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Understanding the Performance
of Corporate Acquisitions

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by

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Understanding the Performance of Corporate Acquisitions

ABSTRACT

This paper examines the concept of acquisition performance to develop and test a model linking the various ways in which scholars have studied it in the past. We propose a model linking task-, transaction- and firm-level constructs under different time horizons and test it with a unique dataset created surveying partners and directors of a major consulting firm advising on the post-acquisition integration process of 146 acquisitions across industries and geographies. Results of factor and structural equations (PLS) analysis reveal that (a) there is no single underlying factor on which all the 9 measures studied load, (b) a causal chain link integration process performance to long-term firm performance (both accounting and financial returns) through the mediating role of customer retention and of overall acquisition performance, and (c) short-term window event studies do not relate to any of the other performance metrics and load on a separate factor. Implications and recommendations are drawn for theory development, research design and data analysis in future studies of acquisition performance, as well as for practicing managers.

INTRODUCTION

The study of the performance of corporate acquisitions has been part of the strategic management, the corporate finance and the organizational behavior fields for decades. The explanation of the variance in acquisition performance has been one of the core questions pursued by scholars in all these research traditions. It is a fact, however, that there is little convergence both across as well as within the disciplines on how the concept of acquisition performance should be measured in empirical studies. Approaches vary along several dimensions, from subjective (e.g. qualitative assessments of degrees of synergy realization, of integration process efficacy or of strategic gap reduction) to objective measurement methodologies (e.g. financial or accounting figures), from short-term (e.g. a few days before and after the acquisition announcement) to long-term (up to 5 years after the closing) time horizon, from an organizational level of analysis (e.g. improvement of firm performance or competitive position) to a process or transaction level (e.g. quality of execution of the post-acquisition plans, magnitude of premium paid, etc.). The questions that naturally arise from this state of affairs are, first, do the various measures adopted approximate the same construct (i.e. “acquisition performance”)? And second, how do they relate to each other, both conceptually and empirically?

This paper intends to contribute to the ongoing debate on the performance of M&A in different ways. We present, first, a synthetic appraisal of the various approaches to measure acquisition performance, which begins to shed light to the core issue of understanding what all these measures mean conceptually and, most importantly, how they do relate to each other. We then submit a theoretical model that fleshes out the conceptual linkages between the various constructs. It is important to note that this paper does *not* focus on the explanation of the variance in M&A performance, like prior literature does. The theoretical and empirical

contribution is strictly defined upon the power of a model that links the different performance constructs in a conceptually plausible and empirically testable way. Third, this paper presents an empirical validation of how the various performance constructs (a) cluster around common dimensions, and (b) influence each other. Finally, the paper leverages on these findings to draw implications for future theory-building as well as theory-testing exercises designed by scholars in the M&A field, as well as for practicing managers involved in M&A processes.

REVIEW OF MEASURES OF ACQUISITION PERFORMANCE

We conducted a review of empirical M&A articles published on top management and finance journals between 1970 and 2006, studying factors explaining the variation in acquisition performance. We have found a total of 87 articles, using 12 different types of measurements, which are reported in Table 1.

INSERT TABLE 1 ABOUT HERE

The largest group of studies (36, or 41% of the total) used the short-term window event study method. The use of long-term accounting measures, which is almost entirely found in strategic management and organizations studies journals, comes a strong second with 25 studies (29%). Long-term window event studies, a measure growing in popularity in finance journals (Loughran and Vijh, 1997), have been used in 16 articles (18%), roughly equal to the use of subjective performance measures, with 12 studies (14%) using assessments of overall acquisition performance and 8 studies (9%) explaining the variance of integration process performance measures. Others adopt measures related to innovation outcomes (Ahuja and Katila, 2001; Kapoor and Lim, 2005), knowledge-transfer process (Bresman et al., 1999), employee and top management turnover (Walsh, 1988; Hambrick and Cannella, 1993) and

project survival or divestitures (Pennings et al., 1994). More recently, the survey of expert observers like investment bankers following the acquiring companies (Hayward, 2002) has been introduced as a way to reduce the social desirability bias characteristic of subjective acquisition performance assessments.

Whereas there is clearly value in the generation of different operationalizations of the core construct (acquisition performance), since the different metrics might shed light on different specific aspects of the complex acquisition process, the paucity of theoretical explanation, as well as of empirical validation, of the relationship between all these measures might present an important limiting factor for the development of scholarship in the field. We do not know, but it would be important to know, if all these metrics are actually to be considered approximations to a unique theoretical construct. And, if not, it would be important to know what the conceptual and empirical linkages among them might be.

As a very first step, we submit a simple taxonomy to categorize all these approaches, based on two intuitively important dimensions: the level of analysis and the time horizon. In the first dimension, we distinguish three different levels:

1. The Task Level. The integration process, with its different components related to multiple tasks to execute in order to reach the desired level of integration between the two organizations (e.g. alignment of control systems, conversion of the IT systems, transferring sales practices, etc.). Each of these tasks generate its own performance, which can be aggregated in a more general notion of integration process performance, that is (def. 1) *the degree to which the targeted level of integration between the two organizations has been achieved across all its task dimensions.*
2. The Transaction Level. The performance of the entire acquisition

encompasses all the phases of the acquisition process and focuses on the actual value creation eventually generated by the acquisition. The transaction performance construct can thus be defined as *the amount of value, in cost efficiencies and revenue growth terms, generated by the complete transaction process*, from the completion of the negotiation to the execution of the business plan. Note that this notion of performance centers around the realization of the value creation objectives, as they have been envisioned at the time of the transaction. In addition to synergistic benefits, of cost and revenue nature, therefore, it includes stand-alone optimization benefits, such as in turn-around situations.

3. The Firm Level. The performance of the combined entity, over and above the value generated by the transaction itself, can be defined as *the variation in firm performance occurred during the period of relevance for the execution of the business plan connected to the acquisition*. Needless to say, this construct is the broadest of the three, and includes the effects of the acquisition on the performance of other business processes simultaneously ongoing within the firm during the period in consideration.

