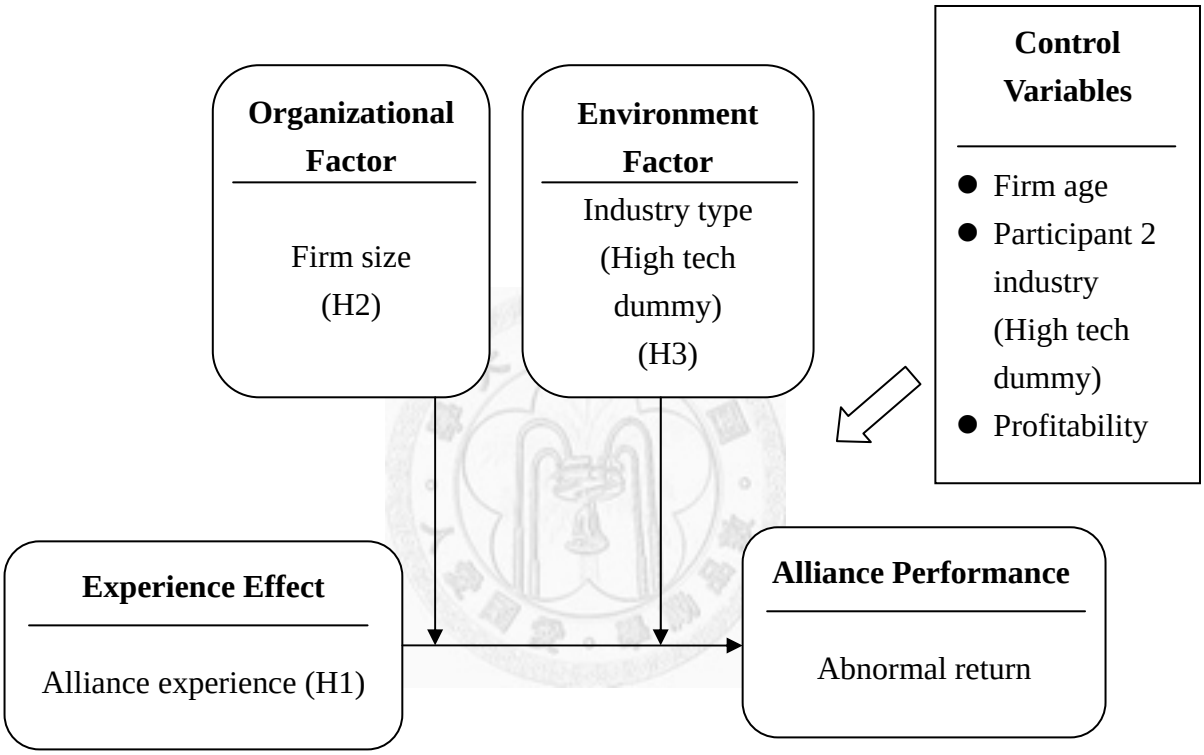

Figure 3-1 Research Framework

Based on this framework, I use empirical validation to test three hypotheses as below, the analysis unit is by case.

Hypothesis 1: Firm's prior experience of inter-firm cooperation has a positive effect on abnormal return generated from alliance announcement.

Hypothesis 2: Firm size positively moderates the relationship between alliance

experience and abnormal return on alliance announcement.

Hypothesis 3: Firm's high tech industry dummy positively moderates the relationships between alliance experience and abnormal return on alliance announcement.

3.2 Data Collection and Sample

I collect the alliance data between year 2003 and 2008 from the Securities Data Company (SDC) database, in order to simplify the analysis, although one alliance may involve more than two partners, I focused the analysis on two participants alliances. And because I want to know the behavior of Chinese firms, any alliances in my data would have at least one Chinese partner.

Since I need the stock price for later abnormal return calculation, I remove the cases formed by non-public companies in this step, only the public companies remained (including listed on the Shanghai and Shenzhen stock exchange). Besides, the cases with no stock transaction within 5 days of announcement are also excluded. Furthermore, to avoid the confounding events that could distort the measurement of the link between alliance announcement and abnormal return, I also delete those alliances that are announced by the same firm within the same day.

