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M&As Effects on Chinese High-tech Company Innovation Performance: Developing Research Framework and Propositions

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Abstract: Given the growing importance of technology and innovation to high-tech firm competitiveness, there need propose an expanded research framework including the role of technology in driving mergers' decision, the impact of mergers on technology innovation, especially for Chinese high-tech companies. This paper studied the effect of M&As and technology-driven M&As on post-M&A technological innovation performance of acquiring firms, built theory model “strategic motives- different types of acquisitions- technological performance” and basic propositions based on the logic mentality "motivation-conduction-performance" through literature study and interview. In the end, some limitations of this research and important future directions for further research are pointed out.

Key words: Mergers and acquisitions (M&As); Technology-driven M&As; Innovation Performance

1. INTRODUCTION

The strategy of mergers and acquisitions (M&As) have gained in popularity over the last decade. The recent wave is characterized by technology driven and M&As play a significant role in Chinese high-tech companies' technological strategic deployment. Due to constant changes in the technological era, recent international financial crisis, Chinese economy development growth rate slowing down whether Chinese high-tech companies can sustain technology advantages becomes the most critical factor for business development and competition advantages. On other hand, from theoretical, around the researches of M&As motivation, evaluation and success criterion emerged in endlessly and became the hot spots in the field of international enterprise management, financial economy, strategic management and organizational behavior in recent years. Generally, the studies about M&As approximately divided into four schools: financial economy, strategic management, organizational behavior and process guiding. Different school of thought discussed regular pattern and feature of M&As from different angles.

In practical, corporate M&As have profound economy motion and driving power, existing literatures generally followed the logistic thought of “strategy orientation (motivation)----resource integration (conduction)-----value judgment (performance)”, in view of different theoretical basic, researched M&As performance and value creation from different angles. At present, most literatures kept a watchful eye on external environment (such as capital market structure, industrial structure transformation, technology, policy revolution, corporation control power, transaction cost) and internal elements (such as corporation earnings level, management power) effecting mergers and acquisitions. Christian Berggren (2003) ^[1] argued that in much of management literature, the basic financial rationale and economic imperative justifying the merger is more or less taken for granted (see e.g. Haspeslagh & Jemison,1991) ^[2]. They proposed an agenda for future merger research, comprising two aspects, one was collaborative approaches to uncover the special-interest groups that drive the proposal to merge, the other was cross-disciplinary studies to investigate the long-term effects of mergers on creativity, projects and innovation in engineering.

2. THEORETICAL ANGLES OF EFFECTS OF M&AS ON INNOVATION PERFORMANCE

Although scientific progress had a significant impact on M&As evolution, innovation as the M&As' motivation had almost been passed in the previous 1980s researches (Link,1988; de Jong, 1976). Hitt, Hoskisson, Ireland and Harrison (1991) put forward acquisitions often served as a substitute for innovation, which might cause further neglect of internal R&D. They proposed the wave of acquisition activity might be damaging the innovative capabilities of American firms and make them less competitive in the global marketplace (Hitt and Hoskisson,1988, 1990, 1991,1996,1999) ^[4,15].

Recent contributions had clearly pointed at the growing importance of M&As in the knowledge acquisition process, more recent work after 1990s had addressed the motivation of technology for companies engaged in M&As (Chakrabarti et al.,1994; Grandstrand et al., 1992; Hitt et al.,1991; Gerpot,1995; Hagedoorn and Duysters,2002) ^[5]. Today, as most high technology corporations, M&As was found to be increasingly used to obtain external technological capabilities needed to compete successfully. Most of the empirical evidence produced by researchers focused on the effects of mergers on profits, sale, market shares and market values. But what are the effects of mergers on the long-term performances of firms? Do they have a positive or negative effect on the innovative ability of the acquiring? It follows that in the future research schedule of M&As, on account of multi-disciplinary mutual overlap, the research involved M&As effecting innovation and creative power might become not tolerating slighting part (Andrew, Luke and J. Stanley,1998; Christian Berggren, 2003; Tsai and Wang, 2008) ^[1,7].

3. EFFECTS OF M&AS ON INNOVATION PERFORMANCE: A RESEARCH FRAMEWORK

3.1 Effects of M&As Behavior on Innovation Performance

From corporation control power, M&As would effect debt, managerial commitment to innovation and then have effect on innovation. Hitt and Hoskisson (1990) ^[15] founded that the acquisition process had three direct effects on managerial commitment to innovation. A significant direct effect included the use of acquisitions as a substitute for innovation because of the risk in pursuing innovation and trade-offs in resource allocations. The amount of managerial energy absorbed by the acquisition process is another direct effect. The increased debt levels that often are necessary to finance acquisitive growth is the third effect (Michel and Shaked, 1985).

