2012

Key Successful Factors in Knowledge Transfer during M&A in Traditional Industries: An Empirical Study

Jun Huang
Southwest University, Chongqing

Juan Ling
Georgia College & State University

Jiaqin Yang
Georgia College & State Univseristy

Quanwu Zhao
Chongqing University

Follow this and additional works at: http://scholarworks.lib.csusb.edu/jitim

Part of the Management Information Systems Commons

Key Successful Factors in Knowledge Transfer during M&A in Traditional Industries: An Empirical Study

Jun Huang
Southwest University, Chongqing
China

Juan Ling
Georgia College & State University
USA

Jiaqin Yang
Georgia College & State University
USA

Quanwu Zhao
Chongqing University
China

ABSTRACT

This paper describes a study on identifying key successful factors in knowledge transfer resulting from business mergers and acquisitions (M&A) in those (so-called) traditional industries (e.g., textile and steel & iron) with the data collected in the steel and iron industry in Southwestern China. Specifically, this research investigates the relationship between prior-gained knowledge of merging companies, preparation and implementation processes, and actual performance after knowledge transfer. The result reveals that such prior-gained knowledge of merging companies will have a significant positive impact on the motivation for proposed M&A, while it, in contrast, may only have a limited impact on other factors such as the levels of transferred knowledge, its investments, implementation process, and the final performance. In fact, the prior-gained knowledge about the transferred knowledge among involved firms in the M&A is often mutually complementary. This research suggests that intensive motivation for M&A will have a positive impact on the desire levels of knowledge transfer, which will in turn have a positive impact on the success of knowledge transfer implementation process, and a successful implementation process then certainly will make a positive contribution to the effectiveness of knowledge transfer. Managerial implications and suggestions for future research are also discussed.

INTRODUCTION

With increased competition in the marketplace, mergers and acquisitions (M&A) have helped organizations gain and sustain competitive advantage via acquiring valuable knowledge (Kanter, 2009). However, since the global economic recession started in 2008, the worldwide M&A activities have been declined (over 40%) in the first half of 2009 comparing to a year ago, including those cross-border M&A activities (Platt, 2009). Such a decline has been mainly attributed to the limited access to syndicated loans to finance larger transactions and the risks involved in current recessionary environment. But as the global economy on its way to the recovery, there will be extremely opportunistic situations or mergers of necessity, when many

international corporations facing the challenge that their key suppliers are going out of business or they need to further strengthen their supply chain networks (Lea et al., 2007; Platt, 2009). Furthermore, it is believed that because not all governmental stimulus packages are created equal, larger scale M&A transactions will be seen in emerging market countries like China and India, focusing on transport and commodities, very strategic to their continued economic growth. Specifically, private equity funds will play a more important role in the future M&A activities as a source of capital, as it is reported that currently there are about $1 trillion such funds waiting to be deployed in the global capital market (Hannan & Pilloff, 2009). While there are reports for both failed and successful M&A deals in recent years, it is predicted that as economy recovers, successful M&A will belong to those that have focused on gaining the best talents and key core knowledge and integrating and motivating all of their human resources talents (Kanter, 2009).

As such, the success of knowledge transfers in an M&A process has attracted a significant attention recently in both academic studies and industrial practice (Wang, et al., 2009). During the last two decades, business organizations have attempted to effectively integrate their knowledge through knowledge transfer to develop core competences, increase synergy, and create value for customers (Bennett, et al., 2008; Galup, et al., 2004; Haspeslagh & Jemison, 1994). M&A activities and knowledge transfer have also drawn much interest from management researchers (e.g., Argote & Ingram, 2000; Cohen & Levinthal, 1990; Osterloh & Frey, 2000). However, after a comprehensive review of the relative literature, we find that most published work in this area is either explorative in nature or a simple case study. Even though a few have investigated knowledge transfer during M&A with empirical data and analytic results, they have not provided a comprehensive model to theorize and examine key factors in knowledge transfer during pre and post-M&A stages. As such, in this paper, we investigate six key factors that influence the success of knowledge transfer, including prior-gained knowledge of merging companies, prior-gained knowledge of merged companies, motivation for M&A, levels of knowledge to be transferred, investments in transfer, and the implementation process. These key factors exist in three basic stages associated with knowledge transfer during M&A – initiation, preparation, and implementation, which lead to the performance of knowledge transfer in the outcome stage. In addition, we are aware of that existing literature on the importance of knowledge transfer on the M&A process have focused on the high-technology industries, few actually addressing the possible issues in those well-established traditional industries, such as the textile and steel and iron industries.

So the motivation for this research is twofold. First, we theorize and examine key factors that play an important role in the success of knowledge transfer during pre and post-stages of M&A. Second, we examine knowledge transfer and M&A in traditional industries – like steel and iron industry. Like in many industrialized counties, the steel & iron industry has been the foundation industry for China's manufacturing industry development and growth, and a key element for its national economic growth. With its "old planning economic system", there had been over a few hundred of steel and iron plants all over the nation in China under its old regional structure, most were operated in low efficiency with out-of-date technology. As a result, since the China's economy reform in 1980s, an integration effort with many M&A activities among almost all Chinese local steel & iron plants was implemented after 1990s to improve the efficiency and effectiveness of the industry, with both success and failure reports. As such, a comprehensive empirical study in this area is clearly in need and believed to provide both meaningful and practical implications for the

industry and for the related literature. For this purpose, the steel and iron companies in a specific region in China are selected for data collection and upon which the relationship between the pre-conditions and post-performance of all related knowledge transfers during M&A are examined with key influential factors. The managerial implications are then discussed with the suggestions for future research.

LITERATURE REVIEW

Mergers and Acquisitions (M&A) has been a structural way of business world for better or worse in an effort of regrouping firms based on their previous business performance during the ups and downs of world economic development (Hannan & Rhoades, 1987; Loughran & Vijh, 1997). As a result, it has been a hot and long-standing topic for economic, accounting, finance, and management researchers to investigate all those related issues and challenges in the fields of economic policy, accounting procedures and principles, financial performance after an M&A process, and the administration of related M&A activities (Aigbe, et al., 2004; Andrade, et al., 2001; Amihud, et al., 2002). For example, Denis, et al. (2002) focus their attention on the impact of M&A on global diversification, industrial diversification, and firms' value changes. Delong (2003) examines the long-term firm performance in the banking industry after an M&A transaction based on the market expectations at the time. Likewise, Cornett, et al. (2006) investigate the influence of M&A on banks' financial performance changes from the perspective of both revenue enhancement and cost reduction; while Fraser and Zhang (2009) study the similar concerns from the banks which have recent cross-border M&A deals.

