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Effects of M&As on Innovation Performance:

A Basic Research Framework

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Abstract: The strategy of mergers and acquisitions (M&As) have gained in popularity over the last decade. This paper studied the effect of M&As and technology-driven M&As on post-M&A technological innovation performance of acquiring firms and built theory model "strategic motives-different types of acquisitions-technological performance" 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.

Keywords: 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. In recent years, 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. 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. Table 1 summarizes the comparison of M&As theoretical angle of view.

Table 1. Comparison of M&As Different Theoretical Angles

School of Thought	Representative Figure	Research Angle
Financial Economy	Mandelker,1974;Jensen and Ruback,1983; Bradley,1988; Datta et al.,1992; Loughran and Vjih,1997	M&As characteristic, the relationship between the acquiring and acquired corporation characteristic and M&As value creation, relative reviews founded that M&As characteristic and corporation characteristic would impact M&As value creation
Strategic Management	Elgers&Clark,1980;Sigh&Montgomery,1984,1987;Lubatkin,1987;Scherman&Pettway,1987;Morck,Shleifer&Vishny,1990;Agrawal et al.,1992;Chatterjee&Wernerfelt,1991; Berger &Ofeck,1999	Usually divided M&As into horizontal, vertical and conglomerate M&A, researching M&As value creation from the synergistic effect of M&As operation, finance and collusion, relative reviews founded that the acquiring and acquired strategic imitation degree would impact M&As value creation
Organizational Behavior	Datta,1991; Chatterjee et al.,1992; Haleblan & Finkelstein,1999	Observed and studied how the organizational culture combination degree of the acquiring and acquired corporation, managers' M&As experience and other elements to effect M&As value creation
Integration School	Pablo,1994 ;Capron & Pistre,2002	Explained M&As value creation from the M&As integration and different resources integration after M&As, such as human resources, physical assets, market resource, technology innovation, property resource and so on

As showed in Table 1, corporate M&As have profound economy motion and driving power, existing

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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)^[4,22].

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)^[5,15]. Today, as most high technology corporations, M&As was found to be increasingly used to obtain external technological capabilities needed to compete successfully. Table2 summarizes comparison of effects of M&As on innovation performance theoretical angles

Table 2. Comparison of Effects of M&As on Innovation Performance Theoretical Angles

Representative Figure	Research Perspective	Principal View
Hill, Hitt, Hoskisson et al.,	Corporation Control, Diversification	From the angle of corporation control, frequent merger and acquisitions changing diversification degree, organizational control mechanism, further effect on R&D input, output, R&D intensity ~ Hitt et al.,1991,1996;Hoskisson,Hitt,and Ireland,1994~
Grandstand, Hagedoorn and Duysters et al.,	Technology-driven M&As	Acquire external knowledge to improve self knowledge and intellectual accumulation (Cohen, Levinthal, 1989;Huber, 1991), the chief motivation of merger and acquisition of some corporations, especially for some high-tech corporations was achieving new technology rapidly (Link, 1988;Wysocki, 1997a,1997b; Chaudhuri, Tabrizi, 1999; Hagedoorn, Duysters,2002; Karim, Mitchell, 2000)
Conner and Prahalad, Grant, Levitt and March, Nonaka	Organizational Learning, Knowledge Acquisition	Based on Resource-based View ~ Barney, 1986, 1991; Wernerfelt, 1984~ and the relationship between organizational learning and innovation ~ Conner and Prahalad, 1996; Grant, 1996; Levitt and March, 1988; Nonaka, 1991~, the acquirer and acquiree differences of technical capacity, knowledge base and philosophy would increase the opportunity of organizational learning and innovation ~ Ghoshal, 1987~

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 BASIC RESEARCH FRAMEWORK

Christian Berggren (2003)^[1] developed an argument for an expanded agenda for merger studies: (1) merger motives and merger drivers, (2) mergers and innovation. On the basis of “strategy orientation (motivation)-----resource integration (conduction)----- corporation performance (performance)” analytical canonical form, firstly, M&As itself conducted as an important strategic behavior of resource integration would have what kind of effect on corporation performance and technological innovation which determined long-term competitive advantage? Next, as an external innovation and resource integration behavior, technology-driven M&As would have what kind of effect on innovation performance? Thirdly, in the technology-driven M&As, both sides had which type of characteristic technology or depended on which circumstances, technology-driven M&As would have a positive effect on technology performance of post M&As? This paper would build the basic research framework about effects of M&As on innovation performance around pondering over above-mentioned problems.

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)^[22] 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 Sharked, 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)^[25]. 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.

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)^[15].

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 led 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)^[31]. 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.

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)^[15]. 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)^[21,24]. 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.

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)^[23]. 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)^[23,24].

Capron (1999) and Cassiman et al.(2005)^[25] 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)^[16].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)^[26], 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)^[27], strengthen concentration technology and utilize external technology to encourage post-merger innovations (Helfat, 1997; Gambardella, 1992; Mowery et al., 1996).

As already emphasized, this paper constructed the research framework of effects of M&As on innovation performance as followed in Fig 1.

