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RECONFIGURATION, RESTRUCTURING AND FIRM PERFORMANCE: DYNAMIC CAPABILITIES AND ENVIRONMENTAL DYNAMISM

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Research summary: *Reorganization has been proposed as a key dynamic capability. This study compares the performance outcomes of two forms of reorganization, differing in their pervasiveness: organizational restructuring and organizational reconfiguration. Our dynamic panel data analysis of large U.S. corporations between 1985 and 2004 finds contrasting performance outcomes for these two forms of reorganization: in general, the more pervasive restructuring is associated with positive performance outcomes, while the more limited reconfiguration is associated with negative performance outcomes. However, outcomes vary by environment. Consistent with dynamic capabilities theory, we find evidence that in dynamic environments reconfiguration outcomes turn positive, while restructuring outcomes turn negative. We discuss implications for dynamic capabilities theory and managerial policy.*

Managerial summary: *Firms need to reorganize in order to adapt to change. This study compares the financial performance consequences of two forms of reorganization: organizational restructurings and organizational reconfigurations. Restructurings involve fundamental change in organizational principles and are typically irregular; reconfigurations involve incremental change and are frequent. Examining a set of large U.S. corporations, we find these two forms of reorganization have contrasting financial consequences, depending on context. In the general case, fundamental restructurings have positive consequences, while incremental reconfigurations have negative consequences. However, this general result reverses in specifically dynamic environments, where reconfigurations are positive financially, while restructurings are negative. We conclude that the relative frequency of reconfigurations helps adaptation in dynamic environments. Managers should choose forms of reorganization according to the rate of environmental change.*

INTRODUCTION

Theorists from a dynamic capabilities perspective emphasize the importance of reorganization: “a key to sustained profitable growth is the ability to recombine and to reconfigure assets and organizational structures as the enterprise grows, and as markets and technologies change … ” (Teece, 2007: 1335). Reorganizations may take two basic forms. Organizational restructurings involve changes in fundamental principles of organizational design, for example shifts between functional and divisional principles of organizing (Chandler, 1962). Organizational reconfigurations, sometimes described as “patching” or “charter” change (Eisenhardt and Brown, 1999; Galunic and Eisenhardt, 2001), refer to unit changes within existing organizational principles. As an alternative to restructuring, reconfigurations are attracting increasing theoretical and empirical

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interest (Birkinshaw and Lingblad, 2005; Capron and Karim, 2015; Girod and Whittington, 2015; Karim and Mitchell, 2004; Karim and Williams, 2012). Because they facilitate continuous evolution, reconfigurations appear particularly apt for dynamic environments, where restructurings are liable to be too episodic to match the pace of environmental change (Brown and Eisenhardt, 1998; Eisenhardt and Martin, 2000).

We contribute to the dynamic capabilities literature by comparing for the first time the performance implications of organizational restructurings and reconfigurations. Although reorganizations of either kind may assist in adapting to change, they involve costs as well as benefits (Teece, 2007). Costs and benefits may differ between restructurings and reconfigurations. Overall, we find contrasting net performance effects: In general, restructurings tend to positive outcomes, while reconfigurations tend toward negative. However, we also contribute to the debate on the relevance of dynamic capabilities across different environments (Arend and Bromiley, 2009; Helfat and Winter, 2011) by examining the impact of environmental dynamism. Here, performance effects appear to reverse: In dynamic environments, restructurings are negative, while reconfigurations are positive.

THEORY AND HYPOTHESES

Dynamic capability theorists emphasize the benefits of keeping organizational structures aligned to the changing demands of the environment: Reorganization is necessary in order to maintain evolutionary fitness (Teece, 2007). These theorists often distinguish between two types of reorganization: restructurings and reconfigurations (Brown and Eisenhardt, 1998; Karim, 2006). On the one hand, restructurings pursue alignment by changes in fundamental organizational design principles, that is, adding or subtracting structural axes or organizational layers (Blau and Schoenherr, 1971; Chandler, 1962). An example in our data is IBM in 1995, when its functional and geographic structure was replaced by a three-axis structure of functions, businesses, and customer axes (see also Galbraith, 2005). Restructurings imply pervasive change because they involve different reporting relationships throughout the organization: Functional managers will typically report to functional heads in a functional organization, but to divisional general managers in a divisional organization. Restructurings typically also involve other changes, for instance, to expenditure budgets and reward and career structures (Romanelli and Tushman, 1994).

Recently, theorists have considered a second kind of reorganization, reconfigurations within existing structures (Karim, 2006). These reconfigurations pursue alignment by adding, splitting, transferring, merging, or deleting of units without change to fundamental structural principles (Eisenhardt and Brown, 1999; Girod and Whittington, 2015; Karim, 2006). As such, these reconfigurations are less broad than those of Teece (2007), whose notion of reconfiguration includes restructuring as well. In Karim and Mitchell's (2004) Johnson & Johnson example, reconfigurations include the adding of Symmetrix (by acquisition) and the merger of three cardiovascular accessory units into Hancock Extracorporeal. These reconfigurations were achieved without change to Johnson & Johnson's fundamental sectoral structure. Relative to restructuring, reconfigurations' direct effects are limited in scope, involving the specific units concerned. Reconfigurations do not entail corporate-wide adjustments to reward or career structures (Eisenhardt and Brown, 1999). They therefore appear easier to undertake continuously, while restructurings are typically more episodic.