The second dimension, the time horizon taken into consideration, can be categorized in terms of short-to-medium term and long-term measures. The former will include the performance outcomes typical of the first phases of the integration process, from the completion of the transaction to the initial impacts generated by the integration process. In most cases, these metrics would cover the first year or so after the completion of the transaction. The long-term measures would instead stretch to cover the entire relevant period for the implementation of the business plan and the consequent creation (or destruction) of

value. Note that it is virtually impossible to define a clear-cut boundary between the two categories in this dimension for the simple reason that the value creation process is strongly context-dependent vis-à-vis the type of value logics prioritized (e.g. cost efficiencies are more rapid than revenue growth to achieve) as well as the environmental “clock-speed” in which the acquisition takes place (e.g. acquisitions in high-tech industries must execute the business plan much faster than, say, those in the electric utility or chemical industries).

Table 2 allocates the various measures of acquisition performance identified in the received literature on a 3X2 matrix created by the two proposed dimensions. Note that that short-term event study metrics can be considered both a firm-level metric, since it reflects the market’s expectations generated by the acquisition announcement on the performance of the combined firm, as well as a transaction-level metric, since the time window during which the stock price variation is captured is sufficiently small to exclude any other event related to the two companies that is not connected to the announced deal.

INSERT TABLE 2 ABOUT HERE

THE RELATIONSHIPS AMONG PERFORMANCE CONSTRUCTS

The objective of this section is to develop a model that links conceptually the types of performance constructs that have been utilized in the received literature. To do so, let us consider the matrix introduced in the prior section and think about the possible logical linkages across the various cells. The first observation is that the three levels of analysis are linked by a causal, unidirectional, logical chain. That is to say that each level can be argued to be a necessary, but not sufficient, condition to the following one. Task-level integration

process performance does influence positively the likelihood of creating value through the entire transaction (Jemison and Sitkin, 1986; Haspeslagh & Jeminson, 1991). At the same time, the value created through the acquisition will have a positive effect on the overall firm performance, since the realization of cost and revenue improvements are clearly included in consolidated accounting statements, which will be in turn reflected in stock price movements and consequent returns (Jensen and Ruback, 1983).

More interesting is the opposite question: when is this *not* true? When does a high quality integration process fail to deliver the synergistic or stand-alone benefits that were aimed for in the business plan? And, even more importantly, when does the generation of synergistic or stand-alone benefits fail to generate the returns to shareholders, measured either in accounting or in financial terms? The answers to these questions are important, since if there were no conditions under which the positive linkages between the performance at each level of analysis turn out to be false, then the proposed causal chain would be either trivial or tautological.

However, the integration process can and does fail to produce the expected value creation benefits. For example, the cost savings produced by the integration of the two organizations can produce (unexpected) negative implications for the retention of top salesmen and the quality of customer service (Bekier and Shelton, 2002). On the other hand, the achievement of revenue synergies (e.g. cross-selling products to the respective customer bases) requires significant investments in training, marketing and sales support; investments that can easily over-take the benefits in terms of revenue growth, generating negative net synergies.

Even the link between the generation of value from the execution of the business plan and overall firm performance should not be taken for granted both conceptually and

empirically. In fact, even if all the synergistic potential from a given acquisition has been realized, the performance of the acquiring firm might not improve because the “success” of the acquisition might have generated negative effects on other ongoing initiatives within the firm or in the market dynamics with competitors, customers, suppliers, business partners, local and government institutions, and so on. For example, the investment in managerial attention and resources required to make the acquisition “work” could force other important projects in the firm, such as the development and launch of a new product or the completion of a complex change management program to be neglected. At an even more basic level, the cost of the acquisition itself (including the premium paid on the stand-alone value of the acquired firm) might be superior to the value creation realized via the execution of the business plan. On the external front, reaping the benefits of the acquisition might generate powerful reactions by competitors and by stakeholders. For example, competitors might (and often do) seize the opportunity to prey on the best talent in the merged organization, customers (suppliers) might decide to diversify their portfolio of counterparts by searching for alternative suppliers (customers). Also, social capital with government authorities, local communities, business partners and even employees might erode as a consequence of the realization of synergistic or stand-alone benefits, with negative (although difficult to track) consequences on overall firm performance. Finally, the competitive positioning of the combined firm might not have improved, despite the realization of cost and revenue advantages. An excellent example is provided by the HP-Compaq merger, which failed to improve in any appreciable way its competitive positioning vis-à-vis Dell, despite an excellent execution of the integration process and the realization of most of the value creation targets.

We submit that, despite the important caveats described above, the causal chain linking in a positive way the quality of the integration process with the realization of the

expected benefits from the acquisition, and these benefits with overall firm performance, holds true¹. Figure 1 shows the first approximation of the model of acquisition performance, which can be submitted for empirical validation.

INSERT FIG. 1 ABOUT HERE

Let us then consider the second dimension of the taxonomy introduced in the previous section: the time horizon. The first element of novelty that this new dimension introduces in the simple model described above is the distinction between short- and long-term performance of the integration process at the task level of analysis. We submit that the execution of tasks related to the post-acquisition integration of the two organizations produces short-term performance implications (e.g. the quality of the conversion of IT and control systems, the precision and effectiveness of knowledge transfer processes, the degree of engagement and motivation of the workforce etc.) as well as longer term ones, such as the retention of employees (targeted for retention) and the retention of customers, suppliers and business partners with which the combined entity wishes to maintain, and if possible improve, the relationship.

From a modeling perspective, it is logical to expect a positive and unidirectional causal link between short- and long-term process performance outcomes. Part of the reason why employees leave the firm and customers, suppliers or business partners sever their relationship with the firm is clearly related to poor handling of the tasks related to the integration of the two organizational structures, operations and cultures (Buono and Bowditch, 1989; Haspeslagh and Jemison, 1991). It is also logical to expect that long-term process performance outcomes have a positive impact on the transaction-level acquisition

¹ Note, by the way, that the opposite flow of the causal argument does not hold true. That is, if firm performance has improved for reasons other than the acquisition, we cannot normally expect that the synergy potential from the completion of the acquisition will be more easily realized.

performance, for the same reasons (and with the same caveats) described above. That implies that long-term process performance is effectively a mediator between short-term process performance and transaction-level acquisition performance. The key question is whether long-term process performance is the “exclusive” mediating force, or that the mediation effect rather adds to a direct effect of short-term process performance on transaction-level acquisition performance. We maintain that the latter is the most likely scenario, and therefore submit a revised model with both a mediating effect of long-term process performance variables (simplified with the sole consideration of employee and customer retention levels), and a direct effect of short-term process performance on transaction-level acquisition performance. The reason is that many of the tasks related to the execution of the integration process produce immediate impacts on the magnitude of cost savings, as well as on the amount of revenues generated by the combined entity, over and above the effects generated through the retention (or lack thereof) of employees and customers.