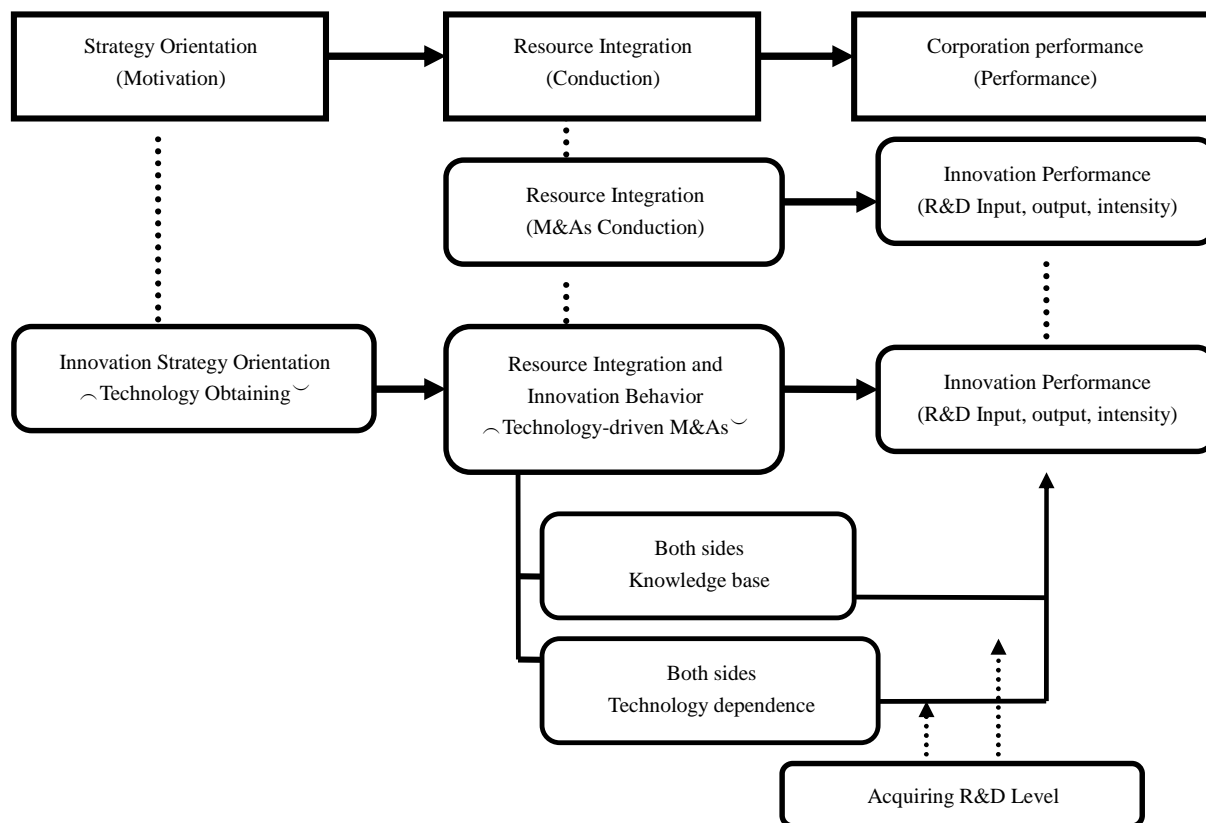


Fig1. Research Conception Model of "M&As on Innovation Performance"

4. CONCLUSIONS

M&As have been a significant firm strategy for many years. The current M&As wave is characterized by technology driven and M&As play a significant role in those big hith-tech companies' strategic deployment based on technology strategic orientation. Given the growing importance of technology to firm competitiveness and the on-going importance of technology-driven M&As, there need propose and expanded research agenda including the role of technology in driving strategic mergers' decision, the impacts of technology-driven M&As and technology innovation. 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, especially for the high-tech companies under the theoretical basis of Resource-based Theory and Knowledge-based View. From the organizational learning theory, innovation is a conceptualization of 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. Furthermore, based on Resource-based Theory and Knowledge-based View, the ability of technology would effect the technology strategy choosing such as Greenfield or M&As. So, is there existed bidirectional interaction mechanisms among technology-driven M&As’ motivation, conduction and performance? The relevant problems have not been resolved and the relevant research field has large space.

This paper studied the effect of M&As and technology-driven M&As on post-M&A technological innovation performance of acquiring firms and built theory model “strategic motives-different types of acquisitions-technological performance” based on the logic mentality “motivation-conduction-performance” through literature study and interview. In the future, with the help of structured and semi-structured interview, questionnaire survey, secondary data collecting to building relevant data base, dynamically integrating case study method, the research would have an insight into the technology-driven M&As strategic motivation, conduction and other factors adaptation to circumstances, especially for Chinese high-tech companies in recent years.

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.

In conclusion, M&As is a crucial strategic expansion approach involving many challenges in the global economy. Although this paper constructed a basic framework about effects of M&As on innovation performance. There are many areas requiring more theoretical and empirical development in this field. We believe that further researches on M&As, innovation and performance can make significant contributions both to scholars and practitioners.

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