Synergy in Mergers and Acquisitions: Typology, Lifecycles, and Value

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Abstract: Value in mergers and acquisitions (M&A) derives from the synergistic combination of an acquirer and a target. We advance the existing conceptualization of synergies in three ways. First, we develop a theoretically-motivated, parsimonious typology of five distinct sources of synergy based on two underlying dimensions: the level of analysis at which valuable activities occur and the orientation by which those activities are governed. The typology uncovers three novel synergy sources (relational, network, and non-market) arising from acquisition-induced changes in firms' external cooperative environments, and classifies two other well-known synergies (internal and market power). Second, we introduce the concept of synergy lifecycles to explore how the timing of initial realization and the duration of gains vary across the five synergies, based on differences in the post-merger integration required and in the control the acquirer has over the assets and activities combined by the merger. Third, we consider how the synergy types interact, yielding co-synergies when they complement each other and dis-synergies when they substitute for one other. This enables us to expand the traditional conceptualization of the total value created by M&A as the sum of each of the synergy types, their co-synergies, and their dis-synergies.

Keywords: mergers and acquisitions, synergy typology, synergy lifecycle, co-synergy, dis-synergy, post-merger integration, value, corporate strategy

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The purpose of this paper is to introduce a typology of synergies that broadens our understanding of the sources of value creation and advances a dynamic notion of value realization in mergers and acquisitions (M&A). Defined as a combination of two firms' assets that are more valuable together than they are separately, synergy has been invoked by scholars from multiple disciplines (e.g. management, financial economics, accounting) using multiple theoretical lenses (e.g. resource-based view, IO economics, behavioral theory) (Haspeslagh & Jemison, 1991; Shaver, 2006). The broad appeal of the concept lies in its generality: any two assets joined via an acquisition can potentially create synergistic value. But this generality has also led to a lack of systematic development and synthesis, which hinders theoretical progress and limits the usefulness of the concept for scholars and managers.

One reason for these limitations is that the M&A literature has not kept pace with theoretical advancements pertaining to the sources of value creation for firms. Two dominant paradigms—IO economics and RBV/capabilities—have led M&A scholarship to inordinately focus on two kinds of synergies: "market power" and "operational" (Chatterjee, 1986; Devos, Kadapakkam, & Krishnamurthy, 2009; Kaul & Wu, 2016; Rabier, 2017). These paradigms assume that the firm must own and control valuable assets (Lavie, 2006) and that it must interact competitively with external parties to appropriate value (Porter, 1980). Yet, for several years, other research traditions have shown that additional sources of economic value can arise from *sharing* valuable assets by interacting *cooperatively* with external partners in the firm's environment. The relational view demonstrates that collaborative exchanges with individual partners create partner-specific value (Dyer & Singh, 1998; Lavie, 2006). The social networks perspective goes a step further, showing that value exists in the structure of a firm's direct and indirect ties (e.g. Gulati, 1998). And stakeholder theory reveals that good relations with non-market actors enhance the ability of firms to appropriate value from their environments (e.g. Freeman, 1984; Henisz, Dorobantu, & Nartey, 2014).

The effects of M&A on these external cooperative sources of value, and the theoretical perspectives that underpin them, have not systematically made their way into our understanding of synergy. But research is starting to show that acquisitions affect not only the competitive landscape and internal resources of firms, but also their external cooperative environments by reformatting relationships with individual contractual partners (e.g. Rogan & Greve, 2015), restructuring external networks (e.g. Hernandez & Menon, 2018; Hernandez & Shaver, 2019), and modifying coalitions with non-market stakeholders (e.g. Deng, Kang, & Low, 2013).

We incorporate these external cooperative perspectives into M&A research in three ways. First, we develop a theoretically-parsimonious typology of five sources of potential synergy based on two underlying dimensions: the level of analysis at which valuable activities occur (firm, dyad, network, industry, or institutional context) and the governance orientation by which those activities are managed (fiat, cooperation, or market competition). This allows us to introduce three new synergy types—relational, network, and non-market—and to put the two long-considered in the literature (internal, also known as operational, and market power) into a systematic framework. The five synergies map onto distinct theories of economic rent: RBV/capability theories, IO economics, the relational view, social networks theory, and stakeholder theory. This results in a classification focused on *sources* of synergy rather than their *manifestations* (*e.g.* abnormal returns, revenues, costs), which has been the focus of most prior research (Andrade, Mitchell, & Stafford, 2001; Capron & Pistre, 2002).

Second, we introduce a dynamic notion of value realization in M&A by developing the concept of *synergy lifecycles*. We explore heterogeneity across the five synergies in the timing of two post-merger phases: the initial realization of the gain and the length of its duration before it fades away. Research on post-merger integration has provided insights primarily on the drivers of value realization for internal (or operational) synergies (e.g. Graebner, 2004; Meyer & Lieb-Dóczy, 2003; Sherman & Rupert, 2006). We know less about post-merger processes involving the external assets and relationships that give rise to the other four synergy types. We argue that the activities at different levels of analysis (one of the dimensions underlying our typology) are associated with differences in the extent to which post-merger integration is required. The more integration is required, the longer the initial realization of synergy takes. We further argue that differences in the orientation by which resources and activities are governed (the second dimension of our typology) leads to variance in the control the combined firm has over the sources of synergy. The greater the control, the longer the duration of synergies. Based on these ideas, we develop testable empirical predictions explaining relative differences in synergy realization and duration timing *across* the five synergy types, and about the unique factors that create variance in realization and duration timing *within* types.

Third, we explore how the five synergy types interact with one another, potentially creating co-synergies and dis-synergies. Co-synergies arise when two distinct sources of value complement each other, and dis-synergies arise when they substitute one another. Accounting for interactions across distinct synergy sources yields a more comprehensive notion of the total value created by an acquisition as the sum of (1) the value created by each individual synergy type, (2) the co-synergies across types, and (3) the dis-synergies across types. This expansive conceptualization involving new synergy types, their distinct lifecycles, and their interactions raises several implications for the theory and practice of M&A that would not otherwise become apparent. We explore these implications throughout the paper.

BACKGROUND

Synergy in M&A arises when the value of the acquirer and target as a single entity exceeds the summed value of the two firms operating individually: Value[A+T] > Value[A] + Value[T]. Acquirers profit from synergies through higher revenues or lower costs (Shaver, 2006), conditional on paying a price that does not exceed the value created (Barney, 1988). But revenues and costs are only manifestations of synergies, not the underlying sources, as are other common metrics like abnormal stock returns and accounting profits (Sheen, 2014 has an insightful discussion of this issue). Extant literature has focused on understanding and measuring synergy manifestations, which is important because it helps us know *whether* synergy exists. However, in virtually all the peer-reviewed work we evaluated, the concept of synergy is not developed in a systematic theoretical framework that explains *where* economic rents come from. As noted in the most highly cited article we reviewed: “We hope that … research will move beyond the basic issue of measuring and assigning gains and losses to tackle the more fundamental question of how mergers actually create or destroy value" (Andrade et al., 2001).

Consistent with this call, we focus on a less well-understood issue: what are the *sources* of synergy? A source-focused view fits better with the essence of the concept: the complementary combination of two firms' pre-existing assets (broadly defined), which can produce gains through economies of scale or scope or other mechanisms that enhance profits (Helfat & Eisenhardt, 2004; Milgrom & Roberts, 1995; Shaver, 2006).[1] But multiple types of asset combinations could lead to profitable acquisitions, and the literature has not systematically explored that issue. A natural starting point is thus to ask what kinds of assets are being combined by an acquisition, why that combination is valuable, and what it takes to successfully achieve it given the nature of the assets involved. Our first step is to develop a parsimonious, theoretically-grounded typology of synergies based on distinct sources of value. We then explore how this typology affects the dynamics of synergy realization, as well as how different synergy types may reinforce or undermine one another.

Systematic Review of Research on Value in M&A

As a basis for developing our typology, we conducted a systematic review of peer-reviewed research on value and synergy in M&A, using the methodology in Crossan and Apaydin (2010). To keep this paper focused on the more novel aspects of our theorizing, the full details of the review are in Appendix A, including a deep dive into how our ideas relate to prior work. Here we touch only upon key issues necessary to build our ideas.

Types of synergy mentioned in prior research. Prior work has discussed several different types M&A gains (see Figure A1-2 of Appendix A). The two most common are internal operational/efficiency improvements (47.1%) and increases in firms' market power (16.5%)—

[1] We follow Milgrom & Roberts (1995) in defining complementarity as arising when more of one thing enhances the returns to another thing. Research in M&A has sometimes used complementarity to refer to 'different' or unrelated resources, as opposed to 'similar' or related resources (Barney, 1988; Lubatkin, 1987; Salter & Weinhold, 1979; Singh & Montgomery, 1987). But complementarity is a higher order term that covers both related and unrelated resources. Distinguishing between relatedness and unrelatedness is unnecessary for our purposes (see Appendix A).

mentioned in all fields studying M&A. Studies in finance and accounting also consider financial or tax benefits (7.6%). Another common view emphasizes agency/governance misalignments as constraints to value creation and appropriation (16.2%).[2]

External cooperative sources of value have been overlooked. The emphasis on operational/efficiency and market power synergies can be traced to the influence of two dominant theories of value creation: IO economics and the resource-based/capabilities view (RBV) (Porter, 1980; Wernerfelt, 1984). Montgomery (1994) offers an excellent summary of their relevance to acquisitions. Those theories emphasize economic rents stemming from assets *owned* by the merging firms and managed through *competitive* interactions.

Yet in the broader management field, several major theoretical advances since at least the 1980s demonstrate that economic value also arises from assets *shared* with other organizations and managed through *cooperative* interactions. These theoretical advances have not systematically made their way into the M&A literature. External cooperative relationships were mentioned as sources of value in fewer than 5% of M&A studies we reviewed (e.g. Deng et al., 2013; Hernandez & Menon, 2018; Krishnan, Joshi, & Krishnan, 2004; Rogan & Greve, 2015).

We argue that three broad literatures reflecting sources of external cooperative value, at different levels of analysis, can help provide a more comprehensive understanding of where gains come from in M&A. First, the relational view shows that value can arise from repeated exchanges with individual partners outside the boundaries of the firm (e.g. Dyer & Singh, 1998; Lavie, 2006). Second, the social networks perspective demonstrates that the structure created by multiple dyadic ties (including direct and indirect connections) has value beyond any individual tie (e.g. Gulati, 1998; Zaheer, Gözübüyük, & Milanov, 2010). Third, stakeholder theory emphasizes that relations with non-market actors (e.g. governments, communities, NGOs) play a

[2] We view gains from financial synergies and from the resolution of agency problems as important means for firms to capture value, but not as intrinsic *sources* of synergistic value. Thus, they do not play a role as distinct types in our classification. Please see Appendix A for a full explanation.

distinct role in firms' ability to appropriate value from their environments (e.g. Freeman, 1984; Henisz et al., 2014).[3] We explain how each perspective relates to M&A synergies in this paper.

The effect of M&A on "hybrid" governance structures needs to be reconsidered. The TCE focus on markets vs. hierarchies accounted for traditional views of M&A (Schilling & Steensma, 2002; Williamson, 1975). But research on alliances led TCE scholars to consider governance solutions that are neither market nor hierarchy. While some scholars have objected to the "hybrid" characterization and its application to M&A (Powell, 1990; Schilling & Steensma, 2002), the firms vs. markets dichotomy is insufficient to understand the total value created by M&A. The corporate strategy literature studies hybrid organizational forms by exploring alliances (e.g. Gulati, 1998), delineating the choice between M&A and alliances (e.g. Villalonga & McGahan, 2005), and considering how pre-acquisition alliances affect subsequent acquisitions (e.g. Zaheer, Hernandez, & Banerjee, 2010). Of course, from a TCE perspective, all acquisitions involve a decision to govern activities internally. But we add a crucial and overlooked point: not all the valuable assets and activities associated with the target are governed through hierarchy (ownership and control) post-acquisition. The acquirer also inherits and recombines other valuable interactions located *outside* the boundaries of the acquirer or the target, some of which will be governed by "hybrid" modes (e.g. alliances) and others through "market" modes—resulting in various new channels of potential gains beyond those governed through hierarchy.

A TYPOLOGY OF SYNERGIES

To address the foregoing issues, we propose a typology of synergies that rests on the two underlying dimensions depicted in Figure 1: (1) the governance orientation of the assets, activities, and relationships that create value for the merging firms; and (2) the level of analysis at which those assets, activities, and relationships operate. The governance orientation ranges from *fiat*, where the merging firms exercise full authority over the internal factors that generate

[3] In Appendix A, we discuss these theories more deeply, consider how they stem from classic organizational theories of "the environment" (including resource-dependence theory, contingency theory, and institutional theory), and put them in context of an RBV lens focused on resource access instead of resource ownership.

synergies; to *cooperation*, where the merging firms collaborate with external parties to generate value; to *market competition*, where the merging firms engage in competitive interactions to extract gains from rivals. The three orientations come directly from the TCE distinctions among hierarchy (fiat), market (competition), and hybrid (cooperation) (Williamson, 1991). We use labels focused on the governance orientation rather than the organizational solution because it is more appropriate for explaining the sources of value, as will become more apparent later.

The governance orientation is insufficient to identify the sources of value because the activities involved in value creation post-acquisition occur at distinct levels of analysis. Activities governed by fiat occur within firm boundaries. Every other activity occurs outside the boundaries of the combined firm. The most immediate level beyond the firm is the *dyad*, which refers to contractual cooperative partnerships with individual third parties (e.g. an alliance partner). The next level is the *network*, comprising the structure of the combined firms' direct and indirect cooperative ties (e.g. alliances). Beyond the network are interactions with other actors not necessarily contractually involved with the focal firm, but who affect the value it can create and capture. Some of those interactions (e.g. with rivals or suppliers) are competitive, occurring at the level of the *industry or market*; whereas other interactions (e.g. with communities or the media) are non-competitive and occur in the *institutional environment* (the highest level of analysis). Figure 2 depicts the variety and complexity of interactions among actors at different levels of analysis that give rise to potential synergies.