The research of industrial organization (Caves,1989; Roller et al.,2001) ^[9] involved market relevance of the acquirer and acquiree. M&A had the potential to generate scale and scope economies in R&D, enhancing R&D efficiency (Cassiman et al.,2005) ^[18]. These would benefit for developing acquiring innovative capabilities and raising its R&D budget. Merging firms may also reap economies of scope by spreading fixed costs over different types of R&D output (Olivier Bertrand, 2006) ^[6]. On the other hand, in fast moving markets where product life cycles are shorter, developing R&D internally could be impossible (Leonard-Barton, 1992), too risky or take too long (D'Aveni,1993).Acquiring the already existing R&D assets of target firms could be a way of entering new technology markets and complementing internal R&D resources. In consideration of benefits of scale and scope, M&As would have a positive effect on innovation performance (Cohen and Levin,1989; Roller et al.,2001) ^[10]. The integration and coordination difficulty of different R&D projects would have a negative effect on R&D input and output, only if technological spilling extraordinary obvious (Kamien and Schwartz,1982; De Bondt,1997).

In short, M&A might have ambiguous and complicated effects on the level of internal and external R&D, to move forward a single step on the innovation performance of corporation. But, Shibayama et al., (2008) used a Japanese pharmaceutical as a case to discuss the mechanism of knowledge-base transfer among scientists as a micro-level positive factor. The most recent empirical research has confirmed this influence when the research

objects were high-tech companies. In summary, arguments regarding M&As impacts of technological innovation performance suggest the following hypothesis:

Hypothesis 1. The M&As of high-tech companies has a positive effect on technological innovation performance.

Hypothesis 2. The high-tech companies which have no M&As have lower technological innovation performance, comparatively speaking, the high-tech companies which have more M&As have higher technological innovation performance.

3.2 Effects of Technology-driven M&As Behavior on Innovation Performance

Along with rapidly technology revolution, purchasing external technology became an important internal R&D supplementation and an prominent motivation of merger and acquisitions(Chakrabarti et al., 1994) ^[12]. Technology-driven merger may enhance R&D efficiency, pushing firms to develop their innovative capabilities. The complementary of merging partners' technology assets could improve R&D efficiency, the exchange of partners' knowledge leaded to a cross-fertilization of ideas and new knowledge combinations and fostering technology innovation. Technology-driven M&As supplied a exclusive way of accessing new technology and had an key role of long-term strategy advantage maintaining (Hagedoorn and Duysters, 2002) ^[5].

The view that innovation arises from the recombination of existing knowledge is now well established (Grant, 1996) ^[24]. Nonetheless, the only way for an organization to sustain its innovative competencies is by constantly upgrading its knowledge base (March,1991). Following this, technology-driven M&As could be considered an important external source of knowledge in order to foster innovation as well as to develop innovative capabilities. It is the firm's ability to acquire, transfer and integrate the acquired firm's knowledge base into the knowledge base of the acquiring firm that creates a sustainable competitive advantage (Barney, 1986).

But, not all mergers and acquisitions driven by technology or correlative technology. In fact, acquisitions could be driven by joint motives, such as market entrance, market structural adjustment, efficiency improvement, diversification, spreading risk and others relevant to markets(Chakrabarti et al., 1994) ^[12]. If original intention of M&As not concluded technology factor, post M&As would have negative effect on R&D efficiency (Ahuja and Katila,2001; Haspeslagh and Jemison,1991) ^[14,17]. Yet, the management and the integration of post-mergers is another difficulties. M&As could lead to high levels of stress (Cartwright & Cooper,1992), increased turnover (Hambrick & Canella, 1993), and a drop in the productivity of acquired R&D personnel (Paruchuri , Nerkar, & Hambrick, 2006), which might hinder innovations following technology-driven M&As.

In summary, arguments regarding technology-driven M&As of Chinese high-tech companies impacts of technological innovation performance suggest the following hypothesis:

Hypothesis 3. The technology-driven M&As of Chinese high-tech companies has a positive effect on technological innovation performance.

Hypothesis 4. The non technology-driven M&As of Chinese high-tech companies has a negative or no effect on technological innovation performance.

3.3 Effects of Knowledge Base and Technical Characteristics of M&As Both Sides on Innovation Performance in Technology-driven M&As

Considering technology-driven M&As effect on innovation performance comprehensively, M&As partners knowledge base and technology relatedness must be taken into consideration. In fact, M&As was a process of resource rearrangement to increase productivity (Anand & Singh, 1997; Capron, Dussauge and Mitchell,1998; Capron,Mitchell and Swaminathan,1998) ^[16] . By means of acquisition peculiar asset or resource, integration these resources to promotion production rate and acquiring effect of "1+1 > 2"(Haspeslagh and Jemison,1991; Anand and Singh, 1997) ^[16,17].