The information of stock price, firm size, firm age and profitability are collected from CSMAR database, CSMAR database is developed by GTA Information

Technology Co., Ltd., providing a variety of economic and financial data in China and Hong Kong for academic users. As for the industry information, it is collected from SDC database.

For those time specific moderating variables and control variables that may be the prerequisite condition, I choose the data at the end of last year prior alliance announcement.

My final sample contains 285 alliance cases, 119 of them are the inexperienced cases, and 166 of them are experienced ones.

3.3 Variable Measurement

3.3.1 Dependent variable

To capture the firm's performance, various proxies have been used by previous researchers to evaluate firm's performance, some studies used earning per share changes (Iyengar & Zampelli, 2009), some used return over asset (ROA) (Chang et al., 2008a; Morgan, Vorhies , & Mason, 2009), and others used stock price responses to announcement to calculate the abnormal return (Anand & Khanna, 2000; Chang et al., 2008a; Kale et al., 2002).

Since abnormal return represent the immediate valuation which investors make on that alliance, and this measure is widely used for event study, I take abnormal

return to represent the expected performance of alliances. As to ROA, although it is the result of actual performance, the value of alliances need time to be realized, there may have other events happen during the alliance announce date and actual value realized date, making the ROE/ROA reflect not only the effect of that alliance. Due to aforementioned concern, I do not use ROA as my proxy for alliance performance.

To estimate the value creation for the firm in the alliance, I calculate abnormal returns as the difference between the actual return and a predicted return generated by the 3 moment market model (Krauss & Litzenberger, 1976):

$$R_{i,t} - r_{f,t} = \alpha_{0,i} + \alpha_{1,i}\left(R_{m,t} - r_{f,t}\right) + \alpha_{2,i}(R_{m,t} - r_{f,t})^2 + \varepsilon_{it}$$

Here, $R_{i,t}$ denoted the daily return for firm *i* on day *t*, $r_{f,t}$ denoted the return of risk-free asset on day *t*. $R_{m,t}$ denotes the expected daily returns on the value-weighted Shanghai stock exchange index or the Shenzhen stock exchange index, based on the actual public market of each stock respectively. $\alpha_{0,i}$, and $\alpha_{1,i}$ $\alpha_{2,i}$ are firm-specific parameters, and ε_{it} is distributed i.i.d. normal.

The parameters of the market model using the data over the period of 360 days before the announcement date, the estimates obtained from this model are then used to predict the daily returns for each firm i over the 5-day period after the event day, as:

$$\hat{R}_{i,t} - r_{f,t} = \hat{\alpha}_{0,i} + \hat{\alpha}_{1,i}\left(R_{m,t} - r_{f,t}\right) + \hat{\alpha}_{2,i}(R_{m,t} - r_{f,t})^2$$

Where $\hat{R}_{i,t}$ are the predicted daily returns, $\alpha_{0,i}$, $\alpha_{1,i}$ and $\alpha_{2,i}$ are the model

estimates. Thus, the daily firm-specific abnormal return can be calculated as

$$\hat{\varepsilon}_{i,t} = R_{i,t} - \hat{R}_{i,t}$$

Where $\hat{\varepsilon}_{i,t}$ are the daily firm-specific abnormal return.

I use 3 moment model instead of the typical market CAPM model for two reasons. First of all, the normality assumption of CAPM is too restrictive and is not consistent with empirical tests. Second, the market CAPM model ignores investor's risk preference for "non-increasing absolute risk aversion" (Arrow, 1964). The 3 moment model considered those aspects so is able to provide us a better result.

In this study, I use the one day (i=0) and five day (i=4) abnormal return as the proxy of alliance performance. The announcement date and stock price data come from the SDC database and CSMAR database, respectively.

3.3.2 Independent variable

In order to test the effect of prior experience on alliance performance, my independent variable is to differentiate cases into the first alliance case, or the experienced alliance case. I code the experienced case 1, and the inexperience alliance case 0. To reduce the external interference, I use two steps to collect my analysis samples.