We can therefore submit an expanded version of our model, as depicted in Figure 2.

INSERT FIG. 2 ABOUT HERE

For the third and last step in our logical progression, let us consider the impact of short-term acquisition and firm performance, commonly operationalized with cumulative abnormal returns to the acquiring company’s stock over short time windows around the announcement of the transaction. This measure of acquisition performance represents de-facto a “pre-event” collective expectation from the financial market, whereas the long-term windows include at least some knowledge of what has actually happened during the integration process. Splitting the firm performance constructs between short-term and long-

term, therefore, is really equivalent to distinguish between ex-ante expectations and ex-post realization of both the transaction-level and the firm-level benefits that might be derived from the successful management of the acquisition.

Another important consideration is that, because of its nature of ex-ante market expectation construct, this measure represents a logical antecedent to the whole performance model. That is, markets are called to express a collective judgment at the time of the announcement of the transaction on the likelihood of success of the strategic move. They do so on the basis of virtually no information about what the acquiring company will actually do to manage the acquisition, since the integration plans are typically not formed yet, and primarily relying on the projections for future performance outcomes generated by the announcing company. The stock price variation around the announcement, then, can be viewed as a collective “bet” on the entire performance model, and therefore potentially correlated with all of the other constructs. We attempt to visualize this in Figure 3, where the logical link is between short-term firm performance and the whole “box” constituted by the model depicted in Figure 2 above.

INSERT FIG. 3 ABOUT HERE

Short-term financial returns to the acquiring company’s shareholders are the anticipation at time 0 of the performance generated at all the three levels of analysis, including what we referred above as short-term post-acquisition process performance outcomes. Thus, depending on the strength of the market efficiency hypothesis (Jensen and Ruback, 1983; Fama, 1991), we expect either a strong positive correlation with all the other variables included in the model, or no correlation, if the market efficiency hypothesis failed to

hold.

There is a long standing debate about the use of short-term versus long-term windows (of accounting as well as financial nature) in event studies, a debate that has recently increased in intensity in the finance journals. The evidence is still inconclusive, at best. Healey et al., 1992, for example, found a positive relation between short-window abnormal stock returns and long-term post-acquisition increases in operating cash flows. On the other hand, the corporate finance literature has recently signaled with increased emphasis that the use of long-term windows is not only warranted, given the widespread evidence of market imperfection to the announcement of complex events such as acquisitions, but to be preferred to their more diffused short-window alternative (Barber and Lyon, 1997; Loughran and Vijh, 1997). In the most recent study that we are aware of on this issue, Harrison et al., 2005 show that short-term event studies can lead scholars to erroneous conclusions, since they capture the dominant cognitive heuristics (Tversky and Kahneman, 1974; Duhaime, 1985; Schwenk, 1985) related to the type of acquisition announced, rather than the real information on the economic value generation from the transaction. Using a large sample of 2,543 acquisitions, with a benchmark portfolio construction of abnormal returns, they show that the short-term market reaction to the announcement of horizontal acquisitions is positive whereas the long-term equivalent is negative and significant. In addition, many of the other controls included in the model result to have significant long-term effects, indicating that the market is incapable to anticipate the correct economic implications of the announced acquisitions and systematically under- or over-reacts.

We intend to broaden Harrison et al., 2005's work and examine the degree to which short-term window returns align with any of the other performance constructs, both of integration process-specific, or of long-term transaction- and firm-specific, nature.

RESEARCH METHODOLOGY AND MEASURES

Sample

We test the proposed model with data from a questionnaire-based survey of acquisitions in which a large strategy consulting firm played a significant advisory role between 1994 and 2001. The questionnaire included information on the entire acquisition process, from strategic gap analysis all the way to the assessment of process performance in several aspects (see below). From a total of 211 projects completed by the worldwide post-acquisition integration advisory practice during the period, we received responses related to 161 of them, corresponding to a response rate of 76%. Respondents were partners of the firm, responsible for the focal consulting project, but also with accumulated expertise in similar or related projects conducted with many other clients. 38 of the projects received multiple responses from different partners, which allowed us to cross-validate the measures used. Despite that fact, 15 questionnaires had to be dropped due in part to the private nature of the client (therefore the accounting and stock price information was simply not available) and in part due to incomplete responses. In addition to the questionnaire data obtained by the survey, archival information was used to obtain accounting and financial performance data at the firm level.

The sample is fairly evenly split between cross-border and domestic transactions. It covers all the most important industrial sectors and geographic domains, although it is slightly biased in both dimensions with respect to the population of mergers and acquisitions in that the financial services sector is over-represented, and so are transactions involving European companies. An additional sample bias is evident in the larger average size of the transactions studied, not surprising given that they have all been advised by a professional consulting firm.

The advantages of using this type of research design, as opposed to the standard survey of managers from the acquiring company are manifold. First, the response is likely to be less biased vis-à-vis socially desirable elements, such as performance, since the respondent does not belong to the acquiring organization and is not responsible for the actual implementation of the post-acquisition plan. Also, a partner in a leading consulting firm has matured significant expertise in the process of post-acquisition integration, which should translate in more accurate assessments. Moreover, a respondent of this type possesses a much broader baseline of companies, industries and geographic contexts, to benchmark the assessments on, compared to the typical manager. Furthermore, this type of informant is much more intimately connected to the details of the internal decision-making and execution process, compared to, for example, stock analysts or other external expert observers (Hayward, 2002), having been involved in the decision process and often, at least in a supervisory role, in the execution. Finally, this type of respondent has the unique characteristic of being quantitatively oriented (compared to the average manager) and capable of accessing the quantitative evaluations related to the process and firm performance figures, which they have been typically tasked to generate.

