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EMBEDDEDNESS ACROSS GOVERNANCE MODES: IS THERE A LINK BETWEEN PREMERGER ALLIANCES AND DIVESTITURES?

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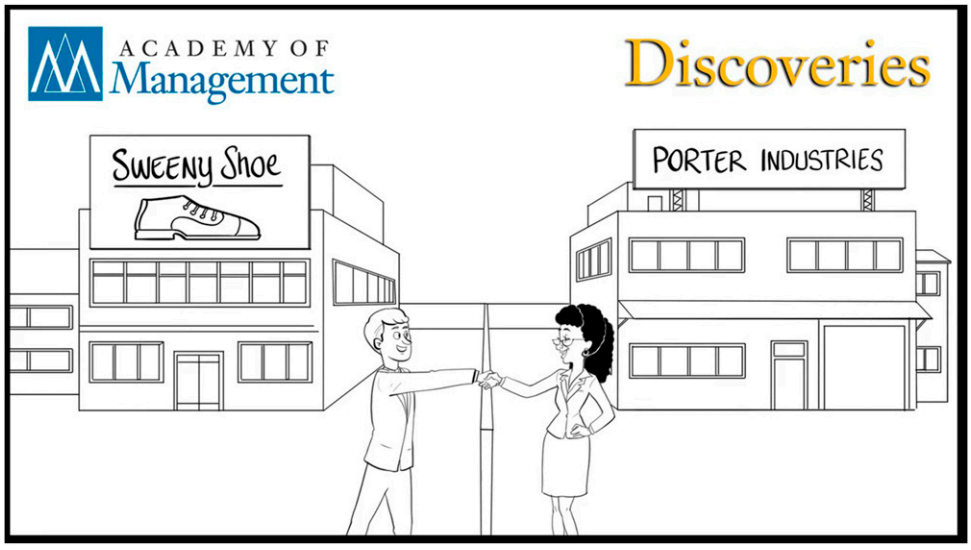

The present study explores whether and how an organization's different types of governance modes—alliances, mergers, and divestitures—may be intertwined over time. As such, we consider whether boundary decisions may be socially embedded not just within, but across different governance modes. In particular, we focus the analysis on a specific three-stage temporal sequence, which represents a common trajectory of consecutive governance modes: (1) alliance, followed by (2) merger, followed by (3) divestiture. Based on data from the Securities Data Company (SDC) Platinum database and the Compustat database, our survival analysis results indicate that premerger alliances are significantly associated with divestiture likelihood: mergers between organizations that had been involved in an alliance before entering into the merger are found less likely to be divested. The article's results underline the merits of simultaneously considering multiple types of ties when analyzing issues related to organizational embeddedness, complement recent research on sequential corporate strategy patterns, and shed new light on the important empirical phenomenon of premerger alliances.

Organizations constantly adjust their boundaries, altering how the social structure that constitutes the organization is demarcated from the environment (Chang, 1996; Helfat & Eisenhardt, 2004). Such boundary changes have important implications for organizational members' identification and sense of belonging (Fiol, 1989), stakeholder assessments (Zuckerman, 2000), and organizational performance outcomes (Healy, Palepu, & Ruback, 1992). Consequently, organizations devote considerable attention and resources to boundary decisions.

Organizational boundary adjustments typically come in the form of three governance choices: alliances, mergers, and divestitures (Pfeffer, 1972; Villalonga & McGahan, 2005). Alliances are voluntary

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collaborations in which organizations temporarily combine their resources while remaining economically and legally independent (Gulati & Gargiulo, 1999). In mergers (also known as M&A—mergers and acquisitions[2]), one organization buys another organization to integrate their operations. Divestitures, counterparts to mergers, involve the division of organizations into separate units (Brauer, 2006; Brauer, Mammen, & Luger, 2017).

But how do organizations choose among these three governance alternatives? Transaction cost economists have mainly approached this question from a static "efficiency" perspective. Their central argument is that each of the three governance modes is associated with specific costs and that organizations should choose the governance mode that minimizes the cost of governing in their specific situation (Coase, 1937; Williamson, 1981, 1991). According to this view, boundary management is best understood as a set of discrete decisions based on the criterion of governance cost minimization (cf. Santos & Eisenhardt, 2005).

Although the efficiency perspective has yielded valuable insights, it has also constrained discourse to static cost considerations, largely neglecting social conceptions of organizational boundary dynamics. More specifically, through its atomistic analysis of single governance decisions, the efficiency perspective fails to account for the fact that organizational decisions are socially embedded in ongoing social relationships (Granovetter, 1985; Ingram, Robinson, & Busch, 2005; Ratajczak-Mrozek, 2017; Swedberg, 1994; Uzzi, 1996). That is, the structure of existing interorganizational relationships, and not simply a transaction-specific cost minimization rule, determines organizational boundary decisions and the modes of governance. For example, organizations prefer to enter into new alliances with other organizations that they had previous alliances with (Gulati & Gargiulo, 1999; Powell, Koput, & Smith-Doerr, 1996). As such, existing relationships among organizations may be fundamentally related to organizational decisions on future governance structures.

The present study extends this line of research by exploring how an organization's *different* types of governance modes (i.e., alliances, mergers, and divestitures) may be intertwined over time. Earlier research has looked at how one interorganizational link is associated with other interorganizational links *of the same type*. In this study, we instead consider whether there may also be relevant relationships *across types*. In particular, we focus the analysis on a specific three-stage temporal sequence, which represents a common trajectory of consecutive governance modes: (1) alliance, followed by (2) merger, followed by (3) divestiture. The key question this study seeks to answer is whether and how a premerger alliance will be associated with the likelihood of divestiture.

