Acquisition Strategy and Firm Performance
A Comparison of Risk-return Performance Controlling for Macro-economic, Industry, and Firm-specific Conditions

Alok Srivastava, Department of Managerial Sciences, Georgia State University
Sangsoo Kim, Hyosung University, Korea

ABSTRACT

This study examined the relationship between risk-return performance of acquiring firms and acquisition strategy under conditions of economic instability. Effects of environmental factors such as macro-economic conditions, acquired firm's industry, firm-specific managerial factors, and acquisition size were found to be significant determinants of acquisition success. It was found that the distribution of successful firms was fairly uniform across strategies, implying that each strategy offered a path of success for acquiring firms. Generally, firms involved in horizontal acquisitions experienced the greatest improvement on the profitability dimension while firms involved in conglomerate acquisitions were most successful on the risk dimension.

INTRODUCTION

The merger and acquisitions literature fails to develop a consensus concerning the relationship between acquisition strategy and performance of acquiring firms. Proponents of the strategic management school argue that acquisitions are necessary in order to create operational/marketing synergies within the acquiring firm. For such synergies to exist, the acquired firm's business should be closely related to the main business thrust of the acquiring firm. On the other extreme, proponents of financial portfolio theory argue that acquisitions involving unrelated businesses can increase the value of the acquiring firm by reducing total portfolio risk. Such a risk reduction can result in utilizing financial synergies which are associated with unrelated acquisitions.

Results of empirical studies that attempted to explore acquisition strategy-performance relationship are mixed. Conclusions drawn from results of such studies have varied over a large spectrum making it very difficult to develop meaningful frameworks for implementation of various strategies. Unfortunately, there are a number of potential reasons that might explain such inconsistencies. These reasons include differences in measuring performance, differences in sampling and analyses, and failure to include relevant variables that may moderate firm performance.

While the first two reasons are primarily problems associated with methodology and are the responsibility of the individual researcher, the third reason, failure to include all relevant variables, is universal and requires systematic examination. In evaluating the acquisition strategy-performance relationship, this study attempts to address several issues that have often been ignored by earlier studies.

A rigorous sampling methodology was employed to control for the effects of multiple acquisitions. By using proxy variables, the effects of macro-economic conditions, industry characteristics, and factors unique to acquiring firm, were examined to gain a better understanding of determinants of long term performance.

BACKGROUND

Increasing the economic value of the acquiring firm has been argued as the central motive behind all acquisitions (Salter and Wienhold, 1982). The literature often addresses value by using proxy variables that are accounting and/or marked based measures. The most frequently used market based measure is the stock price, while most studies using accounting based measures use return on assets as indirect measures of firm value. Due to the importance of risk-return tradeoffs, value is not adequately represented without measures of risk. Studies using accounting based measures usually employ the variability of the return measure being used as the measure of total risk.
Acquisition strategies are normally classified by the degree of relatedness among the acquiring firm's and acquired firms operations. The Federal Trade Commission's classification of acquisitions is a popular way of operationalizing acquisition strategy. Unrelated acquisitions are often referred to as conglomerate acquisitions, while related acquisitions are classified as horizontal (same market), product extension (similar to existing products), or market extension (similar to existing markets served). Acquisitions that result in either forward or backward integration of activities are classified as vertical acquisitions.

Regardless of the performance measures employed, or the method of classification employed, studies attempting to establish linkage between acquisition strategy and performance have yielded conflicting findings. Kitching (1967) and Elger and Clark (1980) found that unrelated acquisition strategy outperforms other related acquisition strategies, while Charterjee (1986), and Lubatkin and O'Neil (1987) observed opposite results.

Inconsistencies in earlier empirical findings may be attributed to several factors. Methodological limitations such as sampling procedures, differences in performance measures, and inadequate classification schemes, are obvious problems. A still greater problem lies in treatment of acquisitions as singular acts, and that these acts are the determinants of post-acquisition performance. Some acquiring firms plan acquisition programs that result in acquisition of several firms in a given time period. To accurately capture effects of acquisitions on long term performance, it is necessary to isolate effects of single acquisition and control for other determinants of performance.

