MERGERS AND ACQUISITIONS: STRATEGIC - ORGANIZATIONAL FIT AND OUTCOMES[1]

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February 1996

[1]We acknowledge the financial support of the Limperg Institute, Amsterdam, Netherlands and the Wharton School at the University of Pennsylvania. We appreciate the clerical assistance of Ilja Gottfried and Maurice Zinken and suggestions from Paul Allison, Josef Bruderl, Ranjay Gulati, and Michael Lubatkin.

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Abstract

This paper examines the effects of resource complementarity and organizational compatibility on merger and acquisition (M&A) outcomes. We also explore the effect of firms' previous M&A experiences. Our investigation focuses on two classes of events following M&As: organizational dissolution and involvement in subsequent M&As, with the firm continuance following the M&A as the “non-event.” Using a multinomial logit model for repeated-event history analysis that reflects the dynamics of organizational evolution, we analyse 461 M&As in the history of the Dutch accounting industry. Our results show that compatibility is not associated with the dissolution rate but is strongly related with the probablity that a firm will engage in additional M&As. Resouce complementarity is negatively associated with the odds of dissolution and positively associated with the probability to engage in additional M&As. The results also indicate that previous M&A experience enhances both the dissolution rate and rate to engage in additional M&As.

INTRODUCTION

This paper examines what happens to firms that are created by a merger or acquisition (M&A). We claim that the match between merging firms, together with their prior growth history, are crucial for understanding the evolution of the newly created organization.

Organizational founding is typically associated with entrepreneurs, but many firms arise out of existing firms through spin-offs or M&As. What sets the former apart from the latter is inheritance: the skills that endow an M&A-based firm originate from the parents, while de novo firms have to build capabilities from scratch. Whether new firms formed by the fusion of two existing firms benefit from previously acquired assets hinges partly on the combination and commingling of previously separate bundles of resources. The question that we should ask is, under what conditions will the combining of such bundles of skills yield distinct benefits for the new firm?

Any M&A combines divergent cultures, strategic orientations and practices into a new configuration and thus creates intra-firm variations. Friction between existing factions is prone to occur (Phillips, 1994). Even M&As that took place many years or decades ago, like those leading to the creation of RJR-Nabisco and Royal Dutch-Shell still appear to encompass multiple cultures and practices. The magnitude of tensions at these corporations might be a function of the dissimilarity of cultures and practices of their parent firms.

M&As are embedded within a string of historical events. In fact, the M&A event that gives rise to a new firm is often sandwiched between previous and subsequent M&As and there is ample evidence that M&As are path dependent (Amburgey and Miner, 1992). Accordingly we should not examine the outcomes of an M&A in a temporal vacuum. Rather we should treat the event as an element in a stream of events by expanding our inquiry to the post M&A process as it is predicated on the match between

suitors. Specifically, that process might be influenced by the firms' previous strategic moves, including prior expansion activities.

We perform a longitudinal examination of the matches of firms that participate in M&As. We employ information on 461 M&As involving Dutch accounting firms that took place during the period 1880-1990. Accounting firms are an important part of the "knowledge economy," which is becoming increasingly salient in our post-industrial societies. As knowledge-intensive firms, the compatibility and complementarity of their intangible assets and practices can be examined with fine-grained measures. M&As between accounting firms are widespread and have contributed to high levels of concentration in this sector. The data lend themselves to the execution of the two-pronged inquiry of the present study: (1) What is the effect of strategic and organizational fit between merging firms on their post M&A survival chances? and (2) Do the surviving firms that emerge out of M&As have a proclivity toward an acquisitive growth strategy? This paper examines these questions while controlling for historical and environmental conditions.

LITERATURE REVIEW AND HYPOTHESES

Mergers and acquisitions can be lumped together as the mode through which previously independent firms combine to become a single entity. They may be friendly or hostile. Many studies have examined M&As. In some cases they involve co-equals, while in other instances one firm dominates its counterpart. Mergers are distinguished from acquistions in that mergers are assumed to involve two firms with roughly the same size or equivalent resources. If one of the two firms is much smaller we are inclined to label their fusion an "acquistion." The literature, which dates from Berle and Means (1932) onwards, has focused has been on motives, organizational congruity, relatedness of lines of business, effects on performance, etc. In this paper, the attributes of merging firms and

their effects on performance are at the center of our inquiry. We draw therefore from those strands of literature that dwell on these issues.

Attributes defining the relationships between the merging firms that stand out in the literature are potential synergy of assets and similarity of cultures and management practices. Scholars have used *strategic fit* or *complementarity* to denote the possibility of synergy and *organizational fit* or *compatibility* to refer to similarity of organizational cultures and management practices (e.g., Shelton, 1988; Greenwood, Hinings and Brown, 1994). These forms of fit have been examined on the basis of their performance implications.

Three organizational performance categories have received a great deal of attention from M&A studies. One of them is financial performance such as abnormal return in share price around the announcement of the M&A(e.g., Lubatkin, 1987). A second one considers the longevity of the expansion following M&A (e.g., Pennings et al., 1994). A third class consists of primary data such as interviews and field studies regarding M&A performance, job satisfaction, and employee turnover rate (e.g., Greenwood et al., 1994).

The end results of M&As, however, have not been fully explored yet. Among these outcomes are firm survival. Do merging firms enjoy enhanced longevity? There are widely published cases of ill-conceived M&As, ranging from those that were undone to those that culminated in outright dissolution. There are even more examples of M&As, however, such as Unisys (Sperry and Borroughs) that failed by not delivering the income streams expected from them. Further, researchers need to understand what happens to firms that overcome the adverse effects of M&A.

Research on post M&A performance is bifurcated. Some studies investigate the complementarity of the merging firms, while others focus on compatability. Research on complementarity has dwelled on implications for financial performance (e.g., Lubatkin, 1987; Singh and Montgomery, 1987). The methodology widely used in these studies is

"event study," which is rooted in the capital assets pricing model of financial economics. Studies dealing with compatibility rely mostly on non-financial performance indices (e.g., Buono and Bowditch, 1989; Greenwood et al., 1994; Napier, 1989) and are based on ethnographic methods.