Of course, even this design cannot completely eliminate the social desirability biases typical of survey methodologies. The consultant is likely to still be somewhat biased in favor of the client and reluctant to report under-performance which might be, although indirectly, linked to the advice provided. The net effect, compared to the standard alternative to survey the manager responsible for the acquisition process (and, even worse, the CEO) or an external observer, seem to get close to the optimal balance in the trade-off between the quality of the information (very high in the case of the CEO, relatively poor in the case of the external observer) and the social desirability bias in the quality of the response (very strong for internal

informants, and weak or inexistent for external observers).

Method of Estimation

The estimation process for the model presented above needs to take into consideration that constructs (integration process performance or the entire acquisition process performance, for example) are not directly observable. Second generation multivariate research techniques are able to handle unobservable variables measured by several indicators, model the measurement error of variables explicitly, analyze multiple predictor and criterion variables simultaneously and can be used for confirmatory applications (Fornell, 1987).

For this study, the variance-based partial least squares (PLS) approach for structural equation modeling (SEM) was adopted rather than covariance-based techniques (e.g. LISREL) for two main reasons. First, the indicators used in this study turn out to include both formative and reflective measures, which are hard to model with covariance based techniques. Formative indicators lead to severe identification problems, implied covariances of zero among indicators and the existence of equivalent models in covariance-based SEM (MacCallum and Browne, 1993). PLS in contrast can be used for models with formative, reflective or both formative and reflective indicators. Second, the sample size of 146 portfolio companies is below the recommended sample size of 200 for covariance-based SEM, such as LISREL (Marsh et al., 1998). PLS on the other hand is applicable even under conditions of small sample sizes. A Monte Carlo simulation made by Chin and Newsted, 1999 indicated that PLS can be used with a sample size as low as 50.

Measures

Table 3 summarizes the way we operationalized the constructs developed in the model.

INSERT TABLE 3 ABOUT HERE

The *integration process performance* construct was approximated with the combined use of 4 items, related to the alignment of the operations and systems among the two organizations (Datta, 1991; Weber, 1996), the integration of human resources (Buono et al., 1985), the impact on customers (Bekier and Shelton, 2002) and the transfer of capabilities across the organizational boundaries (Bresman et al., 1999; Capron, 1999). Although the items related to the alignment of operations and systems, the impact on customers and the transfer of capabilities have been studied individually by prior studies, we decided to use an overarching integration process performance construct, since the items are closely correlated to each other and load on a single construct, resulting in high reliability coefficients for the resulting construct (see below).

The construct related to the overall *acquisition performance* was estimated with 8 items that form a list of synergistic or stand-alone optimization benefits that is as mutually exclusive and exhaustive as possible while keeping it within the cognitive and implementation boundaries of the survey. This includes: standalone cost improvements in either of the two organizations and elimination of duplicated costs across the two units (Capron, 1999), cross-selling products to customers of the respective units in both directions (Larsson and Finkelstein, 1999), developing new customer relationships (Bekier and Shelton, 2002), creating new products in either units' business domains (Chadhuri and Tabrizi, 1999, Puranam et al., 2006), and creating entirely new businesses (Kim and Mauborgne, 2005).

Employee retention is one of the two measures of long-term process performance (the other being customer retention, see below). It has been measured with three items asking the

respondent to assess the percentage of employee, key staff and executives effectively actually retained two years after the event, and deducting the degree to which they were targeted for retention at the outset of the event (see Table 3). Prior studies have focused on executive departure measured by publicly available data (Walsh, 1988; Walsh, 1989; Hambrick and Cannella, 1993; Krug and Hegarty, 2001) or on employee departure in an experimental setting (Schweiger and Denisi, 1991). The operationalization in our questionnaire called for an 8 point scale reporting all intervals from “less than 30%” to “90%-100%” for both the retention and the “targeted for retention” measures.

Customer retention was approximated with a similar scale related to the retention of customers in each of the two organizations. To the best of our knowledge, and according to our literature review, there are no prior studies to guide the operationalization of this construct.

For the measures of firm performance, we have followed established routes in the received literature. Accounting performance is proxied with the variation in both return on assets (ROA) and return on invested capital (ROIC) 3 years after the acquisition vis-à-vis the year before the announcement in comparison to a group of companies of similar size, in the same industry and located in the same geographic region (a five year window, see also Ravenscraft and Scherer, 1987; Brush, 1996; Zollo and Singh, 2004). The long-term financial performance was computed with a benchmark portfolio technique using cumulative monthly returns over 36 months of the acquirer vs. a group of companies of similar size, in the same industry and located in the same geographic region (Ikenberry et al., 1995; Laughran and Vijh, 1997; Lyon et al., 1999)

Short-term abnormal returns were computed for a balanced window of +/- 5 days using cumulative daily returns vs. the market index. Robustness checks of the reported results

were conducted using a 1 and a 3 day window for short-term return, without any significant variation from the reported results.

Note that we did not enter any of the usual acquirer- or acquisition-level control variables that are used in M&A studies for two main reasons. First, to the extent that acquirer- or acquisition-level control variables affect acquisition performance, they should not do so in about the same way irrespectively of the measurement of the dependent variable. There is no theoretical reason, in other words, to expect that the causal linkages among acquisition performance constructs might be affected by the characteristics of the acquisition or of the acquired firm. Second, had we done so the model would have rapidly exhausted degrees of freedom, since each control variable should be linked to all the performance constructs utilized in the model.

In order to assess the reliability and validity of our constructs, we first had to identify whether our constructs had formative or reflective properties. Traditional methods of examining construct validity and reliability such as composite reliability or average variance extracted assume that indicators of the same construct should be positively correlated with each other, an assumption which is warranted only in the case of reflective indicators. The validity and reliability of a measurement model needs to be evaluated therefore differently for formative and reflective indicators (for a more general explanation of how to distinguish formative from reflective constructs, see Jarvis et al., 2003). Accordingly, the constructs “process performance” and “accounting performance” are treated as reflective constructs, because the direction of causality is from the construct to its items and a strong correlation among items is taken as given. For the formative constructs (“employee retention”, “customer retention” and “composite merger performance”), the direction of causality goes from the items to the construct and there is no expected correlation between the items. The constructs

“financial performance” and “short-term event study measures” are single-item constructs. This implies that item and construct are identical, therefore a distinction of single item constructs in formative and reflective is not useful and does not change results.