This article speaks to several different streams of literature. First and foremost, it contributes to the abovementioned literature on interorganizational embeddedness (Granovetter, 1985; Ingram et al., 2005; Ratajczak-Mrozek, 2017; Swedberg, 1994; Uzzi, 1996) by exploring the question of whether embeddedness can occur not just within but also across different types of organizational boundary decisions. Second, the article adds to the strategic management literature on sequential corporate strategy moves (Bennett & Feldman, 2017; Karim & Mitchell, 2000; Vidal & Mitchell, 2018), which stresses the importance of understanding systematic temporal patterns in how firms sequence activities to manage their corporate portfolios. Most of the extant research in this area is guided by resource or scope considerations that may explain connections among corporate strategy choices over time. However, this literature has yet to fully embrace *relational* considerations that may explain sequential patterns. This is where the present investigation fits in. Emphasizing that corporate strategy decisions, especially when followed through time, regularly occur in dyads with the same partner rather than in a relational vacuum, our study examines how a dyad's joint history can substantially shape firms' corporate strategy trajectory. Finally, the article's findings make a phenomenological contribution to the broader literature on alliance types by highlighting the importance of premerger alliances, an emerging empirical phenomenon whose characteristics and specificities have yet to be fully elaborated.

ALLIANCES, MERGERS, AND DIVESTITURES

Anecdotal evidence suggests that a merger is regularly preceded by an alliance, which provides the organizations with the opportunity to get to know each other before committing to become one (Bleeke & Ernst, 1991; Lajoux, 2006). Prominent examples of premerger alliances, such as the Sony–Ericsson alliance (Singh, 2011) or the alliance between Pfizer and Warner Lambert (Dyer, Kale, & Singh, 2004), abound.

[2] A merger is a combination of two or more organizations in which all but one legally cease to exist, whereas an acquisition occurs when one organization takes a controlling ownership interest in another organization, with the acquired organization continuing to exist as a legally owned subsidiary (DePamphilis, 2010). However, because of the many similarities of the two governance decisions, we follow Stearns and Allan (1996), Penrose (1959) and others in using mergers as an umbrella term that also encompasses acquisitions.

At the same time, many mergers are later divested (Capron, Mitchell, & Swaminathan, 2001; Kaplan & Weisbach, 1992; Porter, 1987; Teece, Rumelt, Dosi, & Winter, 1994).[3] For example, Ravenscraft and Scherer (1987) found that 33 percent of the mergers they studied were later divested. Especially when mergers do not meet anticipated performance goals, firms may opt for a divestiture of the previously acquired organization (Hitt et al., 2009; Kaplan & Weisbach, 1992; Porter, 1987). Examining 271 mergers, Kaplan and Weisbach (1992) revealed that a large percentage of subsequently divested units involved an accounting loss.

Our study follows interorganizational relationships through sequential governance modes and is specifically interested in the relationship between premerger alliances and subsequent divestiture likelihood. Drawing from the demographic literature on individual-level governance modes and earlier research focusing on interfirm alliances, we offer two opposing positions as springboards for our investigation. We start by outlining the potential reasons for a positive relationship between premerger alliances and divestiture likelihood and then discuss why this relationship may in fact also be a negative one.

Positive Relationship between Premerger Alliances and Divestiture Likelihood

Because there is little theoretical or empirical insight into the relationship between premerger alliances and divestiture likelihood, we start out by drawing from, in many ways, an analogous stream of literature in a different field. Sociological demographers have long investigated the links between various governance choices for individual-level relationships—most notably, cohabitation, marriage, and divorce (Bennett, Blanc, & Bloom, 1988; Phillips & Sweeney, 2005; Teachman & Polonko, 1990). These studies find premarital cohabitation to be associated with increased risk of divorce (for a review, see Smock, 2000). Here, we make an analogy between interpersonal and interorganizational relationships (see, e.g., Etheridge, 1991 or Weitz & Jap, 1995, for similar approaches to theorizing that employ cross-level analogies). A strategic alliance resembles many of the characteristics of cohabitation because it provides managerial and technical personnel prolonged access to the partner organization (cf. Shenkar & Li, 1999). Similarly, a merger can be viewed as an organizational marriage in which two organizations are united in a legal union, which may later be divorced/divested (Cartwright & Cooper, 1993; Levinson, 1970).

Drawing from the cohabitation literature, two possible explanations can be offered for a possible positive association between premerger alliances and divestiture likelihood: a selection and a process explanation. First, a selection argument suggests that those organizations that form an alliance before merging may differ in important ways from those that do not, and these characteristics increase the likelihood of divestiture. In particular, some organizations are more structurally flexible and able to engage in different governance forms (Volberda, 1996), making them more prone to employ a variety of boundary adjustments. As such, certain firms may be more likely to be selected into premerger alliances and into divestitures, producing a positive relationship between premerger alliances and subsequent divestiture.

Second, the process explanation suggests that there may be something about initiating an interorganizational relationship in the form of an alliance that increases the likelihood of subsequent merger disruption above and beyond firms' characteristics at the start of the alliance. Going through a strategic alliance first (which by definition is almost comparatively more short-term oriented than a merger) may result in an attitude toward the relationship as being flexible and also open to future adaptations, such as a divestiture. In addition, a premerger alliance may expose the participating organizations to the experience that there are viable alternatives to complete integration of the two organizations. Especially if the merger proves to be difficult, the organizations may decide to reverse their merger decision through divestiture and instead get

Author's voice:
How did the paper evolve as you worked on it

Author's voice:
How did you come up with the idea for this paper?