This work suggests that both complementarity and compatibility are germane for the explanation of post-M&A performance. A positive M&A outcome hinges on the presence of complementary capabilities and compatible management practices.

Compatibility

Integration of employees is one of the most critical issues for smooth organizational transition towards a new firm (Buono and Bowditch, 1989). It is particularly crucial in knowledge-intensive firms, including technology based as well as accounting firms. In a study of large firms' acquisitions of small technology-based firms, Granstrand and Sjolander (1990), for instance, reported that in 60 % of cases where key R&D personnel (e.g., the general manager) left the firm, the acquisition resulted in subsequent divestement or other manifestations of failure. The possibility of successful integration depends on the pair's structural and cultural similarities, since the integration of like cultures faces lower resistance from organizational members.

Two firms that have similar cultures and routines are defined as compatible. In any M&A, two sets of organizational cultures and routines become unbundled and repacked into the new firm. Thus, an M&A creates more internal diversity and often results in a collision of cultures (Buono, Bowditch and Lewis, 1985; Greenwood et al., 1994; Phillips, 1994). Without some conflict resolution capability, extensive internal diversity would harm organizational functioning.

Attending to M&A induced conflict and strife detracts management's attention from the firm's productive activities. Incompatible M&As require more attention to conflict resolution and system integration. Consequently, they may harm the firms'

ability to compete. In a competitive environment, a firm with incompatible cultures is likely to be selected out. In contrast, firms created by compatible M&As may not experience serious integration problems and can thus capitalize on the M&A experience by building a platform for additional M&A activity.

Several studies have explored the relation between compatibility and M&A performance. Chatterjee, Lubatkin, Schweiger and Weber (1992), for example, examined the relationship between top management teams' perceptions of cultural differences and acquirers' stock market gains. They found that cultural similarity had a significant and positive effect on shareholder gains. Datta (1991) reported that differences in top management styles had a negative effect on post-acquisition performance. In a study of a merger of two large accounting firms, Greenwood et al. (1994) found that one firm emphasized the accountant's technical expertise, whereas the other stressed entrepreneurial competence. The difference in core values exacerbated the differences between the two former identities and delayed the integration of personnel.

The importance of compatibility depends on the motives of M&As (Napier, 1989). When the acquiring firm leaves the acquired firm alone, because it does not need to integrate cultures and routines, compatibility is not important. In knowledge-intensive sectors, however, compatability is often essential. Most accounting firms, for example, are partnerships with unlimited liability. If one partner brings a loss to the firm, other partners are also responsible for the loss. Consequently, accounting firms want to use a single associate-to-partner promotion rule to preserve the quality of partners. They also want to use an integrated auditing procedure to maintain the quality of auditing services and to minimize auditing risks. The discussion and review of extant literature provide the following proposition.

Proposition 1: Compatibility of participant firms will be negatively associated with organizational dissolution and positively associated with the probability of becoming a partner in an additional M&A.

Age Similarity

Organizations with similar ages usually have similar organizational practices because founders of organizations adopt the best or institutionalized practices at the time of founding. External and internal inertial forces perpetuate and solidify those practices. Stinchcombe (1965) showed that industries established at the same period exhibit similar organizational demographies. Other evidence for age dependence has been generated by Eisenhardt (1988), who reported that the age of a store chain is a significant predictor of the compensation system used. Boeker (1989) found (I) that founding time shaped an organization's proclivity to become marketing or finance driven and that (ii) the influence patterns set at founding persisted over time. The findings provide evidence of both the adoption of institutionalized practices at founding and their retention. Since firms with similar ages are likely to have similar organizational practices they should be more compatible.

Hypothesis 1-1: Age similarity of firms involved in an M&A will be negatively associated with organizational dissolution and positively associated with the probability of the newly formed firm being a partner in additional M&As.

Size Similarity

The relationship between organizational size and structure is a central topic in organizational theory. Research has shown that organizational size is a key driver of bureaucratic features such as greater formalization and an extensive division of labor (see, Kimberly, 1976 for a review). Organizational size is also related to culture. Small firms tend to have an entrepreneurial and participative cultures, while large firms are more rigid and bureaucratic (Sales and Mirvis, 1984). The correlation between size and

bureaucratization suggests that size similarity may be positively related to the combined returns of the firms involved in M&A.

Empirical studies on size similarity and M&A performance produced inconsistent results. Shelton (1988) reported that size similarity has positive association with the combined abnormal returns. Singh and Montgomery (1987) showed that the relation was positive in related M&As but negative in unrelated M&As. Cheng, Gup and Wall (1989), however, found that the target-bidder asset size differential was positively associated with “merger premium.” Bruton, Oviatt and White (1994) did not find significant relationship between size similarity and performance judged by academic evaluators.

Despite these inconsistent results, the logic of compatibility provides following hypothesis.

Hypothesis 1-2: Size similarity of involving firms will be negatively associated with the possibility of organizational dissolution and positively associated with the possibility to be a partner of additional M&As.

Structural Similarity

While size is related to various attributes of organizational structure, we should also consider structural similarity in its own right. Organizational structure delineates how the organization's members should coordinate and divide their responsibilities. When precursors have the same structure, organizational members may not experience difficulty in working under the "new" structure since the new structure is likely to be similar with precursor’s structure. A new firm created by an M&A of firms with differing structures must establish a coherent structure for efficient functioning. The structure adopted will be new to at least some of organization's participants. Consequently, they will have to adjust or modify their activities and this adjustment and learning may not be easy to some members. Therefore, M&As of firms with similar structures will outperform others.

Professional service firms (PSF) display distinct structural arrangements. The leverage ratio, the number of associates divided by the number of partners, has been conceptualized as a key structural element in the professional service industry (Sherer, 1995). The leverage ratio is closely related to the extent of division of labor, possibility of promotion, and degree of competition among associates (Galanter and Palay, 1991). It also influences the organizational cultures. Low leveraged firms tend to be more collegial and less bureaucratic than highly leveraged firms (Starbuck, 1992).