Thus, the two forms of reorganization pursue the benefits of alignment in distinct ways: restructuring by pervasive but less frequent reorganization; reconfiguration by more continuous but limited reorganization. These reorganizations may also differ in their costs (Teece, 2007). Restructurings typically incur substantial immediate costs, with widespread direct disruption plus further disruption associated with corresponding budget, career and incentive changes (Lamont, Robert, and Hoffman, 1994). Such costs are likely to be smaller for limited reconfigurations. On the other hand, reconfigurations may have more subtle indirect costs. First, the relative frequency of reconfigurations may restrict the development of other valuable organizational routines (Karim and Mitchell, 2004). Routines and continuous change are hard to mix. Second, the very restrictiveness of reconfiguration may turn out to damage performance-enhancing internal complementarities between units and activities (Milgrom and Roberts, 1995; Whittington *et al.*, 1999). Whereas restructurings change many elements at the same time, so that one set of complementary relationships can be replaced by a

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new set, the limited nature of reconfigurations may mean that reconfigured units fall out of synchrony with other elements of the organization. As Brown and Eisenhardt (1998) warn, without high degrees of modularity, local reconfigurations may have negative knock-on effects on the whole. In sum, because of indirect effects on routines and complementarities, reconfiguration may be the kind of incremental change that is more trouble than it's worth (Miller and Friesen, 1982).

Despite this tension between costs and benefits, researchers have largely neglected the performance implications of reorganizations, with the few findings weak and inconsistent (Bowman *et al.*, 1999). Research has typically focused on organizational types rather than reorganizational change (Donaldson, 2001). The most comprehensive study of reorganization outcomes (Brickley and Van Drunen, 1990) does find small positive gains, but does not differentiate between restructurings and reconfigurations. Apart from studies of innovation and unit retention implications (Karim, 2006, 2012), there is no extant research on the performance outcomes of organizational reconfigurations as distinct phenomena. Given the different possible costs and benefits, we test restructuring and reconfiguration outcomes separately:

Hypothesis 1: Organizational restructurings will have a positive impact on economic performance.

Hypothesis 2: Organizational reconfigurations will have a positive impact on economic performance.

These two hypotheses test for the performance outcomes of restructuring and reconfiguration in general. However, dynamic capabilities theory should be able to define some boundaries, particularly with regard to environments (Arend and Bromiley, 2009). Comparing restructuring and reconfiguration helps here. While both forms of reorganization can in principle be dynamic capabilities, organization restructurings tend to be delayed (Donaldson, 1987). Managers may be reluctant to restructure because of lagged performance benefits (Lamont *et al.*, 1994) and the politics of associated changes in rewards and careers (Romanelli and Tushman, 1994). In highly dynamic environments, with fleeting opportunities and urgent threats, delays are especially costly. Restructurings may be too infrequent for dynamic environments.

The case for reconfiguration in dynamic environments is stronger. Eisenhardt and Martin (2000) highlight the advantages of reconfigurations in terms of speed. In dynamic environments, the more continuous nature of reconfiguration allows prompt corrections to organizational misalignments and rapid response to new opportunities. Resources can be quickly adjusted through portfolio additions and deletions, while ineffective reconfigurations can be relatively easily reversed. Reconfigurations do not entail widespread changes in reward or career structures. Thus, "patching [reconfiguration] is less critical when markets are relatively unchanging, but when markets are turbulent, patching becomes crucial" (Eisenhardt and Brown, 1999: 74; see also Galunic and Eisenhardt, 1996). Accordingly, reconfigurations should fit dynamic environments better than restructurings. We therefore hypothesize:

Hypothesis 3: Environmental dynamism negatively moderates the relationship between restructuring and economic performance.

Hypothesis 4: Environmental dynamism positively moderates the relationship between reconfigurations and economic performance.

METHODS AND DATA

Sample and study period

We take as our sample the top 50 publicly listed industrial firms ranked in 1985 in the U.S. Fortune 500, tracking them through until 2004 (13 dropped from the sample due to takeover). With average sales of nearly $31 billion U.S. dollars, these firms are broadly similar in size to those analyzed in the studies of organizational reconfiguration by Eisenhardt and Brown (1999), and Karim and Mitchell (2004). They are also large enough to receive extensive media coverage. The 20-year window allows us to track the firms through multiple changes, with extended lags.

Dependent variables: measures of economic performance

In order to enhance robustness, we use two performance measures: a forward-looking,

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stock market-based measure (Tobin's Q) and an accounting-based measure (return on assets). We computed the proxy form of the Tobin's Q defined as the ratio of market value of equity (including common and preferred stock) plus the book value of total debt, over the book value of total assets (Kor and Mahoney, 2005). Tobin's Q is calculated at the end of the fiscal year of a restructuring or reconfiguration. ROA is the ratio of the sum of net income and interests divided by total assets (Thomas and D'Aveni, 2009). All data are from Compustat.

Restructuring measure

Restructurings are binary events involving change in at least one of the two core principles of organizational structure, that is, number of layers and/or number, and type of structural axes across the whole company (Blau and Schoenherr, 1971; Chandler, 1962). To provide a consistent measure across hundreds of firm-year observations, we follow Romanelli and Tushman (1994) in computing a structural change ratio, counting as restructurings values above a threshold. This ratio is based on senior executive title changes as recorded in annual reports. Senior executive titles collectively reflect the corporate-wide structure. We supplemented this ratio with extensive primary and secondary qualitative data. Like Romanelli and Tushman (1994), we find a high correspondence between our ratio and qualitative measures of restructuring.

To create our structural change ratio, we coded all top managerial titles according to their horizontal and vertical dimensions. Our coding rules were built on the organization charts published over time for a quarter of our companies by Gale Research (1992, 1996, 2000). On the horizontal dimension, we coded by business area, geography, functions, customers, and technology. Chairman, CEO, President, and COO titles were coded General Managers. On the vertical dimension, we coded to a maximum of four levels: the Chairman and CEO level (Level 1), the COO and president level (Level 2) and operational levels (Levels 3 and 4, e.g., functional, divisional and sector heads). We could code one third of companies to Level 4, the remainder to Level 3. We thus capture top corporate layers, not just top management teams (Guadalupe, Li, and Wulf, 2014). To exclude preparations for CEO succession, we did not count the creation of a COO-level where COOs were at least four years younger than their CEOs, and subsequently, became CEO (Hambrick and Cannella, 2004).