[3] Recent strategy research has also looked at the reverse sequence of divestiture followed by a merger (Bennett & Feldman, 2017; Vidal & Mitchell, 2018), but note that this sequence is not as prevalent as the first-merger-then-divestiture sequence (Bennett & Feldman, 2017: 102) and probably even more exotic when adopting a dyadic rather than a portfolio level of analysis (that is, it is certainly possible but not very common that a firm would first sell and later repurchase the very same entity).

back to the familiar alliance governance mode. In summary, premerger alliances may weaken commitment to mergers as an institution and as a result make divestitures appear more acceptable. Based on this account, when the firms have been involved in a premerger alliance, the likelihood of divesting the formerly acquired unit may be larger.

Negative Relationship between Premerger Alliances and Divestiture Likelihood

Although relevant insight into trajectories that involve various different governance modes is so far lacking at the interorganizational level, it may be possible that earlier theorizing on single-type interorganizational trajectories provides relevant insight. In particular, prior research on embeddedness (Granovetter, 1985; Uzzi, 1996) suggests that historical ties can help smooth future interactions. If this argument applies generally to the interorganizational relationship (rather than merely to specific types of agreements), this would suggest that premerger alliances may be associated with a decreased divestiture likelihood, primarily through two mutually enforcing ways: (1) through the transfer of fine-grained information and (2) through the generation of trust (Granovetter, 1985; Uzzi, 1996). First, an organization typically acquires a significant amount of relevant information about its partner in an alliance (Gulati, 1995; Powell et al., 1996; Schilke & Cook, 2015; Shenkar & Li, 1999). Such information may, e.g., pertain to the other organization's culture, management systems, capabilities, and weaknesses—characteristics that are often tacit and difficult to observe in arm's-length market relationships. This information obtained during a prior alliance may prove to be valuable for both the selection of an adequate merger target and for an effective postmerger integration. Usually, organizations on the search for an adequate merger target face substantial difficulties obtaining reliable and timely information necessary to determine strategic and organizational fit. In their search, managers may resort to publicly available market, industry, customer, product, and financial analyses about potential target organizations, but these sources may not provide more subtle details required to assess organizational motives and informal procedures. In most cases, a successful fit analysis may require access to confidential information that would not be revealed outside an established partnership (Gulati & Gargiulo, 1999). Such confidential information may enable a better assessment of compatibility for a subsequent merger, helping the organization decide whether the target would make a good fit with its own business procedures and future strategic plans. Thus, a more informed decision can possibly be made as to whether a merger would be an appropriate move when preceded by an alliance. Less propitious interorganizational relationships could be "weeded out" without merger and the process of divestiture. On the other hand, in alliances that do lead to a merger, partner organizations' superior information about each other may facilitate a smooth postmerger integration, thus avoiding pitfalls related to integrating an organization with unfamiliar characteristics (Garette & Dussauge, 2000).

Second, alliances can create interorganizational trust (Ring & Van De Ven, 1994).[4] During an alliance, employees from different organizations engage in close interactions, leading to the formation of mutual emotional attachments, which in turn fosters the production of trust across organizational boundaries. Over time, individual-level trust perceptions become institutionalized and transformed into established, "taken-for-granted" organizational structures and routines (Schilke & Cook, 2013; Zollo, Reuer, & Singh, 2002; Zucker, 1986). That is, a "climate" of trust is constructed that is engrained in interorganizational modes of behavior (Dodgson, 1993) and that can potentially support the durability of a subsequent merger. These arguments suggest that there may be a relationship between premerger alliances and a reduced likelihood of divestiture.

METHODS

Data

We collected data on alliances, mergers, and divestitures from Thomson Financial's SDC Platinum database, which is the most comprehensive database available (Schilling, 2009) and has been used in a number of empirical studies on interorganizational relationships (Anand & Khanna, 2000; Shimizu, 2007). SDC is compiled of information from roughly 200 English and foreign language news sources and filings of the U.S. Securities and Exchange Commission and their international counterparts, trade publications, and wires and proprietary surveys of investment banks, law firms, and other advisors. It is updated daily by an international team of professional analysts. Schilling (2009) notes that SDC's coding is usually highly accurate and very useful in

[4] There are many different definitions of trust in the literature (for a review, see Rousseau, Sitkin, Burt, & Camerer, 1998); however, most include an aspect of perceived risk of vulnerability and involve the notion that trust is "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the party" (Mayer, Davis, & Schoorman, 1995: 712).

helping identify transactions of interest and—compared to alternative data sources—more inclusive in terms of types of agreements and types of organizations covered.

We imposed two restrictions to the sample. First, we considered transactions between 1990 and 2009, and second, we restricted the sample to transactions between U.S. firms to minimize confounding factors such as country risks and nation-specific institutional arrangements.

Adopting the approach used by Ahuja (2000), we converted all multilateral alliances among partners into a set of bilateral alliances between those partners. In line with Villalonga and McGahan (2005), the category "mergers" includes deals classified by SDC as mergers or acquisitions. Finally, consistent with Villalonga and McGahan (2005), a divestiture was measured in terms of transactions classified by SDC as divestitures, spin-offs, or carve-outs.[5]

In constructing a single dataset, we first joined the merger data with the alliance data. Using firms' CUSIP (a nine-character alphanumeric identifier assigned to all North American securities), we created "dyad keys" (alphabetically combined CUSIPs from both firms in the dyad), which were then used for matching mergers with premerger alliances. Next, we combined this alliance/merger dataset with the divestiture data using target firms' CUSIP as the matching variable. This procedure resulted in a dataset containing a total of 151,540 mergers, 493 of which were matched with a premerger alliance and 8,436 of which were matched with a postmerger divestiture. Among those 493 mergers that were preceded by premerger alliances, 82 were divested.