Recent research indicates that many factors are associated with the success of knowledge transfer, such as interpersonal dependence (the frequency and depth of communications), individual knowledge within the organizations (Rulke, et al., 2000), the degree of similarity between two parties in knowledge transfer (Almeida & Kogut, 1999), knowledge leak-out (Darr, et al., 1995), the accordance and deviation of the goals between individuals and organizations (Jensen and Meckling, 1976; Osterloh & Frey, 2000), the capabilities of senders and recipients (Cohen and Levinthal, 1990; Tsang, 2001), the knowledge-embedding mode, expression methods, the organizational structure (Chen et al., 2009), differences in policies and cultures, the attention paid by knowledge recipients, and the frequency of communication and learning mechanisms (Magnan, 2001; Cummings & Teng, 2003). More specifically, Gupta and Govindarajan (2000) find that the value of knowledge stock, the motivation to share knowledge, and the richness of transfer channels are positively related to the outflows of knowledge from a subsidiary whereas the capacity to absorb the incoming knowledge, the motivation to acquire knowledge, and the richness of transfer channels are positively associated with the inflows of knowledge into a subsidiary. Argote and Ingram (2000) take a different lens to look at how knowledge transfer helps firms to gain a competitive advantage, and demonstrate that the transfer of knowledge is difficult in some circumstances, especially the key knowledge that is embedded in the interactions of people, tools, and tasks is most hard to be transferred to competitors. As such, those kinds of knowledge will provide a basis for competitive advantage. Szulanski (2000) views the transfer of knowledge as a process including four basic stages as initiation, implementation, ramp-up, and integration. After investigating 122 knowledge transfers within eight organizations, he suggests that the factors affecting the opportunities to transfer will predict the difficulty of transfer in the initiation stage while the factors affecting the actions of transfer will predict the difficulty in the implementation

stage. Traits of the source such as motivation are important in the first three stages of knowledge transfer, whereas traits of the recipient such as absorptive capacity are significant in the implementation stage. Several related studies have been published more recently. For example, Liyanage, et al. (2008) discuss knowledge transfer in integrated procurement systems such as public-private partnerships and private finance initiatives in the construction industry, with a proposed process model of knowledge transfer including six steps, such as: awareness, acquisition, transformation, association, application, and feedback. In comparison, Prevot (2008) uses a typology analysis to examine the relationships between the characteristics and the components of the transfer method based on the data collected from more than 120 companies and find that the interactions between the source and the recipient of knowledge transfer have a critical impact on the success of transfer, and the components of knowledge transfer such as strategic goals of the source and transfer mechanisms can be used to define the transfer method.

There has been also a stream of research in the literature that concentrates on knowledge transfer during the process of M&A. For example, Haspeslagh and Jemison (1994) point out that knowledge transfer is directly related to the integration process during mergers and acquisitions. After investigating 42 M&A multinational cases, Breaman, et al. (1999) argue that knowledge expression methods, the depth of communication between the M&A parties, and the integration mode have a direct impact on the success of knowledge transfer. Back and Krogh (2002) explore mergers and acquisitions in large companies such as Cisco, IBM, and Lotus and found that the harmonious atmosphere, including the mutual understanding of organization cultures, the bilateral willingness of knowledge transfer, the good anticipation of M&A, and the knowledge network will be the effective methods of interdisciplinary knowledge transfer and integration. Hyuysman, et al. (2002) study knowledge transfer in the M&A process of high-tech companies and present four critical successful factors: (1) the pre-acquisition strategy, (2) the integration mode, (3) the degree of similarity between the M&A parties, and (4) the degree of social capital sharing.

In summary, while there are enough published reports on both the issues in M&A and knowledge transfer, as indicated earlier, most available literature in the area of M&A is either explorative in nature or simple case studies or mainly qualitative descriptions of the M&A activities, few are based on empirical data with analytic results. The primary aim of this study is to theorize and examine key factors that have a significant impact on the success of knowledge transfer during pre and post-stages of M&A. In addition, the majority of published research works in the knowledge transfer area have been focused on high-tech industries, few addressing the related issues in those traditional industries where a successful knowledge transfer after the M&A process becomes critical for the companies to gain the necessary competitive edge in the industry. Given the intensified competition in those traditional industries for more product variety and customization, greater capabilities of R&D, higher innovation, and lower costs, a high level of knowledge creation is thus highly demanded where knowledge transfer has become critical for the companies to gain the necessary competitive edge in the industry. As such, another motivation for this research is to examine knowledge transfer during M&A in traditional industries. Therefore, we plan to fill in the research gap by investigating and exploring the relationship between the pre-conditions and post-performance of all related knowledge transfers with key influential factors based on the empirical data collected from the steel and iron companies in China.

THEORETICAL BACKGROUND AND HYPOTHESES

According to the current literature, the performance of a knowledge transfer activity will be determined by both the factors of before implementation (i.e., prior-gained knowledge), during implementation (i.e., the motivation of both companies involved), and after implementation (Prevot, 2008; Bennett, et al. 2008). As such, in this paper, a conceptual model is first proposed to describe the relationships among the key initial factors, preparation, implementation, and the final performance for knowledge transfer in the horizontal M&A (Figure 1). Specifically, as shown in Figure 1, it is presumed that the initial factors, such as the prior-gained knowledge of both M&A parties and the motivation for mergers and acquisitions in the pre-M&A stage will affect the levels of and investments in knowledge transfer during the preparation stage of knowledge transfer, which, in turn, will have effects on the execution of knowledge transfer in the implementation stage and the final performance in the post-M&A stage. The above relationships are then tested statistically with the collected empirical data.

Figure 1: A conceptual model.
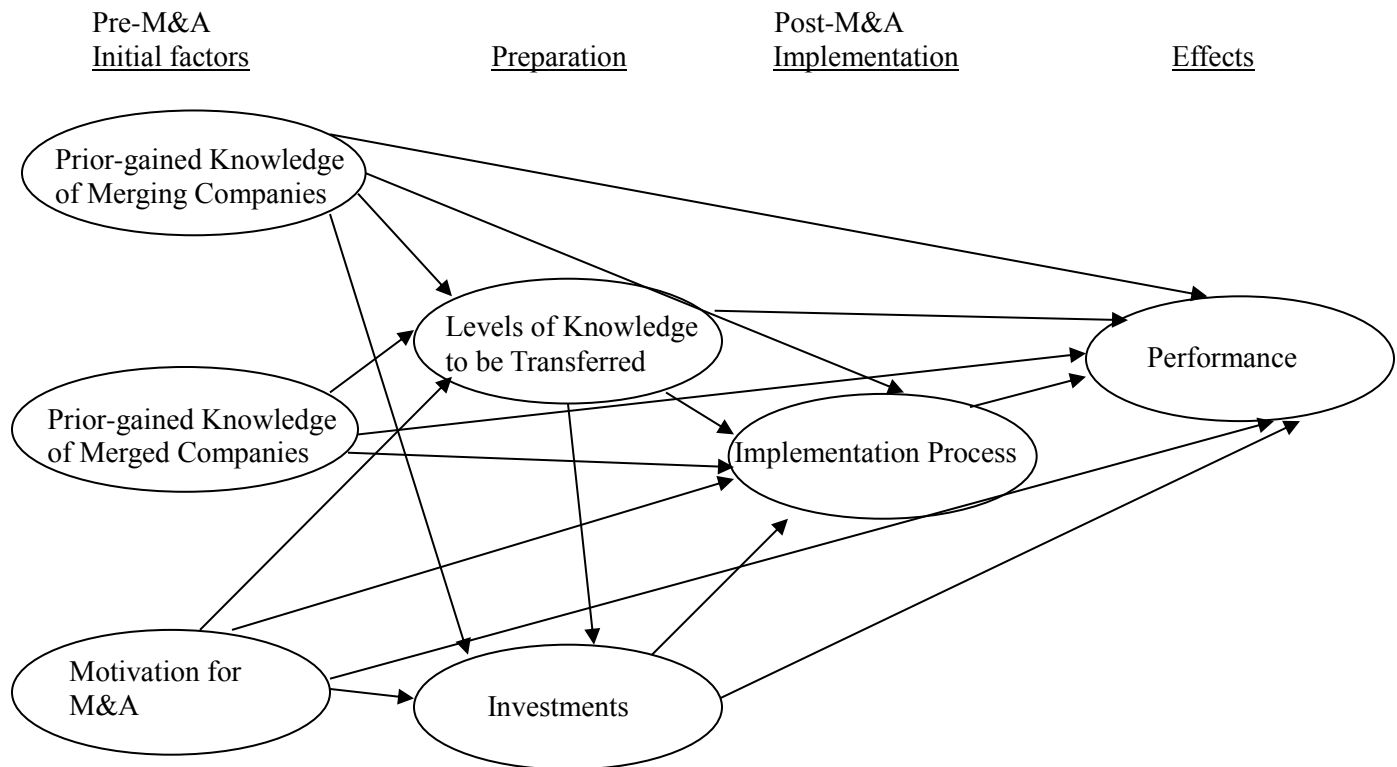
Initial Factors of Knowledge Transfer during M&A

Prior-gained Knowledge of Merging Companies: As introduced earlier, Kanter (2009) argues that acquiring companies will outperform others in the long run. In this vein, we propose that prior-gained knowledge possessed by acquiring companies has a significant impact on both the preparation and implementation of knowledge transfer, which, to a large extent, will determine the final performance of knowledge transfer. According to Prevot (2008) and Bennett, et al. (2008), characteristics of merging companies influence transfer methods and the effectiveness of

knowledge transfer. In this paper, we emphasize one of the key features of merging companies directly related to knowledge transfer, which is prior-gained knowledge of merging companies. We define prior-gained knowledge as all the elements of a firm's knowledge base that are relevant to knowledge transfer, including individual, product, organization, and network knowledge.

