SYNTHESIZING AND EXTENDING RESOURCE DEPENDENCE THEORY: A META-ANALYSIS

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Abstract

Resource dependence theory (RDT) has long been a premier framework for understanding organization-environmental relations, but an empirical synthesis of its predictions is still lacking. Using meta-analysis, we consolidate 147 tests of RDT and corroborate its main predictions: organizations respond to resource dependencies by forming interorganizational arrangements like interlocks, alliances, joint ventures, in-sourcing arrangements, and mergers and acquisitions. In turn, these arrangements make them more autonomous and more legitimate. We also extend RDT in three ways. First, we 'unpack' the theory by showing that the mechanisms linking arrangement formation to organizational autonomy and legitimacy differ across arrangements. Second, we address the question whether RDT is also a theory of organizational performance. We find that whereas autonomy positively mediates the relationship between arrangement formation and performance, legitimacy does not. This suggests that RDT can also explain organizational actions which have societal acceptance rather than economic performance as an ulterior motive. Third, we assess whether competition law is a boundary condition to RDT's prescriptions. Specifically, we show that the adoption of the horizontal merger guidelines in the U.S. has caused organizations to 'flee' from mergers to less regulated arrangements like alliances and joint ventures, and has hurt the profitability of the remaining mergers.

Keywords: Resource Dependence Theory; Meta-analysis; Alliances and Joint Ventures, Mergers and Acquisitions; Organizational Autonomy; Organizational Legitimacy; Organizational Performance.

INTRODUCTION

In their landmark publication *The External Control of Organizations* (1978), Pfeffer and Salancik codified and integrated many pre-existing ideas about the management of interorganizational interdependencies (Emerson, 1962; Pfeffer, 1972a, b, c; Pfeffer & Salancik, 1974; Thompson, 1967). Soon after it appeared in print, what they labeled Resource Dependence Theory (RDT) became "one of the most influential theories in organizational theory and strategic management" (Hillman, Withers, & Collins, 2009: 1404). RDT is premised on the notion that all organizations critically depend on other organizations for the provision of vital resources, and that this dependence is often reciprocal. The theory points to such interorganizational interdependencies to explain why formally independent organizations engage in different kinds of interorganizational arrangements, such as board interlocks, alliances, joint-ventures, in-sourcing, and mergers and acquisitions (Pfeffer & Salancik, 1978). In turn, these arrangements can help organizations cope with interdependencies by bolstering their autonomy (or freedom to make decisions without outside interference; Oliver, 1991a) and legitimacy (or presumption of propriety stemming from conformity to social guidelines; Suchman, 1995). The attractiveness of these ideas is exemplified by the fact that numerous scholars have used RDT as a central explanatory framework for the formation of interorganizational arrangements of various kinds (for recent narrative reviews, see: Davis & Cobb, 2010; Hillman et al., 2009; Pfeffer & Salancik, 2003).

Despite its status as a leading theory for understanding organization-environmental relationships, RDT is not as rigorously explored and tested as it could have been (Pfeffer & Salancik, 2003: xxxiii). More specifically, RDT is contested on both empirical and conceptual grounds (Casciaro & Piskorski, 2005; Davis & Cobb, 2010; Finkelstein, 1997). Empirically, the work of RDT scholars has not always produced consistent results. Numerous studies show that

resource dependencies indeed tend to result in the formation of interorganizational arrangements (e.g. Dussauge, Garrette, & Mitchell, 2000; Park, Chen, & Gallagher, 2002; Peng, 2004; Pfeffer, 1972b, c; Pfeffer & Nowak, 1976a). However, other studies report insignificant or counter-hypothesized findings (e.g. Koka & Prescott, 2008; Paruchuri, Nerkar, & Hambrick, 2006; Vermeulen & Barkema, 2001). Conceptually, RDT has been accused of confounding the theoretically separate dimensions of power imbalance (or the power differential between two organizations; Emerson, 1962) and mutual dependence (or the sum of the dependencies between two organizations; Emerson, 1962) in the single construct of interdependence (cf. Pfeffer & Salancik, 1978). According to Casciaro and Piskorski, such confounds make that to date RDT "is more of an appealing metaphor than a foundation for testable empirical research" (2005: 167). In short, the jury is still out in regards to RDT's potential for predicting interorganizational arrangement formation and its consequences.

Moreover, prior syntheses of RDT have primarily taken the form of narrative reviews, which interpret past research findings verbally or conceptually (e.g. Davis & Cobb, 2010; Hillman et al., 2009). Whereas narrative reviews are important sensemaking, integrating, and agenda-setting tools, they are also vulnerable to biased representations of a body of literature and easily lead to false inferences. This is because they do not correct for sampling error, and do not offer an inferential statistics-based synthesis of all available findings (Combs, Ketchen, Crook, & Roth, 2011). What is currently still lacking is a meta-analytical synthesis of the RDT literature, which quantitatively combines all the available empirical evidence (Hedges & Olkin, 1985) and which can be a "catalyst for the re-evaluation of established theories and the development of new theory" (Combs et al., 2011: 178).

In the present paper we report such a meta-analytic study, with which we seek to address the aforementioned empirical and conceptual critiques of RDT. Our study has three intended

contributions. First, we establish the balance of evidence concerning RDT's central predictions by employing meta-analytic techniques (Hedges and Olkin-type meta-analysis or HOMA; Hedges & Olkin, 1985) on a database containing the findings and characteristics of 140 published and 7 unpublished studies. Our findings provide aggregated, generalized evidence for RDT's main prediction, notably that resource dependencies – whether operationalized as power imbalance or as mutual dependence (cf. Casciaro & Piskorski, 2005) – give rise to interorganizational arrangement formation.

Second, we use meta-analytic structural equation modeling or MASEM (Aguinis, Dalton, Bosco, Pierce, & Dalton, 2011; Cheung & Chan, 2005) to establish the organizational outcomes associated with interorganizational arrangement formation. Our path model shows that such arrangements can help organizations improve their autonomy (e.g. Davis & Cobb, 2010; Oliver, 1991a) and legitimacy (Hillman et al., 2009; Pfeffer & Salancik, 1978). But while autonomy is also a mediating variable linking arrangement formation to organizational performance (cf. Keil, Maula, Schildt, & Zahra, 2008; Luo & Park, 2004; Vermeulen & Barkema, 2001), legitimacy is not. Arrangement formation can therefore also be seen as a legitimacy seeking strategy with societal propriety as its ulterior motive (Hillman et al., 2009).

Third, we employ meta-analytic regression analysis or MARA (Lipsey & Wilson, 2001; Stanley, Doucouliagos, & Jarrell, 2008) to uncover the boundary conditions of RDT. Since RDT's managerial prescriptions frequently stand in a tense relationship to prevailing antitrust rules, we test whether the theory's explanatory power is impacted by major changes in competition law. On a subsample of U.S. RDT studies, we find that the passing of stricter anti-merger legislation causes organizations to seek refuge in other, less regulated types of interorganizational arrangements, such as strategic alliances. Also, stricter anti-merger legislation

hurts the performance of subsequent mergers and acquisitions, possibly because of the frequent demands by anti-trust authorities to divest valuable assets.

THEORETICAL FOUNDATIONS AND HYPOTHESIS DEVELOPMENT

Resource Dependencies and Interorganizational Arrangement Formation

The main question addressed by RDT is: why do organizations enter into interorganizational arrangements? External dependencies, which in the contemporary business environment can stem from factors like increased product market competition because of globalization, limited credit supply due to the global financial crisis, and raw materials and energy shortages caused by geopolitical shifts in production factor demand, have caused organizations to search for measures helping them to restore some degree of control over their environments (Davis & Cobb, 2009). In the language of RDT: organizations are "constrained and affected by their environment and act to attempt to manage these resource dependencies by setting up different forms of interorganizational arrangements" (Pfeffer & Salancik, 2003: xxxiii). For resource dependence theoreticians, interorganizational arrangements are thus primarily seen as instruments for reducing power imbalances and for managing mutual dependencies (Casciaro & Piskorski, 2005) between the focal organization and those parties in its environment on whom it depends for critical resources (Pfeffer & Salancik, 1978). Implementing such arrangements enables organizations to set their boundaries "at the point that maximizes strategic control over crucial external forces" (Santos & Eisenhardt, 2005: 495; italics removed).

Resource dependence theoreticians have investigated a variety of interorganizational arrangements, each of which is accredited with the capacity to mitigate external resource dependencies. For example, board interlocks are conjectured to enhance the cooptation of and coordination with important resource providers, primarily by providing a conduit for the

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exchange of tacit or sensitive information and by providing greater social cohesion between the key decision makers representing the interlocked organizations (Mizruchi, 1996). Furthermore, alliances and joint ventures are expected to be formed to facilitate reliable and durable access to the knowledge and resources of partner organizations. They might also enhance a focal organization's opportunities for developing capabilities and launching new products without requiring corresponding investments in a complete and exhaustive resource base (Ahuja, 2000; Gulati, 1998). Similarly, interorganizational interdependencies have been identified as a key driver of mergers and acquisitions (Meyer, Estrin, Bhaumik, & Peng, 2009; Pfeffer, 1972b), as acquiring a resource supplier provides durable access to desired inputs, broadens an organization's knowledge base, and facilitates joint strategy formation and implementation. Finally, to avoid the integration and capacity problems that are commonly associated with mergers and acquisitions (Vermeulen & Barkema, 2001), organizations sometimes choose for the less invasive option of in-sourcing the production of necessary resources. Numerous empirical studies conducted under the banner of RDT have confirmed that resource dependencies are an antecedent to arrangements like interlocks (Ellstrand, Tihanyi, & Johnson, 2002), alliances (Dussauge et al., 2000; Park et al., 2002), joint ventures (Pfeffer & Nowak, 1976a), and mergers and acquisitions (Pfeffer, 1972b; Reuer & Ragozzino, 2006). We therefore suggest Hypothesis 1:

Hypothesis 1: Focal organizational resource dependencies are positively associated with the formation of interorganizational arrangements like interlocks, alliances, joint ventures, in-sourcing, and mergers and acquisitions.