Capron (1999) and Cassiman et al.(2005) strived at identifying some corporate contexts and partner characteristics contributing to successful outcomes in terms of generating post-merger technology. The positive vision of the interplay between takeover activity and R&D spending with “strategic fitness” of M&As partners was researched by Cassiman et al.(2005). They investigated 31 in-depth cases of M&A operations and found that relevant technology contribution to scale and scope economic effect of technology innovation. Because similar skill, shared language and similar cognitive structure would benefit technology communication, interchange and learning. Market-related technologies would also contribute to research institution integration to express alliance effect production R&D overflow effect (D’Aspremont and Jacquemin, 1988) and avoidance of repetition R&D (Veugelers et al.,2004) . But excessively similarity technology might reduce mutual leaning (Ahuja and Katila, 2001; Cloudt et al., 2006).In short, the complementary of technology assets between merging partners could improve R&D efficiency, making them increase their R&D expenditures.

On the other hand, according to Resource-based Theory and Knowledge-based View, discrepancy of knowledge resource effected divergence of corporation performance (Bierly and Chakrabarti,1996) .Consequently, when a corporation had the ability of holding itself knowledge resource to obtain, transferring and integrating the knowledge resource of the acquired, it would create sustainable competitive advantage (Barney, 1986).The R&D level of the acquiring would contribute to recognition capability of external technology (Cohen and Levinthal, 1990; Lane and Lubatkin, 1998; Kim, 1996) this means internal R&D might have moderating effects on the innovation performance of the acquiring. Some researches demonstrated internal R&D level was an important method to develop technical capacity (Schoenecker and Swanson, 2002), could promote technology absorbing capacity (Cohen and Levinthal, 1990; Giuri et al, 2006), strengthen concentration technology and utilize external technology to encourage post-merger innovations (Helfat, 1997; Gambardella, 1992; Mowery et al., 1996).

In summary, arguments regarding effects of knowledge base and technical characteristics of M&As both sides on innovation performance in technology-driven M&As of high-tech companies suggest the following hypothesis:

Hypothesis 5. As the absolute size of the acquired knowledge base is positively related to the post-M&A innovative performance of the acquiring firm, this relationship is stronger when the acquiring firm has a higher R&D ability or R&D level.

Hypothesis 6. As the relative size of the acquired knowledge base is negatively related to the post-M&A innovative performance of the acquiring firm, this relationship is stronger when the acquiring firm has a higher R&D ability or R&D level.

Hypothesis 7. As the technological relatedness of the acquired knowledge base is positively related to the post-M&A innovative performance of the acquiring firm, this relationship is stronger when the acquiring firm has a higher R&D ability or R&D level.

4. Conclusions

This paper conducted a basic research framework on the basis of literature review. Depending on particular conditions, M&As has a positive not negative effect on innovation performance, the theoretical basis is Resource-based Theory and Knowledge-based View. From the organizational learning theory, innovation had been conceived the process of collection and new combination knowledge of science and technology (Van de Ven,1986), knowledge transferring and integration of organization reflected innovation ability (Henderson & Cockburn,1996; Phene et al.,2006) .

Despite the large number of publications about M&As and performance, the extant literature has at least two limitations. One lies in the fact that the majority of prior research centers on assessments of performance,

blurring performance processes and outcomes. It is thus something of a “black box” in the M&As-performance relationship. The other challenging problem is the lack of a basic framework about the relationship between M&As and innovative and performance.

Given the growing importance of technology and innovation to firm competitiveness and the on-going importance of M&As, there need propose an expanded research agenda including the role of technology in driving mergers' decision, the impact of mergers on technology innovation. So, there need more researches about the effect of M&As or technology-driven M&As on acquirers' technological innovation performance, especially for Chinese high-tech companies.

In general, based on the development of technology-driven M&As, from the perspective of Chinese high-tech companies, using the empirical analysis method to analyze the effect of M&As and technology-driven M&As on acquirers' technological innovation performance, as well as how the merging parties' knowledge base, technology relatedness and acquirers' internal R&D efforts effect the technological innovation performance in technology-driven M&As, so as to build the whole model of technology-driven M&As effects on technological innovation performance. The results of this paper are not only academic problems but also problems need to resolve in practice. This research framework make up for the deficiency of the related studies and has a positive contribution to M&As theory, technology-driven M&As theory, a well-connected network between M&As and technology innovation and other related academic theory. It also has important guiding significance to Chinese high-tech companies' M&As and technological strategic deployment.