Next, we calculated the proportion of each group of codes by dividing their count by the total number of titles coded. Since each title is counted twice, once for the horizontal dimension and once for the vertical dimension, we divided each proportion by two to obtain a sum of proportions adding to one (or 100 percent), a figure easier to grasp. Finally, we computed the structural change ratio for each firm by taking the absolute value of the difference of proportion of each group of codes between two consecutive years and summing them. For example, in 1999 Procter & Gamble moved from a mixed geographic and functional structure (these titles predominated at Level 2), to a three-legged matrix structure based on global business groups, global functions and geographic regions. The differences in 1998 and 1999 values were: Level 1: 0.02; Level 2: 0.14; Level 3: 0.12; General Managers: 0.02; Functions: 0.01; Business: 0.05; Geography: 0.02. Procter & Gamble's total structural change ratio in 1999 was thus 0.38. In our dataset, the change ratio varies between 0 and 0.97.

In order to exclude limited changes inconsistent with restructuring's pervasive nature, we follow Romanelli and Tushman (1994) in establishing a threshold above which structural change counts as restructuring. We used interview and documentary sources to establish our cut-off. We interviewed 14 senior executives, plus 2 client partners of a leading consultancy firm at 14 of our firms (28 percent) regarding all changes above 0.20 on our ratio. Our interviewees confirmed all changes above 0.30 as restructurings, but were often more ambivalent about those below. A similar ambivalence for the changes below 0.30 emerged from reviewing Gale Research organization charts, annual reports and media sources (Lexis-Nexis database search on "restructuring," "reorganizations," "appointments," and "executive moves"). Our main analysis therefore codes for restructuring only above a 0.30 cut-off on our structural change ratio.

The Procter & Gamble example illustrates the correspondence of quantitative and qualitative sources (more examples are available in Appendix S1). In our interview, a company vice president explained that when Procter & Gamble embraced a front-back structural model in 1999, "it was an earthquake." In the 1999 annual report (p. 10), Chairman Pepper wrote: "We are changing the way we are structured to create many more new brand categories and to expand our best ideas globally far faster.... This is all part of Organization 2005—the boldest change effort in Procter & Gamble's history." This reorganization was also widely discussed in the media and elsewhere (e.g., Center for Management Research, 2003; Galbraith, 2005). Thus, in 1999, we coded as 1 the restructuring variable for Procter & Gamble.

Reconfiguration measure

In measuring reconfigurations, we follow Karim's (2006) study in the medical sector by counting: (1) *addition* of new units, whether by internal development or by acquisition; (2) *recombination of units taking the form of mergers* in order to create a single new unit; (3) *recombination of units taking the form of transfers* of units from one unit to another; (4) *split* of units in order to form a new stand-alone unit; (5) *unit deletion*, either by closure or divestment. Reflecting the industrial diversity of our firms, we use a wider range of data sources than Karim (2006), including annual reports, SEC 10Ks, and press announcements from the Lexis-Nexis database (under the terms "reorganization," "restructuring," "appointments," "executive moves," "mergers and acquisitions," "demergers," and "spin-offs"). In contrast with restructurings, which are pervasive single events in any given year, reconfigurations can occur in multiple parts of the organization within a year. We therefore treat reconfigurations as a continuous measure, counting their number in a particular year.

Environmental dynamism measure

With regard to Hypotheses 3 and 4, we apply Dess and Beard's (1984) widely used industry-based "environmental dynamism" measure (Boyd, Gove, and Hitt, 2005). Dynamism is the volatility of the rate of change of annual industry sales, that is, the standard error of the rate of change of annual industry sales. Because in our sample the average primary industry accounts for 70 percent of firm sales, we estimate the dynamism facing each firm based on the primary industry it competed in.

Control variables

We control for the following variables (data from Compustat unless otherwise specified): *prior performance*, using a one-year lagged Tobin's Q or ROA in the models (Rothaermel, Hitt, and Lloyd, 2006); *industry performance,* on the basis of the annual average Tobin's Q and ROA of all industry players present in the sampled firms' dominant SIC group (Brush, Bromiley, and Hendrickx, 1999); and *debt ratio*, by dividing the firm's total debt over their total assets (Simerly and Li, 2000). We also control for firm strategy and size changes as the absolute value difference between year 0 and year -1 as follows: *diversification change*, on the basis of the yearly entropy diversification index (Palepu, 1985) for each company; *internationalization change,* on the basis of the firm's ratio of foreign sales over total sales (Rugman and Verbeke, 2004); *size change,* based on the number of employees (Grinyer, Yasai-Ardekani, and Al-Bazzaz, 1980). We also use the following conventional firm-effect controls: *CEO succession*, a dummy variable coded 1 in the year in which a new CEO is appointed (0 if no succession took place) (Virany, Tushman, and Romanelli, 1992), and *size* as the log transformed count of employees (Hannan and Freeman, 1984). We include *year dummies* to control for unobserved time effects and to alleviate the risk of correlation across firms in the error term (Roodman, 2009a).