Interorganizational Arrangement Formation and Organizational Autonomy

One of the premier motives a focal organization has to engage in interorganizational arrangements is to enhance its autonomy, commonly defined as its "freedom to make its own decisions about the use and allocation of its internal resources without reference or regard to the demands or expectations of potential linkage partners" (Oliver, 1991a: 944-945). Unmitigated resource dependencies negatively affect focal organizational autonomy, because they necessitate organizations to commit considerable time and resources to satisfying the demands of external resource controlling parties (Pfeffer & Salancik, 1978). Establishing interorganizational arrangements can then help focal organizations restore their autonomy (even though such attempts to restore autonomy are rarely completely effective, and tend to plant the seed for new patterns of interdependence; Hillman et al., 2009), as such arrangements can help stabilize the supply of critical resources and address power imbalances between organizations. In short, we expect interorganizational arrangement formation to be positively associated with organizational autonomy, even though the underlying mechanisms driving this association may differ across arrangement types.

We expect the autonomy enhancing effect to be strongest for less invasive types of interorganizational arrangements such as (contractual) alliances and interlocks, because these types can relatively effectively mitigate resource dependencies without creating excessive mutual dependencies between the focal organization and the external resource provider (cf. Casciaro & Piskorski, 2005). Alliances and interlocks can stabilize the supply of critical inputs for the focal organization by improving the compatibility of its organizational systems with those of the reource provider, by incentivizing the joint search for efficiency gains in the resource transfer process, and by surrounding the resource exchange relationship with appropriate and effective governance mechanisms (Dyer & Singh, 1998). At the same time, alliances and interlocks can

usually be terminated without grave (legal) consequences for the focal organization, because these "mechanisms extend the organization's sphere of influence without extending its legal boundaries" (Santos & Eisenhardt, 2005: 496). This allows organizations to preserve their strategic flexibility and autonomy, primarily by keeping the option to exit from the interorganizational arrangement open (Powell, 1990). See Hypothesis 2a:

Hypothesis 2a: The formation of interlocks and alliances is positively associated with focal organizational autonomy.

For different reasons, we also expect a positive effect of in-sourcing arrangements on organizational autonomy. In-sourcing addresses the problem of external resource dependencies directly by building an in-house capability for the provision of intermediary products or services for which the focal organization used to be dependent on resource providing parties in its environment (Lacity & Hirschheim, 1995; Lacity & Willcocks, 1998). It therefore does not bolster organizational autonomy by cementing an external resource provision relationship and making it more reliable or efficient (cf. Dyer & Singh, 1998; cf. Hypothesis 2a), but by a mechanism best captured by the logic of buffering (Thompson, 1967). According to this logic, organizations can mitigate the potential fluctuations and irregularities in the supply of critical inputs from their environment by internalizing their production, such that they can be inserted in the organization's primary production process when they are needed (Thompson, 1967). This offers the focal organization greater leeway over its internal resource allocation process, without having to cater to the demands of external parties (Oliver, 1991a). See Hypothesis 2b:

Hypothesis 2b: The formation of in-sourcing arrangements is positively associated with focal organizational autonomy.

A common response to external resource dependencies by focal organizations is to seek ownership-based arrangements with crucial resource providers. In the words of Pfeffer and Salancik: "One organizational response to interdependence is to absorb it. The available evidence on patterns of merger activity among industrial firms is consistent with this position" (1978: 139). Much like "nonownership mechanisms" (Santos & Eisenhardt, 2005: 496; italics removed) such as interlocks and alliances, "ownership mechanisms" (Santos & Eisenhardt, 2005: 496; italics removed) like joint ventures, mergers, and acquisitions can lead to relational advantages (Dyer & Singh, 1998). Ownership-based arrangements can be premier conduits for interorganizational learning (Meyer et al., 2009), they can stabilize resource supply relationships (Pfeffer, 1972b), and they foresee in hierarchical forms of governance which allow for the resolution of coordination and behavioral problems by fiat (Powell, 1990).

Yet we expect that the relationship between arrangement adoption and organizational autonomy will be decidedly weaker for ownership-based arrangements than for nonownership-based arrangements, for two interrelated reasons. First, ownership-based arrangements can only increase an organization's sphere of influence at the cost of semi-permanently extending its legal boundaries. Joint ventures, mergers, and acquisitions all call for substantial and largely irreversible equity commitments by the focal organization, depriving it of the possibility to easily recuperate these sunk investments and deploy them elsewhere. In other words, the creation of semi-permanent equity ties with resource providers produces "new patterns of dependence and interdependence" (Hillman et al., 2009: 1405) and limits the strategic flexibility of the focal organization (Santos & Eisenhardt, 2005). Second, over the past three decades, the strategic

evolution in many industries has moved away from dependence on a narrow range of resource providers "toward a broader set of resource relationships" (Hambrick, Finkelstein, Cho, & Jackson, 2005: 323). Under such conditions of increasing industry heterogeneity, organizations that lock themselves into semi-permanent exclusive relationships with a single resource provider reduce their own autonomy by restricting their ability to engage with a more varied set of resource providers. In sum, organizations that engage in ownership-based interorganizational arrangements might see their autonomy impeded as compared to those restricting themselves to nonownership-based arrangements. See Hypothesis 2c:

Hypothesis 2c: The formation of ownership-based arrangements like joint ventures and mergers and acquisitions will be more weakly associated with focal organizational autonomy than the formation of nonownership-based arrangements like interlocks and alliances.

Interorganizational Arrangement Formation and Organizational Legitimacy

RDT scholars have long been concerned with the effect of interorganizational arrangement formation on organizations' legitimacy, as perceived by critical constituents like business partners, investors, regulators, and clients (Certo, 2003; Hagedoorn & Duysters, 2002; Haunschild & Beckman, 1998; Pfeffer & Salancik, 1978; Puranam & Srikanth, 2007; Scott, 2001). Legitimacy is commonly defined as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995: 547). While legitimacy is generally seen to possess both strategic and institutional qualities (Suchman, 1995), we focus mainly on the

former, and see it as a productive resource that organizations can acquire by engaging in dependency reducing strategies (Deephouse & Suchman, 2008; Pfeffer & Salancik, 2003).

The formation of interorganizational arrangements can effectuate greater organizational legitimacy in three ways. First, the formation of such arrangements often takes the form of bandwagoning behavior shared by many competitors (Abrahamson & Rosenkopf, 1993), such that participation in arrangement formation can effectuate cognitive legitimacy (Suchman, 1995). Especially organizations facing environmental turmoil have a tendency to mimic one another, as accessing resources through tried and tested types of arrangements mitigates outcome uncertainty and stimulates societal taken-for-grantedness by increasing the overall level of isomorphism in the organizational population (DiMaggio & Powell, 1983; Heugens & Lander, 2009; Scott, 2001). Second, associations with external actors who themselves possess high levels of legitimacy can result in social support for the focal organization, as their legitimacy might 'rub off' on it (Baum & Oliver, 1991; Bitektine, 2011; Pfeffer & Salancik, 1978). For example, board interlocks and other affiliations with prestigious actors have been argued to help organizations undertaking an initial public offering overcome liabilities of market newness by conveying signals of legitimacy to investors (Certo, 2003; Pollock, Chen, Jackson, & Hambrick, 2010). Third, the confusion focal organizations with partial membership of multiple producer categories tend to create in the eyes of their audiences may be attenuated when they cooperate with actors who are singularly affiliated with one of these producer categories (Hsu, 2006; Rindova, Pollock, & Hayward, 2006). Such focal organizations with hybrid identities can thus improve their legitimacy by associating themselves with full members in legitimated categories (Hannan, 2010). In sum, we expect that the formation of interorganizational arrangements which establish a visible link between the focal organization and an external resource provider will have a positive effect on focal organizational legitimacy. See Hypothesis 3a:

Hypothesis 3a: The formation of interlocks, alliances, joint ventures, and mergers and acquisitions is positively associated with focal organizational legitimacy.

Not all resource dependency reducing strategies involve the creation of an externally perceivable tie with a resource-controlling organization, however. The case in point is the in-sourcing arrangement, which involves a focal organizational effort to build an in-house capability for the supply of crucial resources. In-sourcing may effectively mitigate focal-organizational resource dependencies, as it minimizes focal organizations' reliance on external parties (Lacity & Hirschheim, 1995; Lacity & Willcocks, 1998). Furthermore, such a substantive organizational response to resource dependencies may be perceived by external constituents as a desirable or proper way of dealing with external constraints, such that it can simultaneously constitute a symbolic response to institutional pressures (Pfeffer & Salancik, 1978). But since in-sourcing does not liaise the focal organization with external parties, it cannot be a conduit for legitimacy spillovers from legitimate outsiders to the focal organization. We therefore expect in-sourcing to be less strongly linked with focal organizational legitimacy than arrangement types that perceivably link the organization to influential outside resource providers. See Hypothesis 3b:

Hypothesis 3b: The formation of relatively inconspicuous arrangements for managing focal-organizational resource dependencies, like in-sourcing, will be less strongly associated with focal organizational legitimacy than the formation of highly visible arrangements, like interlocks, alliances, joint ventures, mergers, and acquisitions.

Organizational Autonomy, Legitimacy, and Performance

An open question at this point is whether RDT is also a theory of organizational performance. On the one hand, securing organizational autonomy (Thompson, 1967) and organizational legitimacy (Suchman, 1995) can be seen as ulterior motives in their own right. Two fundamental premises of RDT are that organizations purposely strive to avoid the loss of decision-making autonomy (Oliver, 1991a), and actively seek legitimacy in order to stabilize their relations with resource-providing parties beyond their formal control (Oliver, 1991b). This view highlights RDT's roots in organizational sociology, and gears it towards explaining patterns of organizational responsiveness to external demands and expectations. On the other hand, a substantial group of scholars have also incorporated an additional premise in RDT, notably that organizations are interest-driven and profit-seeking (e.g. Pfeffer, 1972b; Villalonga & McGahan, 2005; Weitz & Shenhav, 2000). This alternative view highlights RDT's congruence with organizational economics-based approaches, and frames it as a theory of strategic management capable of explaining performance differentials between organizations. In the present paper we confront these two views by assessing whether organizational autonomy and legitimacy are mediating variables between interorganizational arrangement formation and organizational performance, or whether the path towards performance stops at these two variables.