An M&A of two firms with differing leverage ratio, consequently, would cause adjustment problems to some organizational members. An extreme case is a merger between a highly leveraged firm and a firm consisting of partners only. Partners of the latter would experience difficulty in handling associates; e.g., training and socializing them and delegating some decisions to inexperienced associates. When involving firms had similar leverage ratio, and thus similar routines and cultures, organizational members would be easily integrated into a new firm.

Hypothesis 1-3: Structural similarity of involving firms will be negatively associated with organizational dissolution and positively associated with the possibility to be a partner of additional M&As.

Familiarity

Familiarity through organizational members' network ties can facilitate the post-merger integration process for various reasons. A pair of firms of which members are densely tied to each other will have similar cultures and routines before the M&A. First, they will have similar frame of reference and cultures. Many theorists agreed that people influence and are influenced in forming their perception or attitude by those with whom they interact (e.g., Salancik and Pfeffer, 1978). People with network ties may have similar views on how the organization should be structured and managed. Two firms of which members are densely tied, therefore, will have similar cultures and routines.

Second, they are likely to share managerial practices even before the merger. Information transfer through network ties will increase the similarity of netwroked firms (DiMaggio and Powell, 1983). Since inter-personal ties facilitate information transfer, organizations tied to each other will have the same information on viable routines available in their societies and thus will exhibit similar managerial practices (Haunchild, 1993; Palmer, Jennings and Zhou, 1993).

Furthermore, members of previously well-networked firms may experience less conflict after M&A. Two firms tied through extensive webs of social connections are in a better position to evaluate the possibility of successful integration before M&A decision, since those ties render information between the two firms more symmetric. Familiarity does not breed contempt; rather it produces positive attitudes (Zajonc, 1968). Employees already familiar with each other are likely to show positive affection. Accountants who were the linking pins between the two firms could function as the liaison in forging a smooth transition. This line of reasoning provides following hypothesis.

Hypothesis 1-4: Familiarity through the network ties of involving firms' employees is associated with the possibility of organizational dissolution and positively associated with being a partner of additional M&As.

Complementarity

Apart from being more compatible, M&A outcomes hinge on the complementarity of the two firms. The argument of complementarity is that firms that have balanced bundles of resources across resource dimensions will perform better since they may not have under-utilized resources (Balck and Boal, 1994). As a result, an M&A of two firms that are complementary in their resources will perform better than non-complementary M&As. This logic of complementarity has been tested in studies on the relationship between “relatedness” of merging firms and M&A performance (e.g., Lubatkin, 1983; Salter and Weinhold, 1978).

Empirical studies on the complementarity-performance relationship, however, produced inconsistent findings. Singh and Montgomery (1987) reported that abnormal returns of related targets were significantly higher than those of unrelated targets. Bruton et al. (1994) and Shelton (1988) also reported that related acquisitions were more successful than the unrelated acquisitions. Lubatkin and O'Neill (1987) found that related mergers significantly decreased systematic and total risks of acquiring firms. Lubatkin (1987) and Seth (1990), however, did not find significant relationship among M&A relatedness and performance.

In horizontal M&As, creating monopolistic power will be a major M&A motive (Copeland and Weston, 1988). Still complementarity can exist in horizontal M&As (Chatterjee, 1986), because firms within an industry vary in their capabilities across diverse resource dimensions. For instance, some firms are strong in technology while other firms excel in marketing and distribution. The logic of complementarity leads us to the following proposition.

Proposition 2: Complementarity of involving firms' resources will be negatively associated with organizational dissolution and positively associated with being a partner of additional M&As.

Geographical Complementarity

Specific hypotheses on proposition 2 can be developed by considering the characteristics of research setting because rent-generating resources differ across industries. Accounting firms provide auditing, tax consulting, and/or management consulting services to their clients. Providing these kinds of services usually requires face-to-face interaction between accountants and clients.

Geographical proximity, consequently, has been a key factor for the clients in selecting their service providers. Due to the importance of this professional-client interface, multi-establishment firms are likely to favor PSFs that have multiple offices

and thus are physically close. In other words, PSFs that have offices in multiple cities are better positioned to serve multi-establishment clients. Two observed correlations provide suggestive evidence for this argument. First, an accounting firm's size, as proxied by the number of offices a given PSF has, is highly correlated with the number of publicly traded firms the PSF has as clients (Public Accounting Report, 1994). Secondly, Spurr (1987) reported that there exists a high correlation between PSF's size and client's size (Spurr, 1987).

Clients with multi-establishments provide a larger revenue stream and also tend to pay higher hourly fees to accounting firms. Large and multi-office accounting firms get premium fees not only for auditing service (Firth, 1993; Francis and Simon, 1987) but also for compilation and review services (Barefield, Gaver and O'Keefe, 1993). As a result, accounting firms that are geographically diversified are likely to perform better.

This evidence suggests that an M&A will be more successful when the M&A partners cover different territories. This geographical complementarity was undoubtedly a key motive in the globalization of consulting and accounting firms. We thus hypothesize that the merger of firms that occupy differing geographical niches is more likely to be successful than the merger of firms with overlapping niches.

Hypothesis 2-1: Geographical complementarity will be negatively associated with the possibility of organizational dissolution and positively associated with the possibility to be a partner of additional M&As.

Human and Social Capital Complementarity

To be successful, organizations should be accessible to both production and marketing capabilities. Firms can internalize those capabilities or outsource them from the market. When outsourcing incurs a great deal of transaction costs or increases the uncertainty of operation, firms have incentive to internalize those capabilities through vertical

integration (Caves and Bradburd, 1988; Williamson, 1975) or to semi-internalize through strategic alliances (Teece, 1986).

Among the inputs of accounting firms, the professional's capability often outweighs financial capital and physical investments because most of production and marketing capabilities are carried by professionals. A firm consisting of accountants capable of conducting high quality services can be defined as a firm that has production capabilities. We adopt the term "human capital" for those capabilities. Even though human capital is originally defined as an individual's attribute (Becker, 1975), we define a firm's human capital as the aggregation of human capital of accountants who are affiliated with the firm.