Companies need to develop their own knowledge system to provide quality products or services. However, due to the different history and background, not all companies have the same capacity in creating their own knowledge. The contents and types of knowledge the companies already have can be significantly different in scope and in depth. Knowledge is embedded in individuals, products, organizations, and their networks (Argote and Ingram, 2000). Thus knowledge can be categorized into individual knowledge, product knowledge, organization knowledge, and network knowledge based on knowledge carriers. By contrast, knowledge can be classified into implicit and explicit knowledge based on knowledge expression methods. The differences in companies' histories and their internal and external environments lead to the differences in knowledge expression methods and carriers, which will in turn result in their unique prior-gained knowledge system.

If a company has a large comprehensive knowledge base, high quality employees, advanced products, clear organization policies, and a nice knowledge network, then its prior-gained knowledge will tend to be good enough for knowledge transfer at the high level – the level where the content and the types of knowledge are usually more complex and deeply embedded. The company will thus increase the investment in knowledge transfer and promote its successful implementation. Moreover, knowledge transfer is a complex process. If the company is large enough to provide resources and support to enhance the implementation of knowledge transfer (Bresman, et al., 1999), it will make knowledge transfer more effective. As such, the following hypotheses are proposed:

> ***Hypothesis 1a: Prior-gained knowledge of merging companies will have a positive effect on the levels of knowledge transfer.***

> ***Hypothesis 1b: Prior-gained knowledge of merging companies will have a positive effect on the investment in knowledge transfer.***

> ***Hypothesis 1c: Prior-gained knowledge of merging companies will have a positive effect on the implementation of knowledge transfer.***

> ***Hypothesis 1d: Prior-gained knowledge of merging companies will have a positive effect on the performance of knowledge transfer.***

Prior-gained Knowledge of Merged Companies: Similarly, as Cummings and Teng (2003) and Tsang (2001) suggest, characteristics of merged companies also influence the success of knowledge transfer. We argue that prior-gained knowledge of merged companies has an important impact on the content, implementation, and final performance of knowledge transfer. Cohen and Leviathan (1990) point out that pre-gained knowledge base of merged companies will provide the basis for the absorption of new knowledge, which, in turn, is the key to the success of knowledge transfer. Specifically, if the merged companies have rich knowledge bases, highly qualified

employees, advanced products, clear organization structures, and sound knowledge systems, they will have a strong ability to absorb new knowledge. Merged companies will be highly embedded within knowledge transfer so that the levels of knowledge transfer will be higher. It will thus benefit the implementation of knowledge transfer, which will in turn increase the probability of success in knowledge transfer. As such, the following hypotheses are proposed:

> *Hypothesis 2a:* **Prior-gained knowledge** *of merged companies will have a positive effect on the levels of knowledge transfer.*

> *Hypothesis 2b:* **Prior-gained knowledge** *of merged companies will have a positive effect on the implementation of knowledge transfer.*

> *Hypothesis 2c:* **Prior-gained knowledge** *of merged companies will have a positive effect on the performance of knowledge transfer.*

Motivation for M&A: Companies are likely to arouse and sustain effort to acquire or share knowledge through mergers and acquisitions. It has been long assumed that competitive advantage of companies comes from their long-term accumulated knowledge, which is valuable, unique, irreplaceable and hard to imitate (Argote & Ingram, 2000). As an exogenous development strategy, M&A is a direct path for a company to gain knowledge from others (Back & Krogh, 2002; Breaman, 1999). Through mergers and acquisitions, companies transfer the external valuable knowledge and make it assimilate to their internal knowledge to create knowledge specialty and scarcity. In addition, competition pressures increase a firm's motivation for M&A. According to Gupta and Govindarajan (2000), the motivation to acquire or share knowledge during M&A is positively associated with the outflows and inflows of knowledge. Similarly, Szulanski (2000) proposes that the motivation for M&A plays an important role in initiating and implementing the transfer of knowledge. We argue that the stronger the motivation, the more in depth and comprehensive knowledge transfer will be, and the more investments will be involved in knowledge transfer. It should also result in higher efficiency and better performance of knowledge transfer. As such, the following hypotheses are proposed:

> *Hypothesis 3a: The motivation for M&A will have a positive effect on the levels of knowledge transfer.*

> *Hypothesis 3b: The motivation for M&A will have a positive effect on the investment in knowledge transfer.*

> *Hypothesis 3c: The motivation for M&A will have a positive effect on the implementation of knowledge transfer.*

> *Hypothesis 3d: The motivation for M&A will have a positive effect on the performance of knowledge transfer.*

The preparation of knowledge transfer

The Levels of Knowledge to Be Transferred: As mentioned earlier, based on knowledge carriers

and expression methods, knowledge can be grouped into three different levels: (1) individual, (2) product, and (3) organizational levels, with two forms - explicit and implicit knowledge (see Cummings & Teng, 2003 for a review; Gao et al., 2009). Knowledge embedded in individuals can be transferred by job transfers. Knowledge embedded in products can be transferred by cooperation between organizational units. Knowledge embedded in organizational values and assumptions can then be transferred by communication and education of underlying meaning structures of organizations (Almeida & Kogut, 1999; Bresman, et al., 1999; Szulanski, 2000). Individual and explicit knowledge is relatively easy to be transferred while product, organizational, and implicit knowledge is hard to be transferred. Normally, not all the prior-gained knowledge of a company will be transferred during an M&A process. Before each M&A, the scope and levels of knowledge to be transferred need to be defined based on the motivation for M&A as well as the knowledge-embedding carriers and classifications. Core competency of a company lies in its deeply embedded knowledge. The deeper the knowledge to be transferred is embedded in a company, the more investment should be involved in knowledge transfer, the more comprehensive implementation process will be taken (Cummings & Teng, 2003; Magnan, 2001), and the more successful knowledge transfer will be. As such, the following hypotheses are proposed:

> *Hypothesis 4a: The levels of knowledge to be transferred will have a positive effect on the investment in knowledge transfer.*

> *Hypothesis 4b: The levels of knowledge to be transferred will have a positive effect on the implementation of knowledge transfer.*

> *Hypothesis 4c: The levels of knowledge to be transferred will have a positive effect on the performance of knowledge transfer.*

Investment in Knowledge Transfer: The required investment plays a necessary role in the success of knowledge transfer (Cummings & Teng, 2003). It possesses two attributes - a) required resources for knowledge transfer, including human, material, and financial resources, and b) time, effort and support provided by the top management of the company. If the investment decision in knowledge transfer is appropriate, it will certainly help to ensure the process proceeded in a more efficient and effective way, and to enhance the final performance of knowledge transfer. As such, the following hypotheses are proposed:

> *Hypothesis 5a: The appropriate investment decision in knowledge transfer will have a positive effect on the implementation of knowledge transfer.*

