

Is M&A Strategy Really Helpful for Global Contractors?

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Abstract

As the international construction market becomes more competitive and challenging to global contractors, they cannot cruise alone anymore; they need to collaborate and sail together. To respond to the changing market by shifting toward more competent entities, a number of contractors have performed Mergers and Acquisitions (M&A) which is a typical business strategy to create synergy between two or more different firms. Nevertheless, only few researches have investigated this significant business strategy in the domain of global construction industry. To evaluate the performance of the global contractors who have executed M&A in global construction market, this paper applied Operating Cash Flow Return (OCFR) which is widely used to analyze M&A performance. Moreover, Berry index is used to verify whether the acquirers diversified their products share through M&As. This paper also compares the differences of M&A effects in association with the period of M&A transaction, international or domestic boundary of M&A firms, and aggressiveness in executing M&A. Through an analysis of 190 real M&A cases during the last decade, the authors concluded that the M&A-executed global contractors have overall experienced a moderate level of revenue and cash flow improvement. However, diversification effect of their products portfolio is not unexpectedly well supported in just three years of time span after the execution of M&A.

Keywords

Mergers and acquisitions (M&A), Global contractors, Diversification analysis, Operating cash flow return (OCFR), Berry index

1. Introduction

With the expansion of Free Trade Agreement (FTA) and extension of accessible markets across many nations, the world market is becoming more integrated into a single battlefield. In this situation, international firms are increasingly susceptible to free competition, transcending national boundaries; thus requiring powerful and effective strategies to defeat 'nationality-less' competitors. As one of those strategies, Mergers and Acquisitions (M&A) are being broadly used in the global market, as this strategy are expected to strengthen the capacity and expand the market share of a company by a takeover of assets or stocks. It is well known directly to affect on the sustenance of a company, thus showing a great influence upon the market composition. For this reason, international firms have done M&A very actively over the last decades. World M&A transactions in 2006 reached 2,600 billion USD, an increase of 10.2% compared to 2005; this amount equals 13.5% of the aggregate value of listed stock in the US stock market (KIF, 2007).

The growing trend of M&A transactions was also found in the international construction market. After the year 2004, construction companies are doing more M&As year after year. In 2006, more than 12 billion USD was invested in cross-border M&A transactions in construction industry all over the world. Despite the increase trend of M&A in construction sector, outcomes of this business strategy have not been

investigated thoroughly. This study thus concerns M&A transactions in the construction industry to find out their outcome in terms of profit as well as products diversity, and ultimately to answer the question, ‘Is M&A strategy really helpful for global contractors?’

2. International M&As in the Construction Industry

International M&A transactions in the construction industry have shown a cyclic trend during the last decade (UNCTAD, 2008). This trend can be divided into three periods; from 1997 to 2000: the growing period, from 2001 to 2003: the declining period, and after 2004: the booming period.

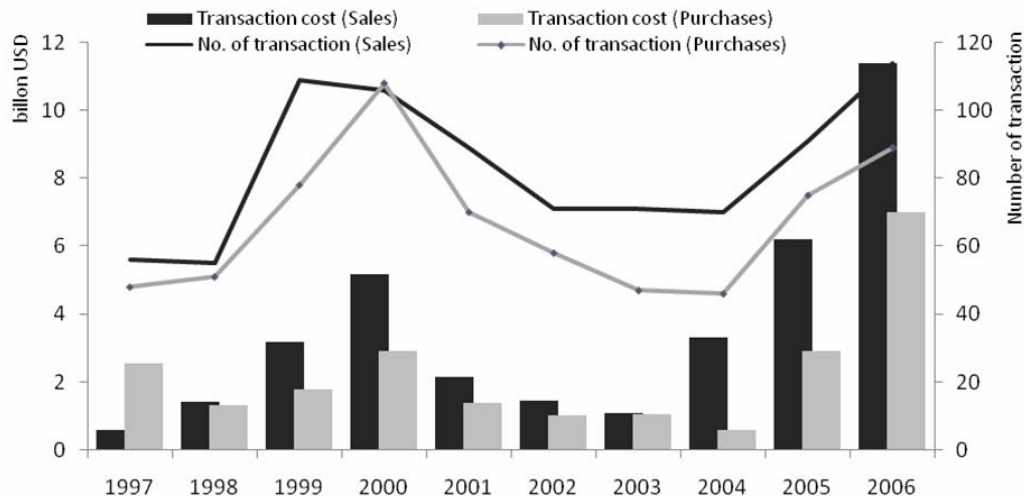


Figure 1: Trend of Cross-Border M&A in the Construction Industry (UNCTAD, 2008)