To be able to control for specific features of the acquirers and targets that may potentially confound the relationship between premerger alliances and divestitures, we further constructed a subsample of merger deals among public firms so as to effectively incorporate specific information about acquirers and targets from the Compustat database. We identified 11,324 mergers that occurred between two publicly listed firms. Among those 11,324 merger deals, 7,621 were divested (including 7,571 regular divestitures and 50 spin-off/carve-out divestitures); and 278 mergers were preceded by premerger alliances, 36 of which were divested.

[5] Spin-offs and carve-outs can be considered specific types of divestitures. A spin-off involves the distribution of shares by a company of a unit, subsidiary, division, or another company's stock, or any portion thereof, to its shareholders. In a carve-out, the new company's shares are distributed or sold to the public via an initial public offering. Finally, the SDC divestiture code specifically pertains to a loss of majority control. See Villalonga and McGahan (2005: 1191) and Lee and Walsh (2014: 10).

Measures

Postmerger divestiture. The dependent variable, postmerger divestiture, was coded as the number of months between merger and divestiture of the previously acquired entity or—if a divestiture was not reported within the time period under investigation—merger and censoring. That is, we are interested only in those transactions that represent divestitures of a previously acquired entity, such that the CUSIP of the target firm in the divestiture matches the CUSIP of a temporally prior merger deal. Following Shimizu (2007), we used the announcement dates of both acquisition and divestiture to measure the time between the two events.

Premerger alliance. We created a dichotomized variable to capture whether or not a merger deal was preceded by an alliance involving the two subsequently merging partners ("premerger alliance" = 1, "no premerger alliance" = 0).

Control variables. We considered a series of covariates that have been used in prior studies on divestitures (Bergh, 1997; Shimizu, 2007), including acquirers' performance (measured by their return on assets [ROA]) and leverage ratio (the ratio of debt over equity), the combined asset size of the merger partners, and the disparity between their asset size. We also controlled for distance between merger partners' industries (0 if their SIC codes overlapped across four digits, 1 for a 3-digit overlap, 2 for a 2-digit overlap, 3 for a 1-digit overlap, and 4 otherwise) and geographic distance (0 if located in the same city, 1 if in the same county, 2 if in the same state, 3 if in the same census region, and 4 otherwise). All control variables were lagged by 1 year.

Analysis

Because our observation window is finite (until the preset complete date or until 2009), our data were right censored (Allison, 1999). To address this right censoring problem, we used an event history analysis (also known as survival analysis) to model the likelihood of divestiture. The event history analysis models the hazard rate, which is the likelihood that a merger deal will be divested, given that the divestiture has not occurred before (Allison, 1999; Richards, 1929). To obtain an initial understanding of how merger disruption is associated with premerger alliance experience, we first used the Kaplan–Meier method to estimate the proportions experiencing a divestiture both for mergers that were preceded by an alliance and those that were not

(Allison, 1995). That is, we contrasted the "treatment group" (mergers with premerger alliances) with the "control group" (those without premerger alliances) to compare the likelihood of divesting across these groups of firms. This initial bivariate analysis was based on the full sample of 151,540 merger deals.

We next estimated multivariate continuous-time survival models that account for several control variables, with the subsample including only mergers between publicly listed firms. We ran both a Cox proportional hazards model and a piecewise exponential hazard model, the two most widely used semiparametric event history models (Blossfeld, Golsch, & Rohwer, 2007). For both the Cox model and piecewise exponential model, we clustered observations based on acquirers' industry to avoid autocorrelation (Wooldridge, 2002). The robust-clustered standard error calculation, which is a generalization of the sandwich method of calculating heteroskedasticity-robust standard errors (Baum, Nichols, & Schaffer, 2010), also helps address concerns about industry-level heteroskedasticity.

RESULTS

Table 1 shows the descriptive statistics and correlation coefficients of the variables. Looking at divestiture activity in the full sample over time, by the end of the 10th year (3,650 days), 9.7 percent of mergers were divested. By the end of the 20th year (7,300 days), 12.8 percent of mergers were divested. Figure 1 separates the Kaplan–Meier survivor function between mergers that were preceded by an alliance and those that were not.[6] The figure illustrates that a noticeable disparity exists in the risk of merger disruption depending on whether or not the firms were previously engaged in an alliance. By the end of the 10th year, 5.7 percent of mergers among firms that were previously engaged in an alliance were divested, compared with 9.7 percent among mergers without premerger alliance. To conduct a formal test for the equality of survivor functions across the two groups, we applied two types of nonparametric tests: a log-rank test and a Wilcoxon test (Cleves, Gould, Gutierrez, & Marchenko, 2008). Both produced a significant χ^2 value (6.97 and 6.38, respectively), rejecting the null that the survivor functions of the two groups are the same ($p < .05$).

Table 2 summarizes the results of the multivariate event history analyses. Model 1 of Table 2 shows the results of the Cox model, and Model 2 of Table 2 presents the estimation results of the piecewise exponential model. In the first column of each model, we report odds ratios, which represent the proportional change in hazard rate from a one-unit increase in the independent variable (Allison, 1999; Richards, 1929). The second column of each model reports *z*-scores calculated with robust-clustered standard errors. We include *z*-scores to facilitate interpretation of the direction of effects—i.e., either increasing or decreasing the hazard rate.

According to the Cox model results reported in Model 1 of Table 2, the odds ratio of premerger alliance is 0.23 ($z = -7.28$, $p < .001$), indicating that the existence of a premerger alliance between the merger partners is significantly and negatively related to the likelihood of postmerger divestiture. This finding was confirmed by the piecewise exponential hazard mode reported in Model 2 (odds ratio = 0.23, $z = -7.27$, $p < .001$),[7] suggesting that merger deals between firms that had prior alliance experience are 77 percent less likely to encounter postmerger divestiture than otherwise.