> *Hypothesis 5b: The appropriate investment decision in knowledge transfer will have a positive effect on the performance of knowledge transfer.*

The implementation of knowledge transfer

The implementation of knowledge transfer is the core of M&A activities. In general, it includes planning, measurement, and execution. The plan of M&A should cover the transfer path, method design (Bresman, et al., 1999) and schedule (Huysman, et al., 2002). The key of the plan lies in its feasibility integrity. During the implementation of a plan, the two parties of M&A, based on their

own prior-gained knowledge bases, should take such corresponding actions as mastering corrective knowledge recognition methods, building a team of specialists of knowledge integration, identifying individuals or departments with the key knowledge, establishing scientific study and communication system, formulating reasonable motivation policy (Greenberg, et al., 2004), and creating an excellent environment with the aid of laws and technologies to prevent knowledge leak-out. The resources are distributed to each stage of M&A based on the blueprint of the plan while cost is controlled based on performance appraisal feedback. Speed is the key of the success of each M&A. The timetable of knowledge transfer should also be set and adjusted based on the schedule of each stage and the corresponding appraisal feedback. Due to the complexity of knowledge transfer, it is necessary to establish a step-by-step performance appraisal system and keep an on-going evaluating procedure with a well-prepared contingency plan to handle those possible unexpected events. All of the above will help identify the gaps between expectations and actual activities and be able to take timely corrective actions, to ensure the final performance of knowledge transfer. As such, the following hypothesis is proposed:

> ***Hypothesis 6: The successful implementation of knowledge transfer will positively affect the final performance of knowledge transfer.***

RESEARCH METHODOLOGY

Data and sample

Eleven M&A cases in iron and steel companies in the southwest China from the year 2002 to 2004 are selected and investigated in this research. About 130 survey questionnaires were sent to managers of operation, project, and strategic management departments of these companies that participated in M&A. These managers' responsibilities include setting goals, formulating strategies, making plans, reviewing progress, and taking action on knowledge transfer during M&A activities. In total, 62 questionnaires were returned, in which 45 questionnaires were considered to be valid. Among all of the respondents, operation managers accounted for 64.2%, project managers accounted for 23%, and others accounted for 12.8%.

Measures

Following the similar measures used in the current literature, seven variables are used in this research as the measurements to test the proposed relationships among those variables: (1) prior-gained knowledge of merging companies was measured by individual knowledge, product knowledge, organization knowledge, the rank of their network within the industry, and company size (Argote & Ingram, 2000); (2) pre-gained knowledge of merged companies was measured by individual knowledge, product knowledge, organization regulation, and the rank of their network within the industry; (3) the motivation for M&A was measured by the competition pressure, company demand for M&A as well as the expectation of the acquired knowledge; (4) the level of knowledge to be transfer was measured by the level identification and knowledge classification (knowledge carriers - individual, product, and organizational levels and expression methods - implicit and explicit knowledge) (Cummings & Teng, 2003); (5) the investments in knowledge transfer were measured by four sub-variables: human resources, material resources, expenses, and time; (6) the implementation of knowledge transfer was be measured by project management, the level of implementation, and the expectation; and (7) the final performance of knowledge transfer

was measured by the satisfaction of both parties (Cummings & Teng, 2003) and the accomplishment of the expected goals (see Appendix for the details.) The popular 5-point scale is used in all of the above measures (except a few like project management) with five categories (1= strongly disagree; 5 = strongly agree). Based on the Reliability Analysis (RA) and the Exploring Factorial Analysis (EFA) using SPSS, about 11 impropriate items were eliminated because they do not have enough correlation with other items or the measured items they load.

Reliability and validity analysis

In this research, the reliability is measured by one that has been used in the literature, called CITC (Corrected Item-Total Correlation), or the Churchill's reliability (Churchill, 1979). Primarily, the reliability of the relationships among the prior-gained knowledge of both parties, their motivation, the knowledge levels to be transferred, the investment choices, the implementation process, and the final performance of M&A (Li, 2004) are tested. In the test, if CITC of a factor variable is larger than 0.5 and α (Alpha) of the nominal variable exceeds 0.6, this factor is then viewed as reliable and acceptable to measure their corresponding nominal variables. Otherwise, i.e., if the CITC value of a factor is less than 0.5, this factor is then deleted. The process will continue until all of the CITC values are larger than 0.5 and their corresponding nominal variables' α values are at least 0.6.

The validity of variables is examined using factor analysis and principal component analysis in this research, because all of the KMO values (Kaiser-Meyer-Olkin Measure of Sampling Adequacy) are larger than 0.6 and the significant level is less than 0.01. In the test for multi-dimensional index, when the load values of factor variables are larger than 0.5 in common factors and less than 0.4 in other factors, they are accepted, and otherwise, those factors are deleted.

Both reliability and validity tests are conducted using SPSS. The result of reliability analysis shows that all α values of the standardized item for each factor variable are greater than 0.70, indicating the tested reliability is sufficient enough for the testing purposes. In addition, each variable's index or the total cumulative deviation of each sub-factor variable's index is larger than .60, illustrating that the construct validity of the data is adequate.

RESULTS ANALYSIS

The Path Analysis (PA) has been used as an approach to study the relationships among the variables which follow an order of occurrence (Pleshko, et al., 2008; Helm-Stevens and Orlando, 2009). Following the procedures suggested and demonstration examples in the current literature, the so-called common method bias are also checked for any possible validity concerns (Pavlou & Gefen, 2005; Pavlou, et al., 2007, Titah & Barki, 2009; Liang & Xue, 2009).   In this research, the path analysis was conducted with SAS. The non-parameter spearman correlation "*rs*" can be used to measure the generalized correlation, as such, those spearman correlation coefficients "*rs*" are primarily used in this research, as shown in Table 1. In addition, the results of full model of path analysis are presented in Table 2. Since several path coefficients were not significant in the early tests, they were deleted and the tests were re-conducted with SAS again. The results of the restricted model of path analysis are described in Table 3 and Figure 2 later.

Some interesting points can be observed from Table-1. For example, while all three first-level factors (i.e., Initial Factors in Figure 1) are relatively highly related to one of the second-level factor (Knowledge Levels to be Transferred), they are not so to another second-level factor (Investment in Knowledge Transfer) except Factor 3 (Motivation for M&A). It is a clear indication that while *Hypothesis 3a and 3b* are strongly supported, but *Hypothesis 1b* is not supported, by the empirical evidence collected in this research. A possible explanation is that in practice, a firm's investment decision in the undergoing knowledge transfer is more related to the needs of the transferred key knowledge which may help firms to gain or sustain possible competitive edge in the marketplace, that is, the real motivation behind M&A. In addition, as expected, it is not surprising at all to see that all higher level factors (Initial, Preparation, and Implementation) have a positive effect on the final performance of knowledge transfer, especially the Preparation, and Implementation factors − which in turn suggest that the most proposed hypotheses, are supported in a degree by the empirical data in this research.

Table 1: The spearman correlation coefficient matrix[a]

Variable	1	2	3	4	5	6	7
1. Pre-gained Knowledge of Merging Companies	1.000						
2. Pre-gained Knowledge of Merged Companies	-.25*	1.000					
3. Motivation for M&A	.18	.31*	1.000				
4. Knowledge Levels to be Transferred	.22†	.25†	.65**	1.000			
5. Investments in Knowledge Transfer	-.04	.17	.36*	.32†	1.000		
6. Implementation of Knowledge Transfer	-.01	.24†	.41*	.42*	.46*	1.000	
7. Performance of Knowledge Transfer	.16	.15	.43*	.42*	.52**	.44*	1.000

[a] $n = 45$.
† $p < .10$;   * $p < .05$;   ** $p < .01$.