Juxtaposing the two dimensions allows us to parsimoniously classify five synergy types: internal, market power, relational, network, and non-market.[4] We elaborate on each of them in the following sections. To aid in this exercise, Table 1 summarizes the main attributes of each synergy type, and Table 2 articulates key distinctions between pairs of synergy types.

[4] Puranam and Vanneste (2016) offer a typology of synergies based on two different dimensions: the resource modification required post-acquisition, and the similarity between those resources. This leads to four synergy categories: combination, consolidation, customization, and connection. Our approach is congruent but different from theirs. First, their focus is on what firms must do internally to *achieve* synergies post-acquisition, whereas our framework seeks to explain potential *sources* of synergies. Second, their framework emphasizes synergies created by common ownership (internal or market power in our framework), while our typology also encompasses synergies arising from external cooperative relationships.

[FIGURES 1-2 AND TABLES 1-2 HERE]

Internal Synergies

As noted earlier, the dominant perspective on M&A comes from studies that conceptualize economic rents as arising from efficiency (vs. power). Synergies in this tradition are based on tangible or intangible resources and capabilities that merging firms legally own and control, and thus can be governed through fiat (Kaul & Wu, 2016). This encompasses many kinds of internal asset recombinations (*e.g.* machinery, R&D pipelines, employees, and teams), as long as common ownership is more valuable than separate ownership. We call these *internal synergies*.[5] Figure 2 depicts internal gains as the combination of A (acquirer) and T (target) only: they do not require the combination of any of the external elements of the firms' environment such as suppliers, buyers, alliance partners, or stakeholders. These external elements may be *affected* by the merger (*e.g.* the combined technologies of A and T increase demand from buyers), but the underlying *source* of value lies within the boundaries of the combined firm. This will become clearer as we discuss the other synergy types and their key differences (see Table 2).

Market Power Synergies

The literature on M&A draws heavily from IO economics, which emphasizes competitive interactions through 'vertical' exchanges with suppliers and buyers or 'horizontal' exchanges with rivals. Economic rents arise from reducing the power of counterparties in competition-governed interactions. As Williamson (1975) notes, an acquisition is often the only way to gain market power (instead of 'legal collusion') because the costs of coordinating and contracting oligopolistic activities are higher than the costs of internalizing them.[6] Acquisitions facilitate vertical integration to gain buying or pricing power, horizontal integration to eliminate or control industry rivals, and other changes that enhance market influence. Figure 2 depicts how market power gains arise from changes in the competitive relations of the acquirer and target.

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[5] Prior work often calls these "operational" synergies. We use the label "internal" because it better reflects the distinctive characteristics of this source of value per the two dimensions discussed in the previous section.
[6] Market power synergies can benefit firms but have negative welfare effects. Antitrust regulation plays an important role in balancing the public interest with private gains from acquisitions.

Internal and market power synergies are well-known, so we have covered them briefly. The next three types are novel and require lengthier exposition, including examples to illustrate some of their main features.

Relational Synergies

While resource-based theories emphasize the ownership of internal assets, research on inter-firm relationships recognizes that value can arise from assets collaboratively shared with other firms (Lavie, 2006). Such value involves partner-specific assets such as mutual trust, governance routines, contracting capabilities, or knowledge-exchange capacity (Baker, Gibbons, & Murphy, 2002; Elfenbein & Zenger, 2013; Zaheer, McEvily, & Perrone, 1998). Figure 2 depicts relational synergies by showing how the combination of the acquirer and target (A + T) may help them create more value with other *individual* partners like p1, p3, or p5 affected by the deal (Rogan, 2013; Rogan & Greve, 2015; Wiles, Morgan, & Rego, 2012). Such partners could be vertical (suppliers or buyers) or horizontal (alliance partners or other collaborators).

Table 2 contrasts relational synergies with other types. Internal synergies are driven *only* by the combination of assets owned by the acquirer and target, not partner-specific assets. For example, if two firms combine their alliance management capabilities (Kale, Dyer, & Singh, 2002) to better manage *any* collaborative project, that would be an internal synergy. In contrast, relational synergies involve the creation or improvement of partner-specific assets that allow the combined firm to derive more value from *specific* external partners (*e.g.* p3 in Figure 2). Like market power synergies, relational gains make interactions with other firms more profitable. But they are distinct in two ways. First, the exchange producing relational rents is governed cooperatively, not competitively (Dyer & Singh, 1998). Second, market power synergies give the acquirer power over a counterparty (zero sum), while relational synergies allow *both* parties to create and appropriate more value.

The acquisition of Gillette by Procter and Gamble (P&G) illustrates some aspects of relational synergies. Gillette offered a set of trade terms and incentives to its customers (e.g. retailers, distributors) that P&G had never before implemented. According to the COO of P&G,

"P&G would provide the value of its broad product line and likely get favorable payment terms. It would then combine them with Gillette's return-on-investment, pay-for-performance criteria on the demand-creation side to create an integrated trade terms model" (Kanter & Bird, 2009). Two improvements in bilateral relationships with customers emerged: attracting more customers (an internal synergy) and transacting more effectively with each of those customers by offering better terms for both sides (a relational synergy).

Network Synergies

Beyond the relational value of dyadic ties, the structural positions a firm occupies in the network generated by the totality of a firm's direct and indirect ties can be valuable. These positions are manifested in metrics such as centrality, structural holes, or equivalence. From a network lens, an acquisition is a "collapse" of two nodes (A + T) in which the acquirer inherits the contractual ties of the target (see Figure 2). Recent studies have demonstrated that a firm may pursue "network synergies" by acquiring a target whose alliance network, when combined with that of the acquirer, puts the combined entity in an improved structural position (Hernandez & Menon, 2018, 2020; Hernandez & Shaver, 2019). Network synergies are driven by two kinds of changes: inheriting new ties that the target firm brings to the acquirer's pre-existing network (additive); or eliminating redundant ties that the acquirer and target had in common (subtractive) (Hernandez & Shaver, 2019). In the first case, value comes from novel network resources (Saboo, Sharma, Chakravarty, & Kumar, 2017). In the second case, value arises from greater exclusivity in access to network resources.

While value lies in cooperative external ties for both network and relational synergies, these differ in their levels of analysis (see Figure 2 and Table 2). Relational synergies enhance the gains from *individual direct* ties. Network synergies improve the acquirer's position in a network encompassing *all* the direct ties *and* indirect ties of the combined firms. Market power synergies could be thought of narrowly in network terms: the acquirer gains influence by eliminating a node (*e.g.* a rival) or a tie from the network (*e.g.* a redundant supplier or buyer). But the market power scenario is based on changes in individual links (e.g. a single supplier), not on enhancing the structure of the entire ego network by combining all the ties of the acquirer and target.

The life sciences company QLT acquired Atrix Laboratories in 2004. In addition to internal gains from technology and product combinations, the press release notes that Atrix's "strategic alliances with such pharmaceutical companies as Pfizer, Novartis, Sanofi-Synthelabo, Fujisawa and Aventis" were valuable for QLT, [and] that "this transaction [would] accelerate both companies' strategic initiatives [through] *multiple partnered commercial and near commercial products…beyond what either company might have achieved independently*" (PR Newswire, 2004) [brackets and emphasis added]. A unique aspect of this deal was the value of combining Atrix's full portfolio (vs. a single tie) of R&D alliances with that of QLT to generate an improved network of partnered projects.

Non-Market Synergies

In addition to interactions with contractual business partners, firms interact with various stakeholders in the non-market environment (Baron, 1995). These "secondary" stakeholders usually do not have formal contracts with the firm, but good relationships with them create economic value through legitimacy (Ahuja & Yayavaram, 2011; DiMaggio & Powell, 1983). This source of value is non-trivial and distinct from other sources—as increasingly shown by research on stakeholder management (e.g. Henisz et al., 2014), corporate social responsibility (e.g. Eccles, Ioannou, & Serafeim, 2014), and social movements (e.g. King & Soule, 2007).

Non-market stakeholders affect M&A synergy because "acquisitions bring multiple stakeholder[s] together" (Bosse, Harrison, & Hoskisson, 2020:13) and provide an opportunity to redefine the expectations and rules of engagement with those stakeholders (Krishnan et al., 2004). Research distinguishes between stakeholders (e.g. community, trade associations, non-profits) and social issues (e.g. environment, diversity, human rights). Non-market synergies may arise from post-acquisition combinations of stakeholders with interests in similar issues (e.g.

women's rights), or from creating novel coalitions of stakeholders with interest in dissimilar but convergent issues (e.g. women's rights and diversity in general).[7]

Non-market synergies are similar to relational and network gains because they result from external cooperative relationships. But the latter two arise from interactions with other firms with common economic interests (*e.g.* a buyer and a supplier), usually governed by a legal contract. Non-market synergies, in contrast, bring the combined firm (A + T) together with parties from the broader environment that have distinct societal roles (e.g. NGO, government) within the realm of non-market strategy (see Figure 2).

Unilever acquired the outspoken and socially-conscious ice-cream maker Ben & Jerry's in 2000. While the deal raised eyebrows among stakeholders of both companies, Unilever saw the deal as more than about gaining a valuable brand: an opportunity to signal its intent to take CSR seriously in the eyes of *both firms'* stakeholders, which required harmonizing two distinct coalitions of non-market interests. Terms of the deal included pledges to preserve Ben & Jerry's socially responsible practices. Ben Cohen, founder of Ben & Jerry's, expressed that "what Ben & Jerry's is in the process of becoming is an entity inside a larger business, trying to infuse [social] values in that larger business" (Bourgeois III, Mariani, & Yu, 2003).

SYNERGY LIFECYCLES

So far, we have emphasized how the five-synergy typology offers a framework to understand distinct sources of *potential* synergy. We now explore several important considerations arising from the typology as they pertain to the *realization* of synergies.

Systematic Review of Research on Post-Merger Integration

Because research on post-merger integration has said the most about value realization, we conducted a systematic review of that literature, using the same methodology as before. The full

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[7] Bosse *et al.* (2020) discuss "stakeholder economies of scope," focusing on the "primary stakeholders" of the acquirer and target—employees, customers, suppliers, and capital providers. Our emphasis is on non-market "secondary" stakeholders *outside* of firm boundaries (*e.g.* communities, media, NGOs). Primary stakeholders fall under our other synergy categories (e.g. employees contribute to internal, suppliers to relational, etc.).

exposition is in Appendix B. Here, we briefly summarize the two observations that are most relevant to our concept of synergy lifecycles (which we introduce shortly).

Research emphasizes integration involving the acquirer and target, not external third parties affected by the deal. The post-merger integration literature focuses heavily on the internal fit between acquirers and targets, especially on employee-, cultural-, and human resource-related dimensions. A small handful of the papers we reviewed (mainly from marketing) also consider customers or suppliers part of the integration process (Anderson, Havila, & Salmi, 2001; Briscoe & Tsai, 2011; Kato & Schoenberg, 2014; Öberg, 2014; Palmatier, Miao, & Fang, 2007), and none contemplate network partners or non-market stakeholders. Some of the papers we reviewed link the type of synergy pursued to heterogeneity in post-merger integration processes, but those that do only consider internal or market power synergies (e.g. Graebner, 2004; Rabier, 2017). We found no studies linking relational, network, or non-market gains to heterogeneity in post-merger integration.

The timing of synergy realization and duration are overlooked. The notion of integration implies that synergy gains take some time to materialize; and if realized, gains should fade eventually.[8] The integration literature often considers the extent to which merger objectives were accomplished, but it does not consider timing as it pertains to the speed with which firms initially realize gains from M&A nor, especially, to the duration of time over which gains persist. Only three of the papers we reviewed raise the issue of time, but in the context of how the speed of the post-merger integration process itself affects value realization (Maire & Collerette, 2011; Schweizer & Patzelt, 2012; Uzelac, Bauer, Matzler, & Waschak, 2016).

We see an opening to address these issues in the post-merger integration literature. First, research implicitly defines post-merger integration as the bringing together of resources or activities *within* the boundaries of the combined firm. Yet our typology suggests that assets at

[8] The gains from synergies may not necessarily be realized, and hence, there is some degree of risk and uncertainty to the stream of cash flows that each synergy type will generate for the combined firm. While we do not explicitly address this issue in our analyses of the timing and duration of synergy realization, we note that it is consistent with a key idea from the finance and real options literatures that the net present value of future cash flows is driven by the size, timing, and uncertainty of those cash flows.

different levels of analysis *outside* the boundaries of the combined firm may also need to be integrated after acquisition completion. This idea broadens the scope and heterogeneity of the concept of post-merger integration. Second, research seems agnostic about the timing of what happens between deal completion and synergy disappearance, which we label the *synergy lifecycl*e. A lifecycle consists of a series of sequential stages from origin to demise that describe a process (Van de Ven & Poole, 1995). We consider two stages relevant to M&A synergies. The first, synergy realization, starts when the deal is completed and lasts until the acquirer begins to accrue benefits from the combination.[9] The second stage, synergy duration, is the period during which the firm accrues the gains of the acquisition, which eventually erode over time. This provides a more dynamic notion of post-merger integration.

We explore how the five synergy types exhibit heterogeneous lifecycle shapes by varying in the timing of value realization and duration. We consider differences *across* synergy types first, and then variance *within* synergy types. Table 3 summarizes the main points.