Analysis

Because the presence of a lagged dependent variables creates an endogeneity issue (Kennedy, 2008), we used a System Generalized Method of Moments (GMM) estimator (Arellano and Bond, 1991). System GMM increases efficiency and allows the introduction of individual effects in a panel (Blundell and Bond, 1998). System GMM also deals with endogenous regressors and makes possible the use of predetermined but not strictly exogenous regressors, such as past performance. We estimated System GMM using the "xtabond2" Stata command. An inconvenience of System GMM is the risk of instruments proliferation since it is based on a system of two equations: the original and the level equation. The latter is made of the first differences of independent and endogenous variables, which are instrumented with deep lags of their own first differences. To minimize the risk of instruments proliferation, we used the command "collapse" in our Stata code (Roodman, 2009b). Our model is:

$$r_{it} = \delta r_{t-1} + \sum_{s=1}^{5}\theta R_{s} R_{it-s} + \sum_{s=1}^{5}\theta P_{s} P_{it-s} + \sum_{s=1}^{5}\tau_V\ V_{it-s} + \sum_{s=1}^{5}\tau_{VR}\left(V_{it-s} * R_{it-s}\right) + \sum_{s=1}^{5}\tau_{VP}\left(V_{it-s} * P_{it-s}\right) + \beta_I DI_{it} + \beta_{Dr} Dr_{it} + \beta_{Dv} Dv_{it} + \beta_{In} DIn_{it} + \beta_E E_{it} + \beta_C C_{it} + \beta_S S_{it} + \sum_{t=1}^{T}\varphi_t Y_t + \alpha_i + \varepsilon_{it},$$

where δr_{t-1} denotes the coefficients of the lag of the performance dependent variable in $t-1$, $\Theta = (\theta R_{s}\ \theta P_{s})$ denotes parameters that we use to test Hypotheses 1 and 2, respectively, for restructuring and reconfigurations. $T = \left(\tau_V,\ \tau_{VR}\tau_{VP}\right)$ relate to environmental dynamism in Hypotheses 3 and 4. The $\boldsymbol{\beta}$ coefficients relate to the control variable parameters. $\boldsymbol{\varphi}$ denotes the coefficients of year dummy variables. The last two terms form the error term: α_i stands for the unobserved firm-specific effects and ε_{it} for the observation-specific error. In our Stata code, we treat the lag of the performance dependent variable as endogenous (Roodman, 2009a). The long lag structure we implement for the ROA is not necessary with the Tobin's Q dependent variable since it is already a forward-looking measure.

RESULTS

Table 1 provides the descriptive statistics and a correlation matrix for our variables. Between 1985 and 2004, our firms undertook 136 restructurings and 3,770 reconfigurations. All our sample firms reconfigured, and the mean for reconfigurations is 4.08, an average of four reconfigurations per year. The mean for restructuring is just 0.147, an average gap between restructurings of over six years.

Table 1 shows generally low correlations between the independent variables except, as expected, across the multiple lags of reconfigurations and environment dynamism. However, System GMM precisely corrects for serial correlation in the data and our model tests rule out such an issue. The financial control correlations are higher (e.g., r = 0.38 between ROA in year -1 and the ROA of the industry group; r = 0.43 between Tobin's Q in year -1 and the Tobin's Q of the industry group), but the variance inflation factors (VIF) computed along the regressions do not indicate issues of multicollinearity (VIF coefficients <10). Reconfigurations and environmental dynamism are positively correlated (r = 0.14); there is also a small but negative correlation between restructuring and environment dynamism.

Table 2 presents the regression results with Tobin's Q as dependent variable and Table 3 with ROA (we lag over five years as coefficients for the sixth year were insignificant and this reduces the number of instruments relative to N). Across models, the signs and relationships between control variable estimates and financial performance are consistent with theory.

Our Hypotheses 1 and 2 test for the positive effects of restructuring and reconfiguration in general. In line with Hypothesis 1, we find that restructuring generally has positive effects on both Tobin's Q ($\theta = 0.099$, $p-$value = 0.000 in Model 3) and ROA three and four years later in Model 6 ($\theta_{t-3} = 0.044$, $p-$value = 0.008 and $\theta_{t-4} = 0.162$, $p-$value = 0.015). *Ceteris paribus*, with average firm Tobin's Q of 1.47 and ROA of 7.00 percent in our sample, this means restructurings increase Tobin's Q by 6.80 percent and ROA by 2.94 percent. The latter represents an average boost in profits of \$64.1 million U.S. dollars in absolute terms (based on sample firm average profits of \$2.18 billion U.S. dollars). The lag in ROA is consistent with the delay in positive outcomes to restructuring found by Lamont *et al.* (1994). However, contrary to Hypothesis 2, reconfigurations generate small penalties. With Tobin's Q, the coefficient is negative in Models 2 ($\theta = -0.005$, $p-$value = 0.090) and 3 ($\theta = -0.004$, $p-$value = 0.10), and this effect is corroborated with ROA 3–5 years later in Model 5, four and five years later in Model 6 ($\theta_{t-4} = -0.001$, $p-$value = 0.025; $\theta_{t-5} = -0.002$, $p-$value = 0.008). The latter results mean each additional reconfiguration entails a 0.27 percent decrease in Tobin's Q and a 0.04 percent decrease in ROA (close to \$1 million U.S. dollars profits on average), *ceteris paribus*. The lagged negative effects suggest delay in the disruptive repercussions of piecemeal change.

Hypotheses 3 and 4 test for the effects of highly dynamic environments. In line with Hypothesis 3, restructuring is negatively associated with

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Table 1. Descriptive statistics and bivariate correlations matrix