Oliver (1991a: 945-946) has identified three mechanisms that can possibly produce a positive association between organizational autonomy and performance. First, greater autonomy allows focal organizations to more effectively meet the demands of multiple resource providing parties simultaneously (cf. David, Bloom, & Hillman, 2007; Hambrick et al., 2005). Exercising this ability to meet multiple resource providers' concerns makes it more likely that they will jointly continue to make the resources under their control available to the focal organization on favorable terms. Second, a strong position of organizational autonomy provides focal

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organizations with the capacity they need to respond to future unforeseen contingencies. Such responsiveness can help focal organizations maintain their relationships with important exchange partners when these relationships are threatened by salient issues (Ingram & Simons, 1995). Third, the relationship between resource provider and focal organization is typically vulnerable to problems involving self-benefiting actions like free riding and hold up on behalf of the former, to the detriment of the latter (Ketchen & Hult, 2007). The more autonomous the position of the focal organization, however, the more likely it is that the temptation towards self-serving behaviors on behalf of such resource providers can be overcome. In short, we expect that, to the extent that interorganizational arrangement formation gives rise to greater focal organizational autonomy (cf. Hypotheses 2a and 2b), this autonomy in turn will provide additional opportunities for bettering focal organizational performance. See Hypothesis 4a:

Hypothesis 4a: The relationship between interorganizational arrangement formation and focal organizational performance is positively mediated by focal organizational autonomy.

Furthermore, three arguments support the view that legitimate organizations are better able than their deviant counterparts to better their performance by attracting resources of higher quality and at more favorable terms (Heugens & Lander, 2009). First, resource providers prefer to liase with organizations of impeccable social standing, because such linkages tend not to threaten their reputation for sound judgment (Baum & Oliver, 1991). Second, legitimate focal organizations almost by definition have strategies that are seen as "rational" against the background of prevailing institutional logics, which buttresses the confidence they muster from resource providers (Deephouse, 1999). Third, focal organizations that are seen as legitimate are

also seen as understandable and reliable (Meyer & Rowan, 1977), such that resource providers tend to think of them as less prone to failure because of unanticipated risks. In sum, we expect that when the formation of interorganizational arrangements effectuates greater focal organizational legitimacy (cf. Hypothesis 3a), this legitimacy will subsequently contribute to stronger focal organizational performance. See Hypothesis 4b:

Hypothesis 4b: The relationship between interorganizational arrangement formation and focal organizational performance is positively mediated by focal organizational legitimacy.

Moderating Effects of Antitrust Legislation

While RDT theoreticians see interorganizational arrangements like joint ventures and mergers and acquisitions as important instruments for mitigating resource dependencies, antitrust authorities have long looked upon such arrangements with suspicion. In particular, they see them as having the potential to reduce market competition by enhancing the market power of the liaising parties, and by dulling the pressure of competitive processes like quality-based differentiation and price wars (Pfeffer & Nowak, 1976b). The possible consequences of such anti-competitive behaviors, to which antitrust authorities are particularly alert, are that consumers are presented with dead-weight losses due to monopolistic pricing and with slowing product innovation due to underinvestment in research and development (Shapiro, 2010). National governments like that of the U.S. and supranational institutions like the European Commission (EC) have therefore long been keen to prevent corporate positions of market dominance by regulating the formation of interorganizational arrangements through antitrust legislation.

While all interorganizational arrangements can in principle be used as vehicles for collusion, antitrust legislation is primarily intended to prevent the formation of positions of market dominance through mergers and acquisitions. Primary studies suggest that while the passing of the Celler-Kefauver amendment to Section 7 of the Clayton Antitrust Act in 1950 in the U.S. was meant to reduce the number of horizontal mergers that would "substantially lessen competition, or tend to create a monopoly" (Matsusaka, 1996: 286), it also resulted in a reduction of the number of vertical mergers (Finkelstein, 1997; Pfeffer & Nowak, 1976b). The act prohibited the acquisition of competitors' assets, even those that did not have anti-competitive potential, thus reducing the number of potentially value-creating interorganizational arrangements formed. To correct for this unwanted side-effect, the U.S. government introduced the Hart-Scott-Rodino Antitrust Improvements Act in 1976, ensuring a thirty-day waiting period following a proposed merger. During this period, the Federal Trade Commission assesses whether the proposed transaction is acceptable under prevailing antitrust legislation and thus has no grave anticompetitive implications. With the passing of this Act, Congress hoped to only reduce the number of mergers with antitrust implications, while allowing for mergers with a positive impact on national competitiveness and innovativeness. New guidelines were introduced in 1992, when the Bush Sr. administration wanted to further enhance the competitiveness of the U.S. economy by making it even more difficult to engage in anticompetitive mergers, while still allowing universal, pro-competitive mergers.

We expect that the passing of stricter antitrust provisions, which tend to be focused primarily on preventing collusion through mergers and acquisitions, has two complementary effects. First, we expect it to result in a diminished popularity of mergers and acquisitions as vehicles for mitigating resource dependencies. Second, other types of interorganizational arrangements, which tend to be less strictly regulated, are likely to be used as substitutes for

mergers and acquisitions (cf. Hillman et al., 2009). Thus, we expect to observe an increase in the adoption rate of other interorganizational arrangement types as antitrust provisions become tighter, as organizations try to reduce their resource dependencies using strategies that are less dependent on the approval of antitrust authorities. See Hypotheses 5a and 5b[1]:

Hypothesis 5a: The relationship between focal organizational resource dependencies and the formation of mergers and acquisitions is negatively moderated by the passing of stricter antitrust legislation.

Hypothesis 5b: The relationship between focal organizational resource dependencies and the formation of interlocks, alliances, and joint ventures is positively moderated by the passing of stricter antitrust legislation.

Anti-trust legislation does not only affect the formation of interorganizational arrangements, however, but also their profitability (Luo, 2005). Recent research has demonstrated that legal institutions affect liaising organizations' market share and financial returns (Carney, Gedajlovic, Heugens, van Essen, & van Oosterhout, 2011; Ellis, Reus, & Lamont, 2009). More in particular, when organizations are obliged by law to divest synergetic parts of an acquired target or to invest heavily in meeting new compliance demands, extra costs and losses result and lucrative investment opportunities have to be foregone (Hitt & Ireland, 1985). We therefore expect to observe that when antitrust provisions become stricter, the profitability of mergers and acquisitions will decline. Furthermore, stricter antitrust legislation regulating merger and acquisition activity may also result in organizations exerting greater effort to extract relational advantages from substitute arrangements like interlocks and alliances (cf.

Dyer & Singh, 1998). This move away from exclusive and semi-permanent ownership-based arrangements like mergers and acquisitions towards more inclusive and temporary nonownership-based arrangements like interlocks and alliances can result in substantive benefits for focal organizations. Exploring such substitute arrangements allows them to enlarge both their strategic flexibility (Santos & Eisenhardt, 2005) and their capacity for dealing with increasingly heterogeneous resource dependencies (Hambrick et al., 2005). We therefore also expect to find that stricter antitrust provisions will increase the profitability of interorganizational arrangement types other than mergers and acquisitions. See Hypotheses 6a and 6b:

Hypothesis 6a: The relationship between merger and acquisition formation and focal organizational performance is negatively moderated by the passing of stricter antitrust legislation.

Hypothesis 6b: The relationship between interlock, alliance and joint venture formation and focal organizational performance is positively moderated by the passing of stricter antitrust legislation.

DATA AND METHODS

Literature Search

To identify primary studies on RDT, we used four complementary literature retrieval procedures. First, we explored eight electronic databases: ABI/INFORM Global, Blackwell Synergy, EBSCO, EconLit, Google Scholar, ISI Web of Knowledge, JSTOR and SSRN. We used the following keywords: "resource dependence (theory)," "environmental uncertainty," "interlock," "alliance," "joint venture," "in-sourcing," "merger and/or acquisition," "autonomy,"

"legitimacy," and "performance." Second, we conducted a manual search of all articles published from 1999 to 2009 in nine top-tier journals: *Academy of Management Journal, Administrative Science Quarterly, American Journal of Sociology, American Sociological Review, Journal of Management, Journal of Management Studies, Organization Science, Organization Studies,* and *Strategic Management Journal.* Third, we examined the reference lists of all previously identified articles to identify further related studies. Fourth, we corresponded via e-mail with the authors of all studies represented in the primary data set, asking them to send us related published and unpublished work. As several of our initial studies did not report effect size data, we asked the authors of these studies whether they would be willing to send us effect size information in the form of a correlation table. Since a considerable number of these studies were over a decade old, many authors reported that the original data sets had been lost. Nevertheless, one of the authors managed to send us a correlation table, bringing our final sample up to 147 studies (see the Appendix for bibliographic information).

Criteria for Inclusion

We used two heuristics to decide which studies to include in the meta-analysis (Hedges & Olkin, 1985). First, a study had to report relationships between resource dependence and interorganizational arrangement formation, or between arrangement formation and organizational autonomy, legitimacy, or performance. It was not necessary for these relationships to be the main theoretical focus of the primary study to be included in our meta-analysis, only that a correlation between the variables of interest should be available. Second, a study had to report sample sizes as well as effect size estimates (Hunter & Schmidt, 2004; Lipsey & Wilson, 2001). When a study reported separate effect sizes for multiple dimensions of a construct (e.g. when a study reported effects on both the market and accounting dimensions of performance), we included each effect

in the analysis on account of it reflecting a separate dimension. The effect size data used in this study are Pearson product-moment correlation coefficients. Table 1 summarizes definitions for our core constructs, as well as a set of representative operationalizations.

Insert Table 1 about here

HOMA Procedure

To compile the meta-analytic correlation table necessary for testing Hypotheses 1, 2a-c, 3a and b, and 4a and b through MASEM, we used HOMA (Hedges & Olkin, 1985). Whereas in the behavioral branches of the management field artifact-correcting meta-analytical techniques are currently more popular (cf. Hunter & Schmidt, 2004), we apply HOMA because a large majority of our included primary studies relies on archival data. When primary studies are not affected by statistical artifacts like range restriction and psychometric measurement error, HOMA is the more parsimonious and robust alternative, as it merely corrects effect sizes for sample size-related differences in precision (Geyskens, Krishnan, Steenkamp, & Chunha, 2009). We also correct for skewness in the effect size distribution by applying Fisher's *z*-transformations[2] (Geyskens et al., 2009; Lipsey & Wilson, 2001). To make our analyses less sensitive to outliers, we furthermore winsorized the effect size distribution (Lipsey & Wilson, 2001) by bringing back effect sizes that were more than 3.0 standard deviations away from the mean correlation to that cut-off point.