[TABLE 3 HERE]

Heterogeneity in Lifecycles Across Synergy Types

Our arguments comparing the timing of synergy realization and duration across types are based on two general propositions:

> ***Proposition 1. Synergy realization across types****: The greater the post-acquisition integration required by the combination of assets, activities, and relationships involved in a synergy type, the longer it will take firms to realize value from that synergy type.*
>
> ***Proposition 2. Synergy duration across types****: The greater the post-acquisition control the combined firm has over the assets, activities, and relationships involved in producing a synergy type, the longer the gains from that synergy type will persist.*

These two propositions correspond to the two dimensions underlying the typology presented in Figure 1. The level of analysis (depicted by the vertical axis in Figure 1) creates variance in the *integration required* to activate different synergies and thus impacts the timing of

[9] We consider the completion date as the starting point because, although companies may begin integration planning as soon as they announce a deal, they cannot legally implement those plans until the deal is completed.

initial realization. The governance orientation (depicted by the horizontal axis in Figure 1) affects the *control* the firm has over the sources of synergy gains and thus impacts the duration of synergies. We expand on each of these two statements in turn.

Synergy Realization Across Types: Integration Required. We explained earlier how each of the five synergies arises from combinations of assets, activities, and relationships occurring at different levels of analysis. The integration required to realize synergies varies across these levels of analysis, albeit not in a linear fashion.

The literature on post-merger integration says the most about deals involving internal synergies, which serves as a useful benchmark relative to the other four types. Generating value from internal assets (e.g. personnel, intellectual property, or distribution channels) often requires combining previously distinct systems, cultures, and organizations (Capron, 1999; Graebner & Eisenhardt, 2004; Puranam, Singh, & Chaudhuri, 2009). Bringing such assets together typically requires moderate to high integration (Sherman & Rupert, 2006), causing a lag in the timing of the initial realization of internal synergies.

By comparison, relational synergies require even greater integration because they involve developing trust and joint routines with an external third party *in addition* to the usual internal integration process. Internally, the firm must bring together personnel and other assets to manage the external partners involved in relational synergies. Externally, the firm must develop or strengthen a relationship with each valuable partner. If the partner used to interact with the acquirer or target separately, the combined firm must learn or update pre-existing relational routines. The acquisition could also result in a relationship with a new third party, in which case both acquirer and target need to develop new interorganizational trust and routines. Regardless, relationship building takes time. In the P&G-Gillette case, for example, the mutual gains from better trade terms with buyers took time to materialize. Referring to those benefits, the COO of P&G expressed, "*Over time* it became apparent that Gillette was best in class at a lot of things that P&G wasn't good at" (Kanter & Bird, 2009). P&G then had to invest time in setting up joint routines and systems with each individual buyer to apply Gillette's relational capabilities.

As with relational gains, non-market synergies involve both internal and external integration, the latter of which is especially time consuming. Internally, firms must recombine their distinct systems of "corporate diplomacy" (Henisz, 2017) by pooling expertise with distinct stakeholders and social issues. Externally, firms must engage in a lengthy process of building trust and reputation with non-market stakeholders. Because they do not operate in the business sector, such stakeholders are wary of firms, often making claims that challenge profit-seeking (Freeman, 1984; King & Soule, 2007). Even if one of the merging firms had a prior relationship with a stakeholder, the combined entity may need to prove itself worthy once again. Unlike with relational synergies, there is no contract to specify objectives, govern the interaction, or facilitate the development of relational routines. This leads to an elongated phase of diplomatic activity that delays obtaining the support and collaboration of non-market stakeholders.

For instance, the stakeholders of Unilever and Ben & Jerry's were initially skeptical of the combination. On Ben & Jerry's side, its employees, customers, and social-mission partners (*e.g.* NGOs, sustainable farms) were distrustful of Unilever's intentions (Austin & Quinn, 2005) and predicted "a long and winding road to infuse socially-responsible values into Unilever (Bourgeois III et al., 2003). On Unilever's side, shareholders were concerned that profits would be harmed by going too far down the CSR road and employees were skeptical that their corporate culture would mesh with the 'hippies' in Vermont (Bourgeois III et al., 2003). The combination eventually succeeded, but only after years. Krishnan et al. (2004) provide another example from the U.S. healthcare sector, where governments and communities require hospitals to maintain low-margin services in the public interest. In principle, mergers can be a means of realigning stakeholder expectations with profit goals by allowing hospitals to continue to offer low-margin services, but in fewer locations within the merged hospital network. But such a shift away from low-margin offerings does not occur "especially in the short-run following the merger when the public scrutiny is likely to be high" (Krishnan et al., 2004: 607).

Once a deal is completed, market power synergies tend to require less integration than the previous three for the firm to exert influence over rivals. External competitive interactions do not require intense trust-building or coordination, and internal integration may be needed but is not core to profitability. In the extreme case of acquiring to eliminate a rival from the market, the acquirer continues with its existing operations and simply shuts down the operations of the target (Cunningham, Ederer, & Ma, 2020). Not all cases are this cut and dry, nor is our point that integration is never required to gain market power. However, the legal approval of the deal directly assures the firm's ability to profit from market power sources more than in the case of most other synergy types because it allows the acquirer to act more unilaterally than before in its competitive arena (e.g. raise prices, pressure suppliers).

Unlike relational or non-market synergies, which depend on developing strong bonds with individual partners, network synergies are mechanically driven by changes in the structure of the portfolio of ties. This change is (comparatively) immediate upon deal completion and requires little to no integration. For instance, once an acquirer inherits the multiple contractual alliances of a target in a single transaction, it automatically occupies a more central position in the network than before. A relatively low integration of internal assets is required, and the ties that existed pre-acquisition continue as before.[10] Hence, network synergy gains happen more quickly than other types of gains. In the QLT example mentioned earlier, the structural gain from inheriting Atrix's alliances was immediate.

These comparisons, based on the mechanism of integration required from Proposition 1, suggest the following empirically testable relationship:

> ***Empirical Prediction 1****: Compared to other synergy types, network and market power synergy require low integration. Internal synergies require comparatively moderate integration. Relational synergies require comparatively moderate to high integration. Non-market synergies require the highest integration relative to the others. Thus, the time required to initially achieve each of those synergy types increases (on average) in that order (per Proposition 1).*

Synergy Duration Across Types: Control. Once achieved, the duration of synergies depends on the continued use of and investment in the combined assets, activities, and

[10] An acquisition could trigger the loss of network ties, but that would usually be resolved during the pre-merger due diligence period. See Hernandez and Shaver (2019) for further discussion.

relationships. The ability to use and invest in those factors is a function of the combined firm's control over them. And control is directly related to the governance orientation underlying our typology. Fiat and market competition entail relatively strong control because the firm owns the relevant assets and can act unilaterally. Cooperative governance offers lower control because the acquirer relies on shared assets, needing the input and approval of third-party collaborators.

When it comes to internal synergies, fiat provides the authority to make necessary adjustments to maintain sources of value without depending on an external entity. As a result, internal gains can last for a relatively long period (assuming competent management). The logic of market competition denotes that greater market power gives firms the ability to act more unilaterally than before on the industry forces that shape the distribution of rents (in equilibrium). These monopoly-like rents persist until other changes in the industry modify competitive conditions (we explore those conditions later).

The other synergies, governed by cooperative orientations, provide less control over the underlying sources of value. But, important differences exist among the three.

Network synergies are likely to erode the fastest because a firm has the least control over the structure of an external network compared to the assets involved in the other synergies. Because the structural position (e.g. brokerage) of a firm often depends on second or even third order ties (e.g. a partner's partner's partner!) over which it has no ownership and control, structural advantages are very hard to maintain (Burt, 2002; Salancik, 1995). Returning to the QLT-Atrix deal, for example, QLT could not directly affect whether the new partners it gained from Atrix established alliances with one another, which would hurt QLT's ability to be the exclusive broker in its ego network by spanning many structural holes.

Relational synergies require direct input from another firm. The assets that need to be combined are dyadic, owned by the focal firm and another party, and the value created will need to be split between the two. Any investment in updating or maintaining the underlying assets (if, for instance, there is a change in technology or demand) requires joint decision-making (Dyer & Singh, 1998). In the case of P&G and Gillette, the new modes of transacting with buyers implied that P&G's customers would capture at least some of the relational synergy gains. The COO pointed to the possibility of P&G sales employees engaging in more "joint-planning with customers" (Kanter & Bird, 2009), showing the costs of managing external relationships and implying some division of rents. Dyadic governance is challenging, of course, but more within the firm's control than network synergies involving multiple direct and indirect partners.

We argued earlier that obtaining the initial support of non-market stakeholders is a slower process than eliciting cooperation from contractual partners (i.e. relational synergy). But once obtained, support from non-market actors can produce reasonably durable benefits (Deng et al., 2013; Henisz et al., 2014), in part because the institutional non-market environment is fairly stable (DiMaggio & Powell, 1983). Being legitimized by one or more powerful stakeholders serves as an endorsement in the eyes of other stakeholders within the same domain, which further bolsters the legitimacy of the firm and leads to measurable economic gains (Dorobantu, Henisz, & Nartey, 2017). In the case of Unilever, it successfully pulled off the combination with Ben & Jerry's and used it as a stepping stone to build a worldwide organization renowned for its CSR practices, which has paid important dividends in reputational capital. As with relational synergies, however, the firm is never in full control of its stakeholders and thus value can erode if something affects the stability of non-market coalitions.

These comparisons of control over post-acquisition activities suggest the following:

> ***Empirical Prediction 2****: Compared to other synergy types, the acquiring firm can control the assets involved in internal and market power synergies the most, followed by the assets involved in relational and non-market synergies, with the assets involved in network synergies being hardest to control. Thus, the duration of each of synergy type decreases (on average) in that order (per Proposition 2).*

Based on Empirical Predictions 1 and 2, we illustrate differences in lifecycles across synergy types in Figure 3. This is only a stylized representation—other relative differences are plausible. We do not make any predictions about differences in the level of benefits across types, so the vertical axis depicts equal peak benefits in all cases.

[FIGURE 3 HERE]

Heterogeneity in Lifecycles Within Synergy Types

We just considered how integration and control drive "average" differences in lifecycles *across* synergy types. At the same time, we expect that two factors create variance in the timing and duration of synergy gains *within* synergy types:

> ***Proposition 3. Synergy realization within types****: The greater the pre-acquisition alignment between the assets, activities, and relationships involved in a synergy type, the more efficiently the acquirer can accomplish the required post-acquisition integration, and thus the faster the firm will realize value from that synergy.*

> ***Proposition 4. Synergy duration within types****: The greater the post-acquisition stability of the assets, activities, and relationships involved in a synergy type, the better the acquirer can control the sources of the synergy, and thus the longer the duration of the gains from that synergy.*

We will define alignment and stability as they pertain to each synergy type below. Before doing so, a note on the distinction between Propositions 1-2 and 3-4 is important. Integration required (Proposition 1) and control (Proposition 2) are manifested in all synergy types but at different "average levels" across types. Alignment (Proposition 3) and stability (Proposition 4), in contrast, are a function of unique variables that apply only to one type of synergy but not to others. This is why they explain heterogeneity within types only. In what follows, we draw on variables relating to alignment and stability discussed in the literatures specific to each source of value (e.g. stakeholder theory, RBV, network theory, etc.). None of the variables is inherently novel, but their application to synergy lifecycles is. For each synergy type, we offer one testable empirical prediction for realization timing and one for duration length, seeking to illustrate plausible relationships rather than laying out all possible variables that relate to alignment and stability. Table 3 summarizes the relevant variables, and Figures 4a-4e depict how those variables might modify the lifecycle shapes of each synergy type.

[FIGURES 4a, 4b, 4c, 4d, AND 4e HERE]

Synergy Realization Within Types: Alignment. Alignment refers to the fit, correspondence, or agreement between the inputs involved in creating a particular synergy. It is manifested differently for each synergy type. We offer one example for each type next.

A key predictor of internal integration success is the pre-merger organizational and strategic fit between the acquirer and target. Based on our literature review (Appendix B), it is the most frequently discussed alignment factor (e.g. Bauer & Matzler, 2014). When the acquirer and target are more compatible and similar in terms of their resources, capabilities, and organization, internal synergies will be realized faster (Puranam & Vanneste, 2016).

> ***Empirical Prediction 3a****: The greater the organizational and strategic fit between the acquirer and the target, the more quickly internal synergies will be realized.*

As mentioned earlier, market power synergies are realized relatively quickly on average. But whether the merger is vertical or horizontal is an alignment factor that creates variance in realization timing. In horizontal mergers involving targets in the same industry as the acquirer, profits will be realized faster because less integration is required to achieve market influence—the elimination or consolidation of a competitor is sufficient (Devos et al., 2009; Porter, 1980), even if it may require some integration (e.g. renegotiating long-term contracts to obtain purchasing power). More integration is warranted in vertical deals because they combine firms from different parts of the value chain, making it less likely that the assets and activities of the firms will be aligned and ready to yield rents at the outset (Bain, 1951; Farrell & Shapiro, 1990).

> ***Empirical Prediction 3b****: Market power synergies will be realized more quickly for horizontal than for vertical acquisitions.*

While several factors affect alignment in interfirm relations, trust is perhaps the most cited. Interorganizational trust is "the extent of trust placed in the partner organization by members of a focal organization" and is distinct from interpersonal trust (Zaheer et al., 1998:142). We refer to the trust of a third-party organization (e.g. alliance partner) in either or both of the merging firms, and vice versa. The higher this pre-acquisition trust, the more post-acquisition willingness to cooperate, to engage in mutual accommodation, and to re-work relational agreements after deal completion (Gulati & Nickerson, 2008).