Table 2 summarizes the results of full model PA analysis. It can be seen from Table 2 that the *p* values for most paths are highly significant, reinforcing the results from Table 1, i.e. there are position effects from initial level factors down the path to the final knowledge transfer performance. Another indicator in the Table 2 are the values of R-square (including adjusted R-square), which are consistent with those correlation coefficients discussed in Table 1. For instance, the highest values are (>20%) all from three factors on a single path (Knowledge Levels to be Transferred → Implementation → Performance of Knowledge Transfer). A possible reason may lie on the fact that the proposed conceptual model (in Figure 1) is a research attempt to explore the relationships among the factors affecting knowledge transfer. But for a traditional industry like the iron and steel companies, a real and more practical motivation for M&A is to

directly expand their production capacity and gain market shares, other than just those knowledge transfers.

Table 2: Full model results of path analysis.

[a] n = 45.

Dependent Variable	Independent Variable	Path coefficient (β)	Error	R^2	Adj. R^2
Pre-gained Knowledge of Merged Companies	Pre-gained Knowledge of Merging Companies	-0.25†	0.9797	0.062	0.0402
Motivations for M&A	Pre-gained Knowledge of Merging Companies	0.28†	0.93545	0.1647	0.1249
	Pre-gained Knowledge of Merged Companies	0.37*			
Levels of Knowledge to be Transferred	Pre-gained Knowledge of Merging Companies	0.14	0.77753	0.4367	0.3954
	Pre-gained Knowledge of Merged Companies	0.10			
	Motivations for M&A	0.59**			
Investment in Knowledge Transfer	Pre-gained Knowledge of Merging Companies	-0.13	0.96102	0.1604	0.0764
	Pre-gained Knowledge of Merged Companies	0.01			
	Motivations for M&A	0.28			
	Levels of Knowledge to be Transferred	0.16			
Implementation Process of Knowledge Transfer	Pre-gained Knowledge of Merging Companies	-0.02†	0.88177	0.3108	0.2225
	Pre-gained Knowledge of Merged Companies	0.08			
	Motivations for M&A	0.13			
	Levels of Knowledge to be Transferred	0.22			
	Investment in Knowledge Transfer	0.32			
Performance of Knowledge Transfer	Pre-gained Knowledge of Merging Companies	0.13	0.84324	0.3859	0.289
	Pre-gained Knowledge of Merged Companies	0.02			
	Motivations for M&A	0.12			
	Levels of Knowledge to be Transferred	0.12			
	Investment in Knowledge Transfer	0.36*			
	Implementation Process of Knowledge Transfer	0.17			

† *p* < .10;   * *p* < .05;   ** *p* < .01.

While it may not be a total surprising to see that the above results (Tables 1 and 2) have shown

little or even negative relationship between pre-gained knowledge systems of both parties involved in an M&A (Table 1, β = -0.25, $p < .05$), however, as expected, such pre-gained knowledge of both sides do have a positive effect on another key initial level of factors - the motivations for M&A (Table 2, $\beta = 0.27, p < .10; \beta = 0.37, p < .05$). Except *Hypotheses 1a and 2a*, the first two hypotheses are not supported by the empirical data collected in the research, which means prior-gained knowledge directly affects the motivation for M&A but does not directly affect other factors down the paths. It may reflect the fact that since the panel steel products with high technology represent the future of steel industry and advanced top management teams with updated information networks shape the trends for future steel industry, more large-sized steel companies in China have realized the importance of gaining the key advanced technology and complementing knowledge through M&A.

After deleting those paths which are shown insignificant, the results of the new restricted model of path analysis are described in Table 3 and Figure 2. The results from Table 3 (or Figure 2) clearly indicate the paths which show a significant positive impact from the higher level factors to the connected lower level factors in the proposed model. For example, as suggested by Tables 1 and 2, the motivation for M&A shows a very significant positive impact on the knowledge levels to be transferred ($\beta = 0.65, p < .01$) and a significant positive impact on the investments in knowledge transfer ($\beta = 0.37, p < .05$), which in turn both have a positive impact on the next level factor – the implementation of knowledge transfer and the end point of all paths, the final performance of knowledge transfer. That is, *Hypotheses* 3a and 3b are strongly supported by the empirical data collected in this research while *Hypotheses 3c and 3d* do not gain support. This result highlights a managerial implication – the importance of the motivation for the merging companies for the proposed knowledge transfer, from the top to the bottom throughout the organizational structure, to ensure the final success of the knowledge transfer.   As in practice, highly motivated organization and its employees are more likely to be able to determine appropriate knowledge levels to be transferred, and the necessary investment needed for a successful knowledge transfer.

In addition, as shown in Figure 2, the Level of Knowledge to be Transferred has a significant positive impact on the Implementation of Knowledge Transfer ($\beta = 0.30, p < .01$) as well as the Investment in knowledge transfer ($rs = 0.32, p < .10$, Table 1), both of which in turn have a positive impact on the final performance of knowledge transfer. So, *Hypothesis 4* is basically supported by the empirical data collected in this research. The managerial implication learned here is quite obvious – determining the most appropriate levels of the related knowledge to be transferred is a critical step in a successful knowledge transfer project. As suggested in the recent literature, there are several important understandings for business managers to be aware of and familiar with, including the different types of knowledge, the structure of the knowledge, explicit vs. implicit knowledge, and the potential and long-term effect of knowledge transfer. It is revealed in the data collection process of this research that most top and middle level managers at the selected steel and iron companies in China were lack of basic training in knowledge management, which clearly will be an area for improvement for the future knowledge transfer projects.
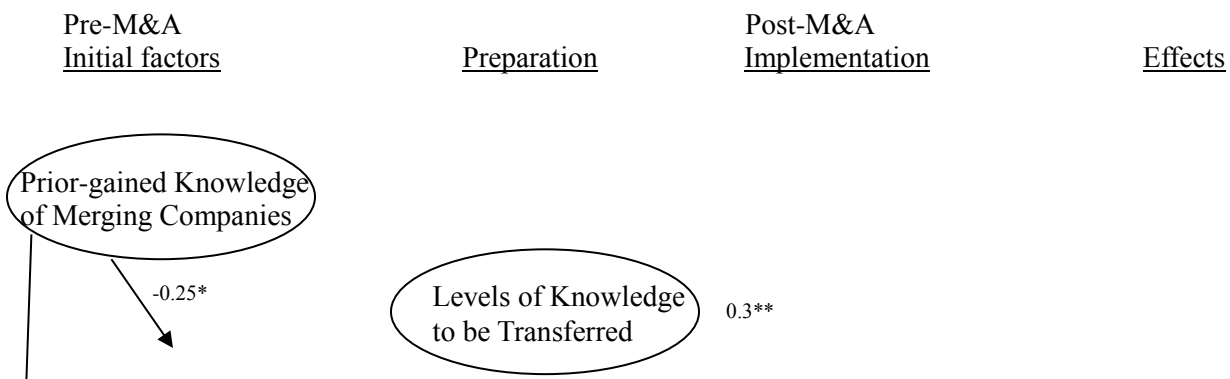
Similarly, the Investment in knowledge transfer shows a quite positive impact on the two factors down the path – the Implementation of knowledge transfer ($\beta = 0.36, p < .05$) and the final performance of knowledge transfer ($\beta = 0.40, p < .05$) respectively. That is, *Hypothesis 5 (5a and 5b)* is well supported by the empirical data collected in this research. Since the primary investment
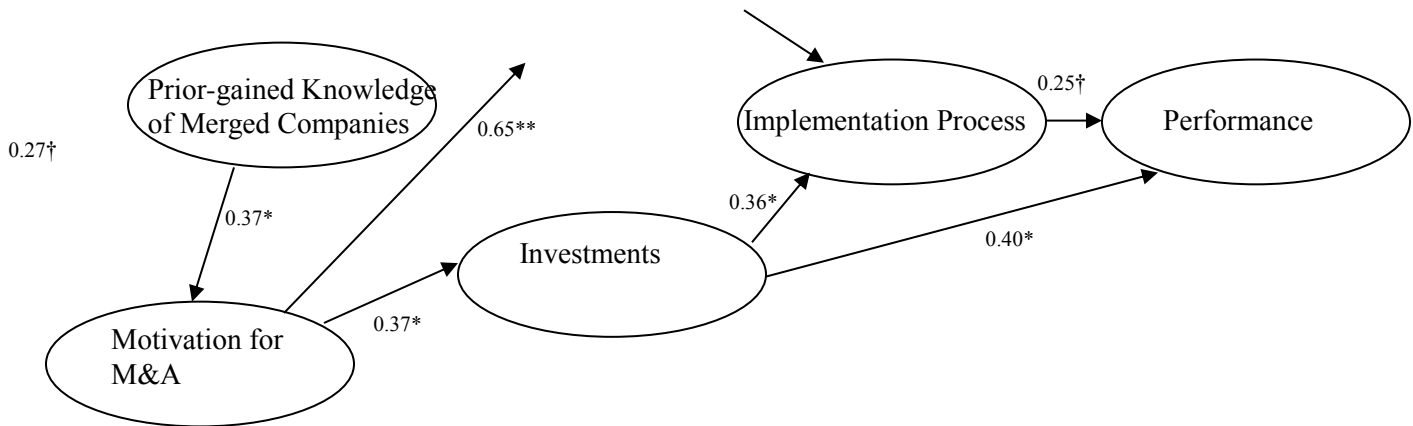
in a knowledge transfer project will be heavily on the "soft" components of a business organization – the investment in necessary human resources, appropriate expertise, updated training for the related employees, and a well developed strategic planning, traditionally viewed as indirect or non-productive spending, the managerial implication for top managers here is that they must fully understand the real and long-term returns from the possible investment in a knowledge transfer project before the project is started. Finally, as shown in Figure 2, the Implementation of knowledge transfer has a positive effect on the final Performance of knowledge transfer ($\beta = 0.25$, $p < .10$). So, as expected, *Hypothesis 6* is also somewhat supported in a limited manner by the empirical data in this research.