Regarding the control variables, we found divestitures more likely to occur with increasing performance of the acquirers (odds ratio = 1.06, $z = 2.43$, $p < .05$). The combined asset scale of the merger partners is related to a reduced likelihood of postmerger divestiture (odds ratio = 0.99, $z = -6.05$, $p < .001$), but the imbalance of their asset sizes increases such hazard (odds ratio = 1.00, $z = 2.16$, $p < .05$). Also, diversified mergers between firms in different industries are more likely to encounter divestiture (odds ratio = 1.12, $z = 7.87$, $p < .001$). In addition, the geographic distance between merger partners is negatively related to the likelihood of postmerger divestiture (odds ratio = 0.98, $z = -2.08$, $p < .05$).

POST HOC ANALYSES

To further explore potential mechanisms underlying the observed effect, we conducted two sets of post hoc analyses. In the first set, we created more nuanced dependent variables that separate between two forms of divestiture: those that involve a loss of majority control (what SDC codes as "divestiture") and those that did not involve such a loss of majority control (what SDC codes as either "spin-offs" or "carve-outs"). These two types of divestitures have been suggested to feature notable differences.

[6] Note that starting out with bivariate analyses that do not include control variables affords the ability to capture the selection argument suggested by the cohabitation literature, whereby different types of actors (here: organizations) self-select into different types of governance modes.

[7] We also reproduced our model with Firth logit regression (*firthlogit* in *Stata 14*), a technique widely used in testing rare events. Results largely confirmed the findings of our main analyses.

TABLE 1
Descriptive Statistics

	Variable	Mean	SD	1	2	3	4	5	6	7
1.	Postmerger divestiture	0.67	0.47	1.00						
2.	Premerger alliance	0.02	0.14	−0.18	1.00					
3.	Acquirer ROA	0.75	0.75	0.05	0.00	1.00				
4.	Acquirer leverage ratio	144.61	3,240.96	−0.02	−0.01	−0.03	1.00			
5.	Combined size of acquirer and target	0.68	2.51	0.07	−0.02	−0.17	0.01	1.00		
6.	Acquirer–target size imbalance	783.10	2,570.67	0.01	0.00	−0.02	0.00	0.05	1.00	
7.	Acquirer–target industry distance	1.86	1.71	0.28	0.00	0.07	−0.02	0.09	0.01	1.00
8.	Acquirer–target geographic distance	2.31	1.19	−0.01	0.00	0.01	0.01	−0.01	0.00	0.02

Notes: $n = 11{,}324$. SD, standard deviation. Correlations with absolute value of 0.02 or greater are significant at the 5% level.

Villalonga and McGahan (2005: 1203) emphasize that "spin-offs and carveouts are (. . .) more integrative than divestitures proper" in that they do not entirely cut off all connections between the parent and the divested unit. Although they introduce an organizational "satellite" structure, in spin-offs and carve-outs, the parent continues to hold a stake in the new firm (Brauer, 2006). Based on the embeddedness logic, it would appear plausible that premerger alliances would be more associated with spin-off/carve-out–type divestitures than with majority-loss divestitures.

To explore this position, we ran Cox event history analyses using these two new, more nuanced divestiture measures as dependent variables.[8] Model 1 in Table 3 shows the results for majority-loss divestitures and Model 2 for spin-offs/carve-outs. In line with our earlier results, the existence of a premerger alliance is significantly and negatively related to the likelihood of a majority-loss divestiture (odds ratio = 0.17, $z = -7.28$, $p < .001$), reducing the likelihood of majority-loss divestiture by 83 percent. By contrast, a premerger alliance is positively related to the likelihood of a spin-off/carve-out divestiture (odds ratio = 12.00, $z = 5.62$, $p < .001$); that is, the merger is 11 times more likely to be spun-off/carved-out than otherwise. We return to these results in our Discussion section.

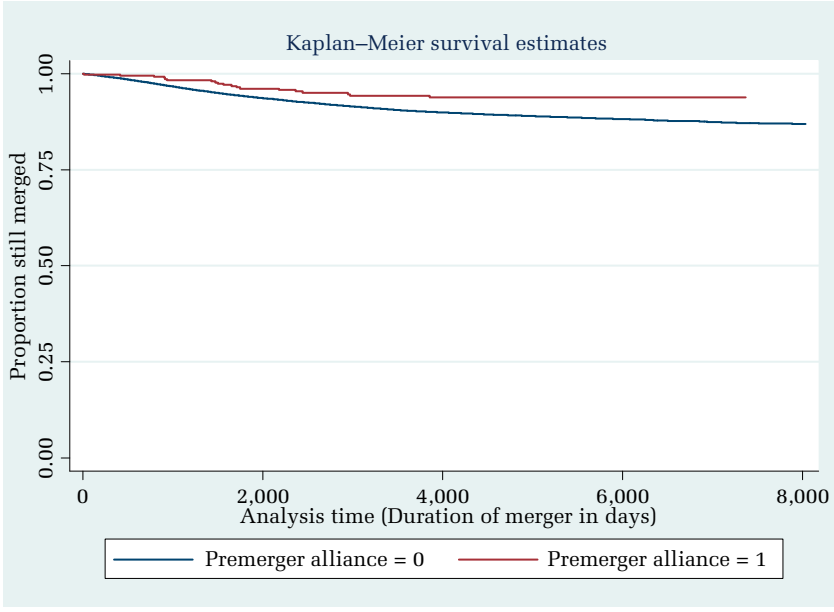
In our second set of post hoc analyses,[9] we zoomed in on the subsample of those 278 mergers that were preceded by a premerger alliance to examine the effects of four key alliance characteristics on divestiture likelihood: alliance age (measured by the number of days the alliance lasted before the merger took place), the number of partners involved in the alliance (measured as a count), technology versus non-technology alliance (1 for alliances including R&D activities and 0 otherwise), and equity versus non-equity alliance (1 for alliances including equity arrangements and 0 otherwise). First, prior research pointed to a positive effect of alliance maturity on both the acquisition of partner information (Doz, 1996) and the development of trust (Vanneste, Puranam, & Kretschmer, 2014)—the key mechanisms underlying our theorizing for a negative effect of premerger alliances on divestiture likelihood. Conversely, we expect that "trial run" alliances (which can be expected to be of shorter duration) do not make the most robust mergers. Moreover, the more partners involved in an alliance, the more difficult it is to exchange fine-grained information and develop trust in a given dyad (Li, Eden, Hitt, Ireland, & Garrett, 2012). Furthermore, technology (as opposed to non-technology) alliances can present hurdles for the free flow of information and the formation of trust among partners (Casciaro, 2003). Finally, governing alliances through equity can inhibit information transfer and trust formation between alliance partners (Das & Teng, 1998). Therefore, we expected these four alliance characteristics to predict divestiture likelihood and provide further evidence for the important role that information flows and trust play in this context.