Acquisitions are undertaken for a variety of reasons, to include reducing total portfolio risk, creating synergies through related acquisitions, and creating value through the exploitation of new markets. Regardless of the reason, acquisitions must be studied within the context of the business situation. Acquisitions undertaken during economic stability are more likely to reflect a continuation of the existing business (related acquisitions) than would acquisitions taken during economic turbulence. During such times, firms are more likely to be seeking acquisitions to overcome weaknesses associated with the turbulence. Industry factors also play a role.

A related acquisition pursued by a firm in a declining industry has considerable merit if the purpose is to diversify, in a related way, into markets with long term potential. However, the acquisition loses appeal if the objective is one of solidifying the base business which competes in an industry with low expectations in the long term. This implies that industry specific factors such as stage of the life cycle, overall competitive intensity, and profitability, are influences that must be considered when examining acquisition strategy. In an industry in which these factors reflect unattractive industry characteristics, unrelated acquisitions imply moving into more favorable markets/products.

Firm specific factors that reflect the attainment of synergies by acquiring firms have not been examined by previous research. These factors may explain why some firms are successful in each strategy. For example, what distinctive competences are held by the acquiring firm and how could these be transferred to the acquired firm in related acquisitions? If there are few competencies and transfer is unlikely, then, related acquisitions conceivably hold few inherent advantages. On the other hand if financial synergies are not exploited, unrelated acquisitions cannot be justified from a value creation/performance improvement standpoint.

Given that firms acquire others for a variety of reasons, and that different firms have different levels of capabilities in exploiting available synergies, it can be argued that it is not meaningful to hope for a consensus on the relative superiority of a certain acquisition strategy over others.

Lubatkin (1983), in his extensive review of the acquisitions literature, proposed different levels of synergy associated with different kinds of acquisitions on various synergy dimensions. Related acquisitions were associated with a greater degree of potential total synergy compared to unrelated acquisitions. Lubatkin (1987), examined the relationship between stockholder gains and relatedness of acquiring firms using the stock returns of 439 acquiring firms in 1031 large mergers. He concluded that mergers lead to permanent gains in stockholders value for both acquiring and acquired firms. Yet, he failed to find support for the contention that related acquisitions result in superior performance.

Elger and Clark (1980) using risk-adjusted common stock returns, concluded that both buyers and seller stockholders receive more benefit from conglomerate mergers than from non-conglomerate mergers. It should be noted that their two-way classification scheme was very broad and was not consistent with comparable studies.

Chatterjee (1986), and Lubatkin and O'Neil (1987) found that related acquisition strategies tend to provide higher economic value to acquiring firms compared to unrelated acquisition strategies. Chatterjee (1986) compared types of
synergy with types of acquisition strategy, concluding that collusive synergy, associated with horizontal mergers, yielded the highest value to the firm. Lubatkin and O'Neill (1987) found a positive relationship between related mergers and reduced systematic and total risk.

Lubatkin and O'Neill (1987) found that all types of mergers were associated with significant increases in unsystematic risk. However, related mergers were associated with a significant decline in systematic risk, and hence total risk. They acknowledged the limitations of their studies.

In summary, very few studies have tested the relationship between the performance of acquiring firms and type of acquisition strategy. Empirical findings on this relationship have been mixed. Most these studies focused only on the relationship between acquisition strategy and stockholders value created by acquisitions. The reason for inconsistency in the findings of earlier studies is believed to be partly due to the differences in sampling procedures, performance measures, classification schemes, and analysis methodologies. Therefore, a new study should address these shortcomings to gain a better understanding of performance implications of various acquisition strategies. The purpose of this study was to examine the strategy-performance relationship under conditions of economic instability controlling for effects of relevant factors and effects of multiple acquisitions.