When applying HOMA, meta-analysts furthermore have to make a choice for either fixed or random effects-based approaches for computing mean effect sizes. Like in most other meta-analyses of 'macro' theories (Combs et al., 2011), the heterogeneity of our effect size distribution is substantial, such that the retrieved mean effect size is best interpreted as an average rather than

as a common true correlation value (Hedges & Olkin, 1985: 235). Under these conditions, random effects models must be preferred over fixed effects approaches, as the former yield more conservative estimates of the focal effect with more realistic Type II error rates (Geyskens et al., 2009; Lipsey & Wilson, 2001).

When studies offer multiple operationalizations of focal constructs like resource dependence or organizational performance, a single study might offer multiple estimates of the same focal effect. Meta-analysts then face a decision whether to separately include all estimates in the analysis or represent each individual study by a single value, such as an average or a single-best indicator. Monte Carlo studies show that meta-analysts ought to prefer completeness of information over stochastic independence of effect sizes, as meta-analyses that contain all measurements of the focal effect tend to outperform procedures representing studies by a single value in crucial aspects like mean effect estimation accuracy and confidence interval computation precision (Bijmolt & Pieters, 2001).

We check for the robustness of our HOMA results in three ways. First, to diagnose whether stochastical dependencies between effect sizes affected the focal relationship, we tested whether the meta-analytic mean for studies reporting only a single effect size differed from that retrieved from studies reporting multiple effects. Second, to detect any moderating effects attributable to differences in operationalization of the independent variable across studies, we separate resource dependence measures into those capturing *power imbalance* and those capturing *mutual dependence* (Casciaro & Piskorski, 2005). Third, to detect possible moderating effects related to differences in operationalization of the dependent variable across studies, we separate organizational performance into *accounting-based performance* (e.g. measured as ROA, ROE, ROI) and *market-based performance* (e.g. measured as cumulative abnormal returns, Tobin's Q, and market-to-book ratio).

MASEM Procedure

To test Hypotheses 1, 2a-c, 3a and b, and 4a and b, we relied on MASEM (Cheung &

Chan, 2005; Viswesvaran & Ones, 1995), which uses a two-stage procedure. First, mean

correlations between variables of interest are established through separate HOMA analyses.

Second, structural equations modeling is applied on the matrix of mean correlations, using full

information maximum likelihood estimation routines (Cheung & Chan, 2005). A key advantage

of MASEM is that it can properly test a system of equations in which key variables act both as

dependent and as independent variables (which is the case in our study with the

interorganizational arrangement formation variables), while accounting for the influence of

control variables and correcting for simultaneity biases (Geyskens et al., 2009).

In our system of equations, we incorporated four control variables, which capture

frequently used alternative explanations for interorganizational arrangement formation and

organizational performance. First, we control for *organization size*, as larger organizations are

likely to be more frequently involved in interorganizational arrangements and may be able to

create and appropriate more value through economies of scale and market power (Agardi &

Bauer, 2008; Merchant & Schendel, 2000). Second, we include *organization age*, as

organizations in the earlier stages of their life-cycle need to offset greater resource dependencies,

such that they possibly benefit more from interorganizational linkages than more mature firms

(Jawahar & McLaughlin, 2001; Stuart, 2000). Third, we incorporate the *debt/equity ratio*,

primarily because differences in organizations' capital structures are known to affect their

choices between various types of interorganizational arrangements and to influence their

performance through the mechanism of leverage (Iyer & Miller, 2008; Pfeffer, 1972c). Fourth,

we control for *prior ties*, as prior tie formation expedites subsequent interorganizational

arrangement formation and focal organizational performance through partner-specific and

generic learning (Brannick, 1995; Kale, Dyer & Singh, 2002; Zollo, Reuer & Singh, 2002). We estimate our path model using the following eight equations:

(1)   Interlock = β_1 resource dependence + β_2 age + β_3 size + β_4 prior ties + ε

(2)   Alliance = β_5 resource dependence + β_6 age + β_7 size + β_8 prior ties + ε

(3)   Joint venture = β_9 resource dependence + β_{10} age + β_{11} size + β_{12} prior ties + ε

(4)   In-sourcing = β_{13} resource dependence + β_{14} age + β_{15} size + β_{16} prior ties + ε

(5)   Merger = β_{17} resource dependence + β_{18} age + β_{19} size + β_{20} prior ties + ε

(6)   Organizational autonomy = β_{21} resource dependence + β_{22} age + β_{23} size + β_{24} prior ties + β_{25} debt/equity ratio + β_{26} interlock + β_{27} alliance + β_{28} joint venture + β_{29} in-sourcing + β_{30} merger + ε

(7)   Organizational legitimacy = β_{31} resource dependence + β_{32} age + β_{33} size + β_{34} prior ties + β_{35} debt/equity ratio + β_{36} interlock + β_{37} alliance + β_{38} joint venture + β_{39} in-sourcing + β_{40} merger + ε

(8)   Organizational performance = β_{41} resource dependence + β_{42} age + β_{43} size + β_{44} prior ties + β_{45} debt/equity ratio + β_{46} interlock + β_{47} alliance + β_{48} joint venture + β_{49} in-sourcing + β_{50} merger + β_{51} organizational autonomy + β_{52} organizational legitimacy + ε

We tested this system of equations in LISREL 8.80. To account for sample size differences across the various cells of the meta-analytic correlation table, we used the harmonic mean sample size as the overall sample size of our analyses ($N = 9,840$), which is less sensitive to outliers and more conservative than the arithmetic mean sample size.

Procedure for Moderator Analysis

To test Hypotheses 5a and b and 6a and b, we used MARA (Lipsey & Wilson, 2001). This technique is designed to assess the relationship between effect size and moderator variables by modeling heterogeneity in the effect size distribution (Lipsey & Wilson, 2001). In MARA, effect sizes are weighted by the inversed variance weight w to account for differences in precision (Hedges & Olkin, 1985). MARA is a modified type of WLS regression, which prevents statistical analysis programs from interpreting these weights as "representing multiple effect sizes rather than weightings of single effect sizes" (Lipsey & Wilson, 2001: 122). As scholars are concerned about the inaccuracy of fixed-effects models (Geyskens et al., 2009), we use a more conservative mixed-effects specification, which attributes effect size variability to systematic between-study differences, firm-level sampling error, and an unmeasured random component (Lipsey & Wilson, 2001). The MARA analyses reported here are conducted on a subsample containing only U.S. data, for reasons explained in Footnote 1.

In our analysis we included 10 dummy variables, each capturing a specific type of interorganizational arrangement during the era in which a certain antitrust act was in place. To assign each longitudinal sample to a unique era, we computed the median sample year for each sample, and assigned it to the era encompassing that year. The first two dummy variables capture interlocks and mergers and acquisitions in the 1950 – 1975 era. They capture the moderating effect of the passing of the 1950 Celler-Kefauver Amendment to the Clayton Antitrust Act of 1914 on the relationships between focal organizational resource dependencies and interorganizational arrangement formation (cf. Hypotheses 5a and b) and between arrangement formation and focal organizational performance (cf. Hypotheses 6a and b). For this first era, we could not include dummy variables for alliance and JV formation, due to a lack of available effect sizes. The next four dummy variables code for arrangement type during the 1976 – 1991

era, which commenced with the passing of the Hart-Scott-Rodino Act in 1976. Our last four dummy variables denote arrangement types during the 1992 to present day era, which started with the 1992 passing of modernized antitrust guidelines by the Bush Sr. administration. For our arrangement type dummy variables, we always use in-sourcing as the reference category (also see Footnote 1).

We furthermore included two sets of dummy variables to control for substantive factors: (1) *Organizational type*: "public" and "private or mixed" (reference category), to test for the moderating effect of transacting with agencies of the state (DiMaggio & Powell, 1983; Heugens & Lander, 2009; Tolbert, 1985); and (2) *Industry type*: "manufacturing," "technology," "services," or "mixed" (reference category), to assess whether the associational strength of our two focal relationships differed between industries.

Finally, we included seven methodological moderators, to assess whether differences in studies' research methods and publication characteristics explained additional heterogeneity in the effect size distribution: (1) *Observation plan*: "cross-sectional" or "longitudinal" (reference category); (2) *Survey dummy*: "survey" or "archival" (reference category), to test whether studies based on self-reported data produced results that differed from those using archival data; (3) *Single measurement dummy*: to test whether the findings of studies which only reported a single measurement of the focal effect differed from those reporting multiple measurements (reference category); (4) *Publication status*: "published" or "unpublished" (reference category), to test for the presence of file drawer problems (Rosenthal, 1979); (5) *Publication year*, to correct for otherwise unmodeled time effects; (6) *Performance type*: "legitimacy," "market based," or "accounting based" (reference category); and (7) *Publication outlet*: "AMJ," "ASQ," "JMS," "OS," "SMJ," or "other" (reference category), to detect the presence of confirmatory publication biases across various journals.

RESULTS

HOMA Results

Table 2 presents the correlation matrix, which serves as input for our subsequent MASEM procedure. In the cells below the diagonal, mean correlations (mean$_\rho$) and standard deviations (s.d.$_\rho$) are presented for each relationship. The cells above the diagonal show the total number of observations (N) and the total number of samples (k) on which the mean correlation is based. Table 2 reports 78 mean correlations, all of which were established via independent HOMA analyses. In other words, the value in each of the 78 cells captures a correlation computed from real underlying data, rather than an approximated or simulation-based number.

Insert Table 2 about here

MASEM Results

Table 3 presents the MASEM results for Hypotheses 1, 2a-c, 3a and b, and 4a and b. The model fits the data well (Chi-square = 1,755.67; RMSEA = .04; RMR = .00; GFI = .98). The results confirm Hypothesis 1: resource dependence is positively related to the formation of interlocks (β = .08; $p < .001$), alliances (β = .08; $p < .001$), joint ventures (β = .07; $p < .001$), in-sourcing (β = .15; $p < .001$) and mergers and acquisitions (β = .09; $p < .001$)[3].