Because we only focused on those 278 mergers associated with premerger alliances in this analysis, it was necessary to address a potential sample selection bias. Following prior studies, we applied Heckman's selection model (Heckman, 1979), calculating the inversed Mills ratio and using it to control for the possible sample selection bias. In the first stage, we formulated a probit model to estimate the probability for a merger to be preceded by a premerger alliance using all control variables in our main analyses (see Table 2) and an instrumental variable—the age difference between the acquirer

[8] Given the small sample sizes of these subgroup analyses, results should be treated with caution, and future research can benefit from further examining these effects with enlarged samples and in various contexts.

[9] This second set of post hoc analyses went back to treating the dependent variable of divestiture as a unified concept, given that the sample size was too small to slice the sample both by alliance type and by divestiture type.

FIGURE 1
Survival Curves for Mergers—by Premerger Alliance Activity



and the target. Then, we calculated the inversed Mills ratio as follows:

$$\text{Inverse Mills ratio}_i = \frac{\phi(p_i)}{\Phi(p_i)},$$

where p_i refers to the probability of a premerger alliance existing, estimated from the probit model in the first step; $\phi(p_i)$ refers to the normal density of p_i; and $\Phi(p_i)$ refers to the standard cumulative normal distribution of p_i. We then used the inverse Mills ratio as a control variable, along with all other control variables used in the main analysis, as well as the four alliance characteristics discussed above.

Table 4 summarizes the results of this analysis. The age of the premerger alliance is negatively related to the likelihood of postmerger divestiture (odds ratio = 0.99, $z = -2.30$, $p < .05$) such that 1 year of premerger alliance experience can reduce the likelihood of divestiture by 1 percent. By contrast, the divestiture hazard increases with the number of partners in the premerger alliance (odds ratio = 1.25, $z = 3.23$, $p < .01$), with one more alliance partner increasing the postmerger divestiture risk by 25 percent. Also, both technology premerger alliances (odds ratio = 2.65, $z = 2.39$, $p < .05$) and equity-based premerger alliances (odds ratio = 2.84, $z = 2.14$, $p < .05$) are associated with higher divestiture risk. That is, technology alliances are 1.65 times more likely to lead to postmerger divestiture than non-technology alliances, whereas equity-based alliances are 1.84 times more likely to lead to postmerger divestiture than non-equity alliances.

DISCUSSION

In this research, we explore how an organization's prior history of governance mode decisions informs its future governance choices. More specifically, we focus on whether a previous alliance between two organizations is related to the likelihood of a subsequent merger between these organizations being divested. Adding empirical insight into this issue can significantly enhance our knowledge of the poorly understood phenomenon of governance mode crossing interorganizational trajectories.

Two distinct streams of literature led to opposing positions regarding the potential link between premerger alliances and divestiture likelihood. First, research in demography has shown on an interpersonal level that premarital cohabitation is positively associated with the likelihood of subsequent divorce. Two mechanisms could explain such an association: a selection and a process mechanism. Applying these arguments to the organizational level, a specific type of organization could get selected into premerger alliances and the characteristics of such organizations, such as their greater flexibility of boundaries, may subsequently increase the likelihood of merger divestiture. In addition, the process of going through a premerger alliance may affect the attitude toward the relationship as being

TABLE 2
Multivariate Survival Analyses

	Model 1[a,b]		Model 2[a,b]	
DV: Divestiture	**Cox Model**		**Piecewise Exponential Model**	
Variables	**Hazard Ratio (Robust SD)**	***z*-Value**	**Hazard Ratio (Robust SD)**	***z*-Value**
Premerger alliance	0.23 (0.05)	−7.28***	0.23 (0.05)	−7.27***
Acquirer ROA	1.06 (0.03)	2.43*	1.06 (0.03)	2.42*
Acquirer leverage ratio	0.99 (0.01)	−1.36	0.99 (0.01)	−1.36
Combined size of acquirer and target	0.99 (0.00)	−6.05***	0.99 (0.00)	−6.03***
Acquirer–target size imbalance	1.00 (0.00)	2.16*	1.00 (0.00)	2.17*
Acquirer–target industry distance	1.12 (0.02)	7.87***	1.12 (0.02)	7.89***
Acquirer–target geographic distance	0.98 (0.01)	−2.08*	0.98 (0.01)	−2.09*
Years	Controlled		Controlled	
Wald χ^2	145.40***		116.24***	

Notes: $n = 11{,}324$. SD, standard deviation.