In the first step, I collect alliance cases from SDC database which comprise China

participants, and base on the announcement date stated in SDC database, I differentiate the cases into first alliance case and experienced ones. Because I need the stock price to examine the alliance performance, I delete those cases formed by non-public firms, and only leave the public firms.

Although I already divided those alliance cases into two groups in step one, because the samples come from 1999~2008 period, even the alliance case is the fist in this period, there may be other cases formed by the same firm before 1999. In order to reduce the experience that may have before 1999, when analyzing the effect of prior experience, I use only the alliance cases between 2003~2008. In this way, I can assure the in-experience cases in my sample have no prior experience at least during the four-year period between 1999 and 2002. Although be this method, I can not totally avoid the effect of prior experience gained longer ago, I believe this disturbance is small. To back up my method, I found previous research also consider only the experience gained with five years (Chang et al., 2008a), it shows my data collection is reasonable.

Besides, to direct connect the stock response to alliance announcement, I delete those alliance cases which are announced by the same firm on the same date from my final sample. For the same reason, those stop market exchange within the announcement period (i=0 to 4) make the calculation of abnormal return impossible,

thus also be deleted from the final sample. Those cases are deleted due to the difficulties in analysis, but their experiences still count.

3.3.3 Moderating variable

Firm size:

Previous studies have used several method to measure firm size, some use market value of equity 30 days before the announcement (Chang et al., 2008a), some use total assets (Lin & Su, 2008), the others use the number of employee at the time of alliance formation (Lu & Xu, 2006). I choose the number (ten-thousand) of employee at the end of last year of alliance announcement as my measure of firm size. Those data are collect from CSMAR database, in case the data of last year is missing, I use the data of last season instead.

Firm industry *(High tech dummy):*

Previous studies commonly used SIC code to determine high-tech companies (Chang et al., 2008a; Chyan et al., 2007), where Chang (2008 a) classified firms into high- and low-tech groups according to Business Week's classification scheme, when Chyan et al. (2007) classified firms into five groups, including high-tech, traditional manufacturing, financial, service, and others. In this study, I think the high-low tech classification scheme is a better measure, thus follow previous research, collect the

SIC code from SDC database, and distinguish sample firms into high- and low-tech groups according to their SIC code, I code high-tech firms 1, and 0 otherwise.

Those industries in high-tech group including:

SIC 2 digit code	Industry details
28	Chemicals And Allied Products
29	Petroleum Refining And Related Industries
35	Industrial And Commercial Machinery And Computer Equipment
36	Electronic And Other Electrical Equipment And Components, Except Computer Equipment
38	Measuring, Analyzing, And Controlling Instruments; Photographic, Medical And Optical Goods; Watches And Clocks
48	Communications
80	Health Services

3.3.4 Control variable

Partner firm industry *(High tech dummy):*

Since I assume the industry type will moderate the experience effect on alliance performance, I think it is necessary to control the partner firm's industry, to avoid any distortion of my result. Therefore, followed by the same classification standard

mentioned above, I use SIC code to classify partner firms into high- and low-tech groups, and code high-tech firm 1, low-tech 0.

Firm age:

Because firm age also represent some sort of experience that firm process, when examining the experience effect to alliance performance, I consider it necessary to control the variable of firm age. Follow previous researches (Lu & Xu, 2006),the measurement of firm age is the difference between its founding year and that of its alliance announcement date. I collect the founding date of firms from CSMAR database. In case the data is missing, I go to the stock exchange or firm web site for information.

Profitability:

It is believed the higher the profitability, the better performance in the future. The difference in firm profitability may cause the difference in stock price volatility and the calculated abnormal return, thus affect the consistency of my result. I therefore control the profitability, which is measured by the gross margin happened on the end of the year prior to announcement (Chang et al., 2008a). If the data from last year is missing, I use the data from last season.