Cross-border M&A transactions have surged up again since 2004; construction firms bought 210 firms with 11.0 billion USD, and 275 construction firms have been sold with 21.0 billion USD in this period. These amounts of money are 3.8 times more than that of declining period (2001~2003). Furthermore, average transaction costs have also increased drastically; it was only 18.1 million USD per each transaction in 2003, however it reached 90.8 million USD in 2006. Those increments and enlargements indicate that M&A influence in the construction industry has greatly expanded after 2004, and thus M&A is seizing more importance as a strategic tool. As a strategic tool, M&A is strongly affected by the market and also sensitively responds to the market conditions. Interestingly, M&A trend in the construction industry has a great analogy to the MSCI World¹ index, which indicates the correlation of world economic growth and M&A increases; when the world economy grows, M&A transactions in the construction industry increases too.

According to the directions of transaction, M&A cases can be divided into two categories; sales and purchases. The term ‘purchases’ means a construction firm performed M&A as a buyer to acquire another firm. On the other hand, ‘sales’ means a construction firm had been sold to another firm. In the booming period, sales exceeded purchases. This difference represents the minimum amount of cases where construction firms have been acquired by another firm that does not belong to the construction industry. This statistics of transaction costs have increased from 40 million USD in 2003 to 4.4 billion USD in 2006; hence denoting that non-construction firms have increased acquisitions of construction companies

¹ MSCI World offered by MSCI (Morgan Stanley Capital International) is a stock market index of the world stocks. This index can be used to foresight the world economy.

during the time span. This also means that non-construction firms considered the construction industry worth investing into by the way of M&A.

3. Methodologies to Measure M&A Performance

Despite the increment of construction M&A, there exists only limited research to assess M&A effects. Moreover, previous researches limited their analyses by such a same method of manufacturing industry as Cumulative Abnormal Return in measuring the performance of construction firms on M&A transactions.

3.1 Cumulative Abnormal Return

Cumulative Abnormal Return (CAR), defined as a sum of the differences between the expected return on a stock and the actual return, is generally adopted to estimate performance of M&As (Pauser *et al.*, 2007). It is widely used because it can simply evaluate the impact of events such as M&A based on stock price data, which is relatively easy to obtain. Choi and Russell (2004) applied CAR to M&A cases collected from the US construction industry, examining changes on a firm's stock trading in various time periods, and arriving at negative results; only half of the traders had positive stock changes which is not far from the breakeven point. Delaney and Wamuziri (2004) also examined the result of M&A in the construction industry and building material industry in United Kingdom. Pauser *et al.*, (2007) recently investigated the outcome of M&A transactions performed by construction firms from 1986 to 2006 in the global construction industry. They evaluated results of M&A from the aspects of acquirer and target (acquired) firms, and calculated the CAR of both firms, concluding that the acquirer's CAR did not show any remarkable outcomes, but target firms showed great returns from M&A; the stock price of acquired firms had risen more than 20%.

Although CAR has been commonly used in many researches to evaluate M&A performance, they have some limitations. First of all, CAR is applied on the basis of an efficient capital market hypothesis, which assumes that stock price fully reflects all available information in market (Ross *et al.*, 2005). Also this presumes that a firm's performance can be evaluated by rises and falls of the stock price. However, it is very hard to reflect all information to stock price in the real stock market, and stock price may be influenced by various internal and external factors other than single effect of firm's M&A. Secondly, CAR can not evaluate a firm's long term performance. Since stock prices can easily fluctuate due to various short-term factors, it is hard to conclude that fluctuations after an M&A transaction are fully caused by the transaction. To minimize the influences of other events, therefore, CAR should be applied only within few days of the M&A. Choi and Russell (2004), Delaney and Wamuziri (2004), and Pauser *et al.*, (2007) measured CAR within 41 days². Consequently, CAR is not suitable to measure a firm's long term performance in that the M&A transaction of construction firms require more enduring view in realizing such benefits as profit, revenue, and diversification of their product portfolio.

3.2 Operating Cash Flow Return

Operating Cash Flow Return (OCFR) can be a substitute for measuring the M&A performance of construction firms. OCFR is defined as Operating Cash Flow (OCF) divided by the asset market value, signifying actual economic profits earned by firm's assets (Healy *et al.*, 1990). Anand and Singh (1997) thus argued that it was more beneficial for reflecting economic effects of M&A. OCF, herein, is defined as 'operating income after depreciation plus depreciation and amortization,' and this equals to Earnings Before Interest, Tax, Depreciation and Amortization (EBITDA). In this definition, OCFR is not affected by different merger accounting methods, tax policies, and financing type used to fund the acquisition

² These researches defined research periods as windows. The longest window has a 41 days period (from 20 days before M&A to 20 days after M&A).