Table 3: Restricted model results of path analysis.

Dependent Variable	Independent variable	Path Value	Error	R^2	Adj. R^2
Pre-gained Knowledge of Merged Companies	Pre-gained Knowledge of Merging Companies	-0.25†	0.9797	0.062	0.0402
Motivations for M&A	Pre-gained Knowledge of Merging Companies	0.28†	0.93545	0.1647	0.1249
	Pre-gained Knowledge of Merged Companies	0.37*			
Levels of Knowledge to be Transferred	Motivations for M&A	0.06**	0.77216	0.4173	0.4038
Investment in Knowledge Transfer	Motivations for M&A	0.37*	0.94177	0.1332	0.1131
Implementation Process of Knowledge Transfer	Levels of Knowledge to be Transferred	0.30*	0.86234	0.2902	0.2564
	Investment in Knowledge Transfer	0.36*			
Performance of Knowledge Transfer	Investment in Knowledge Transfer	0.40**	0.84451	0.3192	0.2868
	Implementation Process of Knowledge Transfer	0.25†			

Figure 2: Path analysis results of the restricted model.

Pre-M&A
Initial factors   Preparation   Post-M&A
Implementation   Effects

Prior-gained Knowledge of Merging Companies

-0.25*

Levels of Knowledge to be Transferred   0.3**

DISCUSSION

This research proposes a conceptual model to explore the possible relationships among the related factors in knowledge transfer after a business M&A transaction. With the data collected from some steel and iron companies in China, this paper describes a path analysis in which the influential factors are identified with statistic significance along all paths from three initial factors all the way to the final performance of a knowledge transfer project.

As discussed in earlier section, based on the data collected for this research, among 17 paths displayed in Figure 1, the test results of 8 paths are shown insignificant, and the remaining 9 paths are then reconfigured in Figure 2 with their relative significance statistics. The nine significant paths will be discussed along with managerial implications.

The prior-gained knowledge of both parties of M&A has a positive influence on the motivation for M&A. It may reflect the fact that because the panel steel products with high technology represent the future of the steel industry and advanced top management teams with updated information networks shape the trends of future steel industry, more large-sized steel companies in China have realized the importance of gaining the key advanced technology and complementing knowledge through M&A. These companies have adjusted their product structure actively and enhanced the added value of their products, while improving their top management teams.

  The motivation behind the proposed M&A has a very significant and positive impact on both the investment decision and the choice of the levels of knowledge to be transferred, thus must be viewed as the most important key influential factor in determining the final success of a knowledge transfer project. That is, when the real motivation behind the proposed M&A for the merging company is to gain important and critical knowledge from the merged company for its long-term strategic advantages in the marketplace, then the best investment decisions will be more likely to be made and the most appropriate levels of knowledge to be transferred will be well determined, which will eventually have a positive effect to the final success of the proposed knowledge transfer project. This result highlights an important managerial implication – the importance of a high-level motivation of the merging companies for the proposed knowledge transfer, from the top to the bottom throughout the organizational structure, to ensure the final success of the knowledge transfer. As in practice, highly motivated organization and its employees are more likely to be able to determine appropriate knowledge levels to be transferred, and the necessary investment needed for a successful knowledge transfer. Additionally, the result of this research reveals that many steel

and iron companies in China have a very limited past experience in knowledge transfer, and a misconception that knowledge transfer is only important and relevant to changes in production technology, while unaware of the importance of the advanced knowledge systems in terms of effective top business management, well-developed information networks, and many other potential implicit organizational knowledge such as well-tested organizational structure, successful past business experience, enhanced communication channels within the organization, and the likes. As a result, it is not surprising to see those reports about failed knowledge transfer projects during the last decade in the steel and iron industry in China.

The motivations of M&A in the steel and iron companies in China have been shifted recently from production capacity expansion to the changes and upgrading in product structures. Facing this new challenge, knowledge transfer during M&A has been becoming more and more important to Chinese steel and iron companies in order to compete with those international giant steel companies. This research suggests four important managerial insights for the companies in those traditional industries like steel and iron industry to enhance the performance of knowledge transfer during their M&A: (1) considering knowledge transfer into their M&A strategy; (2) supporting knowledge transfer through a well-designed organization restructures and providing security with an advanced management system; (3) changing their traditional management system into a new knowledge-based management system and fully understanding that the core knowledge is the origin and source of all real competitive advantage; and finally (4) selecting knowledgeable top managers for their knowledge transfer projects. Top managers are not only the decision-makers of M&A, but also the main participants in the M&A process. The higher the involvement of top managers in the knowledge transfer process, the better and more effective will the knowledge transfer performance be. [**Note: The authors of this paper had received the confirmation from several large steel and iron companies in the southwest of China that the above suggestions have been well adopted and well received**.]

The appropriate levels of knowledge to be transferred is another important influential factor, which requires a more comprehensive understanding of top management team about the recent advancement in knowledge management field, in order to develop a both practical and successful implementation plan. There has been a remarkable advancement in both the theory and practice of modern knowledge management field, including knowledge classification, knowledge acquisition, knowledge integration and coordination, core knowledge competencies, and knowledge transfer. Fully understanding the knowledge to be transferred and determining the appropriate levels of the knowledge to be transferred is obviously an important influential factor which will have a direct positive impact on the final success of knowledge transfer projects. The managerial implication learned here is quite obvious – determining the most appropriate levels of the related knowledge to be transferred is a critical step in a successful knowledge transfer project. As suggested in the recent literature of knowledge management, there are several important understandings for business managers to be aware of and familiar with, including the different types of knowledge, the structure of the knowledge, explicit vs. implicit knowledge, and the potential and long-term effect of knowledge transfer. It is revealed in the data collection process of this research that most top and middle level managers at the selected steel and iron companies in China were lack of basic training in knowledge management, which clearly will be an area for improvement for the future knowledge transfer projects.