> ***Empirical Prediction 3c****: The greater the trust between the firms involved in the acquisition (acquirer and target) and their individual partners pre-acquisition, the more quickly relational synergies will be realized.*

We argued that network synergies arise and erode more quickly than other types. But the overlap in the network partners of the combining firms—the network analogue of alignment—can modify the timing. Recall that network synergies come from either the addition of new partnerships or the elimination of redundant ones. We expect the latter case to bring quicker gains because a legal reassignment of the ties to the combined entity suffices, without much modification of the pre-existing purposes of those ties. In contrast, a synergistic addition of two networks may require the initiation of new resource flows across the network to achieve the benefits of a larger and more diverse set of partners. To be clear, value still arises from the structural position, which is achieved upon merger completion. But the activation of structural benefits is faster for subtractive than additive network changes (Hernandez & Shaver, 2019).[11]

> ***Empirical Prediction 3d****: The greater the overlap in the pre-acquisition network partners of the acquirer and target, the more quickly network synergies will be realized.*

The core challenge of stakeholder management is balancing competing stakeholder claims on the firm (Freeman, 1984)—an issue of non-market alignment. The merger of two firms can significantly modify the balance of claims and expectations on the firm by its stakeholders. We expect that the speed of initial realization for non-market synergies will be affected by the extent to which the relevant stakeholders of the acquirer and target have aligned vs. competing interests. Disagreement among the stakeholders of merged firms can delay value realization from new stakeholder coalitions, especially because non-market stakeholders tend to distrust for-profit firms (King & Soule, 2007).

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[11] We explicitly focus only on the speed of realization here. Overlap may lead to quicker gains, while lack of overlap may lead to bigger gains (e.g. Makri, Hitt, & Lane, 2010; Sears & Hoetker, 2014), but the size of the gain is beyond the scope of our purposes.

> ***Empirical Prediction 3e:*** *The greater the alignment of interests among the acquirer's and the target's non-market stakeholders pre-acquisition, the more quickly non-market synergies will be realized.*

Synergy Realization Within Types: Stability. Stability refers to the state of balance or equilibrium among the inputs involved in a given synergy. As mentioned above, it manifests differently for each synergy type.

The integration management capability of the acquirer is one important input into the stability of the underlying assets, activities, and relationships that are involved in internal synergies, and can therefore lead to a longer duration of gains from this synergy type. The integration management capability of the acquirer is distinct from organizational or strategic fit (e.g. Bauer & Matzler, 2014; Larsson & Finkelstein, 1999), and can be a function of many factors, such as prior experience with acquisitions (Zollo & Singh, 2004), the presence of a dedicated corporate development function (Trichterborn, Zu Knyphausen-Aufseß, & Schweizer, 2016), or the skills of its managers and corporate development personnel (Meyer-Doyle, Lee, & Helfat, 2019). The capability could also be circumstantial, such the attention the firm can devote to the integration of the focal target given other demands on attention.

> ***Empirical Prediction 4a****: The stronger the acquirer's integration management capabilities at the time of deal completion, the longer the duration of internal synergies.*

A well-known factor influencing the stability of competitive equilibrium in industries is the intensity of rivalry among competitors (Porter, 1980). The more firms jockey for position post-acquisition, the more quickly the rents from market power synergies begin to erode. For instance, if a rival of the combined entity engages in another acquisition or launches an intensive price war, the market power synergies of the combined firm will dissipate faster.

> ***Empirical Prediction 4b****: The weaker the intensity of rivalry among the competitors in an industry post-acquisition, the longer the duration of market power synergies.*

The stability of interorganizational relationships is a function of partner-specific routines (Dyer & Singh, 1998). In an M&A setting, these routines include processes, norms, and activities that are shared and tacitly understood by the merged entity and the individual third parties affected by the deal. Partner-specific routines stabilize relationships in the same way that individual habits offer predictability and continuity to behavior (Zollo, Reuer, & Singh, 2002). These routines are distinct from pre-acquisition trust because they arise after the integration phase, resulting in a set of interorganizational patterns that match the new reality of the merger.

> ***Empirical Prediction 4c****: The stronger the partner-specific routines that emerge post-acquisition, the longer the duration of relational synergies.*

The duration of network synergies depends on the stability of the network position obtained by the acquirer from the acquisition. That stability varies directly with the rate of corporate actions taken by other firms (nodes) proximate to the acquirer network. Just as a focal firm can rewire the network through its own acquisitions or alliances, other firms in the network neighborhood can form or end alliances, make acquisitions or divestitures, or enter and exit the industry. Each of these actions can create network externalities that unwittingly modify the position of the focal firm (Hernandez & Menon, 2020; Hernandez, Lee, & Shaver, 2020). And as we noted earlier, the actions of other firms that modify the network of the focal firm are impossible to control. The greater the rate of such network-changing actions that occurs post-acquisition, the less stable the network position of the acquirer.

> ***Empirical Prediction 4d****: The lower the rate of change in the broader network after an acquisition, the longer the duration of network synergies.*

Once the claims of stakeholders on the combined firms have been aligned, the duration of non-market synergies post-merger should depend on the contentiousness of the issues about which stakeholders care (Dorobantu et al., 2017; King & Soule, 2007). For example, within the field of environmental issues, stakeholders vary their agreement on issues (e.g. how harmful are GMOs?) as well as the tactics used to pursue their objectives (e.g. Greenpeace's aggressive attacks on firms vs. more accommodating NGOs) (Odziemkowska, 2019). The combination of these factors makes some issue fields more fragmented, and thus more contentious, than others. Contentious fields lead to a more unstable non-market environment for firms than those in which there is more unity and cohesion among non-market actors. In the latter scenario, the rents from non-market synergies can persist for longer because the coalition between the merged firm and its new stakeholder environment is more enduring.

> ***Empirical Prediction 4e****: The less contentious the non-market stakeholder environment of the combined entity post-acquisition, the longer the duration of non-market synergies.*

We emphasize that the empirical predictions stated in italics are only examples of many potential variables related to alignment and stability. Note that each of the variables we considered applies uniquely to specific synergy types, leading to empirical predictions within but not across types.

CO-SYNERGIES AND DIS-SYNERGIES

If acquisitions give rise to multiple synergy types with heterogeneous lifecycles, the total value created by a deal depends not only on the sum and timing of value created by each synergy type, but also on the extent to which each type interacts with the others. A *co-synergy* arises when two types complement one another: an increase in one enhances the value created by the other (Milgrom & Roberts, 1995). A *dis-synergy* arises when two types substitute one another: an increase in one diminishes the value created by the other. We explore such interactions in this section.

Two caveats are important before moving forward. First, co-synergy and dis-synergy are not the same as positive and negative correlation between synergy types. Certain pairs of synergies may co-occur more or less frequently but not necessarily complement or substitute each other. We take no stand on which pairs co-occur more than others—that is a task for future empirical work. Second, this section of the paper is more speculative than others because there is no prior literature on the reinforcing or undermining effects across synergy types (as there was on M&A value and integration). We thus do not formalize any propositions, but we do offer ideas regarding the main factors leading to co-synergies and dis-synergies for each of the five types (summarized in Table 4). We also provide some illustrative examples in the text, plus a more comprehensive set of examples for every pairwise combination in Tables 5-6.

[TABLES 4, 5, AND 6 HERE]

How Internal Synergies Interact with Other Types

Internal synergies can create co-synergies when improvements in internal resources and capabilities, made possible by the acquisition, enhance the firm's effectiveness in managing external relationships (whether competitive or cooperative). For example, Johnson & Johnson (J&J) acquired the robotic surgery firm Auris in 2019, whose capabilities would improve J&J's expertise in lung-cancer diagnosis and treatment (internal). But according to the chairman of J&J's medical device units, the Auris deal also enhanced the value of Verb Surgical, a 2015 alliance between J&J and Alphabet to develop robotic surgery technology (Koons, 2019)—a relational co-synergy. Conversely, internal synergies can bring dis-synergies when the resources and capabilities created by an acquisition are poorly suited to the post-acquisition external environment (cooperative or competitive). This may happen when a deal strengthens internal fit among a firms' strategic activities but cognitive limitations prevent managers from seeing how the new activity system undermines external fit with the environment (c.f. Siggelkow, 2001)).

How Market Power Synergies Interact with Other Types

Market power gains insulate acquirers from competition. This can produce co-synergies by allowing the acquirer to dedicate more resources to internal activities and to external cooperative relationships (Kang, 2020). But it can also lead to dis-synergies by reducing incentives to make investments in activities and relationships that create value through other means, such as lowering employees' motivation to innovate (e.g. Fulghieri & Sevilir, 2011). Gaining market power via acquisitions may also have negative legitimacy spillovers for non-market stakeholders. For example, when BB&T and SunTrust recently combined, the deal was criticized for "increas[ing] concentration in specific markets in the Southeastern United States… in rural and economically disadvantaged areas the merger [may] have disproportionate effects, such as shuttered branch offices and reduction in staff" (Walsh, 2019).

How Relational Synergies Interact with Other Types

Relational gains are likely to yield co-synergies when they enable the acquirer to improve relationships with other actors that contribute to market power, network, or non-market synergies; and by facilitating the development of internal assets giving rise to internal synergies. Returning to the P&G-Gillette example, the joint value generated with retailers and distributors led to internal co-synergies by strengthening the combined firm's downstream management capabilities. It also gave P&G a market power co-synergy because its better relations with buyers made P&G's greater influence more palatable.

At the same time, relational synergies could create dis-synergies when they lead an acquirer to constrain its investments in other valuable activities to maintain goodwill with specific dyadic partners. We speculate that P&G's stronger value generation with its distributors may have seeded non-market and internal dis-synergies in later years. Locking in distributors was good for P&G but a sore point for stakeholders like the public and the media. When the direct-to-consumer (DTC) business models of rivals like Harry's and Dollar Shave Club arose, those stakeholders enthusiastically supported the DTC firms (Tiffany, 2018). Further, P&G was constrained from fully developing to its own DTC service because of its relational commitments to downstream partners (Chesto, 2017).

How Network Synergies Interact with Other Types

Improvements in an acquirer's structural network position can help firms better access and control resources and relationships that give rise to the other four synergy types. For example, Burt (1983) demonstrates a network and market power co-synergy, showing that the acquisitions of manufacturing firms enhance their brokerage positions in vertical networks, allowing them to exert greater pricing control. At the same time, an improved structural position gained through an acquisition can constrain a firm's ability to engage in actions that would generate value through other sources of synergy. Comanor and Scherer (2013) argue that biopharma mergers have reduced the cost of innovation through greater centrality in external innovation networks (network synergy), but that gain has resulted in a loss of internal innovation capabilities for pharmaceutical firms (an internal dis-synergy).

How Non-Market Synergies Interact with Other Types

Non-market synergies can generate co-synergies when the support of influential stakeholders legitimizes firms' market-based activities (internal or external). Returning to an earlier case, being infused with Ben & Jerry's social values was crucial in developing Unilever's CSR culture and capabilities, an internal co-synergy. Additionally, Unilever enhanced its practices for managing relationships with sustainable suppliers thanks to learning from Ben & Jerry's, generating mutual gains with those third parties (relational co-synergy) (Austin & Quinn, 2005). At the same time, staying in the good graces of powerful stakeholders can lead the acquirer to limit actions that could generate other gains. The U.S. hospital industry example in Krishnan et al. (2004) illustrates how a profitable shift away from low-margin services may have been forestalled by the need to please community stakeholders. In a more recent case, the AIDS Healthcare Foundation (AHF) publicly expressed concern that the CVS-Aetna merger would result in patients receiving insufficient care and in breaches in the confidentiality of patients' HIV status (BusinessWire, 2018). Such pressures can lead firms to trade off non-market gains for lower internal or market power gains, for example.[12]

DISCUSSION

We have presented three related ideas in this paper: (1) there are five distinct types of synergies defined by the intersection of different governance orientations and levels of analysis; (2) each of those synergies has a unique lifecycle; and (3) each synergy can interact with the others positively or negatively. This is a lot of conceptual territory to cover, and thus it may be useful to illustrate the full set of ideas through a comprehensive case study. To avoid an excessively long paper, we present a case study of mergers among U.S. airlines in Appendix C for interested readers. We focus the discussion here on a handful of theoretical implications.

[12] While we have focused on synergy gains from the perspective of the focal firm, giving up profitable gains to serve the needs of non-market stakeholders may be the morally right thing to do.

Implications for Assessing Total Value in M&A

To realize synergistic value, firms must pay a price that does not capitalize the gains generated by the acquirer-target combination: *Realized Value = Synergy – Price Premium*, where *Synergy = NPV(A+T) – NPV(A)* (Barney, 1988; Capron & Pistre, 2002). Our framework is consistent with this well-established idea, but also suggests the following advances.

First, it may be useful to modify the M&A value formula as follows:

$$Realized\ Value = \Sigma_i\ Synergy_i + \Sigma_{i,j}\ Co\text{-}Synergy_{i,j} - \Sigma_{i,j}\ Dis\text{-}Synergy_{i,j} - Price\ Premium$$

We have simply decomposed the monolithic synergy to account for distinct synergy sources and their interactions. $Synergy_i$ is the value created by synergy source i, $Co\text{-}Synergy_{i,j}$ represents the complementarity between synergy source i and any of the other four sources j, and $Dis\text{-}Synergy_{i,j}$ is the substitution between source i and any of the other four sources j. As always, the price premium applies to the deal as a whole.

Second, the decomposition implies that the basic unit of analysis to understand potential and realized value is the individual synergy type, not the deal as a whole—because different synergy types have different profit logics. There may be a one-to-one correspondence between deals and individual synergies in some cases (e.g. an acquisition that produces only market power synergy), but most deals have the potential for multiple synergy types.