A firm having a great deal of ties with potential clients can be defined as a firm that has marketing capabilities. We use the term "social capital" for representing such marketing capabilities. Firm-level social capital can be inferred from the number of external ties to potential clients that organizational members have (Burt, 1992)[2]. The salience of network ties in obtaining clients comes from the difficulty in measuring the quality of the services (Burt, 1992). In fact, the quality of intangible professional services is very hard to measure. In those settings, network ties are likely to come into play for the clients in selecting their service providers.

The social capital is essential for the conversion of production capabilities into organizational returns. A firm can be unbalanced in its human and social capital. If a firm has production capabilities more than it can sell, it has under-utilized production capabilities. Likewise, if a firm has marketing capabilities more than it can produce, it has under-utilized marketing capabilities. A merger of the two firms will be beneficial since it allows them to use their previously under-utilized capabilities. In the same vein,

[2]Burt (1992) himself seems to define firm level social capital two ways. In defining firm-level social capital, he uses the aggregation of organizational members' network ties. In the discussion of structural autonomy, firm-level social capital is inferred from the structure of inter-organizational transactions and competition. Here we use the former definition for social capital.

the merger of an accounting firm endowed with under-utilized human capital with another firm endowed with under-utilized social capital will be more successful than the others. This reasoning leads us to the following hypothesis.

Hypothesis 2-2: Human and social capital complementarity will be negatively associated with the possibility of organizational dissolution and positively associated with the possibility to be a partner of additional M&As.

Prior M&A experiences

Organizations can learn from their prior experiences. Prior M&A experiences provide valuable lessons about how to integrate the firm created by an M&A (Fowler and Schmidt, 1989; Pennings et al., 1994). A firm with a great deal of M&A experience will know how to integrate the firm and will capitalize its M&A-specific knowledge by involving additional M&As (Amburgey and Miner, 1992). Existing studies have reported the positive performance effects of M&A experience. The previous M&A experience is positively related with returns on equity (Fowler and Schmidt, 1989), performance judged by academic evaluators (Bruton et al., 1994), and the persistence of new acquisitions (Pennings et al., 1994).

Prior M&A experiences can also be positively associated with organizational failure. Firms emerging out of a string of mergers have comparatively higher levels of internal variations. They may experience a great deal of conflict across routines and people. People socialized by diverse firms have diverse views of how to organize themselves. Without successful integration of these contradicting cultures and routines, they may not provide reliable servises and thus would be outcompeted by other firms. Firms that have overcome the integration problems are likely to re-engage in more M&As to maintain their growth momentum (Amburgey and Miner, 1992) or to take advantage of their knowledge regarding post-M&A integration. The growth motive can be justified because large professional firms can generate higher revenue per partner

(Public Accounting Report, 1994). This line of reasoning leads us to the following hypothesis.

Hypothesis 3: M&A-specific knowledge accumulated in its history will be positively associated with the possibility of dissolution and with the possibility to be a partner of additional M&As.

Firm size

Large PSFs are better positioned to serve multi-establishment clients (Public Accounting Report, 1994; Spurr, 1987) and also get premium fees (Barefield, Gaver and O'Keefe, 1993; Firth, 1993; Francis and Simon, 1987). Furthermore, larger firms command more resources, enjoy superior economies of scope and scale, and should therefore face a better post-acquisition process. Through growth, they signal success and accumulation of goodwill. It is therefore plausible to expect them to be an attractive M&A partner in the population. Following the merger, up to the year of censoring, we expect large firms to face better M&A outcomes than do smaller firms.

Hypothesis 4: Firm size will be negatively associated with the possibility of dissolution and positively associated with the possibility to be a partner of additional M&As.

DATA AND METHODS

Data Collection

Our data cover the entire population of Dutch accounting firms during the period 1880-1990. Firm level data were extracted from membership directories of accounting associations. The individual level data were collected over one to five year intervals, depending on the availability of directories. From 1970 to 1974, each year was recorded, while every fourth year was recorded after 1974. Individual level data included accountant's name, address, education, and status in the firm, if applicable. Also included is the employment affiliation, i.e., name of audit firm, business firm, or governmental

agencies. The directories also provide the name of cities where each accounting firm had an office. Further details are provided by (reference withheld).

Sample

We sampled the firms created by M&As from the population of accounting firms, since we were only interested in what happened to those specific firms. However, we also used the relevant population data for measuring our variables. Our initial sample consisted of 516 M&As in the history of the Dutch accounting industry.

Among the 516 M&As, we deleted 44 that happened during the period 1986-90. The deletion was unavoidable because we did not have the outcome information regarding those M&As; these new entrants were right censored. We also deleted additional 11 in which 3 or more firms were involved in an M&A during an observation interval. Applying the notion of compatibility and complementarity to more than two involving firms is very difficult, if not impossible. If firm A acquired firm B and C during an observation period, we can create two observations: A with B and A with C. No information exists as to whether firm A acquired firm B earlier than firm C. Even if we were to randomly assign a sequence, the resulting data would suffer dependence problems among observations. Thus our final sample consists of 461 M&As. Figure 1 presents historical distribution of yearly M&As during the observation window. For longer than one year length of observation interval, we divided the number of M&As during the interval by the length.

Insert Figure 1 about here

Figure 2 illustrates how we constructed our sample. To simplify this explanation, we will assume the presence of yearly data. In Case 1, we had two M&As. The first M&A was consummated during the period 1935-36. We had 14 non-events (1936-1949) and one additional M&A (1950) between the first M&A and the second M&A. We constructed compatibility and complementarity measured by using both firm A and B's

information in 1935. Those measures were used as independent variables for the 15 firm-years. After A's acquisition of C, we had 39 non-events (1951-1989). As in the first M&A event, the compatibility and complementarity, calculated by using two firms' 1950 profiles, were used as independent variables for the 39 firm-years.

Insert Figure 2 about here

In Case 2, A acquired C and D during the period 1950-1951. We did not have any information about whether A acquired C first or not. Firm-years of 1951 onwards, consequently, are not included in the sample. Case 2 contributed 14 non-events and one M&A. In Case 3, C contributed 13 firm-years: 12 non-events (1938-1949), and one being acquired (1950). Firm A contributed 54 firm-years: 52 non-events, 1 M&A, and 1 dissolution. B and D did not contribute any firm-years in our setting.