Hypotheses 2a and 2b are similarly confirmed: the formation of interlocks (β = .19; $p < .001$) and alliances (β = .21; $p < .001$) is positively related to focal organizational autonomy, and so are in-sourcing arrangements (β = .04; $p < .001$). In contrast, but in line with the expectations expressed in Hypothesis 2c, the relationship between the formation of ownership-based interorganizational arrangements (which encompass significant equity commitments on behalf of

the focal organization) and focal organizational autonomy is weaker than that for nonownership-based arrangements. Concretely, two types of analyses provide support for Hypothesis 2c. First, in our MASEM analysis (Table 3), the only two arrangement types lacking a significant relationship with focal organizational autonomy are joint ventures ($\beta = -.01$; $p > .10$) and mergers and acquisitions ($\beta = -.00$; $p > .10$). Second, our HOMA analyses (Table 2) show that the associational strength of the relationship between arrangement formation and focal organizational autonomy is considerably greater for nonownership arrangements than for ownership arrangements. Formal Feingold (1992) z-tests for the comparison of meta-analytic mean differences show that the effect for interlocks (mean $\rho = .11$) is significantly greater than that for joint ventures (mean $\rho = .05$; $z = 14.63$; $p < .001$) and mergers and acquisitions (mean $\rho = .06$; $z = 13.82$; $p < .001$). Similarly, the effect for alliances (mean $\rho = .19$) is also significantly greater than that for joint ventures ($z = 51.81$; $p < .001$) and mergers and acquisitions ($z = 50.66$; $p < .001$). Finally, the effect for in-sourcing (mean $\rho = .08$) is likewise significantly greater than that for joint ventures ($z = 5.36$; $p < .001$) and mergers and acquisitions ($z = 3.94$; $p < .001$). .

The MASEM results similarly support Hypothesis 3a. The formation of interlocks ($\beta = .13$; $p < .05$), alliances ($\beta = .45$; $p < .001$), joint ventures ($\beta = .14$; $p < .001$), and mergers and acquisitions ($\beta = .12$; $p < .001$) is positively related to focal organizational legitimacy. Congruent with the logic formalized in Hypothesis 3b, the relationship between the formation of inconspicuous arrangements like in-sourcing and focal organizational legitimacy is weaker than that for more visible arrangements. Two types of analyses provide corroboratory evidence. First, in our MASEM analysis (Table 3), in-sourcing is the only one of the five arrangement types we explore that does not stand in a positively significant relationship to focal organizational legitimacy ($\beta = -.03$; $p > .05$). Second, our HOMA analyses (Table 2) similarly show that the associational strength of the relationship between arrangement formation and focal organizational

legitimacy is significantly weaker for in-sourcing (mean ρ = .01) than for interlocks (mean ρ = .09; z = 9.77; p < .001), alliances (mean ρ = .23; z = 40.75; p < .001), joint ventures (mean ρ = .10; z = 8.41; p < .001), and mergers and acquisitions (mean ρ = .10; z = 12.39; p < .001).

We furthermore found a strong positive association between organizational autonomy and organizational performance (β = .12; p < .001). Formal Sobel tests (MacKinnon, Warsi, & Dwyer, 1995) for statistical mediation showed that autonomy is a significant mediating variable for the paths linking interlocks (z = 2.47; p < .01), alliances (z = 3.16; p < .001), and mergers and acquisitions (z = 2.05; p < .05) to organizational performance. These results confirm Hypothesis 4a. We did not find a statistically significant relationship between organizational legitimacy and organizational performance (β = .02; p > .10), however. Since the absence of a significant unique effect of the mediator on the dependent variable implies a violation of one of the necessary conditions for statistical mediation (cf. Baron & Kenny, 1986), Hypothesis 4b is rejected.

Insert Table 3 about here

MARA Results

The results pertaining to Hypotheses 5a and b and Hypothesis 6a and b are presented in Table 4. The Table reports the results of four complementary mixed-effects WLS regressions, which model the moderating influence of variables on the relationships between resource dependence and interorganizational arrangement formation (Models 1 and 2) and between interorganizational arrangement formation and firm performance (Models 3 and 4). Model 1 and 3 report the results for our substantive and methodological control variables only, the other models include our predictor variables.

Insert Table 4 about here

Models 1 and 2 fit the data well, with R^2 values of .23 and .25. The insignificant result for the Q-test for the residual component of the model suggests that the variance in the effect size distribution is sufficiently modeled, and that there are no major moderation effects left that are unaccounted for (Lipsey & Wilson, 2001). Hypothesis 5a is not supported. The passing of stricter antitrust legislation has not affected the prevalence of mergers and acquisitions. In contrast, our moderator tests do provide support for Hypothesis 5b. The passing of the Horizontal Merger Guidelines positively moderated the relationship between resource dependence and the formation of interlocks ($\beta = .19$; $p <.01$), alliances ($\beta = .11$; $p <.05$), and joint ventures ($\beta = .10$; $p <.05$), suggesting the presence of substitution effects between mergers and acquisitions and other types of arrangements.

The fit of Models 3 and 4 is good. However, the significant Q-statistic for residual variance suggests substantive moderator variables are possibly unaccounted for (Lipsey & Wilson, 2001). This may be attributable to the fact that meta-analytic data is collected at the sample level rather than the subject (i.e., organizational) level, such that we could not include known organizational-level moderator and contingency variables such as organizational size, age, and diversification. The R^2 of Model 3 is .33 and of Model 4 .39. The results provide support for Hypothesis 6a. The relationship between merger and acquisition formation and organizational performance is negatively influenced by the passing of the Horizontal Merger Guidelines in 1992 ($\beta = -.12$; $p < .001$). However, Hypothesis 6b is not supported, as the passing of antitrust legislation has not affected the performance of interlocks, alliances, and joint ventures. Overall, these findings suggest that it has become increasingly hard for organizations to ensure the

profitability of mergers and acquisitions over time, possibly because the tightening of anti-competition laws has made it more difficult for them to use these arrangements as vehicles for collusion and other forms of anti-competitive behavior.

Several checks demonstrate the robustness of our results. First, the meta-analytic mean effect retrieved from studies reporting only a single effect size does not differ from that computed from studies reporting multiple effects. Thus, possible stochastical dependencies between effect sizes harvested from a single study do not appear to drive our research findings. Second, in Models 1 and 2, no moderating effect could be detected resulting from differential operationalizations of resource dependence. Both power imbalance and mutual dependence have very similar effects on interorganizational arrangement formation (also see Table 2; the mean effects are .10 vs. .10). Third, in Models 3 and 4, no moderating effect was discerned for alternate operationalizations of organizational performance, as the effect of studies choosing for either a market or an accounting performance-based operationalization was immaterial (see Table 4).

DISCUSSION AND CONCLUSION

Summary of the Results

In this study, we have synthesized the currently available body of evidence on RDT. Our MASEM results corroborate all hypotheses that were most directly derived from the original codification of RDT by Pfeffer and Salancik (1978), such that their basic model remains intact. Specifically, resource dependencies lead to the formation of interorganizational arrangements (Hypothesis 1), which in turn strengthen focal organizational autonomy (Hypotheses 2a and b) and legitimacy (Hypothesis 3a). Autonomy is furthermore a significant mediating variable on the path connecting interorganizational arrangements with focal organizational performance (Hypothesis 4a). In short, when judged by the criterion of statistical significance (the yardstick

used in MASEM), our results are consistent with RDT as it was formulated by Pfeffer and Salancik (1978).

But while the level of support for RDT's hypothesized results is encouraging, it must be noted that the cumulated effects we retrieved (the yardstick used in HOMA) are small by conventional standards for establishing the magnitude of effect sizes (Cohen, 1988). For example, the mean effects for the relationship between resource dependence and arrangement formation range from .08 (alliances) to .17 (interlocks). Similarly, for the relationship between arrangement formation and autonomy the range extends from .05 (joint ventures) to .19 (alliances), and from .01 (in-sourcing) to .23 (alliances) for the relationship between arrangement formation and legitimacy. Yet these ranges are quite comparable to those recently retrieved for other macro management theories (Combs et al., 2011), such as institutional theory (predicting the effect of institutional forces on isomorphism; .07 - .08; Heugens & Lander, 2009), transaction cost theory (predicting the effect of transaction characteristics on hierarchical governance; -.08 - .16; Geyskens, Steenkamp, & Kumar, 2006), and resource-based theory (predicting the effect of resource characteristics on organizational performance; .09 - .23; Crook, Ketchen, Combs, & Todd, 2008). In other words, RDT's explanatory power is on par with that of other major approaches in the relevant comparison group of macro organizational theories (Combs et al., 2011). Our results thus support the theory's current status as a premier perspective for understanding organizational-environmental relations (cf. Hillman et al., 2009).

Unpacking RDT

Yet our fine-grained results demonstrate that not all types of interorganizational arrangements are equally suitable for coping with resource dependencies, as some have greater positive autonomy and legitimacy enhancing effects than others, and only three arrangements

types are linked to organizational performance via the mediating channel of organizational autonomy. In part, these differential effects may be attributable to the fact that these arrangements differ in terms of their rationale and intended outcomes. Interlocks may be introduced more for advice and counsel than for resource control, and they may prove useful primarily in providing access to channels of information between organizations (Davis, 1996). Through the formation of alliances and joint ventures, organizations seek to resolve environmental uncertainties and resource supply problems while retaining their legal independence (Koza & Lewin, 1998). In-sourcing arrangements allow organizations to manage resource dependencies through buffering-type mechanisms (Thompson, 1967), but they lack the legitimacy bestowing effect of the other arrangement types. Mergers and acquisitions, finally, are often sought for reasons of interorganizational complementarity, even though the rationale for many mergers can only be found in the boardroom, in the form of CEOs' hubris, narcissism, and striving for personal gain (Roll, 1986).

On the whole, our results show that in choosing a type of interorganizational arrangement to manage and alleviate resource dependencies, organizations must make two separate considerations. First, if they are primarily interested in improving their autonomy (cf. Oliver, 1991a), they must choose for interorganizational arrangement types which preserve strategic flexibility (Gerwin, 1993; Hillman et al., 2009; Santos & Eisenhardt, 2005). In this regard, a distinction must be drawn between less invasive nonownership-based arrangements like interlocks, alliances, and in-sourcing arrangements on the one hand, and flexibility-rupturing ownership-based arrangements like joint ventures and mergers and acquisitions on the other. The equity commitments involved in the latter types appear to stand in the way of autonomy improvements. Second, if organizations are primarily interested in improving their legitimacy (cf. Suchman, 1995), they must choose for interorganizational arrangement types which create highly

visible linkages with reputed outsiders (Certo, 2003; Pollock et al., 2010). In contrast, in-sourcing arrangements may be instrumental in terms of countering resource dependencies, but since they do not liaise the focal organization with admired external constituents, they cannot act as a conduit for positive legitimacy spillovers.