Nonetheless, this paper still has such limitations:

Firstly, research angle of this paper is effects of M&As on innovation performance, but the ability of technology innovation would effect the choices of M&As in reverse? Is there existed bidirectional relationship between M&As and technology innovation.

Secondly, usually, M&As as an very important way of corporation diversifications and diversification would effect on organizational structure, control mechanism of enterprise. So, is it appropriate that diversification as a metavariabale between the relationship of M&As and innovation performance?

Thirdly, at the present times, complexity of administration requires appropriate methods. Especially modern scientific community emphasizes multiple methodologies to research realistic management problems. Case study could grasp the richness of phenomenon (Weick, 2007) and give a thick description(Tsui, 2007;Tsui, Nifadkar and Ou, 2007) and become a most suitable method to research the mechanism of M&As and innovation performance.

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REFERENCES

- [1] Christian Berggren, Mergers, MNEs and innovation: The need for new research approaches[J], *Scand. J. Mgmt.* (2003), (19) 173–191
- [2] Haspeslagh, P.C., & Jemison, D.B. *Managing acquisitions: Creating value through corporate renewal*, [M](1991). New York: Free Press
- [3] KPMG. (1999). *Unlocking shareholder value: The keys to success*. London: KPMG.
- [4] Hoskisson R.E., and Michael A. Hitt, Strategic Control Systems and Relative R&D Investment in Large Multiproduct Firms [J], (1988) *Strategic Management Journal*, Vol (9) :605-621

- [5] Hagedoorn, J., Duysters, G., (2002). The effect of mergers and acquisitions on the technological performance of companies in a high-tech environment [J]. *Technology Analysis and Strategic Management* 14 (1), 68–85.
- [6] Olivier Bertrand, Pluvia Zuniga, R&D and M&A: Are cross-border M&A different? An investigation on OECD countries [J], (2006) *International Journal of Industrial Organization* 24 401–423
- [7] Tsai, and Wang, (2008), External technology acquisition and firm performance: A longitudinal study [J], *Journal of Business Venturing*, Volume 23, Issue 1, 91-112
- [8] Jensen, M.C. and R.S. Ruback, (1983): "The market for corporate control: the scientific evidence" [J], *Journal of Financial Economics*, 11, 5 - 50.
- [9] Caves, R.E., (1989). Mergers, takeovers, and economic efficiency[J]. *International Journal of Industrial Organization* 7, 151–174.
- [10] Cohen, W., Levinthal, D., (1989). Innovation and learning: two faces of R&D[J]. *The Economic Journal* 99, 249–266.
- [11] Carmine Ornaghi, (2009). Mergers and Innovation in big Pharma[J], *International Journal of Industrial Organization*, 27:70-79.
- [12] Chakrabarti, A., Hauschildt, J., Sueverkruep, C., (1994). Does it pay to acquire technological firms? [J]. *R&D Management* 24, 47–56.
- [13] Cloudt, M. et al. (2006), Mergers and acquisitions: their effect on the innovative performance of companies in high-tech industries[J]. *Res. Policy* 35, 642–654.
- [14] Ahuja, G. and Katila, R. (2001), Technological acquisitions and the innovation performance of acquiring firms: a longitudinal study[J]. *Strateg. Manag. J.* 22, 197–220.
- [15] Michael A.Hitt, Robert E Hoskisson, Richard A Johnson, Douglas D Moesel, (1996) The Market For Corporate Control and Firm Innovation[J], *Academy of Management Journal*, , Vol.39 No5.: 1084-1119.
- [16] Anand J, Singh H. (1997). Asset redeployment, acquisitions and corporate strategy in declining industries[J]. *Strategic Management Journal*, Summer Special Issue 18: 99.
- [17] Haspeslagh, P.C., & Jemison, D.B. (1991). *Managing acquisitions: Creating value through corporate renewal*[M], New York: Free Press.
- [18] Cassiman, B., Colombo, M., Garrone, P., Veugelers, R., in press. (2005) The impact of M&A on the R&D process: an empirical analysis of the role of technological and market relatedness. *Research Policy*[J]. 34:195-220.
- [19] Lane, P.J., Lubatkin, M., (1998). Relative absorptive capacity and inter-organizational learning[J]. *Strategic Management Journal*. 19, 461–477.
- [20] Cohen, W.M., Levinthal, D.A., (1990). Absorptive capacity: a new perspective on learning and innovation[J]. *Administrative Science Quarterly* 35(1), 128-152.