Applying the sampling procedure to our population data produced 1186 firm-intervals. We treated our data as if one observation interval is a year. Among them, there are 838 non-events, 48 dissolution, and 300 involvements in additional M&As.

Measures

Individual level data were aggregated to produce firm level information. We coded organizational foundings, deaths, and changes by examining the changes of an accountant's organizational affiliation. Organizational changes, examined in this study, included M&A and name change.

In identifying M&As, we used the criterion of two-thirds of partners. That is, two-thirds or more of the partners should join a new firm to be considered as a counterpart of the M&A. One of the difficulties in selecting a criterion is that we did not know whether

other accountants left the firms before the M&A or after the M&A. We also used more than half, and more than three-fourths criteria to ensure the robustness of our results. The sensitivity analysis revealed that our results were not sensitive to the criterion.

We coded name changes when a firm's name differed from its previous one, provided two-thirds or more of its partners continued their affiliation with the firm. We did not include name changes due to M&A or "cosmetic" name changes such as modifications in the order of named partners, or additions of the Dutch equivalents of "Accountants" or "Registered" and "Limited Liability" to the firm's original name. We coded organizational founding when a new name was listed in the directories for the first time without an M&A or name change. Dissolution was flagged when a firm's name was permanently delisted from the directories without an M&A or name change. We measured previous M&A experience by the number of M&As conducted by the involved firm before the particular M&A.

To measure compatibility and complementarity, we used the firm level information in the last observation period before a particular M&A. For instance, if both firm A and firm B were listed in the directory of 1974 and if a firm resulting from A and B's M&A was listed in the directory of 1978, we used the firm-level information of 1974 for creating compatibility and complementarity measures.

Compatibility

We measured firm age at M&A by subtracting founding year from the last observation year before M&As. We divided the younger firm's age by the older firm's age to measure age similarity. Maximum of the measure was 1 when the involving firms were founded in the same year. Number close to 1 indicates that the firms were similar in terms of their age. We did not use the absolute difference between the age of two firms. Two firms of 90 and 60 years old are likely to be more similar than two firms of 32 and 2 years old since the first two firms have experienced same selection environment for 60 years.

Firm size at M&A was measured by the number of CPAs affiliated with the firm in the last observation year before the M&A. To measure size similarity, we divided the smaller firm's size by the larger firm's size. We measured structural similarity by the absolute difference of two leverage ratios. Leverage ratio is the number of associates divided by the number of partners. Since some firms did not hire any associates, we could not create a ratio measure analogous to age or size similarity.

We measured familiarity between involving firms by considering the network ties among their CPAs. Ties between accountants were measured by tracing the careers of accountants. Accountants developed social networks by changing their organizational affiliations. When two accountants had an affiliation with a firm during any overlapping period, we assumed that they had network ties with each other thereafter. If firm *i* and *j* had 10 and 20 accountants respectively before the M&A, there were 200 (10*20) possible ties. We counted the actual number of ties that firm *i*'s CPAs had with firm *j*'s CPAs. We divided the actual number by the possible number of ties to measure familiarity of two firms. We assumed that the higher the number, the higher the familiarity.

Complementarity

We developed three competing measures for geographical complementarity. The degree of non-overlap between two firms' market niches indicated geographical complementarity. Geographical complementarity, consequently, is the degree of market extension in terms of FTC categorization. Differing rules to define market niche provided differing measures for the variable. We developed three kinds of categorizations to divide the market. The first had three categories: the set of 4 largest Dutch cities (Amsterdam, Rotterdam, Utrecht and The Hague), other domestic areas, and foreign markets. Geographically, the Netherlands bifurcates into a large conurbation in the west, called "De Randstad" versus what the French might call the "Province." De Randstad comprises

the four largest cities, has a population of about 10 million people, and is the center of the Netherlands' economic gravity. The second measure for geographical complementarity was based on six categories: each of the four cities, other domestic areas, and the foreign market. The last measure was based on 13 categories: each of 12 Dutch provinces with foreign market. For each categorization, we used the following formular,

$$Geographical\ complementarity = \sum_{k=1,n} |DI_{ik} - DI_{jk}|,$$

where n is the number of categories, DI_{ik} is the number of firm i's offices in kth market divided by the total number of firm i's offices, and DI_{jk} is the number of firm j's offices in kth market divided by the total number of firm j's offices. The value of the measure ranges from 0 to 2. Zero indicates that two firms' market niches are perfectly overlapping. A value of two indicates that two firms' market niches do not overlap at all.

We measured human capital by using two variables, general human capital and industry-specific human capital of the firms. General human capital was measured by the proportion of CPAs among all CPAs who possessed a Master's or higher degree. Industry-specific human capital of a firm was measured by the average of CPA's industry-specific human capital. We measured the CPA's industry-specific human capital making use of the natural logarithm of his tenure in the accounting industry. To avoid Ln (0), which is negitive infinity, we added 1 for the tenure of all accountants. We assumed that the speed of industry-specific knowledge accumulation decreased over the career of the CPA.

We measured social capital with two measures. One was the proportion of CPAs among all CPAs in the firm who had worked in other industries or government. The other was the proportion of accountants among quitters who left the firm within the previous 10 years to work for other industries or government but never came back to the accounting industry. We used a ten year span not only because the strength of network

ties decreases with the decrease of interaction, but also because the quitters retired from the business world and provided no longer any value to the firm. For comparison, we also tried 5 and 15 year spans. The sensitivity analysis showed that the results reported here were not significantly different.

We standardized the human and social capital score by using means and standard deviations of each resources dimension. Means and standard deviations were calculated by using 7027 firm-intervals (i.e., the population firm-intervals during the period 1880-1986). On the basis of the standardized scores, we created a global human capital score by adding the standardized educational level score and the standardized industry-specific human capital. Likewise we added two standardized social capital scores to create a global social capital score. Our reason for collapsing the categories was that they may not be complementary. For instance, having both a high educational level score and high industry-specific human capital would not produce any synergistic effect on organizational performance. If one party had more resources in both of the dimensions, we assigned 0. If not, we multiplied the absolute difference of the two firm's human capital scores and the absolute difference in their social capital scores.