The necessary and sufficient investment in knowledge transfer is another influential factor in determining the final performance of a knowledge transfer project, which is supported by the many reported unsuccessful knowledge transfer projects in M&A due to the lack of necessary and sufficient investments in human, material, and financial resources. Without necessary and sufficient investments in human, material, and financial resources, the final success of a knowledge transfer project will be less likely, due to the lack of related expertise, competent management team, and a well developed comprehensive implementation plan. Since the primary investment in a knowledge transfer project will be heavily on the "soft" components of a business organization – the investment in necessary human resources, appropriate expertise, updated training for the related employees, and a well developed strategic planning, traditionally viewed as indirect or non-productive spending, the managerial implication for top managers here is that they must fully understand the real and long-term returns from the possible investment in a knowledge transfer project before the project is started.

Finally, the successful implementation of knowledge transfer directly leads to its high performance, which is another key influential factor that has a direct impact on the success of knowledge transfer. If managers and employees carry out knowledge transfer in an efficient and effective way, they will be highly likely to achieve their pre-determined goal of knowledge transfer. It implies that organizations with a motivation for M&A should encourage managers and employees to make clear and detailed plans of knowledge transfer and execute them efficiently and effectively, thus they will succeed in the knowledge transfer process.

In summary, three most influential factors in knowledge transfer are identified as: (1) the motivation for the planned M&A for both parties involved; (2) The necessary and sufficient investment in knowledge transfer; and (3) The levels of knowledge to be transferred. It has been reported in recent years that as China's economy entered its second stage of restructuring and reconfiguration, with the resurgence of heavy-industries, the demand for steel products has been increasing at a stable rate. Consequentially, most steel companies are more often overloaded with the need to increase their production capacity through mergers and acquisitions. Especially, for large steel companies, under the government supportive policy, "growth through expansion and M&A" has become their current main business strategy, to gain the expected governmental support in enhancing their R&D ability and top management system development, other than just those well-established knowledge bases from the companies to be acquired. However, as discussed earlier, the motivations of M&A in the steel and iron companies in China have been shifted recently from production capacity expansion to the changes and upgrading in product structures, which has made successful knowledge transfer during M&A becoming more critical to Chinese steel and iron companies in order to compete on international market.

Several interesting directions for future research are possible in light of this study. This research complements the early work by moving beyond descriptions of the process of knowledge transfer to investigate the influence factors of knowledge transfer with a process model, including the initial, preparation, implementation, and outcome stages. One direction for future research is to cast a broader net by looking at the effects of other interesting factors (e.g., absorptive capacity of merging companies) in the process of knowledge transfer to make the model proposed in this paper more comprehensive. Second, most studies in knowledge transfer have focused on high-tech industries, few addressing the related issues in the traditional industries. To fill in the research gap,

this paper examines knowledge transfer in the steel and iron industry. What is unclear at present is whether there are some factors special to the traditional industries which affect the knowledge transfer process may not present the same importance. Future research on knowledge transfer that explicitly examines the differences in antecedents of knowledge transfer between traditional industries and high-tech industries is clearly needed to address this concern. Next, the sample size of this study is relatively small. Our sample consists of strategic, project, and operation managers who are knowledgeable about the situations of knowledge transfer in the companies that participated in M&A. This constraint limits our sample size. In addition, our data were obtained from higher-level management and the response rate was 47.69%. As Baruch (1999) notes, response rates from surveys of high-level managers are substantially lower (36%) than those from surveys of employees (61%). We encourage future studies to verify our model by examining more M&A cases and collecting data from more managers who have the knowledge of the situations of knowledge transfer. Since this study has focused on knowledge transfer in mergers and acquisitions in China, another direction for future research may be the effort to apply the proposed model in this paper to the companies in other countries to validate (or invalidate) the results derived from this paper. Finally, to limit the scope of this research, the explicit knowledge and implicit knowledge are not distinguished in the proposed model. The pattern and influential factors of transferring explicit knowledge are more likely differing from those of transferring implicit knowledge. Future research may want to further disentangle the possibly distinctive influence factors of knowledge transfer between these two types of knowledge.

CONCLUSION

This study examines key successful factors in knowledge transfer resulting from business mergers and acquisitions (M&A) in traditional industries such as steel and iron in China. Specifically, this research investigates the relationship between prior-gained knowledge of companies involved in M&A, preparation and implementation processes, and performance after knowledge transfer. The result reveals that prior-gained knowledge of companies will have a significant positive impact on the motivation for proposed M&A. Intensive motivation for M&A will have a positive influence on the levels of knowledge to be transferred, which will in turn affect the success of knowledge transfer implementation process, and a successful implementation process then certainly will make a positive contribution to the effectiveness of proposed knowledge transfer.

REFERENCES

Aigbe, A., Madura, J., & Whyte, A. M. (2004). Partial Anticipation and the Gains to Bank Merger Targets. *Journal of Financial Services Research*, 26, 55-71.

Amihud, Y., DeLong, G. L., & Saunders, A. (2002). The Effects of Cross-Border Bank Mergers on Bank Risk and Value. *Journal of International Money and Finance*, 21, 857-877.

Andrade, G., A. Mitchell, M., & Stanford, E. (2001). New Evidence and Perspectives on Mergers. *Journal of Economic Perspectives*, 15, 103-120.

Almeida, P., & Kogut, B. (1999). Localization of knowledge and the mobility of engineers in regional networks. *Management Science*, 45(7), 905-917.

Argote, L., & Ingram, P. (2000). Knowledge transfer: a basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes*, 82(1), 150–169.

Back, A., & Krogh, G. V. (2002). *Knowledge integration after mergers & acquisitions*, working paper.

Baruch, Y. (1999). Response rates in academic studies: A comparative analysis. *Human Relations,* 52(4), 421-438.

Bresman, H., Birkinshaw, J., & Nobel, R. (1999). Knowledge transfer in international accountings. *Journal of International Business Studies,* 30(3), 439－463.

Chen, E. T., Monahan, J., & Feng, D. (2009). A longitudinal cross-section examination of the implementation of knowledge management systems and firm performance. *Journal of International Technology and Information Management,* 18(2), 223-238.

Churchill, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16, 64-73.

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: a new perspective of learning and innovation. *Administrative Science Quarterly*, 35, 128-152.

Cornett, M. M., McNutt, J. J., & Tehranian, H, (2006). Performance Changes around Bank Mergers: Revenue Enhancements versus Cost Reductions. *Journal of Money Credit, and Banking*, 38, 1013-1050

Cummings, J. L., & Teng, B. S. (2003). Transferring R&D knowldege：the key factors affecting knowledge transfer success. *Journal of Engineering Technology Management*, 20, 39-68．

Darr, E., Argote, L., & Epple, D. (1995). The acquisition, transfer, and depreciation of knowledge in service organizations: productivity in franchises. *Management Science*, 41(11), 1750-1762.

DeLong, G. (2003). Does Long-Term Performance of Mergers Match Market Expectations? Evidence from the U.S. Banking Industry. *Financial Management*, 32, 5-25.

Denis, D. J., Denis, D. K., & Yost, K. (2002). Global Diversification, Industrial Diversification, and Firm Value. *Journal of Finance*, 57, 1951-1979.

Fraser, D. R., & Zhang, H. (2009). Mergers and Long-Term Corporate Performance: Evidence from Cross-Border Bank Acquisitions, *Journal of Money, Credit & Banking (Blackwell)*, 41 (7), 1503-1513.