[a] The hazard rate of divestiture is the dependent variable. Odds ratios are interpreted as the proportional change in hazard rate from a one-unit increase in the independent variable. 1 indicates no change. Odds ratios lower than 1 indicate that increases in independent variables decrease the hazard rate, and those greater than 1 indicate that increases in independent variables increase the hazard rate.

[b] Both models were calculated with robust-adjusted SD clustered on acquirers' industry.

$^{\dagger}p < .10$
$^{*}p < .05$
$^{**}p < .01$
$^{***}p < .001$

flexible and also open to future adaptations such as divestiture. According to this view, one would expect premerger alliances to be associated with an increased likelihood of divestiture. Conversely, embeddedness theory suggests that prior alliances may enable the organizations to acquire superior information about each other and to build interorganizational trust. This fine-grained information and interorganizational trust, in turn, may facilitate an effective evaluation of fit for a potential merger, a smooth merger integration process, and the development of long-term relationship commitment.

TABLE 3
Contrast between Majority-Loss Divestiture and Spin-Off/Carve-Out

	Model 1[a,b]		Model 2[a,b]	
	Majority-Loss Divestiture		**Spin-Off/Carve-Out**	
Variables	**Hazard Ratio (Robust SD)**	***z*-Value**	**Hazard Ratio (Robust SD)**	***z*-Value**
Premerger alliance	0.17 (0.04)	−7.28***	12.00 (5.31)	5.62***
Acquirer ROA	1.06 (0.03)	2.38*	1.24 (0.16)	1.72[†]
Acquirer leverage ratio	0.99 (0.01)	−1.36	0.98 (0.05)	−0.41
Combined size of acquirer and target	0.99 (0.00)	−6.10***	0.99 (0.00)	−0.16
Acquirer–target size imbalance	1.00 (0.00)	2.22*	0.99 (0.00)	−1.05
Acquirer–target industry distance	1.12 (0.02)	7.78***	0.86 (0.10)	−1.26
Acquirer–target geographic distance	0.98 (0.01)	−2.05*	0.94 (0.13)	−0.44
Years	Controlled		Controlled	
Wald χ^2	116.32***		48.76***	

Notes: $n = 11{,}324$. SD, standard deviation.

[a] For Model 1, the dependent variable is the hazard rate of divestiture. For Model 2, the dependent variable is the hazard ratio of spin-off or carve-out. Odds ratios are interpreted as the proportional change in hazard rate from a one-unit increase in the independent variable. 1 indicates no change. Odds ratios lower than 1 indicate that increases in independent variables decrease the hazard rate, and those greater than 1 indicate that increases in independent variables increase the hazard rate.

[b] Both models were calculated with robust-adjusted SD clustered on acquirers' industry.

$^{\dagger}p < .10$
$^{*}p < .05$
$^{**}p < .01$
$^{***}p < .001$

TABLE 4
Multivariate Survival Analyses

	Divestiture[a,b]	
Variables	**Hazard Ratio (Robust SD)**	***z*-Value**
Alliance age	0.99 (0.00)	−2.30*
Number of alliance partners	1.25 (0.09)	3.23**
Technology alliance	2.65 (1.08)	2.39*
Equity alliance	2.84 (1.38)	2.14*
Acquirer ROA	1.14 (0.46)	0.32
Acquirer leverage ratio	1.35 (0.86)	0.46
Combined size of acquirer and target	0.99 (0.00)	−1.54
Acquirer–target size imbalance	0.99 (0.00)	−1.39
Acquirer–target industry distance	1.19 (0.14)	1.51
Acquirer–target geographic distance	0.89 (0.14)	−0.73
Inverse Mills ratio	1.00 (0.00)	0.12
Years	Controlled	
Wald χ^2	56.65***	

Notes: $n = 278$. SD, standard deviation.

[a] The hazard rate of divestiture is the dependent variable. Odds ratios are interpreted as the proportional change in hazard rate from a one-unit increase in the independent variable. 1 indicates no change. Odds ratios lower than 1 indicate that increases in independent variables decrease the hazard rate, and those greater than 1 indicate that increases in independent variables increase the hazard rate.

[b] The model calculated with robust-adjusted SD clustered on acquirers' industry.

$^{\dagger}p < .10$
$^{*}p < .05$
$^{**}p < .01$
$^{***}p < .001$

As such, premerger alliances may be linked to a reduced likelihood of later divestiture.

We examined these ideas using large-scale alliance, merger, and divestiture data on U.S. firms and employing event history analysis. The key finding is that the relationship between premerger alliances and divestiture likelihood is negative. That is, mergers that were preceded by an alliance face significantly lower divestiture hazard rates than mergers between partners without such prior alliance experience. This result provides strong support for the applicability of embeddedness theory to cross-type interorganizational relationships, suggesting that informational and trust-related benefits from premerger alliances outweigh any potential selection or process aspects that may positively affect divestiture likelihood. An interorganizational relationship that is deeply embedded in prior alliance interactions appears to be significantly less likely to be dissolved once it has advanced into a merger.

We explored potentially relevant mechanisms underlying the observed main effect in two sets of post hoc analyses, which turned out to lend further credibility to the embeddedness story. First, we separated between majority-loss and less abrupt forms of divestitures (i.e., spin-offs and carve-offs). Interestingly, we found premerger alliances to be strongly negatively related to the former but positively associated with the latter. We can speculate that, when postmerger restructuring becomes necessary, the information benefits and the trust developed in premerger alliances may lead firms to shy away from full separations and instead continue to maintain formal and informal exchanges, which remain common in spin-offs and carve-outs (Brauer, 2006). The second set of post hoc analyses probed whether certain characteristics of the premerger alliance may be associated with systematic differences in divestiture likelihood. Results revealed that the divestiture hazard was particularly ameliorated when the premerger alliance (1) had a long duration (rather than was quickly replaced by the merger), (2) was bilateral (rather than multilateral), (3) had a nontechnology focus, and (4) was non-equity based. Prior research associates these four alliance characteristics with improved access to partner information and the development of trust between alliance partners, both of which may explain the pronounced reduction in divestiture likelihood.