Control Variables

We controlled for proxies of "history", including World War II, Indonesian independence in 1949, and significant changes in regulations that governed the accounting profession and its clients (1971-1973 and 1984-1989). Specifying the length of the effects of these events, especially those for regulations, was not easy. We specified World War II as having effects during the period 1941-1946 and Indonesian independence during the period of 1949-1951. The effects of those historical events would be short-lived. Significant changes in the regulations such as the mandatory auditing of all listed firms, which changed the demand for audit services, would have persistent effects on the industry until the abolition of the regulation itself. For that reason, we specified that the

regulation would have its effect during the entire period following the onset of the regulation.

The sector in which the firm is embedded represents an important background for M&A. We controlled for the number of peer firms (i.e., density) which signals both the level of competition and the availability of potential merger partners. The density of the industry may influence the incidence of dissolution of firms created out of a M&A. We also controlled for the number of M&As in a previous year (total number of M&As in previous observation interval divided the length of the interval). If M&A activities are contagious, it will be positively associated with the probability to engage in additional M&A. High M&A levels also affect concentration ratio and force ill-conceived mergers out of the market.

We also controlled for the length of observation intervals as a time-varying covariate. As we mentioned before, we have non-uniform observation intervals from one to five years. Since we expected that the odds of events may be positively related with the length of the observation interval, we included the natural logarithm of the length of the interval (in years). In estimating the model, we lagged time varying covariates, firm size, and all control variables, one observation period.

Model

The events we are interested in this study are dissolution and involvement in additional M&A. We adopted a multinomial logit model to estimate the effects of our independent variables on the probability of an event. The decision was made on the basis of the following reasons. First, firms could not experience those events simultaneously. Applying competing risk models, consequently, was adequate to our setting. Second, Cox's proportional hazard model (Cox and Oakes, 1984) was not appropriate since we

had nonuniform observation intervals and many ties of events. Third, discrete time event history could be used instead of continuous event history model (Allison, 1982). As binomial logistic regression could be used to analyze repeated event history (Allison, 1982), a multinomial logit model could be used to analyze repeated and multiple types of events.

The multinomial logit model is expressed as follows.

$$Log[P_{ij} / P_{i3}] = X_i\beta_j, J = 1,2,$$

$$P_{ij} = P(C_i = j|X_i) = e(X_i\beta_j) / [1 + \sum_{k=1}^{2} e(X_i\beta_k)], J = 1,2,$$

$$P_{i3} = P(C_i = 3|X_i) = 1 / [1 + \sum_{k=1}^{2} e(X_i\beta_k)],$$

$$\beta_3 = 0,$$

where, C_i is consequence category that firm *i* experienced,

X_i = a row vector of firm *i*'s independent variables,

β_j = a column vector of coefficients, and

P_{ij} = probability that the firm *i* experiences consequence *j* where *j* is in a set of (1=dissolution, 2=being involved in additional M&A, and 3=non-event).

Non-event (C_i = 3) was used as a reference category. The parameters estimated in this model could be interpreted only in reference to the non-event category. For instance, a positive coefficient of a variable on category 2 (additional M&A) indicated that the increase in the variable increased the ratio of the probability to engage in additional M&As to the probability of non-event. In estimating the model, we lagged all independent variables one period.

RESULTS

Table 1 presents the means and standard deviations of the variables used in this study. It also presents correlations among the variables. The descriptive statistics are based on 461 M&As and 1186 firm-intervals. Firm size is highly correlated with its previous M&A activity level. G^2 test in multinomial logit regression revealed that deletion of any of the two deteriorates the goodness of fit.

Insert Table 1 about here

Table 2 provides the results of multinomial logit regression. The analysis is also based on 461 M&As and 1186 firm-intervals. In the present study, firms established by M&As can experience one of two organizational events: dissolution or being involved in additional M&A. We first tested if the two event categories were collapsible. A G^2 test revealed that the dissolution could not be collapsed with additional M&A. The tests suggested that the coefficients of independent variables differed across the two outcome categories. We also compared the predictive power of the three geographical complementarity proxies. Even though we could not compare the results with formal statistical procedures, comparisons of three log-likelihoods favored the simplest categorization of geographical niches (i.e., the four "+" cities, other domestic areas, and foreign countries). The results reported in Table 2 are based on this simplest categorization.

Insert Table 2 about here

Age similarity significantly enhances the probability for the merged firm to engage in additional M&As (*vis-a-vis* the status quo). It does not, however, have any significant effect on the probability of dissolution. Size similarity does not have any effects on dissolution and additional M&A. Structural similarity has positive and significant effects on the M&A probability ($p<.01$). It does not, however, significantly influenced the probability of dissolution. Contrary to our prediction, familiarity through

CPAs' direct network ties significantly decreases the probability to engage in additional M&As ($p<.01$). A firm created by an M&A of two firms whose members were densely tied before the M&A is less likely to initiate additional M&A than a firm created by an M&A of two firms whose members were sparsely tied before the M&A.

The two complementarity hypotheses received rather strong support. Geographical complementarity significantly decreases the probability of dissolution ($p<.01$). Geographically overlapping M&As were more likely to dissolve than geographically non-overlapping M&As. In other words, the merger of firms with differing geographical niches is more viable than the merger of firms with geographically overlapping niches. Geographical complementarity, however, does not have a significant effect on the probability of the new firm to engage in additional M&As (*vis-a-vis* status quo). Human and social capital complementarity significantly enhances the probability to engage in additional M&As ($p<.01$). If the two involving firms were complementary in their human and social capital, a firm created by M&A of the two was more likely to engage in additional M&As (*vis-a-vis* status quo).