Table 3-1 Summary of variables

Variable	Measurement	Unit	Data source	Reference
Dependent variable				
Alliance performance	Abnormal return: the difference between the actual return and expected return generated from market model (2 data point: announce date and 4 days later)	%	Announce date :SDC Stock price :CSMAR	(Anand & Khanna, 2000; Chang et al., 2008a; Kale et al., 2002)
Independent variable				
Prior experience	Whether the alliance firm has formed alliances before with the period of 1999-2008, if yes code 1, no code 0.	Dummy 1 or 0	Security Data Company (SDC)	(Chang et al., 2008a)
Moderating variable				
Firm size	The number of employee at the end of last year of alliance announcement.	10,000 people	Announce date :SDC Firm size :CSMAR	(Chang et al., 2008a; Chyan et al., 2007; Lu & Xu, 2006)

Firm industry	Use SIC code to distinguish firms into high- and low-tech firms. (High-tech code 1, low-tech code 0)	Dummy 1 or 0	Security Data Company (SDC)	(Chang et al., 2008a; Chyan et al., 2007)
Control variable				
Partner firm industry	Use SIC code to distinguish partner firms into high- and low-tech firms. (High-tech code 1, low-tech code 0)	Dummy 1 or 0	Security Data Company (SDC)	(Chang et al., 2008a; Chyan et al., 2007)
Firm age	The difference between its founding year and that of its alliance announcement date.	year	Announce date :SDC Firm age :CSMAR, stock exchange	(Lu & Xu, 2006)
Profitability	The gross margin happened on the end of the year prior to announcement	%	Announce date :SDC Profitability :CSMAR	(Chang et al., 2008a)

3.4 Statistics Method

This research did statistical analysis through MiniTab software, by using descriptive statistics to have a clearer understanding of the condition, and regression analysis to test the hypothesis. The statistical model and methodology are detailed explained below.

3.4.1 Descriptive statistics and correlation analysis

To better understand each variable be used in this research, descriptive statistics are required including mean, standard deviation, and inter-correlation of each pair of research variable. Arithmetic mean and standard deviation provides summarized information about distribution of these variables.

I next examined the correlation coefficient of each pair of variables. Picking out the pair of independent variables having correlation coefficient higher than 0.9 and removed one of them (Hair, Anderson, Tatham, & Black, 1998) to avoid multicollinearity problems (Kutner, Nachtsheim, & Neter, 2004).

3.4.2 Regression analysis

For the needs of testing my dependent variable, this research used multiple regression models. The dependent variable in this research, alliance performance, was measured as the one day (announcement date) and five day (four days after

announcement) abnormal return, was a continuous variable. Thus regression model was suitable for the variable characteristics and be used in analysis afterward.

To test the moderating role of organization factor, moderated regression model is an appropriate statistical technique and also be used in this research (Schoonhoven, 1981). In this method, interaction effect is tested by employing the cross-product of moderating variable and independent variable into my model while hypothesized moderator and independent variable have already been included in (Sharma, Durand, & Gur-Arie, 1981). If the employing of the interaction terms can significantly improve explanatory power of the whole model to dependent variable's variance, it is said that moderating effect exists. Furthermore, a positive sign of the cross-product's coefficient implies that the correlation between independent and dependent variables will be strengthened when moderator get larger. Negative sign implies that the greater the moderator exist abate the relationship between independent and dependent variables.

Chapter 4 Research Results

4.1 Descriptive Statistics and Correlation Analysis

Table 4-1 provides general information such as mean value, standard deviation, minimum and maximum value and Pearson's correlation coefficient for all the variables included in this research.

According to the mean and standard deviation, I can see the size of firms varies a lot, the smallest firm only employ around 10 people when the biggest firm have 420 thousand employees. Firm age range from 2 years to 24 years, with the average of 3.872 years of firm age, and profitability also varies a lot, gross margin range from -3.86% to 90%.

According to the Pearson's correlation coefficient, I examine if there is any pair of variable highly correlated with the correlation coefficient higher than 0.9, then pick one variable out of the pair (Hair et al., 1998) to avoid multicollinearity problems. From Table 4-1, there is no significant correlation problem among my model.