RDT as a Theory of Organizational Performance

Our results provide a mixed answer to the question whether RDT is also a theory of organizational performance. On the one hand, we found considerable support for our Hypothesis 4a, which conveyed the logic that organizational autonomy is not an end unto itself for many organizations, but rather a mediating variable connecting interorganizational arrangement formation to focal organizational performance. Especially on the paths linking the formation of interlocks, alliances, and mergers and acquisitions to performance, autonomy manifested itself as a significant mediating variable (see Table 3). In contrast, focal organizational autonomy did not significantly mediate the relationships between in-sourcing and joint venture formation and focal organizational performance, suggesting that these paths lend themselves less well for capturing the type of gains autonomy brings, such as appeasing multiple resource providers simultaneously or preventing holdup problems. On the whole, however, our results for focal organizational autonomy are congruent with a portrayal of RDT as a theory in which organizational interests occupy a central position, and in which profit-seeking is an important organizational objective (Oliver, 1991b). In short, they support a view of RDT as a theory of organizational performance.

On the other hand, however, we found no support for our Hypothesis 4b, which predicted a similar mediating role for organizational legitimacy on the path connecting interorganizational arrangements with focal organizational performance. While interlocks, alliances, joint ventures and mergers and acquisitions all have the potential to improve focal organizational legitimacy,

there simply is no direct link between the latter construct and focal organizational performance. These results support a characterization of RDT as a sociological theory in which organizations are seen as being exposed to societal norms and expectations, and in which establishing social acceptability by meeting those demands is important in its own right (Meyer & Rowan, 1977). In sum, our results for focal organizational legitimacy are at odds with a view of RDT as a theory of organizational performance.

We conclude from these results that resource dependencies are simultaneously substantive pressures that can threaten focal organizational performance and symbolic pressures that can hurt organizational legitimacy when left unmitigated (cf. David et al., 2007; Oliver, 1991b). However, several questions still remain. First, future research is needed to understand why there is no link between organizational legitimacy and organizational performance in the empirical context that is the domain of RDT. Prior studies argued for and occasionally established such a link in other contexts (Baum & Oliver, 1991; Deephouse, 1999). At present, it is simply unclear why the legitimacy organizations gain by mitigating resource dependence pressures fails to be a catalyst for their financial performance. A possible answer might be that the type of legitimacy organizations gain by liaising with resource providers is institutional rather than strategic in kind (Suchman, 1995). Second, an exploration of the different types of interorganizational arrangements suggests that all types are differentially connected to performance. This suggests that, from a performance management perspective, the various arrangement types are imperfect substitutes (Hillman et al., 2009), and that more research is needed that explicitly compares these types in terms of their connections with organizational performance (cf. Vanhaverbeke, Duysters, & Noorderhaven, 2002; Wang & Zajac, 2007).

The Impact of Competition Law

Finally, our results show that competition law is an important boundary criterion for RDT. Our mixed-effects WLS regressions showed that the introduction of the Celler-Kefauver Act in 1950 and the Hart-Scott-Rodino Act in 1976 did not affect the prevalence or performance of interorganizational arrangements in the U.S. Although the former Act made anti-competitive action and subsequent monopoly rent appropriation more difficult by closing a loophole in the preceding Clayton Antitrust Act of 1914, it did not explicitly forbid companies to acquire competitors' assets as long as they were shrewd enough not to bid for the company as a whole. The Hart-Scott-Rodino Act included the requirement to file an intended merger with both the Federal Trade Commission and the Antitrust Division of the Department of Justice, which is then followed by a 30-day waiting period during which these parties investigate the filing for anti-competitive effects. This implied a new set of hurdles that a number of companies failed to overcome, but our results show that they did not negatively impact interorganizational arrangement formation or performance.

However, our regression results showed that the New Horizontal Merger guidelines issued in 1992 did affect the *relative* prevalence and performance of interorganizational arrangements in the U.S. In terms of prevalence and in contrast to the effect predicted in Hypothesis 5a, the number of mergers and acquisitions that were initiated in response to resource dependence pressures in the post 1992 period did not decline, but remained stable (see Table 4). Yet the formation of interlocks, alliances, and joint ventures increased significantly during this window, thus providing support for Hypothesis 5b (see Table 4). In other words, U.S. corporations have since 1992 increasingly opted for alternative types of interorganizational arrangements. This is likely due to the fact that the New Horizontal Merger guidelines made anti-competitive action through mergers and acquisitions more difficult, as the Act propagated

the use of more sensitive methods for defining markets and for measuring market power. A similar, but inversed, story can be told about interorganizational arrangement profitability. In contrast to the logic of Hypothesis 6b, the performance of interlocks, alliances, and joint ventures has remained on par after 1992 (see Table 4). In the same period, however, the performance of mergers and acquisitions declined steeply (see Table 4). This finding lends support to Hypothesis 6a. In combination, these results demonstrate that the tenability of RDT is dependent on the stringency of the anti-competitive regime in a certain context or time period: the more stringent the regime, the weaker the potential of RDT to predict organizational behavior.

These findings have two clear implications for future research. First, since the U.S. is home to some of the earliest and arguably strongest institutions in the area of modern anti-trust law, any test of RDT in the U.S. context is likely to be conservative. Future comparative international studies are therefore needed to explore whether RDT has greater explanatory power in regions with less stringent antitrust provisions, such as large parts of Asia and Latin America, and certain parts of Europe, especially countries outside the European Union.

Second, even in this day and age antitrust law is predominantly focused on mergers and acquisitions, whereas our results show that stricter antitrust legislation might create substitution effects with other types of arrangements, such as interlocks, alliances and joint ventures. This seems to suggest that firms are abandoning mergers and acquisitions as their primary vehicles for collusion and anticompetitive action. Instead, they seem to be turning towards interlocks, alliances, and joint ventures as a means for tacit coordination, likely knowing full well that these arrangements are more difficult to police for frequently overburdened antitrust authorities. Future studies are therefore needed to assess whether the performance-enhancing attributes of other interorganizational arrangement types, and in particular interlocks, alliances, and joint

ventures, are not at least in part due to their potential to increase market power and coordinate competition-reducing actions.

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FOOTNOTES

1 We test these hypotheses on a subsample which only includes U.S.-based observations, because U.S. samples are most prominently represented in our dataset, and because antitrust legislation is jurisdiction-specific. Because in-sourcing was the least prevalent type of arrangement in the U.S. during our observation window, we use it as our reference category (we code for arrangement type with dummy variables). It can therefore not be included in Hypotheses 5b and 6b.

2 Fisher's *Zr* transformed correlations are calculated as follows: $z_r = \frac{1}{2}\ln\left(\frac{1+r}{1-r}\right)$, where *r* is the untransformed correlation coefficient.

3 The reported values are standardized Betas, not effect sizes; this implies that a unit of change in the independent variable is expected to be accompanied by a unit of change in the dependent variable.

Table 1

Definitions and Operationalizations of Variables

Construct	Definition	Operationalization
Resource dependence	The extent to which a focal organization depends on resources controlled by nominally independent parties in its environment (Pfeffer & Salancik, 1978).	
Power imbalance	"[T]he difference in the power of each actor over the other" (Casciaro & Piskorski, 2005: 170).	Complementary resource need, measured by those operational resources that new firms often do not have but require to be viable (Katila, Rosenberger & Eisenhardt, 2008). Organizational ownership by other parties (Ellstrand et al., 2002; Peng, 2004). The difference between two actors' dependencies, or the ratio of the power of the more powerful actor to that of the less powerful actor, e.g. buyer supplier relations (Casciaro & Piskorski, 2005).
Mutual dependence	"[T]he existence of bilateral dependencies in the dyad, regardless of whether the two actors' dependencies are balanced or imbalanced" (Casciaro & Piskorski, 2005:	The sum, or the average of actor i's dependence on actor j and actor j's dependence on actor i (Casciaro & Piskorski, 2005); The proportion of industry i's total transactions that were with industry j (Finkelstein, 1997).

	170).	
Board interlock	The service of a director on multiple boards, creating a connection between a focal and another organization (e.g. Peng, 2004; Yeo, Pochet, & Alcouffe, 2003).	Representation on important university committees or affiliated directors (Peng, 2004; Pfeffer & Salancik, 1978).
Alliance	A collaborative agreement between two or more firms, which contribute resources to a common endeavor of potentially important competitive consequences, while maintaining their individuality (Gulati, 1998).	Formation of an alliance in a given year (Gulati & Gargiulo, 1999; Katila et al., 2008).
Joint venture	A distinct organizational entity set up to jointly develop a product or share technology, generally involving an equity investment (Ahuja, 2000).	Number of collaborations set up to develop a product or share technology (Ahuja, 2000).
In-sourcing	Acquiring resources to	Depth of the level of integration (Cording,

	supplement in-house capabilities (Lacity & Willcocks, 1998); partial acquisition of a resource from another organization, and/or acquiring resources out of the market for in-house capability development (ibid).	Christmann & King, 2008); a dummy variable given the value (1) if a subsidiary receives a corporate investment in a funding round (Katila et al., 2008).
Merger and acquisition	The absorption of all resources (assets and liabilities) of a target firm, in exchange for assets or stocks, so that a new firm is being created (Brealey, Myers, & Allan, 2006). *Note: we use the terms merger and acquisition interchangeably.*	Number of acquisitions or mergers taking place over time, measured as a count variable (e.g. Casciaro & Piskorski, 2005; Heeley, King & Covin, 2006).
Organizational legitimacy	"[A] generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed	Firm status (Haunschild & Beckman, 1998; Puranam & Srikanth, 2007); association with a large number of powerful partners in terms of their centrality in the network (Hagedoorn &

	system of norms, values, beliefs, and definitions" (Suchman, 1995: 547).	Duysters, 2002).
Organizational autonomy	"[A]n organization's freedom to make its own decisions about the use and allocation of its internal resources without reference or regard to the demands or expectations of potential linkage partners" (Oliver, 1991a: 944-945).	A firm that can better deal with payment problems (Peng and Luo, 2000); independence from government (Peng and Luo, 2000); management-controlled (as opposed to founder-controlled) firms (Stearns and Mizruchi, 1986); subunit power, measured on a 7-point scale ranging from a great deal to very little power (Pfeffer and Salancik, 1974); cash on hand, to offset dependence on creditors (Uzzi, 1999).
Organizational performance	The extent to which organizations generate accounting-based profits or increase their overall market value (Meyer & Rowan, 1977)	
Accounting-based performance	The extent to which organizations generate accounting-based performance (e.g. Peng & Luo, 2000; Vermeulen & Barkema, 2002).	Return on Assets (Judge & Zeithaml, 1992); Return on Investment (Bae & Gargiulo, 2004); Return on Equity.
Market-based performance	The extent to which organizations increase their	Increase in market to book value (Ruigrok, Peck & Keller, 2006); Tobin's

	overall market value.	Q (Anderson & Reeb, 2004); Growth rate of retained earnings (Luo, 2008).