**RESEARCH HYPOTHESES AND METHODOLOGY**

Given the previous discussion, several factors that may influence the relative success of different acquisition strategies were identified. With these factors in mind the following hypotheses were developed.

**Hypotheses:**

H1: There is no relationship between the long-term performance of acquiring firm and the effects of macro-economic condition, type of industry, firm-specific managerial factors, and acquisition size.

H2: There is no difference in the long-term performance of acquiring firms pursuing different acquisition strategies when effects of macro-economic conditions, industry characteristics, firm-specific factors, and acquisition size are isolated.

**Sample and Data:**

An initial list of large acquiring firms was obtained from the Federal Trade Commission's statistical report on acquisitions and mergers, and the publication, Mergers & Acquisitions. This study focused on large acquiring firms with more than $100 million in assets. To ensure that only large acquisitions were included in this sample, only those firms that increased assets by at least 10% through a major acquisition were included. The next screening criterion was to eliminate the effects of multiple, large acquisitions. The effects of specific types of acquisition cannot be isolated if the confounding effects of multiple acquisitions are not controlled. Therefore, the sample was further reduced by eliminating firms involved in more than one large acquisition in the ten year period surrounding the acquisition year. The final constraint was that data be available on acquiring firms on the COMPUSTAT tapes and other sources. These procedures resulted in a sample of 136 firms consisting of 35 horizontal, 10 vertical, 52 product extension, and 39 pure unrelated acquisitions.

**Variables and Measures**

**Type of Acquisition Strategy:**

The Federal Trade Commission's classification method, based on Standard Industrial Classification system, was used to identify the type of acquisition strategy. This method represents a reasonably objective measure of acquisition relatedness (Lubatkin, 1983) and satisfies the scope of this study which focuses on the differences between various strategies (i.e., between group variation).

The horizontal and market extension categories were combined since there is little distinction between these two types of strategies (Howell, 1970). Thus, all mergers and acquisitions were classified into four types: horizontal and market, vertical, product extension, and pure conglomerate. However, since there were relatively few firms in the vertical acquisition category, this sub sample was not used.
Performance And Control Variables:

The long-term performance of acquiring firms was measured in terms of accounting based profitability and risk. Accounting based performance measures reflect performance more directly under the control of top management and are used as a barometer of the overall performance of firm (Grant, Jammine, & Thomas, 1983; Aaker and Jacobson, 1985). Variables used to test H1 & H2 are summarized in Table 1.

The five-year average of return on assets (A_ROA) was used to measure the profitability of the firm after acquisition. Risk of the acquiring firm (A_RISK) was defined by the standard deviation of A_ROA across the 5-year time period. Industry data were used to compute T_ROA, T_RISK, IN_ROA, and IN_RISK. Two digit SIC codes of acquiring and acquired firms were used to identify relevant industries. Profitability (T_ROA) and risk (T_RISK) for macro-economic conditions were measured by the five year average of ROA and the standard deviation of ROA for all 42 industries for the corresponding post-acquisition period. Profitability (IN_ROA) and risk (IN_RISK) for the acquired firm's industry were measured by the five year average of ROA and standard deviation of ROA for the relevant industry for the post acquisition period.