Table 4-1 Correlation and Descriptive Statistics

	Variable	**Mean**	**s.d.**	1	2	3	4	5	6	7	8
1	1 day abnormal return	0.240	6.587	1							
2	5 day abnormal return	-0.687	8.056	0.310	1						
3	Prior experience [a]	0.583	0.494	0.076	0.096	1					
4	Firm size	3.402	8.950	0.000	0.004	0.267	1				
5	Firm industry [b]	0.379	0.486	-0.040	-0.021	0.001	0.281	1			
6	Firm age	9.506	3.872	-0.026	0.094	-0.048	-0.257	-0.146	1		
7	Partner industry [c]	0.298	0.458	0.003	-0.145	0.023	0.054	0.408	-0.111	1	
8	Profitability	25.450	16.109	0.008	0.082	-0.097	-0.119	0.088	-0.136	0.124	1

N=285 (two-tailed test)w

Correlations with absolute value greater than 0.119 are significant at $p<0.05$ level, and those greater than 0.267 are significant at $p<0.001$ level

[a] Dummy variable coded as experienced case, 1; otherwise, 0.

[b,c] Dummy variable coded as high-tech industry, 1; otherwise, 0.

4.2 One Sample T test

I use one sample T-test to examine if there is any positive abnormal return generated by alliance announcement. The result shows neither the one day nor the five days abnormal return is significantly differ to zero. Although the five days abnormal return is close to significant level (with p value of 0.151), it is negative, inconsistent with many previous studies stated that the alliance announcement will generate positive abnormal return (Chang et al., 2008a). I think this might due to the cultural difference between developed countries and China, and will discuss this later in chapter five.

I believe the difference between one day and five days abnormal return maybe the impact of investor sentiment, according to the evidence provided by behavioral finance scholars (Barberis, Shleifer, & Vishny, 1998), market tend to overreact to good news at the announcement date, so they chased the price up. Consider this impact, I believe the 5 days abnormal return is favored for providing us the settled market view of the potential benefits of the alliances.

Table 4-2 Announcement-period Abnormal Return

Abnormal Return	**Mean**	**s.d.**	**t statistics**	**p value**	**95% CI**
One day (announcement date)	0.240	6.587	0.62	0.539	(-0.528, 1.008)
5 days (4 days after announcement)	-0.687	8.056	-1.44	0.151	(-1.627, 0.252)

4.3 Regression Analysis

The main objective of this study is to investigate the effect of prior experience on alliance performance, so I do the regression analysis, and the results are presented in Table 4-3.

Model 1 tests the direct effect of prior experience on alliance performance. As I argued in Hypothesis 1, with prior experience, the performance of alliance this time should be better.

Model 2 tests the moderating effect of firm size. As I argued in Hypothesis 2, with greater size, firm possess more resources and learning capabilities. Larger firms would gain more from prior experience.

Model 3 tests the moderating effect of firm industry. I divided firms into high- and low-tech groups according to their SIC code. As I argued in Hypothesis 3, the more dynamic environment in the high-tech industry means the more risk and uncertainty (Chyan et al., 2007), as a result, making the experience effect in high-tech industry more important.

In addition to reduce the impact of other important factors, I control firm age, partner firm industry (high-tech dummy), and firm profitability in my models.

Table 4-3 Five Days Abnormal Return

Variable	Model		
	(1)	(2)	(3)
Intercept	-4.569**	-8.656***	-5.492**
Independent variable			
Alliance Experience	1.8991*	11.042***	1.9487*
Control variable			
Partner Industry (High-tech dummy)	-2.678**	-2.839**	-3.178**
Firm Age	0.2077+	0.2005	0.2625*
Profitability	0.06287*	0.04565	0.06879*
Moderator			
Firm size		-1.3512***	
Firm size*Prior experience		3.3221***	
Firm Industry(High-tech dummy)			0.976
Firm Industry(High-tech dummy) * Prior experience			3.750+
R-Sq(adj)	3.9%	10.4%	4.7%
F statistic	3.92	6.5	3.34
No. of observation	285	285	285

+ p<0.10; * p<0.05; ** p<0.1; *** p<0.001

4.3.1 Direct effect of prior experience

The impact of prior experience on alliance performance is tested in Model 1, the result shows that, with prior experience, the 5 days abnormal return is significantly (at the 0.05 level) higher than those alliance with no prior experience. My Hypothesis 1 is thus supported.