(Yen and Andre, 2007); thus OCFR is suitable to compare different M&A cases performed in different financial systems such as global M&A transactions. As OCFR is calculated by dividing OCF by the asset market value, it can represent the operating performance on company size. Moreover, since OCFR does not fluctuate with various market factors, it can be used to measure long term performance of M&A transactions, and be easily used with public official financial statements. Many researchers analyzed M&A performance with OCFR (Anand and Singh, 1997; Ghosh, 2001; Healy *et al.*, 1990; Yen and Andre, 2007). However, there are only few studies that applied OCFR to construction firms` M&A as yet. As an example, Choi and Harmatuck (2006) evaluated M&A performance of construction firms applying OCF (not OCFR), and focused only the cases of USA. Thus, this study applies OCFR to measure the financial performance of M&A executed by construction firms in global construction market.

3.3 Berry Index

Besides the financial performance, M&A transaction also influences on the business structure of construction firm; many firms intend to diversify or diminish their business domain via M&A strategy. Berry index is applied to compare level of diversification after performing M&A. Berry index, which is proposed by Jacquemin and Berry (1979), represents the level of diversification as a number in a range from 0 to 1; ‘0’ means that the firm is fully specialized and doing business in only one core area while ‘1’ means a totally diversified firm. The index can be calculated by the following equation:

$$BI = 1 - \sum_{i=1}^N \left(\frac{S_i}{S} \right)^2$$

where $i = 1, \dots, N$ (Total number of products markets), S_i = Revenue of each products i , S = Total revenue

To compute the level of diversification of construction firm, categorization used by Engineering News Records (ENR) is applied. ENR categorizes global construction products into nine sub-markets; general building, manufacturing, power, water supply, sewerage/solid waste, industrial process and petroleum, transportation, hazardous waste, and others (ENR, 2007). With these categories, Berry index is calculated to measure the diversification degree of M&A performed firms.

4. Global Contractors` M&A Performance

4.1 M&A Cases in the Global Construction Industry

To verify M&A performance in global construction market, the scope of research is established within three criteria as follows;

- (1) SIC (Standard Industrial Classification) code classifies industries by a four digit code. SIC codes of 1500s and 1600s represent ‘Building construction – General contractors & operative builders’, ‘Heavy construction except building construction – Contractors’, respectively. Thus, the acquirer firms are chosen under the SIC code of 1500s and 1600s.
- (2) To select sufficient construction firms that can show results from globally-executed M&A transaction with a certain level of revenue, ENR`s top 225 global contractors list is used. The list shows the revenues of construction firms in the previous year before publication, so that the list in the year after the M&A event was applied.
- (3) To assess long-term effects (3 years) of M&A, cases which have enough time after the M&A transaction were considered. Thus, M&A cases which had been completed between 1997 and 2003 were collected.

With these criteria, data about a total of 28 construction firms who performed 190 M&A transactions were collected. The distribution of 190 cases shows very similar trends as those of Figure 1; this can demonstrate that the cases reflect the overall M&A trends in the global construction industry. Out of 28 firms, 22 firms did multiple transactions during the period. The authors considered a multiple transaction as part of an M&A strategy of a given firm, and thus assumed one M&A transaction.

Table 1: Characters of M&A Transactions

Acquirer`s region	Africa	Asia	Europe	N. America	Oceania	Total
Internationally performed	-	-	49	1	0	50
Domestically performed	-	4	36	17	4	61
Growing period	3	0	77	23	3	106
Declining period	0	5	65	11	3	84

In Table 1, cases are classified by transaction characteristics; acquirer`s region, internationalism, and period. European and North American construction firms performed most of M&As in the global construction market. It was particularly because that they are equipped with highly skilled financial management, and also have sufficient funds to do M&As. While M&As are actively performed in the growing period, Asian construction firms noticeably acquired other firms in the declining period. In this period (from 1997 to 2000), many Asian countries experienced financial crisis endangering construction firms becoming bankrupt such that several Asian-based firms acquired vulnerable firms in domestic boundary.

4.2 General Performance

Table 2 shows the changes of acquirers` revenue and OCFR as a result of M&A transactions. Acquirers, who did M&A as buyers, experienced rapid growth of revenue; their average revenue was only 4.6 billion USD before the M&A transaction, however, it almost doubled after the M&A transaction. This growth rate of revenue exceeds that of the top 225 global firms` average rate; hence, indicating that the acquirer increased its size and revenue volume by conjoining with an acquired firm.