	Mean	S.D.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. ROA	0.07	0.06	−0.24	0.34	1.00													
2. Tobin's Q	1.47	1.20	0.35	9.96	0.60	1.00												
3. Restructuring	0.15	0.35	0.00	1.00	−0.03	−0.01	1.00											
4. Restructuring t – 1	0.16	0.36	0.00	1.00	−0.02	−0.00	−0.09	1.00										
5. Restructuring t – 2	0.17	0.37	0.00	1.00	−0.07	−0.01	−0.03	−0.10	1.00									
6. Restructuring t – 3	0.16	0.37	0.00	1.00	−0.08	0.00	−0.03	0.03	−0.09	1.00								
7. Restructuring t – 4	0.16	0.37	0.00	1.00	−0.04	0.01	0.01	−0.02	0.03	−0.08	1.00							
8. Restructuring t – 5	0.15	0.36	0.00	1.00	0.02	0.01	−0.01	0.01	−0.01	0.02	−0.10	1.00						
9. Reconfigurations	4.08	3.45	0.00	25.00	−0.02	0.02	0.18	−0.01	−0.02	−0.01	0.01	0.01	1.00					
10. Reconfigurations t – 1	4.19	3.49	0.00	25.00	0.01	0.03	−0.05	0.17	−0.02	−0.02	−0.02	0.02	0.27	1.00				
11. Reconfigurations t – 2	4.24	3.46	0.00	25.00	−0.02	0.01	0.02	−0.05	0.18	−0.02	−0.02	−0.02	0.29	0.27	1.00			
12. Reconfigurations t – 3	4.26	3.47	0.00	25.00	−0.04	0.01	−0.00	0.01	−0.05	0.18	−0.01	−0.02	0.23	0.28	0.27	1.00		
13. Reconfigurations t – 4	4.18	3.53	0.00	25.00	−0.09	−0.00	−0.01	−0.00	0.02	−0.04	0.18	−0.03	0.22	0.23	0.29	0.27	1.00	
14. Reconfigurations t – 5	4.14	3.53	0.00	25.00	−0.08	−0.02	0.01	−0.04	0.02	0.01	−0.04	0.18	0.22	0.24	0.25	0.29	0.27	1.00
15. Envt. dynamism	0.04	0.04	0.00	0.64	0.00	−0.05	−0.03	0.01	−0.00	−0.05	−0.06	−0.07	0.14	0.11	0.10	0.11	0.13	0.14
16. Envt. dynamism t – 1	0.03	0.03	0.00	0.35	0.01	−0.05	−0.01	−0.03	−0.00	−0.00	−0.06	−0.06	0.13	0.14	0.12	0.09	0.11	0.15
17. Envt. Dynamism t – 2	0.03	0.03	0.00	0.35	0.02	−0.05	0.01	−0.01	−0.04	0.01	−0.03	−0.07	0.06	0.13	0.15	0.12	0.10	0.13
18. Envt. dynamism t – 3	0.03	0.03	0.00	0.35	0.04	−0.06	−0.03	0.01	−0.01	−0.04	−0.01	−0.05	0.07	0.06	0.13	0.16	0.13	0.11
19. Envt. dynamism t – 4	0.03	0.03	0.00	0.35	0.03	−0.07	0.00	−0.02	0.02	−0.01	−0.04	−0.02	0.11	0.07	0.05	0.14	0.16	0.13
20. Envt. dynamism t – 5	0.04	0.04	0.00	0.35	0.03	−0.07	−0.06	0.01	−0.02	0.02	−0.00	−0.04	0.02	0.12	0.05	0.06	0.14	0.17
21. ROA t – 1	0.07	0.06	−0.24	0.34	0.61	0.56	−0.02	−0.03	−0.02	−0.06	−0.08	−0.05	−0.01	−0.02	0.01	−0.01	−0.03	−0.08
22. Tobin's Q t – 1	1.45	1.20	0.31	9.96	0.57	0.94	−0.01	−0.01	−0.00	−0.01	0.01	0.02	0.02	0.03	0.02	0.01	0.01	−0.00
23. Industry group ROA	0.07	0.04	−0.05	0.15	0.52	0.37	0.04	−0.03	−0.08	−0.06	−0.01	0.06	0.08	0.06	0.02	0.01	−0.02	−0.05
24. Industry group Tobin's Q	1.58	0.94	0.51	5.32	0.25	0.49	0.04	0.01	0.01	−0.01	−0.01	−0.01	0.18	0.17	0.16	0.14	0.11	0.11
25. Debt ratio	0.27	0.13	0.01	0.67	−0.21	−0.19	0.02	0.01	0.01	0.00	−0.03	−0.04	−0.01	0.02	0.05	0.04	0.03	0.02
26. Diversifcation change t – 1 to t 0	0.08	0.15	0.00	1.71	−0.03	0.01	0.02	−0.01	−0.04	0.06	0.02	−0.01	0.02	0.08	0.05	0.06	0.00	0.04
27. Internationalization change t – 1 to t 0	0.02	0.03	0.00	0.26	−0.06	−0.02	−0.02	0.00	0.03	0.01	0.02	−0.00	0.00	0.00	0.01	−0.03	0.00	−0.01
28. Size change (empl.) t – 1 to t 0	8.58	19.41	0.00	344.00	−0.06	−0.04	0.02	0.07	−0.00	0.06	−0.01	−0.02	0.10	0.03	−.01	0.01	0.01	−0.02
29. Size (employee, log)	4.31	0.89	1.89	6.63	−0.12	−0.08	0.02	0.00	0.01	−0.00	0.01	0.01	0.14	0.13	0.13	0.12	0.12	0.13
30. CEO succession	0.15	0.36	0.00	1.00	−0.05	0.00	0.25	−0.08	0.01	−0.00	0.00	−0.04	0.13	−0.00	0.01	0.02	0.02	−0.01

	Mean	S.D.	Min	Max	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
15. Envt. dynamism	0.04	0.04	0.00	0.64	1.00															
16. Envt. dynamism t – 1	0.03	0.03	0.00	0.35	0.71	1.00														
17. Envt. dynamism t – 2	0.03	0.03	0.00	0.35	0.41	0.72	1.00													
18. Envt. dynamism t – 3	0.03	0.03	0.00	0.35	0.22	0.42	0.72	1.00												
19. Envt. dynamism t – 4	0.03	0.03	0.00	0.35	0.05	0.23	0.41	0.72	1.00											