Supporting Hypothesis 3, previous M&A experiences have positive and significant effects on both types of events. If the pair of firms conducted many M&As before the current merging, a firm created by an M&A of the two was more likely to dissolve ($p<.01$) and to engage in additional M&A ($p<.01$). Firm size also has the predicted effect on dissolution and on the involvement in additional M&As. Large firms were less likely to dissolve ($p<.01$) and more likely to engage additional M&As ($p<.05$). The parameters support Hypothesis 4.

Table 2 also shows the effects of the various control variables on post M&A outcomes. The governmental regulation of 1984-1989 significantly increased the probability of dissolution and of being an M&A target. The regulation involved the mandatory external audit and financial disclosure of small and medium sized firms. The previous regulation, i.e. the one of 1971-1973, pertained to large firms and had a much

milder effect on M&A outcomes. We note that Indonesia's independence in 1949 increased the possibility of dissolution, and diminished the propensity to acquire other accounting firms. The density has an inverted U-shaped relation with the dissolution: positive first-order effect and negative second-order effect. The positive effect of density on dissolution reaches a maximum, when the density is 275.57 [0.3366/2*(0.061/100)]. The density does not have any effect on the involvement in additional M&As. The level of acquisitive activities in the sector during the previous year has positive relation with dissolution and additional M&A.

DISCUSSION

This study has shown that M&A outcomes can be traced to the "chemistry" of the merging firms. The evolution of a firm that emerges out of two previously independent firms is conditioned by their compatibility and complementarity. Furthermore, the prior expansion activities and growth/decline of the merging firms appears to be an important determinant of post M&A outcomes. Several things can happen to a firm founded by M&A. A somewhat unlikely event is dissolution. More common is the scenario that firms will persist over time, although their evolutionary processes after the merger diverge. In this study we differentiated between firms that simply continued versus those that were drawn towards acquisitive opportunities and actually implemented another M&As.

The effects of preconditions vary by type of outcome. The most important and only significant predictor of dissolution was geographical complementarity. In contrast, proxies of complementarity and resources accumulation had strong, hypothesis-consistent effects on the new firm to engage in additional mergers. The results indicate that environmental selection favors compatible and complementary M&As.

It is crucial to view M&A conduct in a dynamic perspective. As the findings in this study demonstrate, many mergers are sandwiched between other M&A activities. Having prior M&A experience is a predictor of both firm dissolution and additional

M&A. The findings indicate that M&A experience does not automatically make the firm accumulate acquisitive knowledge. Firms that dissolved despite a great deal of acquisitive experience may be the firms that could not handle immense internal variations brought about from joining separate entities. Firms that were involved in additional M&As may be the firms that had the capability to handle merger-induced internal diversity. Those firms tried to take advantage of that capability or to retain their strategic momentum (Amburgey and Miner, 1992).

We have also included the new firm's size as a time-variant covariate to obtain an additional grasp on this post-acquisition process. If the firm shrinks, perhaps through attrition, through a split, or by breaking up, it evidently is not undergoing a positive post-acquisition process. However, if the firm remains stationary in size or grows, its life after the merger is very much assured. We should therefore not be surprised that resource accumulation either through internal growth or M&A makes such firms prone to continue with an acquisitive expansion strategy.

M&A and Compatibility or Organizational Fit

The ability to sustain acquisitive behavior appears to be conditioned by the pair of merging firms to be compatible, while dissolution is only marginally affected by the pair's harmony. In other industries, it has been found that flawed mergers are rarely so disastrous that the new firm meets an untimely death. Quinn (1988) examined the Mellon and Girard bank merger and found them to be so incompatible culturally (although they were geographically complementary), that the post-acquisition process drained significant resources from the new firm. From our findings, one would conjecture that other banks are unlikely to seek Mellon out as an M&A partner.

According to our results, incompatability is not a good predictor of M&A failure! One might speculate that in face of divergent structures and cultures, the indivdual professionals are not strongly affected by the reality of the post acquistion era. While the

fusion of the two firms' governance structure requires significant efforts, the day to day operations might remain loosely coupled. Each CPA serves his or her roster of clients, and apart from changes in auditing procedures, the professional continues with "business as usual."

A different interpretation should be advanced for the expansion conduct of the firm whose partners were incompatible. As a "two for one," it comprises two entities rather than one. Such targets might be shunned by other firms. The situation is analogous to a collective bargaining stalemate where one of the parties is divided regarding some settlement. In the case of M&A, the suitors are in fact quite selective in the choice of partners. The accounting sector comprises firms with an emphasis on reliable, reproducible performance of auditing services. When a marriage partner comprises incompatible factions, the negotiation of additional M&A might degenerate into a *menage a trois*. The ensuing uncertainty is incongruous with the nature of the accounting industry and probably in other sectors as well. The results of this study suggest that among accounting firms, the choice of mates with M&A history is hardly "a-select." Peer firms are either drawn to those firms that display a better than average fit, or disharmonious firms have little inclination to grow through acquisition.

It was assumed that firms benefit from having intelligence about possible merger candidates, including of course, their level of harmony. However, the results on familiarity, as measured by CPAs' direct network ties, do not corroborate this view. Network ties were negatively related to the possibility to engage in additional M&As. One plausible reason is that firms may have some tendency of risk-taking in selecting M&A partners. Merging with a familiar firm is less risky than merging with an unfamiliar firm, as spelled out when we developed proposition 1. If firms are risk averse and if risk aversion is retained in a new firm, the firm created by a merger of two familiar firms may not consider unfamiliar firms as a target of additional M&As. The tendency

decreases the number of possible targets and thus decreases the probability to engage in additional M&As.

M&A and Complementarity or Strategic Fit

Two complementary measures have differing effects on post-M&A outcomes. Creating a stronger presence in a single locale increases the likelihood of dissolution compared with firms that spread their presence over several locales. Human and social capital complementarity does not affect the likelihood of dissolution, but it creates a much higher propensity in the new firm to seek out and merge with other firms. Such complementary mergers foster a growth strategy through additional M&As.