Reflective measurement models are assessed in PLS in terms of individual item reliability, construct reliability and discriminant validity. Individual item reliability is considered adequate when an item has a loading of 0.7 or above (Carmines and Zeller, 1979). The items related to all the reflective constructs have loadings either above or close to 0.7 (Table 4). Construct reliability is considered sufficient when a construct has a composite reliability of 0.7 or above (Nunnally, 1978) and an average variance extracted of at least 0.5 (Fornell and Larcker, 1981). All of the reflective constructs in this study are reliable by these criteria (Table 5).

INSERT TABLE 4 ABOUT HERE

Construct discriminant validity can be inferred by comparing the variance that a construct shares with its items (Average Variance Extracted (AVE)) with the variance that a construct shares with any other construct in the model (Fornell and Larcker, 1981). As shown in Tables 5 and 6 this condition is verified in both reflective constructs: integration process performance and accounting performance.

INSERT TABLE 5 AND TABLE 6 ABOUT HERE

With regard to formative constructs (for item weights see Table 7), the assessment of construct validity is limited to excluding multicollinearity among indicators (Mason and

Perreault, 1991; Diamantopoulos and Winklhofer, 2001). The test can be done with the Variance Inflation Factor (VIF) (Reinartz et al., 2003). If the VIFs are below the threshold of 10 this suggests that multicollinearity problems are not present. By this criterion, none of the formative constructs show multicollinearity problems.

INSERT TABLE 7 ABOUT HERE

RESULTS

The first step of the analysis was to test whether the different measures utilized in this study were really approximations of the same construct, that is a general acquisition performance concept spanning levels of analysis (task/process versus acquisition versus firm levels) and time horizons (short vs. long-term). An exploratory factor (principal components) analysis shows three components. A cut-off criterion of 0.6 identifies the first component loading on the integration process performance measure, on the overall acquisition process performance and on employee retention. The second component loads on the two long-term firm performance measures (accounting and financial) as well as on the customer retention measure. The third loads only on the short-term event study measure. Table 8 reports the loading coefficients² and Figure 5 shows the spatial distribution of the 7 performance constructs. Note the complete isolation of the short-term financial returns vis-à-vis all the other items. The fact that they are not all loading on one factor supports the notion that the various ways in which acquisition performance has been measured in the received literature are actually approximating different theoretical constructs. It is thus interesting to see how these constructs are related to each other, which is the next step in our analysis.

INSERT TABLE 8 AND FIGURE 5 ABOUT HERE

Table 6 reports the correlation matrix for the constructs used in this study. Coherently with the results of the factor analysis, the short-term event study measure shows no correlation with any of the other measures of acquisition performance employed by this study. Many of the other long-term measures of acquisition performance are correlated with each other. We thus used a multivariate analysis to identify the net influence of each performance measure in the structural equation model specified above.

The structural equation model was estimated using PLS-Graph (version 3.0). Figure 4 shows the variance explained (R^2) in the dependent constructs and the path coefficients for the model. Consistent with Chin, 1998 we used bootstrapping (150 resamples) to generate standard errors and t-statistics. This allowed us to assess the statistical significance of path coefficients.

INSERT FIGURE 4 ABOUT HERE

Results indicate a positive relationship between integration process performance and the overall acquisition performance ($p < 0.01$). Also, integration process performance has a positive impact on customer retention ($p < 0.01$), which in turn shows a positive but weaker impact on overall acquisition performance ($p < 0.1$). Integration process performance also has a positive impact on employee retention ($p < 0.1$). However, employee retention is not significantly related to overall acquisition performance.

² The reported analysis was conducted with an oblimin rotation. Using the more standard Varimax rotation shows the same pattern of loadings for the first and the second component, whereas the interpretation of the third component results more unclear.

Also the link between the transaction level of acquisition performance and the firm-level ones is established, although somewhat less strong than the link between integration process level and transaction-level performance. The data speaks of a significant link between the measure of overall acquisition performance and long-term financial performance ($p < 0.05$), and of a weaker link ($p < 0.1$) between the measure of overall acquisition performance and the long-term firm accounting performance.

For what concerns the short-term returns, no significant links could be detected with any of the other variables in the model. Thus, the measure was dropped in the reported results to save degrees of freedom. The indication from this data is that the market expectations at the time of the announcement have little bearing on the actual unfolding of acquisition performance, be it at the process, acquisition or at the firm level.

CONCLUSIONS

This study endeavors to respond to two questions. First, do the various measures adopted approximate a single construct, that is are they all items of the same theoretical “scale” (acquisition performance)? Second, if they do not approximate a single construct, how do the different constructs that they approximate relate to each other theoretically and empirically?

The theoretical model proposed suggests that the answer to the first question is “no”. There are at least three different levels of analysis to account for, as well as an important distinction between short- and long-term horizons in the conceptualization of performance at different levels of analysis. That is also what the empirical analysis has shown. We have used

a model that includes 9 of the 12 measures utilized in the literature³, and find that 3 dimensions are clearly distinguishable: one related to the task and transaction levels of analysis, a second one related to the long-term firm performance (including, however, customer retention), and a third one singling out the short-term window event studies.

A second insight from the data analyzed concerns the existence of a possible multiple step causal chain linking (a) the task-level performance of the post-acquisition integration process to the transaction-level acquisition performance, both directly and with the mediating role of customer retention, and then (b) the transaction-level acquisition performance to the long-term accounting and financial measures of firm performance. As far as we know, this is the first time that empirical support has been found for a complete causal chain among the different ways in which M&A performance has been proxied in the literature.

The use of short-term windows for event studies deserves a discussion of its own, since it is by far the most frequently used metric to approximate acquisition performance. The results of the analysis show no significant connection between this measure and any of the other ones used. In addition, this measure clearly loads on a separate factor from all the other measures, confirming its empirical distance from the other proxies of M&A performance. Of course, any definitive conclusion will need to await further confirmation, but the indication from this data is that short-term window event studies gauge something different from actual acquisition performance. In our view, they gauge the collective cognitive heuristic, the overall market “sentiment”, about how a given typology of acquisitions (e.g. “horizontal acquisitions in industry X done by domestic acquirers with competitors in neighboring locations”) should perform (Harrison et al., 2005). Apparently, the financial market does not have sufficient information, or foresight, to predict

³ Note that three of those measures are integrated in what we called Integration process performance, since they were all loading on a single factor in our analysis.

systematically the fate of an acquisition on the basis of the common knowledge available at the time of the announcement. This needs to be taken into serious consideration for future scholars aiming at advancing knowledge on M&A performance. At the very least, if they desire to use short-term windows event studies, they should refer to their dependent variable as “market expectation about firm performance”, rather than acquisition performance per se. Better would be if they accompany the short-term window study with a long-term one, so that their inferences about the descriptive power of their model for acquisition performance can be more easily warranted.