Table 1. Continued

	Mean	S.D.	Min	Max	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
20. Envt. dynamism t − 5	0.04	0.04	0.00	0.35	−0.02	0.05	0.23	0.42	0.72	1.00										
21. ROA t − 1	0.07	0.06	−0.24	0.34	0.01	0.00	0.01	0.02	0.03	0.02	1.00									
22. Tobin's Q t − 1	1.45	1.20	0.31	9.96	−0.06	−0.05	−0.04	−0.05	−0.07	−0.07	0.58	1.00								
23. Industry group ROA	0.07	0.04	−0.05	0.15	0.02	0.04	0.07	0.08	0.05	0.02	0.38	0.34	1.00							
24. Industry group Tobin's Q	1.58	0.94	0.51	5.32	−0.02	−0.01	−0.03	−0.05	−0.05	−0.04	0.23	0.47	0.51	1.00						
25. Debt ratio	0.27	0.13	0.01	0.67	−0.01	−0.01	−0.02	0.00	0.03	0.02	−0.16	−0.18	−0.18	−0.11	1.00					
26. Diversifcation change t − 1 to t 0	0.08	0.15	0.00	1.71	0.13	0.07	0.04	−0.02	0.03	−0.02	−0.01	−0.02	0.01	0.11	0.03	1.00				
27. Internationalization change t − 1 to t 0	0.02	0.03	0.00	0.26	0.01	0.03	−0.05	−0.02	−0.00	−0.03	−0.02	−0.02	−0.01	−0.01	0.02	0.15	1.00			
28. Size change (empl.) t − 1 to t 0	8.58	19.41	0.00	344.00	−0.01	−0.04	−0.07	−0.04	−0.03	−0.08	−0.06	−0.05	−0.01	0.00	0.08	0.17	0.12	1.00		
29. Size (employee, log)	4.31	0.89	1.89	6.63	−0.10	−0.10	−0.08	−0.07	−0.06	−0.05	−0.06	−0.07	−0.05	−0.04	0.07	−0.03	−0.08	0.33	1.00	
30. CEO succession	0.15	0.36	0.00	1.00	0.04	0.01	−0.01	−0.01	−0.00	−0.07	−0.03	−0.02	0.01	0.03	0.07	0.07	0.03	−0.00	0.03	1.00

performance in highly-dynamic environments: in Model 3 with the Tobin's Q (τ = -2.432, p-value = 0.001); in Model 6 with ROA, three and four years later (τ_{t-3} = -0.891, p−value = 0.026, τ_{t-4} = -4.745, p−value = 0.020). The economic effect of these estimates is not trivial. *Ceteris paribus*, when the degree of environmental dynamism is one standard deviation above the mean (high), firms which restructure will incur a 4.20 percent Tobin's Q decrease and a 2.62 percent ROA decrease (profits decrease by $57.1 million U.S. dollars on average). Conversely, *ceteris paribus*, firms that restructure when environmental dynamism is one standard deviation below the mean (i.e., in more stable environments), see a 6.59 percent Tobin's Q increase and a 2.87 percent ROA increase (a $62.6 million U.S. dollars profit increase on average). In short, high environmental dynamism reverses the general case for restructuring (for the full range of interaction effects, see online Appendix S2a/S2b).

Hypothesis 4 is supported with ROA but not with Tobin's Q. In Model 3 (Tobin's Q), the interaction between environment dynamism and reconfigurations is positive, as theorized, but not significant. However, in Model 6, there is indeed a positive relationship with the ROA (τ_{-2} = 0.028, p-value = 0.024; τ_{-3} = 0.048, p-value = 0.007). Thus, *ceteris paribus*, when environmental dynamism and the number of reconfigurations are high (one standard deviation above the mean), a firm's ROA increases by 0.44 percent, that is, profits increase by $9.6 million U.S. dollars on average. But in stable environments (at one standard deviation below the mean), reconfiguring at the same rate reduces ROA by 0.30 percent, that is, $6.5 million U.S. dollars profits decrease on average (for the full range of interaction effects, see online Appendix S3). As expected given the scale of reconfigurations, again these effects are much smaller than for restructuring, though by no means negligible financially.

Our results are broadly consistent across both performance measures, except for the lack of support of Hypothesis 4 with the Tobin's Q. We also performed sensitivity checks for our two main independent variables. First, we removed portfolio-type reconfigurations (acquired and divested units) in case portfolio changes affect performance differently. As online Appendix S4a/S4b show, the results for the remaining reconfigurations stay broadly consistent, which suggests reconfiguration

Table 2. Dynamic panel model estimation (System GMM) of the impact of restructuring and reconfigurations on Tobin's Q

	Model 1	Model 2	Model 3
Explanatory variables			
Restructuring		0.007 (0.016) [0.659]	0.099 (0.020) [0.000]
Reconfigurations		−0.005 (0.003) [0.090]	−0.004 (0.002) [0.100]
Environmental dynamism		0.105 (0.146) [0.472]	0.372 (0.132) [0.005]
Restructuring × Envt. dynamism			−2.432 (0.713) [0.001]
Reconfigurations × Envt. dynamism[a]			0.019 (0.055) [0.731]
Control variables			
Tobin's Q in t − 1	0.937 (0.010) [0.000]	0.935 (0.009) [0.000]	0.934 (0.009) [0.000]
Tobin's Q of industry group	0.057 (0.020) [0.004]	0.057 (0.019) [0.003]	0.058 (0.018) [0.001]
Debt ratio	−0.148 (0.072) [0.041]	−0.149 (0.072) [0.039]	−0.146 (0.076) [0.054]
Diversification change	0.182 (0.040) [0.000]	0.186 (0.039) [0.000]	0.209 (0.042) [0.000]
Internationalization change	0.235 (0.274) [0.390]	0.238 (0.258) [0.356]	0.266 (0.253) [0.293]
Size change	0.001 (0.000) [0.002]	0.001 (0.000) [0.000]	0.001 (0.000) [0.000]
CEO change	−0.025 (0.018) [0.175]	−0.022 (0.019) [0.248]	−0.030 (0.018) [0.098]
Size (log transformed)[a]	−0.011 (0.007) [0.115]	−0.007 (0.007) [0.330]	−0.010 (0.007) [0.166]
Time dummies	YES	YES	YES
Arellano-Bond Test: AR(2) for serial correlation[b]	0.04	−0.02	−0.03
Hansen test of overidentifying restrictions[c]	22.09	20.78	20.59
Difference in Hansen test of exogeneity of instruments (GMM instr. for levels)[d]	21.56	20.36	20.20
Wald Chi^2	655,465	661,688	1,390,000
$p > chi^2$	0.000	0.000	0.000
Number of instruments	45	48	50
N	869	869	869