On the other way, although not listed in Model 1, I found the 1 day abnormal return of experienced and in-experienced alliance is not significantly different. I believe the possible explanation still falls on behavioral finance, that is, the initial market reaction might not be rational enough to distinguish the minor difference of alliance cases. Only the later period reaction consider the full information, show the rational market revision to the alliance announcement.

4.3.2 Moderating effect of firm size

In Model 2, I found firm size positively moderate the effect of prior experience to alliance performance, support my Hypothesis 2, which means with greater size, firm will benefit more from prior experience.

4.3.3 Moderating effect of Industry

In Model 3, I found firm industry (High-tech dummy) positively moderate the effect of prior experience to alliance performance, support my Hypothesis 3, which means the firm in high-tech industry will benefit more from prior experience.

4.3.4 Diagrams of moderating effect

For further insight about the moderating relationships between effects of independent variable and moderators, I depicted diagrams based on results of Model 2 and Model 3 (Aiken & West, 1991) in Figure 4-1 and Figure 4-2, respectively. In these figures, each plot of figures was computed by substituting values of independent variables into the fitting line of data I constructed from regression model when holding moderators in different levels. In two-dimension diagrams, I further specifically used data points that were one standard deviation above or below mean value to make my diagrams representative (Sidhu, Commandeur, & Volderba, 2007).

Hypothesis 2 declared that firm size will moderate the relationship between prior experience and alliance performance. It has been verified through Model 2 in this research, and can be understood clearly though viewing Figure 4-1 below. In this figure, a greater firm size will strengthen the positive effect of prior experience to alliance performance, showing the importance of size impact. More seriously, a smaller firm size not only decrease the positive impact gain from prior experience, this figure shows market reaction to alliance formed by experienced small firm is negative.

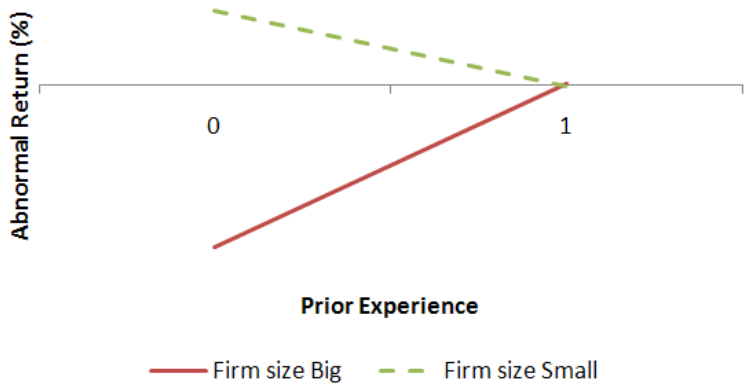

Figure 4-1 Moderating Effect of Different Firm Size on Prior Experience

Hypothesis 3 declared that firm industry (whether in high-tech industry or not) will moderate the relationship between prior experience and alliance performance. It has been verified through Model 3 in this research, and can be understood clearly though viewing Figure 4-2 below. In this figure, the line of high-tech companies is deeper, showing a high-tech company will benefit more from the positive effect of prior experience to alliance performance.

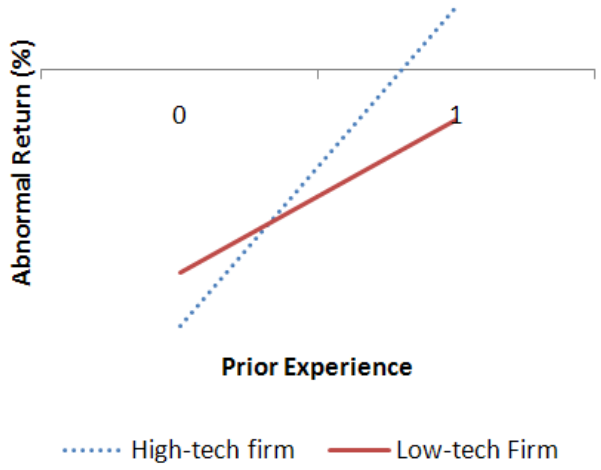

Figure 4-2 Moderating Effect of Different Firm Industry on Prior Experience

Chapter 5 Conclusions and Suggestions

5.1 Research Conclusion

In this research, I have following conclusions:

First of all, I found the announcement of alliance did not generate significantly positive abnormal return for Chinese firms, opposite to many previous researches. When I measure the longer time period abnormal return, the results go even worse. It shows investors didn't generally consider alliance announcement as a good news, I think the reason for this result required further discussion.