Table 2

HOMA Results, Meta-Analytic Correlation Table[a]

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Resource		111,601	264,853	72,739	63,883	168,165	326,872	79,635	47,610	186,091	48,480	223,653	148,750
dependence		149	237	116	54	180	340	87	75	189	35	108	203
2. Interlock	.17***		114595	31,084	268	39,107	78,455	14,871	5,127	65,419	18,484	83,978	67,950
	.02		30	8	2	32	89	31	15	52	18	22	72
3. Alliance	.08***	.19***		84,744	27,970	46,646	173,819	32,890	35,886	121,226	13,092	182,328	136,172
	.01	.03		100	23	68	153	27	54	97	13	87	134
4. Joint venture	.11***	.07	.20***		7,960	55,504	76,572	7,960	21,070	53,880	8,320	43,658	46,930
	.02	.04	.03		18	75	130	21	33	73	17	26	68
5. In-sourcing	.08	-.08	.06	.04		28,995	51,955	23,267	5,897	26,602	1,726	19,083	42,034
	.05	.06	.05	.05		40	40	8	9	22	3	15	23
6. Merger and	.08***	.08*	.15***	.25***	.13**		289,619	79,264	17,361	137,544	89,551	54,830	155,159
acquisition	.02	.03	.04	.05	.04		234	38	30	119	48	51	113
7. Organizational	.04**	.02	.17***	.08***	.00	.04***		137,607	34,967	191,978	108,276	116,616	178,752
performance	.01	.02	.01	.01	.03	.01		135	65	199	64	49	183
8. Organizational	.12***	.09*	.23***	.10	.01	.10**	.19***		18,547	58,976	16,387	26,502	52,862
legitimacy	.02	.04	.04	.06	.02	.03	.03		19	57	9	13	44
9. Organization	.02	.06	.06***	.09**	.10*	.16*	.08*	.02		27,124	3,604	16,123	25,851
age	.03	.05	.02	.03	.05	.07	.03	.03		43	4	22	58
10. Organization	.08***	.21***	.16***	.16***	.09***	.11***	.07***	.08***	.19***		34,184	84,721	120,364
size	.01	.02	.02	.03	.02	.02	.02	.02	.03		27	44	120
11. Debt/equity	.00	.06	.02	.03	-.01	.01	-.03	-.00	.01	.06		31,998	61,604
ratio	.02	.04	.03	.03	.02	.01	.04	.04	.07	.04		9	28
12. Prior ties	.07***	.11***	.21***	.06**	.03	.06**	.06***	.15***	.08***	.10***	.01		84,366
	.02	.03	.02	.02	.06	.02	.02	.03	.03	.02	.01		49
13. Organization	.15***	.11***	.19***	.05	.08*	.06*	.06***	.11***	.12**	.08***	-.01	.09***	
autonomy	.02	.03	.02	.03	.04	.02	.02	.03	.04	.02	.04	.01	

[a] Cells below the diagonal contain mean correlations (mean ρ) and standard deviations (s.d.ρ). Cells above the diagonal contain the total number of observations (N) and number of samples (k). Mean effect sizes marked with an asterix (*) are statistically significant, where * $p < .05$, ** $p < .01$, *** $p < .001$, suggesting the presence of moderator variables.

Table 3

MASEM Results[a]

	Interlock	Alliance	Joint Venture	In-sourcing	M&A	Organizational Autonomy	Organizational Legitimacy	Substantive Performance
Resource Dependence	.08***	.08***	.07***	.15***	.09***	.20***	.27***	.02
	(15.92)	(6.08)	(9.59)	(7.97)	(7.18)	(12.24)	(9.83)	(0.96)
Organization Age	.00	.01*	.02***	.08***	.08***	.07***	-.01	.06***
	(1.53)	(2.13)	(6.09)	(9.17)	(14.56)	(9.74)	(-0.89)	(6.35)
Organization Size	.04***	.07***	.04***	.06***	.04***	.01	.03*	.03***
	(20.20)	(14.49)	(14.67)	(7.19)	(7.36)	(1.08)	(2.35)	(2.90)
Prior Ties	.02***	.16***	.02***	.02***	.03***			
	(8.27)	(20.80)	(4.22)	(4.22)	(4.22)			
Debt/equity ratio						-.03	-.03	-.08***
						(-1.82)	(-1.10)	(-3.97)
Interlock						.19***	.13*	-.13***
						(5.99)	(2.38)	(-3.05)
Alliance						.21***	.45***	.21***
						(17.62)	(21.91)	(12.72)

Joint Venture	-.01	.14***	.09***
	(-0.70)	(3.78)	(3.14)
In-sourcing	.04***	-.03	-.02
	(5.64)	(-2.05)	(-1.96)
M&A	.00	.12***	-.02
	(-0.40)	(5.60)	(-0.97)
Organizational Autonomy			.12***
			(15.95)
Organizational Legitimacy			.02
			(1.29)

Degrees of Freedom	19
Harmonic mean N	9,840
X^2	1,755.67
GFI	.98
Standardized RMR	.04
RMR	.00

[a] *Note:* GFI = goodness of fit; RMR Root Mean Residual; * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4

Results of Mixed-Effects WLS Regression[a]

	Model 1	Model 2	Model 3	Model 4
Public organization	.04 (.03)	.05 (.03)*	.03 (.02)	.05 (.02)*
Manufacturing industry	.03 (.03)	.02 (.03)	-.03 (.02)	-.06 (.02)**
Technology industry	.06 (.03)*	.03 (.03)	.15 (.02)***	.13 (.02)***
Services industry	-.06 (.05)	-.06 (.05)	-.06 (.02)	-.06 (.04)
Celler Kefauver Act				
Interlock		-.04 (.05)		-.09 (.05)
Alliance				
JV				
M&A		.03 (.05)		-.04 (.05)
Hart-Scott-Rodino Act				
Interlock		.04 (.04)		-.02 (.03)
Alliance		.07 (.04)		.03 (.03)
JV		.05 (.05)		.03 (.04)
M&A		.04 (.04)		-.05 (.03)
Horizontal Merger Guidelines				
Interlock		.19 (.07)**		.05 (.05)
Alliance		.11 (.05)*		-.02 (.03)
JV		.10 (.05)*		-.01 (.03)
M&A		.05 (.05)		-.12 (.03)***
Power Imbalance	.02 (.02)	.02 (.02)		
Market Based Performance			.01 (.05)	.01 (.02)
Single measurement	-.06 (.07)	-.05 (.05)	.02 (.05)	.02 (.05)

SMJ	.00 (.04)	.01 (.04)	-.03 (.02)	.00 (.02)
ASQ	.06 (.04)	.09 (.04)*	.05 (.03)	.09 (.03)
AMJ	.05 (.04)	.03 (.04)	-.14 (.02)***	-.11 (.03)***
JMS	.07 (.05)	.04 (.05)	-.03 (.03)	-.03 (.04)
OS	-.08 (.04)	-.07 (.04)	-.11 (.03)***	-.10 (.03)***
Cross-sectional design	.01 (.03)	.02 (.03)	.10 (.02)***	.11 (.02)***
Survey dummy	-.01 (.03)	-.03 (.03)	.06 (.02)**	.06 (.03)**
Publication type	-.03 (.05)	-.01 (.05)	.11 (.03)***	.10 (.03)***
Publication year	-.01 (.00)***	-.01 (.00)***	.01 (.00)***	.01 (.00)***
Organizational legitimacy			.10 (.02)***	.09 (.02)***
Constant	16.65 (2.75)***	19.62 (3.05)***	-10.634 (2.86)***	-13.81 (3.19)***
Mean effect size	.10	.10	.07	.07
R^2	0.23	0.25	.33	.39
K	448	448	510	510
Q_{Model} (p)	132.79 (.00)	156.43 (.00)	293.92 (.00)	350.51 (.00)
$Q_{Residual}$ (p)	448.27 (.28)	460.03 (.10)	608.08 (.00)	548.49 (.02)
V	.03	.03	.01	.01

[a] Unstandardized regression coefficients are presented with standard errors in parentheses. k is the total number of effect sizes; Q is the homogeneity statistic with its probability in parentheses; v is the random effects variance component.