[a] Variable centered to the mean to alleviate effect of multicollinearity.
[b] The $p-$value of the AR(2) test for autocorrelation in the error structure is never significant in Tables 2 and 3. This means we can confidently reject the null hypothesis of autocorrelation in the second-differenced errors, which means no lags of the dependent variable that are used as instruments are endogenous. The GMM estimator is therefore consistent.
[c] Since the $p-$values of this first Hansen test are never significant in Tables 2 and 3, we can conclude the instruments and lag structure we use are valid.
[d] The $p-$values of the second Hansen test are never significant in Tables 2 and 3, indicating the instruments are not correlated with the errors (exogeneity) and our models are correctly specified.
Robust standard errors are in parentheses. $P-$values are between brackets. Two-tailed tests.

performance is not typically driven by portfolio effects (the exception is that in dynamic environments, the impact of reconfigurations without the portfolio types becomes negative on Tobin's Q, but stays positive on ROA). Second, we conducted a sensitivity analysis around the 0.30 cut-off point for restructuring. Our results held for between 0.27 (adding 36 events, or 26.5 percent) and 0.33 (subtracting 23 events, or 16.9 percent) cut-off points, except for Model 6 (with interactions), where results were only consistent up to a 0.31 cut-off (subtracting 14 events, or 10 percent): elevating the cut-off beyond this point produces too few restructuring variables coded 1 compared to those coded 0 for the given N and number of instruments. Due to the leftward skewedness of the structural change ratio, we could not establish convincing relationships at lower cut-off points: Restructuring was diluted by too many small changes. In short, our results are consistent for Tobin's Q across a range of 113–172 events (an increment of 52.2 percent), and for ROA across a range of 122–172 events (an increment of 40.9 percent).

DISCUSSION AND CONCLUSION

This study contributes to dynamic capabilities theory by comparing for the first time the performance

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Table 3. Dynamic panel model estimation (System GMM) of the impact of restructuring and reconfigurations on ROA

	Model 4	Model 5	Model 6
Explanatory variables			
Restructuring t – 1		0.000 (0.004) [0.931]	−0.072 (0.045) [0.108]
Restructuring t – 2		−0.001 (0.004) [0.834]	−0.022 (0.019) [0.237]
Restructuring t – 3		0.009 (0.004) [0.019]	0.044 (0.017) [0.008]
Restructuring t – 4		0.009 (0.004) [0.018]	0.162 (0.067) [0.015]
Restructuring t – 5		0.009 (0.005) [0.080]	0.022 (0.021) [0.287]
Reconfigurations t – 1		0.000 (0.000) [0.546]	−0.001 (0.001) [0.252]
Reconfigurations t – 2		0.000 (0.000) [0.434]	0.000 (0.000) [0.258]
Reconfigurations t – 3		−0.001 (0.000) [0.038]	−0.000 (0.000) [0.927]
Reconfigurations t – 4		−0.001 (0.000) [0.003]	−0.001 (0.001) [0.025]
Reconfigurations t – 5		−0.001 (0.000) [0.032]	−0.002 (0.001) [0.008]
Envt. dynamism t – 1		−0.011 (0.030) [0.720]	−0.276 (0.220) [0.210]
Envt. dynamism t – 2		−0.088 (0.039) [0.023]	0.118 (0.113) [0.297]
Envt. dynamism t – 3		−0.010 (0.078) [0.898]	0.231 (0.118) [0.049]
Envt. dynamism t – 4		−0.028 (0.052) [0.583]	0.416 (0.195) [0.033]
Envt. dynamism t – 5		0.149 (0.052) [0.004]	−0.092 (0.124) [0.460]
(Restrg × Envt dynamism) t – 1			2.073 (1.336) [0.121]
(Restrg × Envt dynamism) t – 2			0.107 (0.388) [0.782]
(Restrg × Envt dynamism) t – 3			−0.891 (0.401) [0.026]
(Restrg × Envt dynamism) t – 4			−4.745 (2.033) [0.020]
(Restrg × Envt dynamism) t – 5			−0.507 (0.712) [0.476]
(Reconfigurations × Envt dyn.) t – 1[a]			−0.039 (0.026) [0.140]
(Reconfigurations × Envt dyn.) t – 2[a]			0.028 (0.012) [0.024]
(Reconfigurations × Envt dyn.) t – 3[a]			0.048 (0.018) [0.007]
(Reconfigurations × Envt dyn.) t – 4[a]			−0.009 (0.013) [0.498]
(Reconfigurations × Envt dyn.) t – 5[a]			0.024 (0.016) [0.133]
Control variables			
ROA t – 1	0.242 (0.050) [0.000]	0.175 (0.060) [0.004]	0.100 (0.102) [0.325]
ROA of industry group	0.571 (0.097) [0.000]	0.558 (0.100) [0.000]	0.717 (0.121) [0.000]
Debt ratio	−0.064 (0.019) [0.001]	−0.060 (0.020) [0.003]	−0.085 (0.024) [0.000]
Diversification change	−0.015 (0.009) [0.110]	−0.014 (0.008) [0.084]	0.010 (0.014) [0.492]
Internationalization change	−0.098 (0.042) [0.019]	−0.073 (0.045) [0.104]	−0.073 (0.061) [0.226]
Size change	0.000 (0.000) [0.098]	0.000 (0.000) [0.545]	0.001 (0.000) [0.075]
CEO change	0.002 (0.003) [0.587]	0.003 (0.003) [0.285]	0.001 (0.000) [0.840]
Size (log transformed)[a]	−0.007 (0.002) [0.001]	−0.005 (0.002) [0.028]	−0.007 (0.003) [0.026]
Time dummies	YES	YES	YES
Arellano-Bond Test: AR(2) for serial correlation	1.41	0.20	0.18
Hansen test of overidentifying restrictions	14.55	18.24	11.22
Difference in Hansen test of exogeneity of instruments (GMM instr. for levels)	13.96	18.21	14.04
Wald Chi^2	2,188	87,646	1,160,000
$p > chi^2$	0.000	0.000	0.000
Number of instruments	33	44	54
N	574	376	376