Since those evidences of positive abnormal return on alliance announcement come from developed economics, I think the not so positive reaction to alliance announcement in my result might due to the incompletion of legislation in China. Although alliances provide firms with access to valuable resources, they also ask firms to give some cost for exchange. Engaging in this kind of contract force firms to take the risk of partner firms' opportunistic actions, and without strong contract enforcement mechanism, the risk will be higher. On the real option point of view, I can say it shows market valued the toehold investment of forming alliances higher than the expected following benefits. Still I did not examine this hypothesis in my research because this is not my main research objectives. However, I believe this is an important direction for future research.

Next, I found prior experience positively affect the five days abnormal return on alliance announcement in a significant level, consistent with prior researches. It shows experience value is also applicable in China. At the same time, I found experience did not cause significant difference on one day abnormal return, I believe the possible explanation falls on behavioral finance, that is, the initial market reaction might not be rational enough to distinguish the minor difference of alliance cases. Only the later period reaction consider the full information, thus reflect the experience value on alliance announcement.

Besides, this research investigate the factors that affect experience value, and confirmed that firms with greater size and in high tech industry will benefit more from prior experience.

5.2 Theoretical Implication

Forming strategic alliances is an important strategic action for modern firms, it help Firms gaining required resources, learning new capabilities, without investing too much capital. All of the advantages of strategic alliances give rise to the popular interest in this research area. Among those researches, some found prior experience would positively affect the alliance performance, but few of them provide evidence from emerging countries. I thus use Chinese firms as research object to test the universal applicability of previous studies. In my study, I use Resource Based View to

investigate the impact of prior experience on alliance performance, and go a step further to find out the moderating variables. Through this study, I enhanced my understanding of strategic alliance as well as Chinese firms.

5.3 Managerial Implication

This research indicated the difference between developed countries and emerging countries on valuation of alliance announcement. In those emerging countries without enough legislation, contract signed by firms sometimes do not receive fully effect. Forming alliances provide firms with access to valuable resources, but also provide their counter parts the opportunity to steal firms' valuable secret. Without effective way to reduce this opportunistic risk, the cost of forming alliance may be greater than the growth value. On the other way, this research confirmed the applicability of previous studies on experience value, shows Chinese firms also benefit from prior experience.

By Synthesize these results, I can conclude that forming alliance is not a panacea, especially not for the Chinese firms. Alliances bring resources combining risks together. Without enough preparation, engaging in alliances could be a start of big disaster. Furthermore, alliances announcement is only the start of strategic intention, not the end of strategic action. The firms with more organizational learning capability will gain more from that action, and excel among competition.

5.4 Limitation and Future Research Direction

Although I tried my best to complete this research, there are still limitations in my research. Here, I listed the limitations and give some suggestion for future study.

First of all, I followed previous similar event study researches, use market abnormal return on alliance announcement to measure expected alliance performance. The result otherwise shows a different result compare to previous researches. I have raised my explanation, however, this uncommon result still need further examination.

In addition, when determining prior experience, my final sample lies within year 2003 and 2008, to make sure there is no prior experience at least within four years. Previous research also use similar measurement (Chang et al., 2008a), with the hidden assumption that experience gained from too long ago may be obsolete. I believe this assumption needed further investigation, and suggest future studies to test the relationship between time gap and experience value.

And last, I took the broad definition of alliance, including both Joint Ventures and non-equity alliances into my analysis. Although I didn't see any distortion of my result with the added variable of Joint Venture dummy (differentiate Joint Venture and non-equity alliances), future research may gain further insight from analyzing them respectively.

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