Table 1: Variables and Measures

<table>
<thead>
<tr>
<th>Variables</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>A_ROA</td>
<td>Five year average ROA after acquisition (measure of post acquisition returns)</td>
</tr>
<tr>
<td>A_RISK</td>
<td>Standard deviation of A_ROA (measure of post acquisition risk)</td>
</tr>
<tr>
<td>ACQ_ROA</td>
<td>Adjusted post acquisition returns (see equations 1-3)</td>
</tr>
<tr>
<td>ACQ_RISK</td>
<td>Adjusted post acquisition risk (see equation 4-6)</td>
</tr>
<tr>
<td>T_ROA</td>
<td>Five year average ROA of all industries during the post-acquisition period (profitability measure for macro-economic conditions)</td>
</tr>
<tr>
<td>T_RISK</td>
<td>Standard deviation of T_ROA (risk measure for macro-economic conditions)</td>
</tr>
<tr>
<td>IN_ROA</td>
<td>Five year average of acquired firm's industry's ROA (profitability measure for effect of acquired firm's industry)</td>
</tr>
<tr>
<td>IN_RISK</td>
<td>Standard deviation of IN_ROA (risk measure for effect of acquired firm's industry)</td>
</tr>
<tr>
<td>SIZE</td>
<td>Relative size of acquired firm's assets</td>
</tr>
<tr>
<td>B_ROA</td>
<td>Five year average of acquiring firm's ROA before an acquisition (pre-acquisition profitability)</td>
</tr>
<tr>
<td>B_RISK</td>
<td>Standard deviation of B_ROA (measure of pre-acquisition risk of acquiring firm)</td>
</tr>
</tbody>
</table>

The relative size of acquisition (SIZE) was measured as the ratio of assets of the acquired firm to those of the acquiring firm. The pre-acquisition performance of the acquiring firm was measured by the five-year average of ROA before an acquisition (B_ROA) and the standard deviation of ROA across five years (B_RISK). These measures were used to reflect a firm's unique managerial factors.

Before comparing performance of firms pursuing different acquisition strategies, the effects of macro-economic conditions, acquired firm's industry, acquiring firm's management, and relative size of acquisition were controlled and isolated. The effects of these factors were modeled using multiple regression analysis. Based on propositions made in the literature, post-acquisition performance was described by the following equations.
A_ROA = \( f (T_{ROA}, IN_{ROA}, B_{ROA}, SIZE, ACQ_{ROA}) \) \hspace{1cm} (1)

The relationship expressed in equation (1) was modeled as a linear relationship through multiple regression analysis. This assumed linear relationship is described by equation (2). Profitability that can be attributed to acquisition was computed by equation (3).

\[
A_{ROA} = B_0 + B_1*T_{ROA} + B_2*IN_{ROA} + B_3*B_{ROA} + B_4*SIZE + (ACQ_{ROA} - (B_0 + B_1*T_{ROA} + B_2*IN_{ROA} + B_3*B_{ROA} + B_4*SIZE)) \hspace{1cm} (2)
\]

Similar adjustments were made to the measure of RISK, which are described equations 4-6.

\[
A_{RISK} = f(T_{RISK}, IN_{RISK}, B_{RISK}, SIZE, ACQ_{RISK}) \hspace{1cm} (4)
\]

\[
A_{RISK} = B_0 + B_1*T_{RISK} + B_2*IN_{RISK} + B_3*B_{RISK} + B_4*SIZE + (ACQ_{RISK} - (B_0 + B_1*T_{RISK} + B_2*IN_{RISK} + B_3*B_{RISK} + B_4*SIZE)) \hspace{1cm} (5)
\]

\[
ACQ_{RISK} = A_{RISK} - (B_0 + B_1*T_{RISK} + B_2*IN_{RISK} + B_3*B_{RISK} + B_4*SIZE) \hspace{1cm} (6)
\]

**DATA ANALYSIS AND RESULTS**

The data analysis for H1 consisted of two parts: (1) an examination of the relationship between post-acquisition performance and control variables, and (2) the modeling of effects of control variables on post-acquisition performance. First, the relationship between post acquisition performance and control variables was assessed using correlation analysis. Two different correlation analyses for two performance variables were conducted. The correlation matrices of the two performance variables and control variables are presented in table 2.

This analysis indicates that the profitability of acquiring firms after an acquisition is positively influenced by three variables, pre-acquisition profitability, macro-economic conditions, and type of industry of acquired firms. Acquisition size was found to be negatively related to post acquisition profitability of acquiring firms. These four variables were used as covariate variables to control their effects on the profitability of acquiring firm.