* $p < .05$, ** $p < .01$, *** $p < .001$

APPENDIX

List of Included Studies[a]

Author(s)	Year	Journal
Agardi, I., & Bauer, A.	2008	AE
Ahuja, G.	2000	SMJ
Ahuja, G., & Katila, R.	2001	SMJ
Anand, J., & Delios, A.	2002	SMJ
Anderson, R. D., & Reeb. D. M.	2004	ASQ
Andersson, U., Forsgren, M., & Holm. U.	2002	SMJ
Arend, R. J.	2006	SMJ
Aulakh, P. S., & Gençturk, F.E.	2008	JMS
Bae, J., & Gargiulo, M.	2004	AMJ
Barkema, H. G., Bell, J. H. J., & Pennings, J.M.	1996	SMJ
Barkema, H. G., & Schijven, M.	2008	AMJ
Barkema, H. G., & Vermeulen, F	1997	JIBS
Barkema, H. G., & Vermeulen, F.	1998	AMJ
Barkema, H. G., Shenkar, O., Vermeulen, F., & Bell, J. H. J.	1997	AMJ
Beckman, C. M., Haunschild, P. R., & Philips, D. J.	2004	OS
Bjorkman, I., & Lu, Y.	2001	Org St
Boyd, B.	1990	SMJ
Cannella, Jr., A. A., Park J-H., & Lee, H-U	2008	AMJ
Capron, L.	1999	SMJ
Capron, L., & Shen, J-C.	2007	SMJ

Carow, K., Heron, R., & Saxton, T.	2004	SMJ
Casciaro, T., & Piskorski, M. J.	2005	ASQ
Child, J., & Yan, Y.	2003	JMS
Clarysse, B., Knockaert, M., & Lockett, A.	2007	SBE
Colombo, M. G.	2003	SMJ
Cording, M., Christmann, P., & King, D. R.	2008	AMJ
Davis, G.F., & Mizruchi, M.S.	1999	ASQ
Dobbin, F., & Dowd, T. J.	2000	ASR
Dussauge, P., Garretten, B., & Mitchell, W.	2004	SMJ
Dussauge, P., Garretten, B., & Mitchell, W.	2007	SMJ
Ellis, K. M., Reus, T. H., & Lamont, B. T.	2011	WP
Ellstrand, A. E., Tihanyi, L., & Johnson, J. L.	2002	AMJ
Finkelstein, S.	1997	SMJ
Folta, T. B., & Miller, K. D.	2002	SMJ
Frankeforter, S. A., Berman, S. L., & Jones, T. M.	2000	JMS
Fryxell, G. E., Dooley, R. S., & Vryza, M.	2002	JMS
Garcia-Canal, E., Valdés-Llaneza, A., & Arino, A.	2003	Org St
Garcia-Pont, C., & Nohria, N.	2002	SMJ
Garrette, B., Castaner, X., & Dussauge, P.	2009	WP
Gimeno, J.	2004	AMJ
Goerzen, A.	2000	SMJ
Gong, Y., Shenkar, O., Luo, Y., & Nyaw, M-K.	2007	SMJ
Gopalakrishnan, S., Scillitoe, J. L., & Santoro, M. D.	2008	JMS

Gulati, R., & Gargiulo, M.	1999	AJS
Gulati, R., & Higgings, M. C.	2003	SMJ
Gulati, R., & Wang, L. O.	2003	Book
Haleblian, J., & Finkelstein, S.	1999	ASQ
Harris, I. C., & Shimizu, K.	2004	JMS
Haunschild, P. R., & Beckman C. M.	1998	ASQ
Hayward, M. L. A.	2002	SMJ
Hayward, M. L. A.	2003	SMJ
Hayward, M. L. A., & Shimizu, K.	2006	SMJ
Hébert, L, Very, P., & Beamish, P. W.	2005	Org St
Heeley, M. B., King, D. R., & Covin, J. G.	2006	JMS
Hillman, A. J.	2005	JoM
Hitt, M. A., Ahlstrom, D., Dacin, M. T., Levitas, E., & Svobodina, L.	2004	OS
Hoang, H., & Rothaermel, F. T.	2005	AMJ
Ingram, P., Robinson, J., & Busch, M. L.	2005	AJS
Iyer, D. N., & Miller, K. D.	2008	AMJ
Jensen, M., & Zajac, E. J.	2004	SMJ
Judge Jr., W. Q., & Zeithaml, C. P.	1992	AMJ
Kale, P., & Singh, H.	2007	SMJ
Kale, P., Dyer, J. H., & Singh, H.	2002	SMJ
Kang, E.	2008	AMJ
Katila, R., Rosenberger, J. D., & Eisenhardt, K. M.	2008	ASQ

Keil, T., Maula, M., Schildt, H., & Zahra, S. A.	2008	SMJ
King, D. R., Slotegraaf, R. J., & Kesner, I.	2008	OS
Koka, B. R., & Prescott, J. E.	2002	SMJ
Koka, B. R., & Prescott, J. E.	2008	SMJ
Kor, Y. Y., & Leblebici, H.	2005	SMJ
Krishnan, H. A., Hitt, M. A., & Park, D.	2007	JMS
Krishnan, R., Martin, X., & Noorderhaven, N. G.	2006	AMJ
Lane, P,J., Salk, J. E., & Lyles, M. A.	2001	SMJ
Lang, J. R., & Lockhart D. E.	1990	AMJ
Larsson, R., & Finkelstein, S.	1999	OS
Lavie, D.	2007	SMJ
Lavie, D., & Miller, S. R.	2008	OS
Lavie, D., Lechner, C., & Singh, H.	2007	AMJ
Lazzarini, S. G., Claro, D. P., & Mesquita, L. F.	2003	JMS
Lee, G. K.	2007	SMJ
Lee, H-U., & Park, J-H.	2008	JMS
Li, D., Eden, L., Hitt, M. A., & Ireland, R. D.	2008	AMJ
Li, J. J., Poppo, L., & Zhou, K. Z.	2008	SMJ
Lin, Z., Peng, M.W., Yang, H., & Sun, S.L.	2009	WP
Lubatkin, M., Schulze, W. S., Mainkar, A., & Cotterill. R. W.	2001	SMJ
Lui, S. S., & Ngo, H-Y	2005	JMS
Luo, Y.	2002	JoM
Luo, Y.	2002	SMJ

Luo, Y.	2004	JMS
Luo, Y.	2005	AMJ
Luo, Y.	2007	AMJ
Luo, Y.	2008	SMJ
Luo, Y., & Park, S. H.	2004	JIBS
McDonald, M. L., Khanna, P., & Westphal, J. D.	2008	AMJ
McDonald, M. L., Westphal, J. D., & Graebner, M. E.	2008	SMJ
McNamara, G. M., Haleblian, J., & Dykes, B. J.	2008	AMJ
Merchant, H., & Schendel, D.	2000	SMJ
Meyer, K. E., Estrin, S., Bhaumik, S. K., & Peng, M. W.	2009	WP
Mizruchi M. S.	1989	AJS
Mizruchi, M.S.	1990	SF
Mizruchi, M. S.	1996	ARS
Mizruchi, M. S., & Brewster Stearns, L.	1988	ASQ
Mizruchi, M. S., & Brewster Stearns, L.	2001	ASR
Mizruchi M. S., & Bunting, D.	1981	ASQ
Morrow, J. R., J. L., Sirmon, D. G., Hitt, M. A., & Holcomb, T.R.	2007	SMJ
Nadolska, A., & Barkema, H.G.	2007	JIBS
Oxley, J. E., & Sampson, R. C.	2004	SMJ
Palmer, D., & Barber, B. M.	2001	ASQ
Park, C.	2002	JMS
Park, S. H., Chen, R., & Gallagher, S.	2002	AMJ

Parmigiani, A.	2007	SMJ
Paruchuri, S., Nerkar, A., & Hambrick D. C.	2006	OS
Patzelt, H., & Shepherd, D. A.	2008	JMS
Pearce, R. J.	2001	JMS
Peng, M. W.	2004	SMJ
Peng, M. W., & Luo, Y.	2000	AMJ
Pennings, J. M., Barkema, H., & Douma, S.	1994	AMJ
Pfeffer, J.	1972	ASQ/Book
Porrini, P.	2004	JoM
Provan, K. G.	1982	AMJ
Provan, K. G.	1984	AMJ
Provan, K. G., Beyer, J. M., & Kruytbosch, C.	1980	ASQ
Puranan, P., & Srikanth, K.	2007	SMJ
Rao, H., & Sivakumar, K.	1999	OS
Reuer, J. J., & Arino, A.	2007	SMJ
Reuer, J. J., & Ragozzino, R.	2006	SMJ
Rosenkopf, L, Metiu, A., & George, V. P.	2001	ASQ
Ruigrok, W., Peck, S. I., & Keller H.	2006	JMS
Salancik, G. R., & Pfeffer, J.	1974	ASQ
Sampson, R. C.	2007	AMJ
Sarkar, M. B., Echambadi, R., & Harrison, J. S.	2001	SMJ
Saxton, T., & Dollinger, M.	2004	JoM
Schilling, M. A., & Steensma, H. K.	2002	OS

Shi, W., & Prescott, J.E	2009	WP
Slangen, A. H. L., & Hennart, J-L.	2008	JMS
Stearns, L. B., & Mizruchi, M. S.	1986	ASQ
Stearns, L. B., & Mizruchi, M. S.	1993	AMJ
Steensma, H. K., & Corley, K. G.	2000	AMJ
Steensma, H. K., Marino, L., Weaver, K. M., & Dickson, P. H.	2000	AMJ
Stevenson, W. B., & Radin, R. F.	2009	WP
Stuart, T. E.	2000	SMJ
Stuart, T. E., Hoang, H., & Hybels, R. E.	1999	ASQ
Sullivan, B. N., Haunschild, P., & Page. K.	2005	WP
Uhlenbruck, K., & De Castro. J. O.	2000	AMJ
Vanhaverbeke, W., Duysters, G., & Noorderhaven, N.	2002	OS
Vassolo, R. S., Anand, J., & Folta, T. B.	2004	SMJ
Vermeulen, F., & Barkema, H.	2001	AMJ
Vermeulen, F., & Barkema, H.	2002	SMJ
Villalonga, B., & McGahan, A. M.	2005	SMJ
Walter, J., Lechner, C., & Kellermanns, F. W.	2008	JMS
Wang, L., & Zajac, E. J.	2007	SMJ
Westphal, J. D., Seidel, M. L, & Stewart, K. J.	2001	ASQ
White, S.	2000	AMJ
Yeo, H-J, Pochet, C., & Alcouffe, A.	2003	JMG
Yiu, D., Bruton, G. D., & Lu, Y.	2005	JMS
Young-Ybarra, C., & Wiersema	1999	OS

Zollo, M., Reuer, J., & Singh, H.	2002	OS

[a] *AMJ: The Academy of Management Journal; AE: Acta Oeconomica; ASQ: Administrative Science Quarterly; AJS: American Journal of Sociology; ASR: American Sociological Review; ARS: Annual Review of Sociology; ICC: Industrial and Corporate Change; JIBS: Journal of International Business Studies; JoM: Journal of Management; JMG: Journal of Management and Governance; JMS: Journal of Management Studies; OS: Organization Science; Org St: Organization Studies; SBE: Small Business Economics; SF: Social Forces; SMJ: Strategic Management Journal; Gov: The Governance of Relations and Markets and Organizational Research in the Sociology on organizations; WP: Working Paper.*