Third, different synergies are likely manifested through different indicators, so a single indicator of deal performance will not capture total value created (Zollo & Meier, 2008). Fourth, value for different synergy types occurs over different time scales. These last two points make the quantification of the value created by a deal more challenging than reflected in current practice, because the metrics and time scales used to assess value for one synergy type may not readily compare with the metrics and time scales appropriate for another type. We noted earlier that research has focused on inferring synergy through its manifestations more than its sources. Those manifestations are measured overwhelmingly via abnormal stock returns (see Appendix A and Table A1-3), which may be a useful way to assess some dimensions of M&A value. But stock returns are limited when identifying *sources* of value (Houston, James, & Ryngaert, 2001;

Sheen, 2014). That limitation becomes more severe in light of the five-synergy typology we introduce, because shareholders may not be attuned to all synergy types. More fundamentally, shareholders are only one of many stakeholders affected by an acquisition, whose interests and notions of value may or may not be compatible with those of other parties affected by the deal.[13]

We thus encourage M&A scholars and practitioners to broaden the concept and measurement of the total value of an acquisition. A more comprehensive and useful notion of value created will result from analyzing each synergy source separately, plus accounting for co- and dis-synergies. This will require appropriate indicators of value for each synergy type, attuned to their distinct nature and lifecycles. While ultimately all profits show up as revenue gains or cost reductions, tracking the contribution of each of the five synergy sources to revenues or costs will probably require developing intermediate metrics. We see this as an exciting opportunity for future research and practice in the M&A space.

Other Implications

This paper has important ramifications for empirical research. We just noted the need for a more pluralistic set of metrics to link each synergy type M&A performance. The typology also begs for new ways to identify the *existence* of different synergy types. Studies on target selection may be useful. Empirical work on who acquires whom is sparse compared to work on deal performance (exceptions include Hernandez & Shaver, 2019; Kaul & Wu, 2016; Mitchell & Shaver, 2003; Rogan & Sorenson, 2014). Yet target choice studies allow researchers to observe how *combinations* of specific acquirer and target attributes and assets affect the likelihood of a potential deal being realized, under the reasonable assumption that firms will be more likely to select a target the greater the expected synergy from the combination. For example, matching methods could be used to assess how various indicators of the five synergy types predict acquirer-target combinations (Akkus, Cookson, & Hortaçsu, 2015; Rao, Yu, & Umashankar,

[13] For example, Larry Fink's (BlackRock CEO) recent letter encouraging CEOs to focus on multiple stakeholders has been applauded by some investors and derided by others.

2016). These studies could illuminate which type of synergy is most important as a driver of target choice across industries, competitive conditions, or institutional contexts.

Recent advances in text-based analysis and machine learning might be useful to identify the types of synergies managers are seeking across deals. Hoberg and Phillips (2010) and Rabier (2017) use basic text analysis of annual reports, press releases, and conference calls to infer the types of synergies firms obtain through M&A. More sophisticated machine learning techniques could analyze large amounts of text and unlock latent variables that may help identify distinct synergy sources. Further, lab or field experiments can yield useful insights into some of the mechanisms that give rise to certain types of synergies (e.g. Davis & Wilson, 2008 generate market power effects in an experiment). And to document the lifecycles proposed in Table 3, qualitative methodologies may offer important insights into how different types of synergies evolve over time. Just like the qualitative study by Graebner and Eisenhardt (2004) uncovered the process by which sellers choose buyers in M&A, qualitative work may reveal how firms discover and realize (or fail to realize) the various types of synergies in our typology.

The concept of synergy lifecycles can be a useful lens to better understand post-merger integration. The synergy typology raises a first-order question: is integration required to realize value in the first place? Our work suggests that integration matters less for market power and network synergies and more for internal, relational, and stakeholder synergies. A second-order issue raised by the typology is that, when integration is necessary, it will vary in difficulty and length according to the synergy being pursued. Prior literature has said a lot about integration involving internal assets, but almost nothing about integration involving external contractual and non-contractual partners. We have argued that this “external integration” is unique because it involves interactions, trust-building, and negotiation with external parties in addition to the usual internal adjustments. Future research should explore the actual process involved in pulling off deals involving dual external-internal integration tasks.

We considered the potential co- and dis-synergies across types, focusing on pairwise combinations. A higher order exercise would be to consider how various configurations of multiple synergy types may impact the novelty and value created by deals. Similar to technological recombination (Fleming, 2001; Schumpeter, 1934), synergy arises from the recombination of assets previously under the purview of separate firms, which the combined entity puts to some new use. Hence, synergies may not only differ by the types of underlying assets that come together (as we have emphasized) but also by how unique and original the configurations of asset combinations are. Unique configurations could arise within synergy types (e.g. originality of the combined internal assets), and also across types (e.g. originality of the combined internal assets, external networks, and stakeholder relations). Such configurational metrics could also serve to study post-merger integration. For instance, deals involving more unique or complex recombinations of assets may be harder to integrate, but also offer greater payoffs if managed well (Rabier, 2017).

By developing a theoretically-grounded and comprehensive typology of M&A synergies, we have attempted to move the focus away from synergy manifestations and towards their sources. Doing so allows us to introduce three novel synergy types arising from changes in firms' external cooperate environments, in addition to the traditional synergies arising from changes in asset ownership and competition. Our expansive typology offers a systematic identification of potential synergies, a more nuanced understanding of heterogeneity in the dynamics of synergy realization, and a broader conception of value than previously available. We hope this framework can be valuable for both scholars and managers interested in M&A.

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Table 1
Typology of Acquisition Synergies

NOTE: This table provides a definition of each synergy type, and lists the main theoretical lens upon which the distinct logic for each synergy is based. See Figure 1 for an illustration of the two underlying dimensions that give rise to the five synergy types.

Type	**Definition**	**Source of Value**	**Theoretical Lens**
Internal	Combination of resources or capabilities that the acquirer and target own and control directly, not shared with another party, that jointly enhance revenues or lower costs.	Efficiency	Resources (RBV) and capabilities
Market Power	Combination of assets and industry positions that give the combined firm power in competitive interactions, such as eliminating or weakening a rival, increasing buying power, or increasing pricing power.	Market power	IO economics
Relational	Enhancement of assets shared with an individual third party made possible by the combination of the acquirer and target. The third party typically has a contractual relationship with the merged firm, which could be a vertical (supplier, buyer) or horizontal (alliance partner).	Dyadic Relationships	Relational view, contracting
Network	Combination of acquirer and target's pre-acquisition ego networks that improves the combined firm's structural position (e.g. centrality, structural holes, status). The ego network comprises the combining firms' direct *and* indirect (2^{nd} order) ties.	Structural position	Networks
Non-Market	Combination of the relationships of the acquirer and target with non-market stakeholders (e.g. governments, communities, NGOs) that enhances the firm's ability to gain legitimacy from those stakeholders.	Legitimacy	Stakeholder theory, non-market strategy, institutional theory, social movements

Table 2
Distinctions between Synergy Types

NOTE: The row explains the difference with respect to the type in the column.

	Internal	**Market Power**	**Relational**	**Network**	**Non-Market**
Internal	n/a	Value from assets the acquirer owns and controls, not competitive interactions in the market	Internal assets may impact external partners, but acquirer owns and unilaterally controls them	Internal assets may impact network structure, but acquirer owns and unilaterally controls them	Internal assets may impact stakeholders, but acquirer owns and unilaterally controls them
Market Power	Value from acquirer's competitive power in industry, not from efficient use of resources or capabilities per se	n/a	Interactions with external parties are competitive and zero-sum, rather than collaborative and mutually beneficial	Power from eliminating or controlling individual competitive interactions (tie not strictly needed), not from structure of network	Power from eliminating or limiting competitive interactions, rather than legitimacy in non-market interactions
Relational	Assets are shared and partner-specific (cooperation), not unilaterally controlled by the acquirer (fiat)	Interactions with external parties are cooperative and mutually beneficial, rather than competitive and zero-sum	n/a	Value from partner-specific exchange in individual direct tie (separate value for each dyadic tie), not from position in network composed of *all* direct and indirect ties	Value from contractual, market-based relationship between similar parties (*e.g.* firms), not from non-market relationships between dissimilar parties (*e.g.* firm & NGO)
Network	Value from position in network, not from assets that acquirer owns and unilaterally controls	Influence from position in network (direct + indirect ties), not from eliminating or controlling individual competitive interactions (where tie is not strictly needed)	Value from position in network of direct & indirect ties, not from partner-specific exchange in individual direct ties (dyads)	n/a	Value from position in network of market-based ties between similar parties (*e.g.* firms), rather than non-market relationships between dissimilar parties (*e.g.* firm & NGO)
Non-Market	Value from non-market relations between dissimilar parties (*e.g.* firm and NGO), rather than from assets that acquirer owns and controls	Value from legitimacy-focused interactions with non-market stakeholders (cooperation), rather than competition-focused market interactions with rivals	Value from non-market relations between dissimilar parties (*e.g.* firm and NGO), rather than market relationships between similar parties (*e.g.* firms)	Value from non-market relationships between dissimilar parties (*e.g.* firm and NGO), rather than position in network of market relationships between similar parties	n/a

Table 3
Synergy Lifecycles

NOTE: The integration required affects the timing of initial realization, and the control over valuable resources affects the duration of synergy gains. Those factors explain differences in lifecycles *across* synergy types (see Propositions 1-2). Alignment- and stability-related variables, unique to each synergy type, create variance in integration required and control *within* synergy types (see Propositions 3-4).

Type	**Integration Required** (Proposition 1)	**Timing of Initial Synergy Realization** (Empirical Prediction 1)	**Control Over Value-Creating Activities** (Proposition 2)	**Duration of Synergy Gains** (Empirical Prediction 2)	**Alignment Variables** (Proposition 3 and Empirical Predictions 3a-3e)	**Stability Variables** (Proposition 4 and Empirical Predictions 4a-4e)
Internal	Moderate to Medium	Medium	High	Long, requiring continued investment	Organizational and strategic fit (pre-acquisition)	Integration management capabilities (at time of acquisition)
Market Power	Low	Short	High	Long, if industry forces remain in equilibrium	Vertical vs. horizontal acquisition	Intensity of rivalry in the industry (post-acquisition)
Relational	Medium to High	Medium to Long	Medium	Medium, requiring continued relational investment	Trust between third party and acquirer/target (pre-acquisition	Partner-specific routines (post-acquisition)
Network	Very Low	Immediate	Very Low	Short, surrounding structure can change fast without the firm's control	Overlap in ties between acquirer and target (pre-acquisition)	Rate of network change (post-acquisition)
Non-Market	Very High	Very long	Medium	Medium, requiring continued investment in corporate diplomacy and social issue expertise	Congruence of stakeholder interests (pre-acquisition)	Contentiousness of stakeholder field (post-acquisition)

Table 4
Factors Leading to Co-Synergies and Dis-Synergies with Each Synergy Type

NOTE: This table lays out the general factors that lead to co- and dis-synergies with any of the other types. See Tables 5 and 6 for pairwise co-synergies and dis-synergies, respectively.

Type	Co-Synergies	Dis-Synergies
Internal	Recombinations of internal assets may generate new resources and capabilities that enhance effectiveness in managing external relationships (competitive or cooperative)	Recombinations of internal assets may lead to new capabilities and activities that are poorly suited to activities involving competitors and collaborators in the post-acquisition external environment
Market Power	Stronger competitive position insulates the acquirer, allowing it to dedicate more resources to assets or relationships giving rise to the other four synergy types	Stronger competitive position reduces the acquirer's incentives to dedicate resources to the assets or relationships giving rise to the other four synergy types
Relational	Stronger value creation with specific third parties allows the acquirer to improve other relationships with external counterparties that give rise to market power, network, or stakeholder synergies. They also may facilitate the development of internal assets giving rise to internal synergies.	Maintaining strong dyadic relationships with key suppliers, buyers, or alliance partners to support relational synergies may require constraining investments in activities or relationships that would generate other synergy types
Network	Improved network position helps the acquirer better access or control resources and relationships that give rise to the other four synergy types	The new structural position occupied by the firm can constrain a firm's ability to engage in actions that would generate value through other sources of synergy
Non-Market	Increased legitimacy with and support of non-market stakeholders legitimizes market-based activities (internal or external)	Maintaining legitimacy with some non-market stakeholders can lead the acquirer to constrain actions or investments that could generate other synergy types (for instrumental or moral reasons)

Table 5
Pairwise Co-Synergies between Synergy Types

NOTE: The row offers examples of co-synergy with respect to the type in the column. The examples provided are meant to be illustrative, not exhaustive. See the text for a limited set of more detailed examples.

	Internal	Market Power	Relational	Network	Non-Market
Internal	n/a	Stronger internal resources and capabilities may help gain pricing power with buyers or suppliers, or reduce price competition with rivals	Enhanced alliance management capabilities can help acquirer better manage relationships with specific external partners (new or pre-existing)	Improved internal structure and processes can help acquirer better exploit a network position (e.g. integrating resources or knowledge gained via the network)	Enhanced expertise with social issues can help acquirer better manage new or existing stakeholders
Market Power	Insulation from competition may allow the acquirer to invest in complementary assets with the target, or accelerate post-merger integration	n/a	Enhanced market power from consolidating vertical external relationships may enable acquirer to manage a smaller set of external partners better	Increased market power (vertical or horizontal) may give the firm more power and control in vertical or horizontal cooperative networks	Enhanced influence (within limits) may legitimate the acquirer in the eyes of key non-market stakeholders
Relational	Better relations with external partners may help acquirer develop resources that gave rise to internal synergies (e.g. access to partner IP accelerates internal R&D)	Trust with horizontal or vertical external partners may lessen uncooperative behavior from backlash against the acquirer's increased market power	n/a	Stronger dyadic ties reduce rate of network change, lengthening the life of the firm's newly improved network position	Suppliers, buyers, or alliance partners with positive ties to the focal firm can enable good relations with stakeholders via referral, endorsements, etc.
Network	Improved structural position may help acquirer access resources that complement internal activities	Increased influence in horizontal or vertical networks may bolster the market power and control of the firm	Improved network position may strengthen trust or enhance stability of individual partnerships (stronger dyadic ties)	n/a	Improved network position may give the firm influence or legitimacy over key stakeholders
Non-Market	Non-market stakeholders may offer support for the development of internal capabilities that complement goals of stakeholders	Non-market stakeholders may support, legitimate the firm's increased market power (if this helps the stakeholders' interests)	Non-market stakeholders may lend support to strengthen individual relations with suppliers, buyers, or other partners	Non-market stakeholders may support, legitimate the firm's new position (or role) in the network	n/a

Table 6
Pairwise Dis-Synergies between Synergy Types

NOTE: The row explains the dis-synergy with respect to the type in the column. The examples provided are meant to be illustrative, not exhaustive. See the text for more detailed examples.