The correlations between the control variables and risk of acquiring firm also provides interesting results. Variability in macro-economic conditions and pre-acquisition risk were positively correlated with risk of acquiring firms after acquisition.

<table>
<thead>
<tr>
<th></th>
<th>B_ROA</th>
<th>SIZE</th>
<th>IN_ROA</th>
<th>T_ROA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A_ROA</td>
<td>0.227</td>
<td>-0.185</td>
<td>0.403</td>
<td>0.388</td>
</tr>
<tr>
<td></td>
<td>(0.011)</td>
<td>(0.038)</td>
<td>(0.001)</td>
<td>(0.001)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>B_RISK</th>
<th>SIZE</th>
<th>IN_RISK</th>
<th>T_RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>A_RISK</td>
<td>0.213</td>
<td>0.060</td>
<td>0.113</td>
<td>0.154</td>
</tr>
<tr>
<td></td>
<td>(0.017)</td>
<td>(0.503)</td>
<td>(0.208)</td>
<td>(0.085)</td>
</tr>
</tbody>
</table>

* values within parenthesis are p-values.

Since the correlation analyses indicated an association between control variables and performance variables, the next step of the data analysis was to model their effects on performance variables to test H1. The effects of these control variables were modeled using regression analysis. The control variables found to be significantly related with post-acquisition performance variables were used as independent variables. Performance variables were used dependent variables. The regression models that were developed are described by equations 7 and 8.

\[
A_{ROA} = -9.49 + 0.35*B_{ROA} - 1.43*SIZE + 0.57*IN_{ROA} + 1.81*T_{ROA} \hspace{1cm} (7)
\]

\[
A_{RISK} = -1.94 + 0.23*B_{RISK} + 2.91*T_{RISK} \hspace{1cm} (8)
\]

The two regression models were statistically significant at the 1% level. All independent variables were also significant.

The two performance variables (A_ROA & A_RISK) were residualized using the regression models. The residuals for each performance variable were viewed as adjusted performance variables (ACQ_ROA & ACQ_RISK) and used to test hypothesis H2.

The main conclusion of these results is that performance of acquiring firm was affected by several environmental and managerial variables. Therefore, before assessing and comparing the effects of different acquisition strategies on
the performance of acquiring firms, these effects should be controlled and isolated. A MANOVA analysis was performed to test H2. The first step of the data analysis was to test the equality of group means of the two performance variables across three types of acquisition strategies. Wilk's lambda statistic was used to test for overall group mean differences across three types of acquisition strategies. The F value of Wilk's lambda statistic was 0.860 and its p value was 0.489. This test statistic indicates that the null hypothesis of equality of means of acquiring firms across three types of acquisition strategies cannot be rejected. The MANOVA test provides no evidence that when two performance variables of acquiring firms pursuing three different acquisition strategy were compared jointly, the mean levels of these two performance variables of acquiring firms were significantly different.

Even though the result of MANOVA test indicated that performance of acquiring firms was not different, the next step of data analysis was done to gain a better understanding of the nature of the relationship between the type of acquisition strategy and performance. Table 3 displays the values of two performance measures of acquiring firms. Also included in this table is the proportion of successful firms for each type of strategy. Successful firms were defined if their performance variables were better than overall mean.

### Table 3: Mean Values of Profitability and Risk and proportions of successful acquisitions

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Horizontal</th>
<th>Product</th>
<th>Conglomerate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profitability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A_ROA</td>
<td>5.31</td>
<td>5.30</td>
<td>5.10</td>
<td>5.60</td>
</tr>
<tr>
<td>ACQ_ROA</td>
<td>0.00</td>
<td>0.42</td>
<td>-0.42</td>
<td>0.19</td>
</tr>
<tr>
<td>Risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A_RISK</td>
<td>3.09</td>
<td>3.10</td>
<td>3.51</td>
<td>2.53</td>
</tr>
<tr>
<td>ACQ_RISK</td>
<td>0.00</td>
<td>-0.02</td>
<td>0.45</td>
<td>-0.59</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proportion of Successful Firms*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profitability</td>
</tr>
<tr>
<td>Risk</td>
</tr>
</tbody>
</table>

* Success defined as above average profitability and below average risk.