The broader implication from this study for future work on M&A is the need to tailor the measure of the dependent variable to the research question pursued. A study aimed at assessing the impact of a certain kind of post-acquisition decisions on acquisition “performance”, for example, had better specify what kind of performance it refers to. At the very least, the level of analysis at which the performance construct is analyzed should be explicitly mentioned and followed up coherently with the research design and operationalization processes. The old and true saying “horse for courses” might help crystallize this point.

A second implication of this work for future theory-building efforts has to do with the specification of the performance models adopted. Both intuition and data show, in fact, that the performance constructs at lower levels of analysis have a significant influence on the performance construct “one level up”. It follows that any model of either transaction- or firm-level performance that does not include process-level performance is in danger to be under-specified.

Beyond theory building, this study might offer some useful indications for the research design of empirical efforts. The first and foremost suggestion is to design any study

of M&A performance with a plurality of measures, not only to capture the theoretical dimensions underlying each operationalization (e.g. different levels of analysis or time horizons), but also to shed light on the various facets of the same theoretical construct (i.e. the same “cell” in the matrix proposed). This principle is a standard way of proceeding in social science, but it has been unfortunately largely ignored in prior empirical work, due to (presumably) difficulty in collecting performance data across the spectrum of possibilities. A corollary to this point is the importance of designing studies that aim to assess performance through primary sources, rather than relying on archival data. The need to control for process level performance, as well as for acquisition-specific value creation, even if we want to study firm performance variations related to acquisitive behavior (see the point above) leaves little room for future studies relying solely on archival data.

One final point on the research design. Our review of the previous literature has identified a number of intuitively important measures of M&A performance that have been left virtually untouched thus far. It is the case for customer retention, for example, a measure that we find to contribute significantly (how could it not?) to the achievement of the value creation objectives. Other related measures, such as the enhancement/weakening of the corporate or product brands, are even less considered. Despite the wealth of measures already adopted in prior studies, it strikes us that some important gaps could be easily covered, as long as the research design takes into account the need to (at least) control for other dimensions of the performance construct.

The use of multiple measures of M&A performance, coupled with the theoretical and empirical distinctions that emerge from the data analyzed, suggests that structural equations might become a useful (and hopefully more diffused) way to study these types of problems, vis-à-vis standard OLS estimation methods. Within the family of structural equations models,

in particular, this study shows that PLS can be a useful tool not only (as often reported) because it allows the treatment of data with “less than 200 observations”, but primarily because it allows to handle formative and reflective indicators at the same time, whereas LISREL is limited to handle only reflective constructs.

Practicing managers might also draw some useful conclusions from the results of this study. First of all, the fact that short-term event studies do not correlate with any of the other measures of M&A performance suggests that they should not worry too much about the “blip” in their company’s stock around the announcement. What that blip seems to indicate is simply the “collective bet” that the market is making on the degree of future success of the acquisition. That the market fails to win all those bets is a well known fact in a post-internet bubble era. But the data analyzed seems to indicate that the market fails to win them even *on average*, which is a bit more worrisome for the proponents of the efficient market theory and at the same time somewhat liberating for the managers of acquiring firms.

Another implication that might be of interest for practicing managers has to do with the need to monitor performance at all the three levels of analysis. It is not enough to focus on, for example, the careful execution of the post-acquisition integration plans, and not even to add significant attention to the degree to which synergy targets are realized. Given the theoretical distinction and, even more importantly, the empirical distance among the performance constructs at the three different levels of analysis, it pays to invest in monitoring all of them with appropriate measures and supporting systems. Even more subtly, the attention to the indirect impacts of an acquisitions on other internal initiatives, as well as on the external dynamics in the marketplace, might mean the difference between succeeding in the acquisition “only” and actually improving the company’s strategic position vis-à-vis competitors and in terms of stakeholders’ satisfaction, supposedly the ultimate goal of any

strategic move.

This study, like any other, comes with its own limitations. The reader should be aware of two, in particular. First, the qualitative assessments used to proxy M&A performance at different levels have been drawn from a single respondent for each observation. Even though the respondents in this case are experts in the M&A field, relatively detached from the acquiring organization, and endowed with a much broader benchmarking baseline than the average responding manager, the presence of social desirability biases cannot be excluded. This might provide room for improvement for future studies that will be able to design their data collection with multiple respondents.

The other limitation in the research design is that all the observations are generated from the pool of transactions that have been advised by a single consultancy. Whereas the generalizability to the full sample is beyond question with a 76% response rate, the generalizability to the general population of mergers will need to be verified by future studies.

To conclude, the data analyzed confirmed, in a way, what any student of M&A processes already intuitively knew: that acquisition performance is by its nature an extremely complex concept. A concept that can certainly be approached in different ways, but for which no one way seems to suffice. A call for the simultaneous use of multiple measures in future research endeavor of both theoretical and empirical nature is not only necessary but difficult to dodge if we want to collectively aim at satisfactory progress in our quest to unveil the mysteries of acquisition performance.