	Internal	**Market Power**	**Relational**	**Network**	**Non-Market**
Internal	n/a	New internal resources or capabilities may be insufficient for or poorly suited to acquirer's post-acquisition market position (bad internal-industry fit)	New internal resources or capabilities may reduce incentives and ability to develop trusting, cooperative ties with third parties (bad internal-relational fit)	New internal resources or capabilities may reduce incentives and ability to manage the totality of the firm's external network ties (bad internal-network fit)	New internal resources o capabilities may be insufficient for or poorly suited to acquirer's post-acquisition non-market environment (bad internal-institutional fit)
Market Power	Lower competition may reduce incentives for acquirer to exploit internal sources of value with target	n/a	Trust, willingness to cooperate of external partners may be strained by increased market power of acquirer	Network partners may mistrust increased market power of acquirer and therefore exit or modify the network, shortening life of network synergies	Stakeholders may consider market power illegitimate, withdraw or limit support for acquirer (*e.g.* boycott)
Relational	Stronger relationships with individual partners may reduce incentives for acquirer to develop internal sources of value	To enhance trust, cooperation with partners, acquirer may need to refrain from extracting all the value it could from its greater market power	n/a	Stronger ties with one partner may undermine trust with other partners in the network, reducing value of overall position	Stakeholders may view acquirer's stronger relationships with some partners (e.g. a "dirty" supplier) as illegitimate
Network	Managing a larger, more complex network may divert resources from developing stronger internal assets with target	The acquirer's new network position and partners may constrain its ability to fully exercise newfound market power (to maintain cooperation)	Individual external partners may be threatened by acquirer's stronger position in network, withdrawing support or trust	n/a	Stakeholders may view acquirer's existing network as illegitimate, prefer that acquirer invests in and develop a different network
Non-Market	Resources dedicated to new and larger set of non-market stakeholders take away from internal investments.	To enhance trust, cooperation of non-market stakeholders, acquirer may need to refrain from fully exercising market power	Non-market stakeholders may not approve of strong relationships with certain external commercial partners, limit value created with those partners	The firm may not be able to fully take advantage of its newfound structural position (*e.g.* brokerage) because stakeholders do not approve of the implied role	n/a

Figure 1
Typology of Synergies

NOTE: The juxtaposition of governance orientation and level of analysis define five distinct potential sources of synergy created by M&A. The "white spaces" in the figure reflect intersections that are undefined (e.g. governance by fiat only applies at the level of the firm but not at the other levels). The two dimensions (level of analysis and governance orientation) directly affect synergy lifecycles. Different levels of analysis are associated with different post-acquisition integration requirements, affecting the timing of initial synergy realization. Different governance orientations are associated with varying levels of post-acquisition control, affecting synergy duration. See Table 3 and the main text for a full explanation.

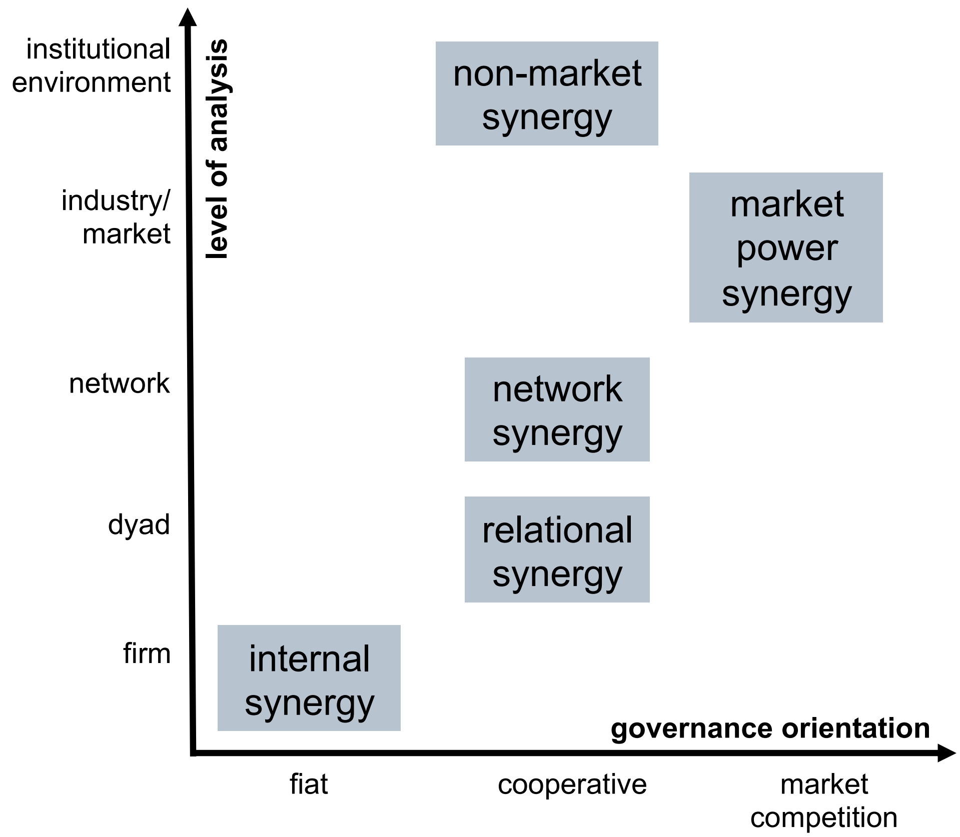
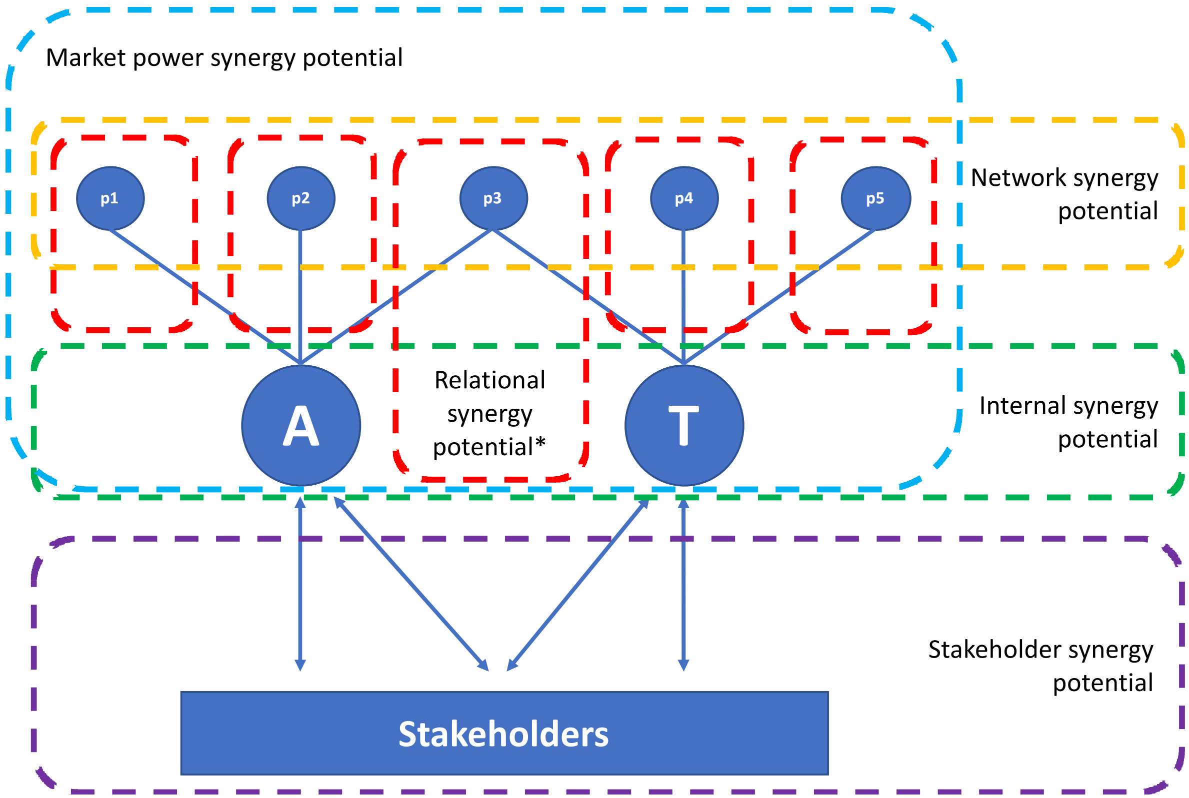


Figure 2 (Best in Color)
Locus of Value for Different Synergy Types

NOTE: This is meant to illustrate how different types of synergy arise by affecting different parts of a firm's environment.



Legend

A = Acquirer, T = Target

p1-p5 = Partners of the acquirer or target (supplier, buyer, or alliance partner)

Stakeholders = non-market actors that are influenced or influence A or T

Internal synergies may arise from combinations of assets owned and controlled by A or T.

Market power synergies may arise from A gaining power over T or p1-p5 (competitive environment)

Relational synergies may arise from improved management of one or more INDIVIDUAL partnerships after the merger (e.g. p1, p5)

Network synergies may arise from the structural combination of ALL the partnerships of A and T

Stakeholder synergies may arise from A gaining influence over or approval from stakeholders

Figure 3
Depiction of Synergy Lifecycles (Comparative)

NOTE: This is a stylized depiction of the "average" shape of each synergy lifecycle, designed to contrast differences in the timing of initial realization and in the duration of synergies across types (based on Propositions 1-2). This figure makes no statement as to the relative *levels* of benefits that companies accrue from each of the five synergies. Figures 4a-4e (next page) depict how certain variables unique to each synergy modify the "average" shape for each type. Lines represent the difference between the cash flows produced by the combined firm (acquirer + target) relative to a hypothetical standalone firm. The vertical axis begins at zero, reflecting that synergies are not realized until the combined cash flows exceed those of the hypothetical standalone firm. The horizontal axis begins at the time the deal is completed because, while some acquirers begin to work on post-merger integration at the time of announcement, synergies cannot legally begin to be realized until deal completion.