On the profitability dimension, profitability of firms involved in any acquisition (ACQ_ROA) was not changed after an acquisition. This finding is consistent with the finding of previous empirical studies which have found that acquisition does not necessarily result in improved value, and that operating performance of acquiring firms is not improved after acquisition (Fowler, 1987). No change in profitability is supported by the fact that the proportion of successful firms is 53.96 for the whole sample.

ACQ_ROA of firms that pursued a product extension strategy was decreased by 0.42 while ACQ_ROA of firms involved in horizontal and conglomerate strategy was increased by 0.42 and 0.19, respectively. Firms that pursued a horizontal strategy had a higher success rate than firms involved in other strategies. Although this finding was not statistically significant, there is an indication that horizontal strategy is a better strategy in terms of improving profitability.

The results on the risk dimension are very interesting. Even though the average level of risk of acquiring firms did not change after the acquisition, two thirds of acquiring firms reduced their risk after an acquisition. Firms involved in product extension strategy experienced a greater degree of variability in their earnings in the post-acquisition time period. The risk of firms which pursued a conglomerate strategy was decreased by 0.59. Firms that pursued a pure-conglomerate acquisition strategy were the best performers in terms of reducing risk. This finding is consistent with merger theory which suggests that a conglomerate acquisition strategy can reduce the level of risk due to diversification. This result is also supported by the proportions of successful firms in each categories that had above average performance on the risk dimension. An examination of proportions of successful firms by strategy indicates that there are paths of success available to acquiring firms irrespective of strategy.
CONCLUSION

The objective of this study was to investigate the relationship between the type of acquisition strategy and the performance of acquiring firms. In order to perform a more thorough investigation of this relationship, several factors which may affect the performance of acquiring firm were controlled and isolated. These were the variability of macro-economic and industry condition and firm-specific conditions. Multiple performance measures of different acquisition strategies were used to measure economic value of acquiring firms pursuing different acquisition strategies: profitability and risk.

It was found that the long-term performance of acquiring firms were affected by several environmental and managerial factors. As we expected, the post-acquisition profitability of the firm was positively related to the macro-economic condition, acquired firm's industry, and pre-acquisition profitability. Another interesting result is that the acquisition size is negatively related with the post-acquisition profitability. This result indicates that if a firm attempts to acquire a relatively large firm, there is a higher chance for failure.

On the risk dimension, the post-acquisition risk is positively affected by two control variables: macro-economic risk and pre-acquisition risk of acquiring firm. Therefore, the effect of these variables were controlled and isolated in order to assess the impact of different acquisition strategies.

The results of MANOVA suggest that the performance of acquiring firms were not different across their acquisition strategy. In other words, there is no evidence that the type of acquisition strategy itself is a sufficient condition to provide different economic values to acquiring firms.

Although not statistically significant, it was found that the profitability of firms which pursued a horizontal acquisition strategy was greater than those of firms involved in product extension and conglomerate acquisition strategies. In terms of risk, firms involved in conglomerate acquisition strategy were the best performers with respect to reducing risk after an acquisition.

In summary, acquisition strategy, alone, does not constitute a sufficient condition for improved performance. Strategies provide paths for improving performance. Performance improvements may be a function of the path chosen, but are heavily dependent upon the degree of planning that goes into implementation of the acquisition strategy. Future research should address the possible determinants of success for each strategy. Accomplishment of synergy may explain why certain firms are more successful than others, irrespective of acquisition strategy.

BIBLIOGRAPHY