Overall, the results of this study provide further support for the central tenets of embeddedness theory: Organizations face substantial uncertainties associated with the competencies, needs, and reliability of (potential) exchange partners (Stinchcombe, 1990). To reduce their search costs and to alleviate the risk of opportunistic partners, organizations tend to create enduring relationships with specific organizations they had prior experience with (Dore, 1983; Powell, 1990; Rogan, 2014).

While on the one hand confirming existing theory, the results of this study also indicate the need to broaden the embeddedness perspective. Whereas Uzzi (1997) stresses that an organization's types of ties have important implications for its embeddedness, the present research suggests that it is also important to differentiate between distinct kinds of exclusive ties, such as alliances, mergers, and divestitures. By simultaneously considering these different alternatives, it is possible to provide a richer picture of how

Author's voice:
Was there anything that surprised you about the findings?

organizations change their boundaries, taking into account that embeddedness of organizational boundary decisions may also operate across alternative governance choices.

On a more general level, such arguments resonate with recent criticism of network studies (Grannis, 2010; Zuckerman, 2010). Researchers must find a way to deal with the fact that there are multiple types of ties that produce networks and avoid commensuration (Espeland & Stevens, 1998) whereby particular features of the dyads are eliminated and all links are rendered identical. Distinctions in how relations are defined need to be explicitly taken into account to prevent misspecification of network phenomena. At the same time, only focusing on one specific type of tie while disregarding others that may be meaningful in the specific context leads to the loss of valuable information. As such, particular attention should be devoted to an integrated, and preferably longitudinal, analysis across different tie types, as was attempted in the present study.

Besides contributing to research on embeddedness and organizational boundaries, this study also adds to the strategic management literature on the antecedents to divestiture decisions (Brauer, 2006; Dickler & Bausch, 2016; Hoskisson, Johnson, & Moesel, 1994). Divestitures are often accompanied by substantial losses (Kaplan & Weisbach, 1992), and thus, managers would benefit from knowing what factors are associated with divestiture likelihood. Our research has identified a new aspect relevant to divestiture likelihood: whether or not the merger was preceded by an alliance between the two organizations. The results are supportive of the notion that premerger alliances provide valuable platforms for learning about the partner and for developing mutual trust, both of which can aid in making a subsequent merger work. Thus, our study affords a fuller appreciation of the interrelationships between types of initiatives that can shift an organization's boundaries.

Similarly, our article speaks to the extensive literature addressing the alliance versus merger decision (e.g., Dyer et al., 2004; Yin & Shanley, 2008). Our findings suggest that this literature would benefit from theorizing dedicated to the dynamics among governance choices (also see Shi, Sun, & Prescott, 2012). In other words, the binary decision of whether to ally or merge should be revised to allow for a third option of "ally and then merge."

This insight resonates with the emerging literature on sequential strategy moves, which has challenged more static approaches to corporate strategy research by making the point that strategy choices tend to be temporally interdependent (Bennett & Feldman, 2017; Karim & Mitchell, 2000; Vidal & Mitchell, 2018). This literature has shown how certain strategy decisions can either free up or consume firm resources and/or either broaden or focus the firm's scope, both of which can shape the availability and advantageousness of strategy options in subsequent time periods. Our investigation augments these resource and scope arguments with an understanding of how relational arguments may play a role in driving sequential strategy. Specifically, whether or not firms form a premerger alliance can lead to variations in dyadic information and trust, which in turn can shape the later decision of whether or not to divest.

Moving forward, research investigating additional contingencies and mechanisms of the premerger alliance–divestiture link would be valuable. In alternative empirical settings, the consequences of embeddedness have been found to depend on the specific type of actors (Burt, 1997) and the time period under investigation (Mizruchi, Stearns, & Marquis, 2006). Building on these insights, future research may choose to focus on whether the link between premerger alliances and divestitures is contingent on specific organizational characteristics or shifts in the institutional environment that may occur over time. Furthermore, premerger alliances are of course only one form of interorganizational contact that can have important implications for subsequent merger stability. Therefore, future research should test our extended embeddedness perspective in the context of other forms of contact beyond premerger alliances. For instance, industry associations and executive mobility appear to be relevant premerger linkages that may facilitate information transfer and build trust among merger partners, in turn possibly affecting merger stability.

CONCLUSION

In the study of organizational boundary decisions, traditional approaches focus on static efficiency considerations, arguing that organizations reconfiguring their relations with the environment will choose the governance alternative that minimizes transaction costs. Although such an explanation is often plausible, it may ignore that organizational decisions—including those on how to draw boundaries—are socially embedded in ongoing social relationships. As such, research in organizational theory is increasingly interested in the embeddedness of organizational governance mode decisions. However, previous studies often do not account for the multifaceted nature of these choices but focus on only one governance alternative at a time. This article redresses this deficit by arguing that governance decisions are socially embedded not just within, but across different governance modes. Focusing on the trajectory involving alliance, merger, and divestiture

as three consecutive alternatives for governing a relationship between two organizations, we drew on two distinct literature studies to derive opposing positions on the relationship between premerger alliances and divestiture likelihood. The empirical results suggest that a premerger alliance with another organization is associated with a decreased likelihood of subsequent divestiture of that organization. This finding underlines the merits of simultaneously considering multiple types of ties when analyzing issues related to economic embeddedness.

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