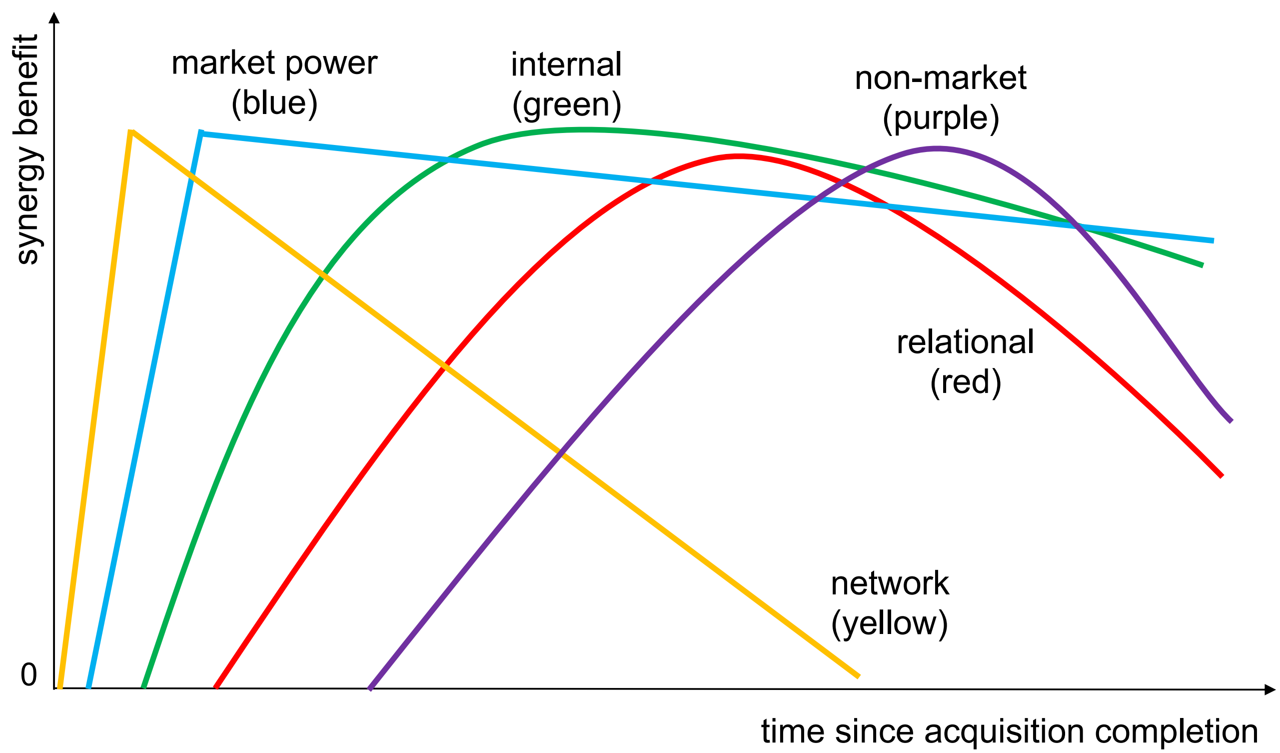
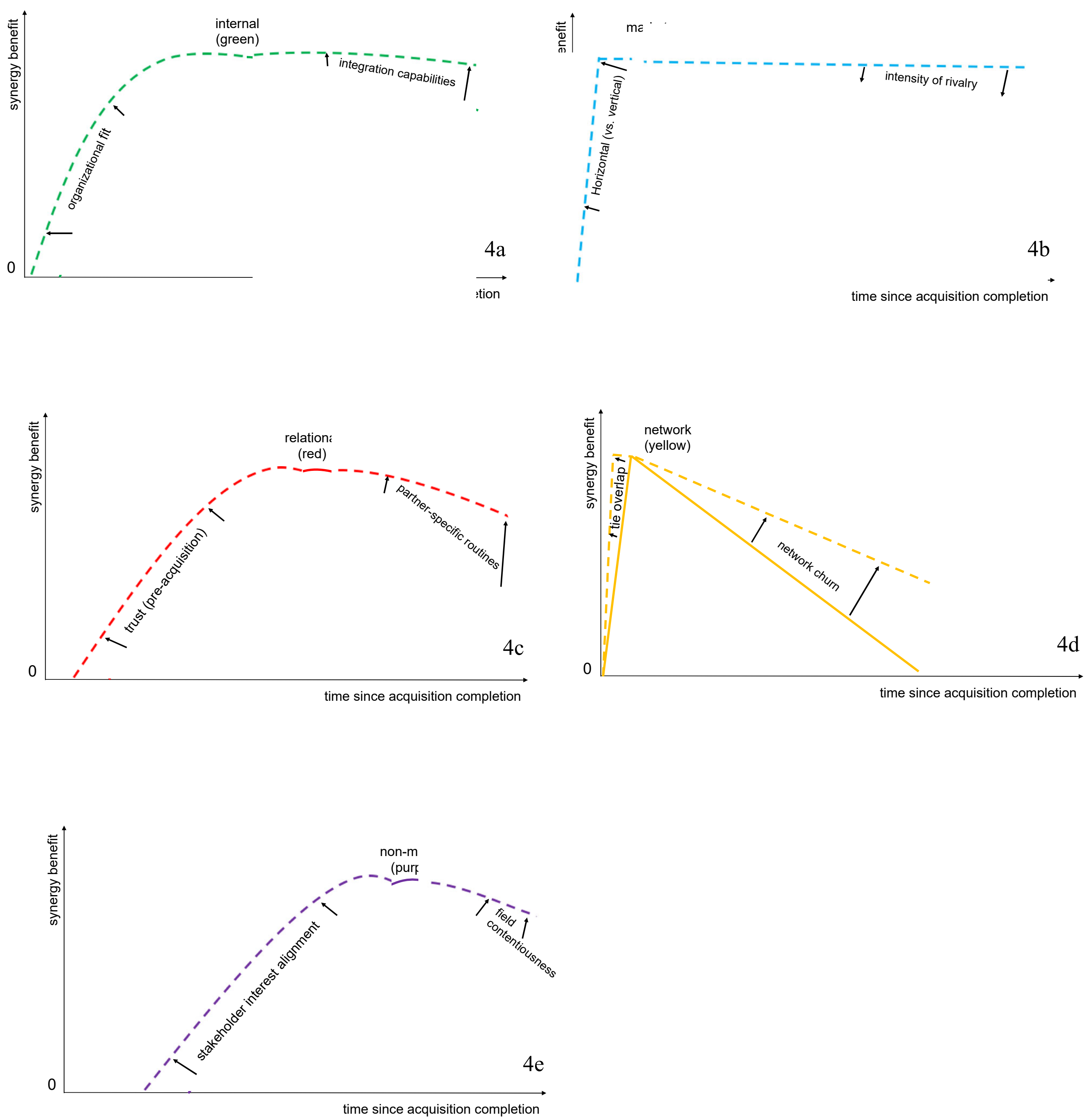


Figure 4
Depiction of Variables Modifying Synergy Lifecycles

NOTE: Explanations for how each variable modifies the timing of initial realization and duration of synergy gains can be found in the text (Propositions 3-4 and Empirical Predictions 3a-3e and 4a-4e).



APPENDIX A:
NOTIONS OF VALUE IN PRIOR LITERATURE

Systematic Review of Literature on Value/Synergy In M&A

As a foundation for our study, we sought to develop an understanding of prior art focused on the underlying *sources* of value in M&A, as opposed to studies focused on performance outcomes. We thus conducted a systematic literature review of research explicitly mentioning synergy or value in the context of M&A, based on the methodology proposed by Tranfield, Denyer, and Smart (2003) and modeled on the paper by Crossan and Apaydin (2010).

The first phase in a systematic literature review is to determine objective and replicable search terms to find articles on the topic of interest. We relied on the *Web of Science* database and used the following criteria. First, we searched for all articles published between 1945 and 2018 that contained the terms "merg*", "acqui*", or "M&A" in the title and were in the English language. This yielded nearly 80,000 results, most of which had nothing to do with corporate M&A (e.g. articles about the "acquisition" of a language or a disease). Thus, we applied a second filter by limiting the search to articles in the following *Web of Science* categories: management, economics, business, or business finance. This yielded just over 5,700 results. Because our focus is on the literature discussing value or synergy sources, we applied a third filter: articles had to contain the words "synerg*" or "value*". This resulted in 1,260 potentially relevant articles.

Like any search, ours has its limitations. In particular, articles about M&A performance that do not use terms such as synergy or value are left out even if they contain relevant considerations. Similarly, articles about diversification—which may happen via organic growth instead of M&A—may be excluded from our search even if they contain ideas relevant for understanding value in the context of M&A. We do not claim that our search encompasses the universe of relevant articles, but we believe it is reasonable to limit this exercise to articles that explicitly consider synergy or value in the context of M&A because those are the most likely to discuss the underlying mechanisms that influence performance in the setting of interest for our study. Even more to the point, the cost of missing out on a handful of relevant articles is outweighed by the advantage of (a) obtaining a representative view of the distribution of ideas/concepts throughout the literature due to the systematic nature of the search and (b) using a methodology that can be replicated.

The second phase in a systematic literature review is to determine which articles to read more carefully for relevant content. We followed Crossan and Apaydin (2010) closely by identifying three groups of papers: (1) highly-cited papers, (2) recent papers (published in the three years prior, or 2016-2018), and (3) reviews and meta-analyses. We found 670 papers that met at least one of these criteria. We used the *Web of Science* criterion of 5 citations or more to consider a paper "highly cited", of which we identified 616 papers (582 published before 2016 and 34 published during 2016-2018). Because recently published papers have less time to be cited, we had to use something other than citations to determine which to keep. We identified papers that were published in either the top ten most cited journals publishing work on value/synergy in M&A or in the *Financial Times* top 50 journals. This yielded 54 papers published during 2016-2018 that were cited fewer than five times. Within the 670 papers identified based on citations or journal, we found 8 that could be classified as reviews or meta analyses.

The third phase of the review was to evaluate the content of the 670 papers to ensure that they considered synergy or value sources in the context of M&A. By reading the title and abstract of every paper, we eliminated 381 studies that clearly did not fit the topic of interest. The two most common reasons were that the study was not about M&A but about something else such as "customer acquisition," or that the study was set in the context of M&A but emphasized factors unrelated to the value or synergy created by the deal (e.g. purely about accounting or financing terms in the deal, about behavioral/agency issues unrelated to sources of value or performance, or in which M&A was used as the empirical context to advance another theory or topic unrelated to M&A performance). We erred on the side of not excluding papers at this stage—any study that indirectly considered value, synergy, or M&A performance was kept for further review.

This left us with 289 articles that we read more deeply. We systematically coded whether each article considered a *source* of value/synergy/performance (by source we refer to any kind of mechanism or explanation for engaging in M&A activity or for the performance of a deal) and what that source of value was (if mentioned). We coded the dependent and independent variables(s) used. And we tracked the methodology (e.g. event study, formal model, regression) and the field of study (management, financial economics, marketing).

We found that 41 articles considered value/synergy/performance but offered no explanation as to what explained the value/synergy/performance of the deal or for any of the firms involved. Overwhelmingly, these were event studies that measured the stock market reaction to the deal through cumulative abnormal returns but without explaining why or how the deal affected shareholder value—that is, the articles implicitly or explicitly assumed that stock returns were sufficient indicators of value creation per se.

The remaining 248 articles did offer some kind of explanation/mechanism for the motive or performance of the deal, and these form the basis of our primary conclusions about the state of research on the *sources* of synergy or value in M&A (see the references for the full list). Table A1-1 summarizes the various cuts we made at different phases of the search, and Figure A1-1 shows the time trend in the publication of the final set of 248 articles that consider sources of synergy or value. Table A1-2 also shows the top 10 journals publishing those articles, along with the number papers published by each journal and the percentage of citations.

The area of greatest interest for purposes of our paper was to understand which sources or mechanisms of value were most frequently discussed in prior literature, as summarized in Figure A1-2. We find that the vast majority of studies have offered internal/efficiency (47%), market power (16.5%), or agency/governance (16%) explanations for the occurrence and performance of M&A. This is congruent with Montgomery's (1994) oft-cited summary of the research on diversification. Financial considerations are the fourth most commonly discussed, followed by studies that considered many possible explanations for value but did not clearly conclude which one was driving value in their analysis (we label these as "unclear"). A very small number of studies considered explanations based on external relationships: non-market stakeholders (8 papers, or about 2.4% of mentions of any kind of synergy), relationships with vertical or horizontal partners (5 papers, or 1.5%), or networks of multiple relationships (4 papers, or roughly 1%). We offer a more theoretically rich categorization and development of these various sources of synergy in the main body of the paper. Later in this appendix we explain why we did not include agency or financial gains as distinct types of synergy sources in our categorization.

Another area of interest in our review was to understand how value is measured in empirical studies, as summarized in Table A1-3. The most salient feature of the table is the dominance of stock market indicators of M&A performance. Abnormal returns are used in over 63% of studies (mostly announcement period returns, but also long-term returns and those of rivals in a few cases). Other indicators of stock market value (e.g. market capitalization) are used an additional 6.45% of the time. If anything, this is a significant undercounting of stock market indicators of performance in the context of M&A because, as mentioned earlier, we eliminated studies that used stock returns without any explanation of the sources of those returns. The next most common way to measure performance is based on financial statement (accounting) indicators such as ROA, EBIT, sales, costs, and cash flows (> 17%). Then there is a long tail of more idiosyncratic metrics of performance such as survey-based perceptions, firm productivity, patent (innovation) metrics, etc. We note that a handful of studies did not assess M&A performance per se, but attempted to get at the rationale or motive for deals based on other dependent variables such as the choice to engage in M&A or the choice of target (each just over 6%) or the post-acquisition redeployment of assets and capabilities (just over 4%). But these represent significant minorities of the scholarly efforts to explain where synergy or value comes from in M&A.

Table A1-4 further summarizes the categories of independent variables used in the studies we reviewed, with measures of relatedness playing a dominant role in the literature—which is as expected given the prevalence of internal/operational mechanisms to explain M&A performance. We note that resource similarity/relatedness play an important role in Puranam &

Vanneste's (2016)synergy typology, but that they are less central to ours (please see Footnotes 1, 5, and 11 for an explanation and comparison).

Finally, we offer a simple schematic summary of the main relationships studied by this literature in Figure A1-3, distinguishing between antecedents and performance outcomes of M&A and listing the most commonly used independent variables to explain the outcome (listed in order of frequency). Perhaps most striking is the paucity of research on antecedents of M&A compared to that on their performance consequences. In terms of the former, a handful of studies (roughly 30) have considered the number of deals made by firms, the factors leading them to select a certain target, or in a few cases the aggregate number of deals occurring at the industry level. The studies at the firm level emphasize internal/efficiency explanations, and primarily measure the strategic relatedness of the acquirer and target or the capabilities of the target. While not prominent in our literature review, we also include transaction costs as an important precursor of the choice to acquire because of the importance of that literature in explaining the organizational strategy of firms. The studies at the industry level, unsurprisingly, focus on measures capturing the structure of the industry (e.g. concentration) in the IO tradition.

In terms of the performance consequences of M&A, we found that studies could be grouped in three categories: those focused on stock market or accounting performance, those focusing on operational performance, and those focusing on managers' subjective assessments of performance based on surveys (see Zollo & Meier, 2008 for a similar assessment). A striking aspect of this research is that many of the same independent variables are used to explain different types of performance—most notably the relatedness of acquirer and target. And often similar types of measures are interpreted by scholars as indicators of different kinds of synergy or value (e.g. relatedness is used in work on both internal and market power synergies). However, there are also some important differences. Stock market and accounting performance studies tend to emphasize industry structure and agency/governance (board or TMT attributes) indicators. Studies of operational performance rely more on indicators of capabilities and organizational fit. And studies based on surveys emphasize events occurring post-merger, in particular integration and resource redeployment, more than other studies. We note that variables pertaining to the external cooperative environments of firms do not occur frequently enough in the literature for us to include them as part of the established canon of factors explaining either the antecedents of consequences of M&A. Our conceptual framework in the main body of the paper seeks to rectify this deficiency.