Galup, S. D., Dattero, R., & Quan, J. J. (2004). The demand for information technology knowledge and skills: An exploratory investigation. *Journal of International Technology and Information Management,* 13(4), 253-262.

Gao, W., He, X. J., & Wang, H. (2009). The impact of knowledge integration on firm performance. *Journal of International Technology and Information Management,* 18(2), 239-258.

Greenberg, G., & Winder, C., Keysor, T. (2004). *M&A in knowledge enterprises,* from www: babsoninsight.com.

Gupta, A. K., & Govindarajan, M. A. (2000). Knowledge flows within multinational corporations. *Strategic Management Journal*, 21, 473-496.

Hannan, T. H.,, & Rhoades, S. A. (1987). Acquisition Targets and Motives: The Case of the Banking Industry. *Review of Economics and Statistics*, 69, 67-74.

Hannan, T. H., & Pilloff, S. J. (2009). Acquisition Targets and Motives in the Banking Industry, *Journal of Money, Credit & Banking,* 41(6), 1167-1187.

Hasspeslagh, P. C., & Jemison, D. W. (1994). *Acquisition integration: Creating the atmosphere for value creation*. The Management of Corporation, The Macmilan Press Ltd.

Helm-Stevens, R., & Orlando, G. (2009). A Path Analysis Model of Intrinsic and Extrinsic Academic Motivation Engagement in Service Learning, *Review of Business Research*; 9(1), 99-103.

Huysman, M., Leonard, D., & Nicolle, A. (2002). Towards a learning perspective on knowledge/technology transfer through corporate acquisitions. *Proceedings of the 35th Hawaii International Conference on System Sciences*.

Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3, 305-360.

Kanter, R. M., (2009). Mergers That Stick, *Harvard Business Review*, 87 (10), 121-125

Kostova, T. (1999). Transnational transfer of strategic organizational practices: a contextual perspective. *Academy of Management Review*, 24(2), 308-324.

Lea, B., Yu, W., & Kannan, P. (2007). Social network enhanced digital city management and innovation success: A prototype design. *Journal of International Technology and Information Management,* 16(3), 1-22.

Li, H. (2004). *Theory of management methodology*. Xian Jiaotong University Publisher, Xian, China, 259-272.

Liang, H., & Xue, Y. (2009). Avoidance of Information Technology Threats: A Theoretical Perspective. *MIS Quarterly, 33*(1), 71-90.

Liyanage, C., Li, Q. P., Taha, E., & Tabarak, B. (2008). The Process of Knowledge Transfer and Its Significance in Integrated Environments, *AACE International Transactions*, 1-8.

Loughran, T., & Vijh, A. M. (1997). Do Long-Term Shareholders Benefit from Corporate Acquisitions? *Journal of Finance*, 52, 1765-1790.

Magnan, R. (2001). Knowledge Transfer Strategies, *Intercom*, 48 (7), 6.

Osterloh, M., & Frey, B., (2000). Motivation, Knowledge Transfer, and Organizational Forms. *Organization Science*, 11, 538-550.

Pavlou, P. A., & Gefen, D. (2005). Psychological Contract Violation in Online Marketplaces: Antecedents, Consequences, and Moderating Role. *Information Systems Research, 16*(4), 372- 399.

Pavlou, P. A., Liang, H., & Xue, Y. (2007). Understanding and Mitigating Uncertainty in Online Exchange Relationships: A Principal-Agent Perspective. *MIS Quarterly, 31*(1), 105-136.

Platt, G. (2009). Worldwide M&A Activity Continues To Slide, *Global Finance. New York*, 23(8), 52-53.

Pleshko, L. P., & Baqer, S. M. (2008). A path analysis study of the relationships among consumers satisfaction, loyalty and market share in retail services, *Academy of Marketing Studies Journal*, 12(2), 111-127.

Prevot, F. (2008). Interfirm Knowledge Transfer Methods, *ICFAI Journal of Knowledge Management*, 6(5), 37-60.

Rulke, D. L., Zaheer, S., & Anderson, M. (2000). Sources of managers' knowledge of organizational capabilities. *Organizational Behavior and Human Decision Processes*, 82(1): 134-149.

Stevens, J. (1986). Applied Multivariate Statistics for the Social Sciences, Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Szulanski, G.. (2000). Exploring internal stickiness: impediments to the transfer of best practice within the firm. *Strategic Management Journal*, 17, 27-43.

Titah, R., & Barki, H. (2009). Nonlinearities between Attitude and Subjective Norms in Information Technology Acceptance: A Negative Synergy? [Article]. *MIS Quarterly, 33*(4), 827-844

Tsang, E. W. K. (2001). Managerial earning in foreign-invested enterprises of China. *Management International Review*, 41, 29-51.

Wang, S., Tong, T. W., Chen, G, & Kim, H. (2009) Expatriate Utilization and Foreign Direct Investment Performance: the Mediating Role of Knowledge Transfer, *Journal of Management*, 35(5), 1181-1206.

APPENDIX

Key successful factors in Knowledge Transfer during M&A

Prior-gained Knowledge of Merging Companies (SGXT)	Prior-gained Knowledge of Merging Enterprises(SGZS)	SGZS1	R&D capabilities
		SGZS2	Product competitive advantage
		SGZS3	Human capital
		SGZS4	Organization regulation
		SGZS5	Information technology
	Size of Merging Enterprises(SGGM)	SGGM1	Output
		SGGM2	Sales
Prior-gained Knowledge of Merged Companies (BSGXT)	Prior-gained Knowledge of Merged Enterprises(BSGZS)	BSGZS1	R&D capabilities
		BSGZS2	Product competitive advantage
		BSGZS3	Human capital
		BSGZS4	Organization regulation
		BSGZS5	Information technology
Motivation for M&A (DJ)		DJ1	Competition pressure
		DJ2	Company demand for M&A
		DJ3	Expected outcome of M&A
Levels of knowledge to be transferred (ZYCC)		ZYCC1	Level identification
		ZYCC2	Knowledge classification
		ZYCC3	Administrative level of knowledge transfer
		ZYCC4	Degree of transfer
Investments in knowledge transfer (TR)		TR1	Human recourse investment
		TR2	Equipment investment
		TR3	Financial investment
		TR4	Time spent
		ZS	Executive support
Implementation Process	Project Management (XM)	XM1	Analysis of prior-gained knowledge of merging and merged companies
		XM2	Implementation plan
		XM3	Meeting of deadlines
		XM4	Support from external resources
		XM5	Periodical appraisals and feedback
	Implementation Level	SP1	Sound transfer mechanism
		SP2	Measurement
	Expected Outcome	YQ	Effectiveness of knowledge transfer
Outcomes of knowledge transfer		ZYXG1	Satisfaction with knowledge transfer
		ZYXG2	Willingness of the recipient to adopt transferred knowledge
		ZYXG3	Accomplishment of expected goals

COMMUNICATIONS

Jun Huang
Department of Logistics & Marketing
College of Economics and Management,
Southwest University, Chongqing, 400715, China;
Phone: (86-023) 68250011
Email: john0227@hotmail.com

Juan Ling
Georgia College & State University
J. Whitney Bunting School of Business
Milledgeville, GA 31061
(478 445-2573)
Email: juan.ling@gcsu.edu

Jiaqin Yang*
Georgia College & State University
J. Whitney Bunting School of Business
Milledgeville, GA 31061
(478 445-2570)
Fax : (478) 445-0602
Email: jiaqin.yang@gcsu.edu
(*Corresponding Author)

Quanwu Zhao
Department of Public Management
College of Trade and Administration, Chongqing University
Chongqing 400030, China
Tel: (86) 023-65551328
E-mail: zhaoquanwumx@cqu.edu.cn

This Page Left Blank Intentionally