TABLE 1: Categorization of studies of acquisition performance by performance metric

Reference	Integration process performance	Overall acquisition performance	Employee retention	Customer retention	Accounting performance	Long-term financial performance	Short-term financial performance	Acquisition survival	Innovation performance	Knowledge transfer	Systems conversion	Variation in market share
Agrawal et al., 1992												
Ahuja and Katila, 2001									X			
Amit and Livnat, 1988					X							
Anand and Singh, 1997					X							
Barber and Lyon, 1997						X	X					
Beckman and Haunschild, 2002							X					
Berger and Ofek, 1995							X					
Bergh, 2001								X				
Bresman et al., 1999	X									X		
Brush, 1996					X							X
Bruton et al., 1994		X										
Buono et al., 1985	X	X										
Cannella and Hambrick, 1993		X			X							
Capon et al., 1988					X							
Capron, 1999	X	X										
Capron and Pistre, 2002							X					
Carow et al., 2004						X	X					
Chang, 1996					X							
Chatterjee, 1986							X					
Chatterjee, 1991							X					
Chatterjee, 1992						X						
Chatterjee et al., 1992							X					
Clark and Ofek, 1994					X	X						
Covin et al., 1997			X									
Datta, 1991	X	X										
Datta and Grant, 1990		X										
DeLong and DeYoung, 2004					X		X					
Eckbo, 1983							X					
Feea and Thomas, 2004					X		X					
Fowler and Schmidt D. R., 1989					X	X						
Franks et al., 1991							X					
Haleblian and Finkelstein, 1999							X					
Hambrick and Cannella, 1993			X									
Harris and Ravenscraft, 1991							X					
Harrison et al., 1991					X							

Harrison et al., 2005						X	X					
Hayward, 2002		X					X					
Hayward and Hambrick, 1997							X					
Reference	Integration process performance	Overall acquisition performance	Employee retention	Customer retention	Accounting performance	Long-term financial performance	Short-term financial performance	Acquisition survival	Innovation performance	Knowledge transfer	Systems conversion	Variation in market share
Heron and Lie, 2002					X							
Hitt et al., 1991									X			
Hitt et al., 1996					X				X			
Hitt et al., 1998					X				X			
Homburg and Bucerius, 2006		X										
Holl and Kyriazis, 1997							X					
Hoskisson et al., 1993					X	X						
Hunt, 1990	X	X										
Jensen and Ruback, 1983							X					
Kapoor and Lim, 2005									X			
Krishnan et al., 1997					X							
Kroll et al., 1997							X					
Krug and Hegarty, 2001			X									
Kusewitt, 1985					X	X						
Lahey and Conn, 1990						X						
Larsson and Finkelstein, 1999	X	X										
Loughran and Vjih, 1997						X						
Lubatkin, 1987						X	X					
Lubatkin et al., 1997						X	X					
Markides and Iltner, 1994							X					
Moeller et al., 2004							X					
Montgomery and Wilson, 1986								X				
Morck et al., 1988					X							
Morosini et al., 1998					X							
Palich et al., 2000					X	X	X					
Pangarkar, 2004							X					
Pennings et al., 1994								X				
Puranam et al., 2006		X										
Ramaswamy, 1997					X							
Ravenscraft and Scherer, 1987					X							
Schweiger and Denisi, 1991			X									
Seth, 1990							X					
Seth et al., 2002							X					
Shanley and Correa, 1992	X	X										
Shelton, 1988							X					

Shahrur, 2005							X					
Singh and Montgomery, 1987						X						
Slusky and Caves, 1991							X					
Thakor, 1999											X	
Travlos and Waegelein, 1992							X					
Reference	Integration process performance	Overall acquisition performance	Employee retention	Customer retention	Accounting performance	Long-term financial performance	Short-term financial performance	Acquisition survival	Innovation performance	Knowledge transfer	Systems conversion	Variation in market share
Travlos, 1987							X					
Vermeulen and Barkema, 1996								X				
Walker, 2000							X					
Wansley et al., 1983							X					
Walsh, 1988			X									
Walsh, 1989			X									
Weber, 1996	X				X							
Zollo and Reuer, 2005					X	X						
Zollo and Singh, 2004					X							
Total	8 (9%)	12 (14%)	6 (7%)	0 (0%)	25 (29%)	16 (18%)	36 (41%)	4 (5%)	5 (6%)	1 (1%)	1 (1%)	1 (1%)

TABLE 2: Classification of measures of merger performance (subjective measures in regular, objective measures in italics)

		Time horizon	
		Short-term	Long-term
Level of analysis	Task	<ul style="list-style-type: none"> • Integration process performance • Knowledge transfer • Systems conversion 	<ul style="list-style-type: none"> • Customer retention • Employee retention
	Acquisition	<ul style="list-style-type: none"> • <i>Short-term financial performance (event study)</i> 	<ul style="list-style-type: none"> • Overall acquisition performance • <i>Acquisition survival</i>
	Firm		<ul style="list-style-type: none"> • <i>Accounting performance</i> • <i>Long-term financial performance</i> • <i>Innovation performance</i> • <i>Variation in market share</i>

TABLE 3: Measures used by the authors

Item	Measure
Integration process Performance. Overall, to what extent do you agree with the following statements? (Five-point Likert scale: 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly agree)	
Pr1	Operations and systems were effectively aligned
Pr2	Human resources were effectively integrated
Pr3	The impact on existing customers was positive
Pr4	Best practices/capabilities were effectively transferred
Employee retention. Difference between 'estimate the percentage of staff actually retained in the following groups 2 years after closing' and 'estimate the percentage of staff targeted for retention in the following groups' (Eight-point Likert scale: 1=<30%, 2=30-50%, 3=50-60%, 4=60-70%, 5=70-80%, 6=80-90%, 7=90-95%, 8=95-100%)	
DiffEr1	Executives
DiffEr2	Key staff
DiffEr3	Other staff
Customer retention. Estimate the percentage of customers lost as a result of the integration (Seven-point Likert scale: 1=>30%, 2=20-30%, 3=15-20%, 4=10-15%, 5=5-10%, 6=2-5%, 7=0-2%)	
CrA	Unit A
CrB	Unit B
Overall acquisition performance. To what degree did value creation meet expectations? (Five-point Likert scale: 1=Far below, 2=Below, 3=In line, 4=Above, 5=Far above)	
Cmp1	Making standalone cost improvements to Unit A
Cmp2	Making standalone cost improvements to Unit B
Cmp3	Eliminations of duplicated fixed costs by two units
Cmp4	Sales of Unit A's existing products to Unit B's clients
Cmp5	Sales of Unit B's existing products to Unit A's clients
Cmp6	Developing new customer relationships
Cmp7	Creating new products in either unit's business
Cmp8	Creating entirely new businesses
Accounting performance	
BROA	Increase of return on assets calculated for the acquirer from year -1 to year 3 versus a group of companies of similar size, in the same industry and located in the same geographic region
BROIC	Increase of return on invested capital calculated for the acquirer from year -1 to year 3 versus a group of companies of similar size, in the same industry and located in the same geographic region
Financial performance	
Car36	Cumulated monthly returns over 36 months of the acquirer versus a group of companies of similar size, in the same industry and located in the same geographic region
Short term event study measures	
Car5	Cumulated average residuals calculated for the stock of the acquirer five days before and after the acquisition