Table 2: Revenues and OCFRs of Construction Firms` M&A cases³

	Before M&A			After M&A		
	3 years	2 years	1 year	1 year	2 years	3 years
Revenue	4.4b USD	4.7b USD	4.8b USD	8.4b USD	9.0b USD	9.2b USD
OCFR	6.85%	6.30%	7.28%	5.30%	4.78%	6.81%

Contrary to revenue, acquirers` OCFR became worse after the M&A. Especially OCFR decreased two years after the M&A, and regained its initial level before the M&A following the year. This drop can be explained by the sudden increment of assets in the process of unifying two different firms into one. Following the initiation of M&S, the acquirer requires timeline to finish a takeover of the acquired firm and fully unifies two firms for achieving synergy effect; then the acquirer finally improves its OCF to

³ The OCFR of the acquisition year (event year) may contain potential biases from one-time accounting events (Choi and Harmatuck 2006, Ross *et al.*, 2000). For this reason, OCFR and revenue of the acquisition year (year 0) is excluded from the analysis.

catch up the increment of revenue. This presumption can explain how OCFR (which is calculated by dividing OCF by asset) regained its original level. Considering that the acquirers' average revenue has doubled, the regained level of OCFR shows that the acquirer improved its performance especially the Operating Cash Flow. Moreover, it is interesting to note that construction firms require, in average, three years to get positive results from a global M&A transaction. It is one of different aspects of M&A effect comparing to those of other industry'.

4.3 Performance of Various M&A Cases

In accordance with the characteristics of M&A cases, OCFR performance is aligned again in Table 3. Here, characteristics of firms are decided by its major tendency; if a firm shows 70% or more of its M&A transaction cases in one category, then the firm is classified into that category.

As for the criterion of acquirer's region, firms that are not located in North America and Europe show better performance. This is probably because that they usually performed M&As in their domestic market, and executed more M&As during the declining period; these transactions are usually small sized, less risky, and passive. On the other hand, firms in North America and Europe steadily performed M&A all over the periods, and did larger M&As than other firms. Although they were active in global M&A transaction, they experienced an abrupt drop soon after the M&A transaction. This might be caused by the size of transaction (the size of acquired firm); the larger the transaction is, the more effort and transition period is required to get a decent result.

Firms who acquired foreign companies internationally experienced early outcomes; their OCFR increased a year after the M&A. According to Jang *et al.*, (2006), many global contractors have performed cross-border M&A to receive new contracts by possessing new management skill in foreign country, and M&A helped them to realize new projects. Therefore, cross-border M&A can directly affect a firm's operation performance, while domestic M&A needs a timeline as this type is usually performed to develop skills and capacity of an acquirer. Differences between growing period and declining period were not significant. Despite depressed market conditions in the declining period, firms who did M&A showed an increment in three years after the M&A. This can be explained by the booming period followed right after the declining period, so the market condition was restored and also their performance increased higher than 'before M&A' after three years from the M&A.

Table 3: Changes in OCFR of M&A Performed Construction Firms

Characteristics		Before M&A	After M&A		
			1 year	2 years	3 years
Region	N. America	6.98%	4.60%	5.54%	6.97%
	Europe	6.47%	5.30%	5.07%	6.63%
	Asia, Africa, Oceania	6.46%	5.38%	6.00%	6.93%
Nationality	Internationally	5.17%	6.21%	4.79%	6.39%
	Domestically	6.46%	5.01%	5.95%	6.80%
Period	Growing	6.59%	4.33%	4.88%	6.26%
	Declining	5.38%	4.79%	4.81%	6.08%
Aggressiveness ⁴	Active	6.56%	5.81%	6.16%	6.93%
	Passive	6.71%	4.61%	4.64%	6.70%

⁴ Aggressiveness is defined on the criterion of M&A frequency and scale. If a firm performed an average of one or more M&A transactions every year, or its total cost on M&A transaction exceeded 2 billion USD, then it is classified into 'Active'.

As for active or passive category, active firms gained more profits than passive acquirers all over the three years after an M&A transaction. For example, one construction firm especially had moved higher in the ranking of ENR's 'The Top 225 Global Contractors', from thirtieth to fifth through 35 times of M&A transactions in six years. Similar to this result, Jang *et al.*, (2006) ascertained that several top global contractors rapidly increased their market share and revenue with a series of M&A transactions.