[a] Variable centered to the mean to alleviate effect of multicollinearity.
Robust standard errors are in parentheses. *P*−values are between brackets. Two-tailed tests.

implications of organizational restructuring and organizational reconfiguration (Capron and Karim, 2015; Eisenhardt and Brown, 1999). Generally, we find that restructurings are associated with positive outcomes, while reconfigurations are associated with negative outcomes (in both cases, with lags and variable significance across measures). These distinct outcomes for the two forms of reorganization may help explain the weak results found in earlier undifferentiated studies of reorganization and performance (Brickley and Van Drunen, 1990): future research should distinguish between forms of reorganization.

We also contribute to dynamic capabilities theory by supporting claims for the variability of performance outcomes according to environment (Brown and Eisenhardt, 1998; Eisenhardt and Martin, 2000; Galunic and Eisenhardt, 1996). As theoretically predicted, we find that restructurings are less effective in dynamic environments than in general, and that reconfigurations are more positive (at least on the ROA measure). Thus, in dynamic environments, outcomes tend to reverse the general case. This reversal contributes to the debate on the relevance of dynamic capabilities across different environments (Arend and Bromiley, 2009). Although both reconfigurations and restructurings can be dynamic capabilities (Teece, 2007), what matters is applying the right dynamic capability to the particular environment.

We comment now on some of the detail of our findings and the implications for underlying mechanisms. As can be expected given its more pervasive nature, restructuring has larger performance effects than reconfiguration, both in the general case and in dynamic environments. The delayed positive returns to restructurings in general may reflect the initial larger costs (Lamont *et al.*, 1994). The reason for delay in negative returns to restructuring in dynamic environments is unclear: perhaps the initial costs are at first balanced by the extent to which restructuring can temporarily catch-up with the required scale of change in those conditions, but the episodic nature of restructuring means that benefits are soon out-run. For reconfigurations, the negative returns in the general case suggest that the indirect costs in terms of disruption to routines and complementarities may indeed outweigh any benefits the organizational adjustment can produce (Karim and Mitchell, 2004; Whittington *et al.*, 1999). The lag in reconfiguration's negative returns may reflect the ability of organizations to temporarily sustain routines and complementary relationships through informal methods, facilitated by the restricted nature of reconfigurational change (Howard-Grenville, 2006; Kim, Oh, and Swaminathan, 2006). Restructuring's faster positive recovery may reflect the front-loading of the costs of radical but potentially complementary change; reconfiguration's eventual negative returns may reflect the gradual attenuation of informally persisting but beneficial routines and complementarities. The positive returns to reconfigurations in dynamic environments suggest that, consistent with Eisenhardt and Brown (1999), the advantages of continuous small changes in those conditions are greater than those of the larger but delayed changes associated with restructuring. In dynamic environments, the frequency of reconfiguration compensates for the smallness of the change, while restructuring is too episodic.

We acknowledge several limitations to this study. While prior studies do point to lagged performance outcomes on restructuring, theory is silent on possible lags for reconfiguration outcomes. Without further research, our explanation of ROA lags must be speculative; they could be attributable to unmeasured factors. Relatedly, we acknowledge that the long time lags used on the ROA measure could increase the risk of false positives (Goldfarb and King, 2016). However, we note the broad consistency with the Tobin's Q measure. Finally, because the costs and benefits of reorganizations are not separately observed, we cannot ascertain their respective roles. For instance, performance penalties could be caused by high benefits but even higher costs, or by very small benefits exceeded by larger costs.

With these caveats in mind, we nonetheless conclude that restructuring and reconfiguration appear to be distinct forms of reorganization, with different performance implications across environments. Managers need to choose carefully between these two forms of reorganization according to circumstance. In particular, they should recognize that the positive performance effects of restructurings in general may be reversed in dynamic environments, where continuous reconfigurations may offer them greater benefits in terms of pace of change.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Appendix S1. Examples of how we coded the restructuring variable with the triangulation of the quantitative and qualitative data.

Appendix S2. (a) Interpretation of the relationship between restructuring and Tobin's Q moderated by the degree of environmental dynamism (Hypothesis 3), *ceteris paribus*. (b) Interpretation of the relationship between restructuring and ROA moderated by the degree of environmental dynamism (Hypothesis 3), *ceteris paribus*.

Appendix S3. Interpretation of the relationship between reconfigurations and ROA moderated by the degree of environmental dynamism (H4), *ceteris paribus*.

Appendix S4. (a) Dynamic panel model estimation (System GMM) of the impact of restructuring, all reconfigurations and reconfigurations excluding acquired or divested units (recombinations) on Tobin's Q. (b) Dynamic panel model estimation (System GMM) of the impact of restructuring, all reconfigurations and reconfigurations excluding acquired or divested units (recombinations) on ROA.