TABLE 4: Reflective item reliability – individual item loadings

Integration process performance (Pr)		Accounting performance (Ap)	
Item	Loading	Item	Loading
Pr1	0.70	BROA	0.70
Pr2	0.72	BROIC	1.00
Pr3	0.70		
Pr4	0.67		

TABLE 5: Reflective construct reliability coefficients

Construct	Composite reliability	Average variance extracted
Integration process performance	0.79	0.49
Accounting performance	0.90	0.82

TABLE 6: Correlation matrix

Constructs	1.	2.	3.	4.	5.	6.	7.
1. Integration process performance	1.00						
2. Employee retention	0.16*	1.00					
3. Customer retention	0.27***	0.22**	1.00				
4. Overall acquisition performance	0.54***	0.13*	0.32***	1.00			
5. Accounting performance	0.01	0.08	0.09	0.14	1.00		
6. Financial performance	0.39***	0.05	-0.19	0.24*	0.03	1.00	
7. Short term event study measures	-0.03	-0.06	-0.12	-0.13	-0.13	-0.06	1.00

* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$

TABLE 7: Formative item weights

Employee retention (Er)		Customer retention (Cr)		Overall acquisition performance	
Item	Weight	Item	Weight	Item	Weight
DiffEr1	-1.19	CrA	0.23	Sr1	0.04
DiffEr2	1.23	CrB	0.84	Sr2	0.10
DiffEr3	0.14			Sr3	0.34
				Sr4	0.33
				Sr5	-0.04
				Sr6	0.21
				Sr7	0.28
				Sr8	0.45

TABLE 8: Factor analysis of constructs used in survey

	Component		
	1	2	3
Integration process performance	0.87		
Employee retention	0.70		
Customer retention		0.74	
Overall acquisition performance	0.90		
Accounting performance		0.83	
Financial performance		0.65	
Short term event study measures			0.89

Extraction Method: Principal Component Analysis

Rotation Method: Oblimin with Kaiser Normalization

FIGURE 1: Relationship among performance constructs (1/3)



FIGURE 2: Relationship among performance constructs (2/3)

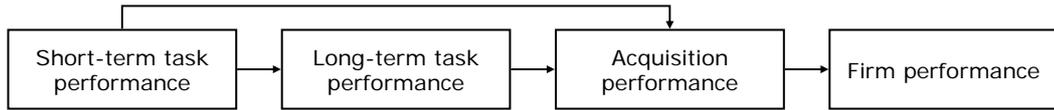


FIGURE 3: Relationship among performance constructs (3/3)

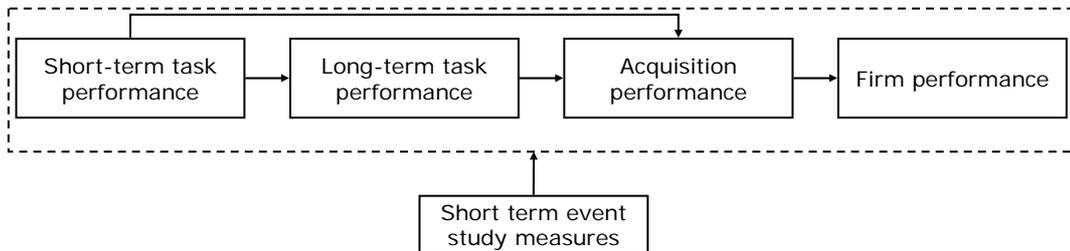
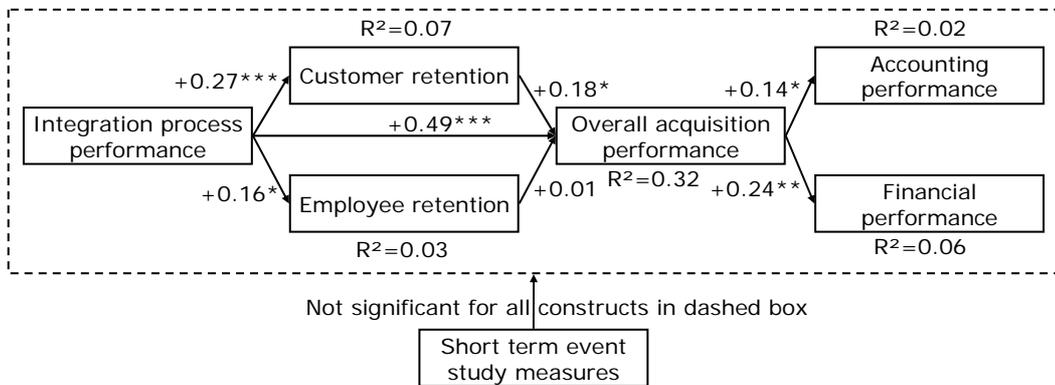
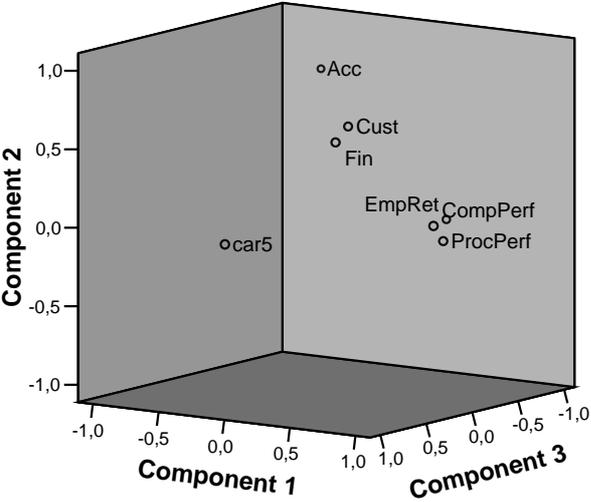


FIGURE 4: Structural model results



* p<0.1 ** p<0.05 *** p<0.01

FIGURE 5: Factor analysis results (component plot in rotated space)



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