4.4 Level of Diversification

The acquirer's level of diversification can be grasped by the Berry index (Table 4). With ENR's nine categories in the international construction, acquirers show 0.565 on average before the M&A. After that, their Berry index shows the similar pattern with OCFR trend; the index dropped just after the M&A, and regained as time goes by. Their Berry index on average decreased after the M&A as they generally concentrated in two or three products; usually the general building and transportation market. But this change does not statistically significant. Although there were a few firms who extended new products after M&A, it was also insignificant. Table 4 shows changes of the Berry index with timeline.

Table 4: Level of Diversification

	Before M&A			After M&A		
	3 years	2 years	1 year	1 year	2 years	3 years
Berry Index	0.571	0.574	0.551	0.498	0.517	0.520

5. Conclusion

After 1997, many global contractors performed M&A in international construction market; this research analyzed their M&A performance. Construction firms who acquired another firms experienced great increment of total assets. However, they could not gain a profit on OCFR until the second year after the M&A transaction, they regained their OCFR level three years after the M&A. Considering that OCFR is calculated by dividing OCF by asset which usually represents firm size, these results represent that acquirers slightly improved their cash flow performance after the M&A transaction. Acquires who performed M&A across the border especially gained more profit than the firms who did in domestic area. Moreover, active acquires who did an average of one or more M&A every year, or spent more than 2 billion USD on M&A transaction realized more profits over three year after an M&A transaction. On the other hand, acquirers did not remarkably diversify their market while their OCFR were changing. Based on the research findings, the authors answer the question that aggressive M&A strategies to foreign construction firms are moderately helpful for global contractors, especially from the perspectives to increase their revenue size and cash flow, but not much beneficial for products diversification in just three years of time span.

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7. References

Anand, J., and Singh, H. (1997). "Asset redeployment, acquisitions and corporate strategy in declining industries", *Strategic Management Journal*, Vol. 18 (summer special issue), pp. 99-118.

- Choi, J., and Harmatuck, D. (2006). "Post-operating performance of construction mergers and acquisitions of the United States of America", *Canadian Journal of Civil Engineering*, Vol. 33, pp. 266-277.
- Choi, J., and Russell, J. S. (2004). "Economic gains around mergers and acquisitions in the construction industry of the United States of America", *Canadian Journal of Civil Engineering*, Vol. 31, pp. 513-525.
- Delaney, T., and Wamuziri, S. C. (2004). "The impact of mergers and acquisitions on shareholder wealth in the UK construction industry", *Engineering, Construction and Architectural Management*, Vol. 11, No. 1, pp. 65-73.
- ENR (Engineering News-Records). (1995-2007). *The Top 225 Global Contractors*, 13 vols. New York, McGraw-Hill.
- Ghosh, A. (2001). "Does operating performance really improve following corporate acquisitions?", *Journal of Corporate Finance*, Vol. 7, No. 2, pp. 151-178.
- Healy, P. M., Palepu, K. G., and Ruback, R. S. (1990). "Does corporate performance improve after mergers?", *Journal of Financial Economics*, Vol. 31, No. 2, pp. 135-175.
- Jacquemin, A. P., and Berry, C. H. (1979). "Entropy measure of diversification and corporate growth", *Journal of Industrial Economics*, Vol. 27, No. 4, pp. 359-369.
- Jang, H. S., Choi, S. I., and Lee, B. N. (2006). *Analysis of Transition in Business Structure of Global Top-Tier Construction Firms*, Construction & Economy Research Institute of Korea, Korea.
- Korea Institute of Finance (KIF). (2007). "Prospects and suggestions of Korean M&A market", *Weekly Financial Brief*, Vol. 16, No. 35, pp. 3-9.
- Pauser, S., Rottke, N., and Schiereck, D. (2007). "M&A in the construction industry – Wealth effects of diversification into real estate life cycle related services", *Real Estate Management Institute Working Paper Series*, Vol. 07, No. 4, pp. 1-32.
- Ross, S. A., Westerfield, R. W., and Jaffe, J. (2005). *Corporate Finance*, 7th Edition, McGraw-Hill, Singapore.
- Ross, S. A., Westerfield, R. W., and Jordan, B. D. (2000). *Fundamentals of Corporate Finance*, 5th Edition, McGraw-Hill, Boston.
- United Nations Conference Trade and Development (UNCTAD). (2008). Beyond 20/20 WDS, FDI Statistics. Online at <http://www.unctad.org>. Accessed on August 8, 2008.
- Yen, T., and Andre, P. (2007). "A general equilibrium approach to monetary theory", *Journal of Money Credit and Banking*, Vol. 1, No. 1, pp. 15-29.