As Black and Boal (1994) have indicated, it is not the sheer accumulation of those intangible assets, but rather the relationships among bundles of assets that produce a sustainable competitive advantage. The architecture of those resources, or what they call factor networks with specific inter-resources relationships confer an edge over the competition. Our findings can be fitted into the Black and Boal framework: it is the bringing together of under-utilized human and social capital through a merger that generates a renewed proclivity towards M&A. It also suggests that the maintenance and enhancement of strategic fit provides a potent inducement for further expansion initiatives. Future research should reveal whether in fact firms build up a trajectory of merger activity in which each and every merger is either complementary or supplementary

Strengths and Weakness of This Study

We should acknowledge, once more, that the present study is based on a sample of a single industry. It provides some very strong advantages, as well as some limits in generalizability. Among the advantages we mention are the avoidance of aggregation bias (Schmalensee, 1985), the use of fine-grained data to measure compatibility and

complementarity, the avoidance of classifying mergers as “horizontal” or “vertical,” and the focus on a service sector which is part of the growing "knowledge" economy. Disadvantages include the lack of financial measures of performance, the absence of data on M&A with firms outside the audit industry (e.g., diversification towards management consulting and headhunting), which the Economist (1995) signals as important trends. While the data are fine-grained, and single industry studies are becoming the norm (Rumelt, Schendel and Teece, 1991), one would desire additional studies to further enrich the insights of this paper. Ideally these studies should include both manufacturing and service sectors, as well as U.S. and non-U.S. settings.

Like any study, this study combines limitations with important strengths that should inspire others to develop additional theory and collect data on the interaction between organizational strategy and firm and industry evolution. The strategy of a firm exists neither in a temporal vacuum, nor is it disjointed from its ecological context. M&As are a major punctuation in a firm's history, and give rise to changes in industry structure. The resources that the two firms bring together and rebundle in the subsequent implementation process inform us about the future prospects of the firm.

CONCLUSION

This paper explored M&As with an evolutionary perspective. M&As, as a very important strategic decision, were conceptualized as a key factor that influences organizational evolution. M&As increase intra-firm variations and change firm's resources configuration. As the effects of compatibility and complementarity show, finding "right" partners allows a firm to engage in a future growth race through additional M&As. Finding a good "match" does not only free the new firm from expending important resources to solve internal conflicts, but also permits utilization of previously under-

utilized resources. The effects of previous M&A experience and firm size suggest that firm capability to integrate internal diversity created by M&As is important as well.

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Figure 2.
An Illustration of Sample Composition in a Repeated Hazard Model

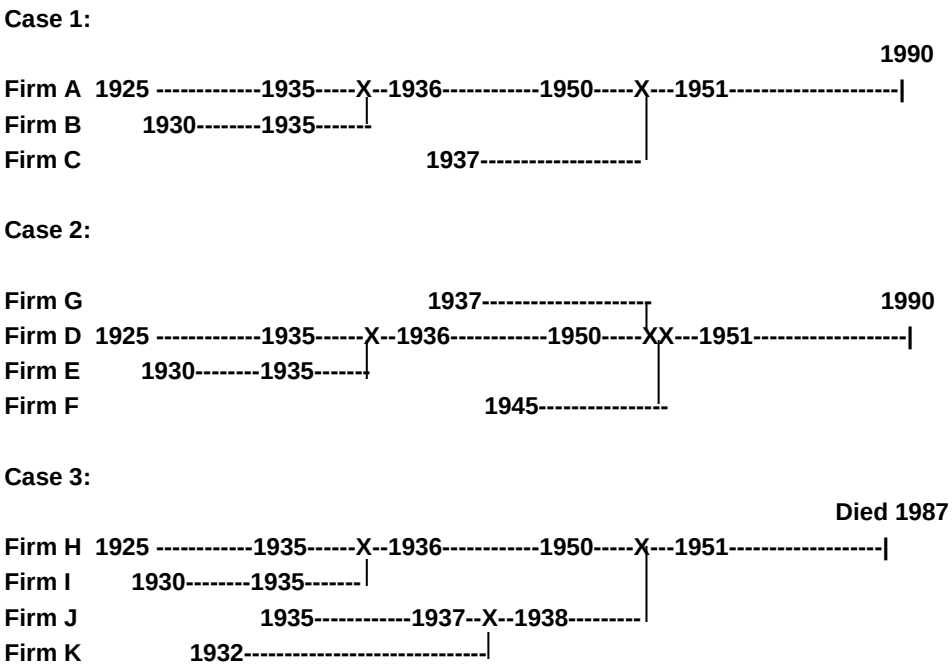

Table 2.
Multinomial Logistic Regression Results for the Consequences after M&As
(461 M&As; 1186 firm-intervals)

Variables	Dissolution	Additional M&A
Intercept	-43.394***	-2.396**
	(15.260)	(1.134)
Compatibility		
Age Similarity	-.470	.403*
	(.531)	(.242)
Size Similarity	.525	-.213
	(.638)	(.295)
Structural Similarity	-.228	1.521***
	(.936)	(.374)
Familiarity through CPAs' Direct Network Ties	-.021	-.405**
	(.415)	(.193)
Complementarity		
Goegraphical Complementarity	-.864***	-.180
	(.270)	(.116)
Human and Social Capital Complementarity	.031	.168***
	(.166)	(.047)
Resources Accumulation		
Previous M&A Experience	.312***	.086***
	(.099)	(.030)
Firm Size (time-varying)	-.076***	.004*
	(.020)	(.002)
Controls		
Logarithm of Interval Length	2.436***	.522*
	(.801)	(.282)
Government Regulation 1971-1973	-.038	-.093
	(.289)	(.121)
Government Regulation 1984-1989	5.706***	.507
	(1.846)	(.350)
World War II: 1941-1945	.708	.346
	(.802)	(.287)
Indonesia's Independence: 1949	1.043**	-.475*
	(.417)	(.271)
Density	.337***	-.001
	(.124)	(.008)
Density Squared / 100	-.061***	.001
	(.023)	(.002)
M&A Levels in a Prior Year	.275***	.098***
	(.102)	(.037)
Number of Events	48	300
Log-Likelihood: Degrees of Freedom	1383.09 : 2294	

Note: Asymptotic standard errors are in parentheses.
*: p < .10; ** p < .05; *** p < .01 (two-tailed test).