Theories Considering External Cooperative Sources of Value

One of the most salient observations from the systematic literature review is the lack of M&A research considering sources of value arising from the *external cooperative environment* in which firms are embedded. Incorporating such sources into our notions of M&A synergy is the main purpose of the paper. Specifically, we add three synergy types arising from interactions governed by cooperative orientations with external partners at three different levels of analysis: dyad, network, and institutional environment. But even though M&A research does not generally consider these sources of value, they are well-established in the broader management and organizations literature. That background is not essential for the development of our synergy typology or the other concepts introduced in the paper (synergy lifecycles, co- and dis-synergies). We omitted it because many readers are familiar with the relevant literatures (e.g. the relational view, network theory, stakeholder theory) and because we wanted to keep the paper as concise as possible. However, some readers may find that background helpful, and thus we provide it here. We note that this is not a systematic literature review of research on external cooperative sources of firm value. Instead, we briefly discuss some of the classic theories that inform this perspective, and then sketch out some of the main points made by the relational view, the networks literature, and non-market stakeholder theory.

Classic Theories. In economics, the firm is treated as an entity that transformed inputs into outputs in response to a competitive environment (usually the "industry" broadly defined). Two dominant economic theories of profit/value focused on heterogeneity in either the competitive environment (IO economics) or the internal workings of the firm (RBV/capabilities). As noted, these theories have been the primary conceptual foundation of M&A strategy research.

Scholars from a different research tradition, organizational theory (OT), have also been long interested in firm (organizational) performance. Many of these theories consistently made the point that "the environment" has a powerful influence on organizational actions and outcomes. Contingency theory, as its name denotes, primarily claims that variance in organizational forms and actions can be explained by understanding the heterogeneous environmental conditions to which the firm is subject (see Donaldson, 2001 for a comprehensive summary). Institutional theory canonized the notion that a significant portion of organizational behavior is driven by external (i.e., environmental) pressures to conform to legitimated norms and expectations (DiMaggio & Powell, 1983; Scott, 2001 provides a good summary). Attributes of "the environment"—such as uncertainty or munificence—became central to the study of organizational outcomes (e.g. Dess & Beard, 1984; Duncan, 1972).

Among classic organizational theories, resource-dependence theory (RDT) has been the most directly implicated in the study of corporate strategy. While prior work had conceived of "the environment" in fairly general or monolithic terms, RDT argued that the environment comprises *other organizations* with resources and interests, and that a critical aspect of firm behavior is to reduce dependence on other organizations in the environment (Pfeffer & Salancik, 1978). Hence, firms engage in corporate activities such as acquisitions, board interlocks, and alliances as a means of managing or coopting dependencies to increase their power vis-à-vis other organizations (see Wry, Cobb, & Aldrich, 2013 for a review).

One major contribution of these OT perspectives was to broadly introduce the idea that firms' environments consisted of more than the competitive industries surrounding them, but that there were other entities outside the boundaries of the firm that affected firm behavior and performance. A more recent but related development is also worth mentioning here. The RBV/capabilities perspective, as originally formulated, explained firm performance as driven by unique assets owned and controlled by a focal firm (Barney, 1991; Peteraf, 1993; Wernerfelt, 1984). But a variety of empirical and theoretical developments led to a relaxation of the ownership and control assumption. The growing importance of cooperative ties (e.g. resource sharing contracts, outsourcing agreements, board interlocks, innovation syndicates) led to an explosion of research on inter-firm alliances. This work, in turn, helped scholars realize that valuable resources were embedded in such external relationships. And thus, the RBV/capabilities view could be reformulated to focus on resource *access* instead of ownership as a sources of competitive advantage (Lavie, 2006 provides an excellent discussion of this point).

Literatures Studying Different Levels of the Cooperative Environment. These theoretical foundations facilitated a more systematic study of the various actors involved in "the environment", and in how those actors affect value creation and capture by firms, since at least the 1990's. As noted in the main body of the paper, these efforts have coalesced into three distinct literature streams, each emphasizing the value firms can derive from cooperative interactions at a distinct level of analysis in the environment.

The relational view arose from the aforementioned explosion in the study of inter-firm alliances, with theoretical roots in the traditions of RBV/capabilities and RDT. Its main claim is that unique value can arise from partner-specific resources such as informal trust, repeated transactions, and customized assets (see Dyer & Singh, 1998 for the original formulation and Dyer, Singh, & Hesterly, 2018 for an update). These resources do not exist, nor are they owned, solely within the boundaries of a single firm. They require joint cooperative governance and maintenance and, if properly managed, can be sources of sustained profitability for both of the parties involved in the alliance. We refer the reader to the articles just cited for further details, and to the main body of the paper for a discussion of how changes in relational assets resulting from M&A can be sources of synergy.

The networks perspective originated in economic sociology (Burt, 1992; Coleman, 1988; White, 1981), with the applications most relevant to corporate strategy in the study of interfirm alliances (Gulati, 1998; Gulati, Nohria, & Zaheer, 2000). The most relevant claim of networks scholars as it pertains to firm value is that the structure of direct and indirect interorganizational ties allows firms to access and deploy economically valuable assets. These "network resources" (Gulati, 1999) do not exist, nor are they owned, within the boundaries of a single firm nor within the confines of a dyad. Rather, they are found in the extra-dyadic structures of networks and can be measured through a variety of indicators. Some of the most commonly explored indicators by corporate strategy research include centrality, structural holes, and status. Comprehensive summaries of this literature can be found in Kilduff and Brass (2010); Zaheer, Gözübüyük, and Milanov (2010); and Phelps, Heidl, and Wadhwa (2012). The main body of the paper explores how changes in network structure resulting from M&A can be sources of synergy.

The non-market stakeholder perspective has multifaceted theoretical origins encompassing stakeholder theory (Freeman, 1984), institutional theory (Scott, 2001), and social movements (McAdam & McCarthy, 1996). The main idea is that the approval of and legitimacy with stakeholders in the firm's non-market environment (referred to as "secondary stakeholders") affects the value created and appropriated by firms. Hence, firms should carefully manage relationships with non-market stakeholders not only because it is morally appropriate, but because it can have instrumental effects on firm value (Henisz et al., 2014). Several good reviews of this literature are available, including Henisz and Zelner (2012); Marquis and Raynard (2015); and Dorobantu, Kaul, and Zelner (2017). The main body of the paper considers how changes in relationships with non-market stakeholders resulting from M&A can create synergy.

Why Gains from Financial Restructuring and Agency/Governance Are Not Distinct Synergy Types in our Framework

We noted in the systematic literature review that agency/governance and financial mechanisms were important explanations of M&A performance. However, these two views did not end up as distinct sources of synergy in our typology because we view them as related to the manifestation of synergy but not to the sources of synergy. We explain each in turn.

Studies rooted in agency theory, with their focus on governance mechanisms that align the interests of managers and shareholders, explain why incentive and behavioral problems may lead to suboptimal value creation, as well as why certain parties (e.g. managers) appropriate some of the value that shareholders should have received from M&A (Fama & Jensen, 1983; Montgomery, 1994). Agency theory is a powerful lens to explain why firms undertake M&A because it points to sources of value that are unrealized due to dysfunctional managerial interests (Malmendier & Tate, 2005). However, agency or governance issues are not sources of value *per se* because they do not modify the potential economic value of the underlying assets being misused. Agency problems might prevent a firm from realizing the potential value of any of the five sources of synergy in our typology but they do not alter the underlying logic by which internal, market power, relational, network, or non-market assets function to affect the potential value of a firm. Thus, we view agency theory as highly relevant to explain why synergy may *not* be realized, but not as a *source* of synergy.

Financial gains from acquisitions reflect balance sheet benefits such as the ability to pay lower taxes, lower the cost of capital, make use of net operating losses, or utilize excess cash or overvalued stock. These are important manifestations of value created by the combination of two firms, but they do not have a theoretically distinct underlying economic source. Any of the five synergy types in our framework could result in financial gains. Probably the most common source is internal asset recombinations, such as common ownership of balance sheet items helping lower taxes. But better relationships with powerful non-market stakeholders can lead to financial synergies if, for instance, investors perceive changes in threats from those stakeholders post-M&A as material enough to change the firm's cost of capital (e.g. this is the main thrust of ESG investing, for example). Similarly, improved relationships with individual partners (relational) or a stronger position in a network or industry may also affect the firm's financial capacity. The point is that financial gains are encompassed by the synergy typology as possible manifestations of each type, and thus do not require their own category.

Table A1-1

	Initial Pool	Eliminated (Abstract)	Duplicates	Value Source not Considered	Final
Reviews and meta-analyses	8	0	0	0	8
Highly cited papers	608	338	8	41	221
Recent papers	88	59	10	0	19
					248

Table A1-2
Top 10 Journals Publishing Articles on Synergy/Value Sources in M&A

Journal	**# articles**	**# citations**	**% of most cited**
Strategic Management Journal	22	2362	22.39%
Journal of Financial Economics	21	1842	17.46%
Journal of Banking & Finance	19	750	7.11%
Journal of Finance	11	1970	18.68%
Journal of International Business Studies	8	785	7.44%
Review of Financial Studies	6	452	4.29%
Journal of Corporate Finance	6	203	1.92%
International Business Review	6	168	1.59%
Management Science	6	74	0.70%
Rand Journal of Economics	5	337	3.20%
British Journal of Management	5	255	2.42%
Long Range Planning	5	151	1.43%

Figure A1-1
Articles Published by Year

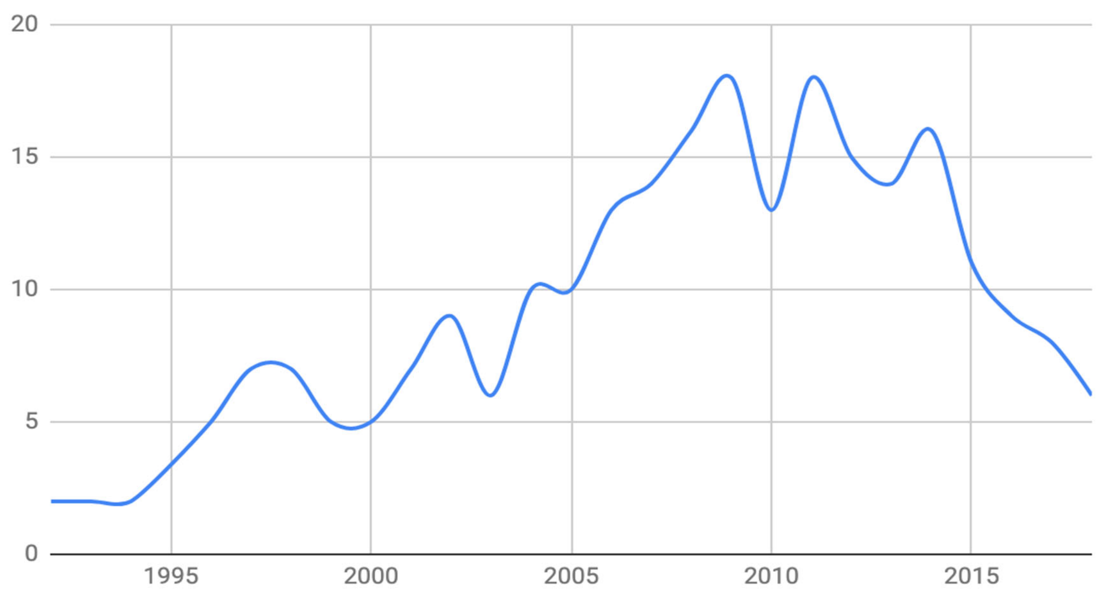


Figure A1-2
Source of Synergy/Value Considered

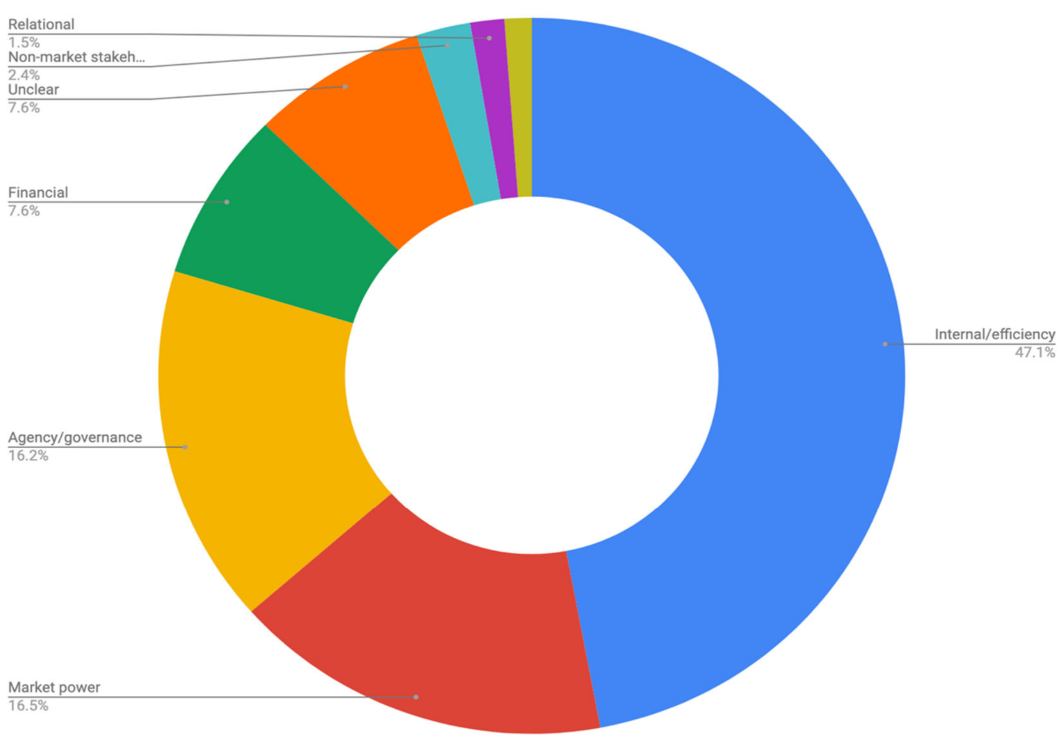


Table A1-3
Dependent Variables Used in Studies of Synergy/Value in M&A

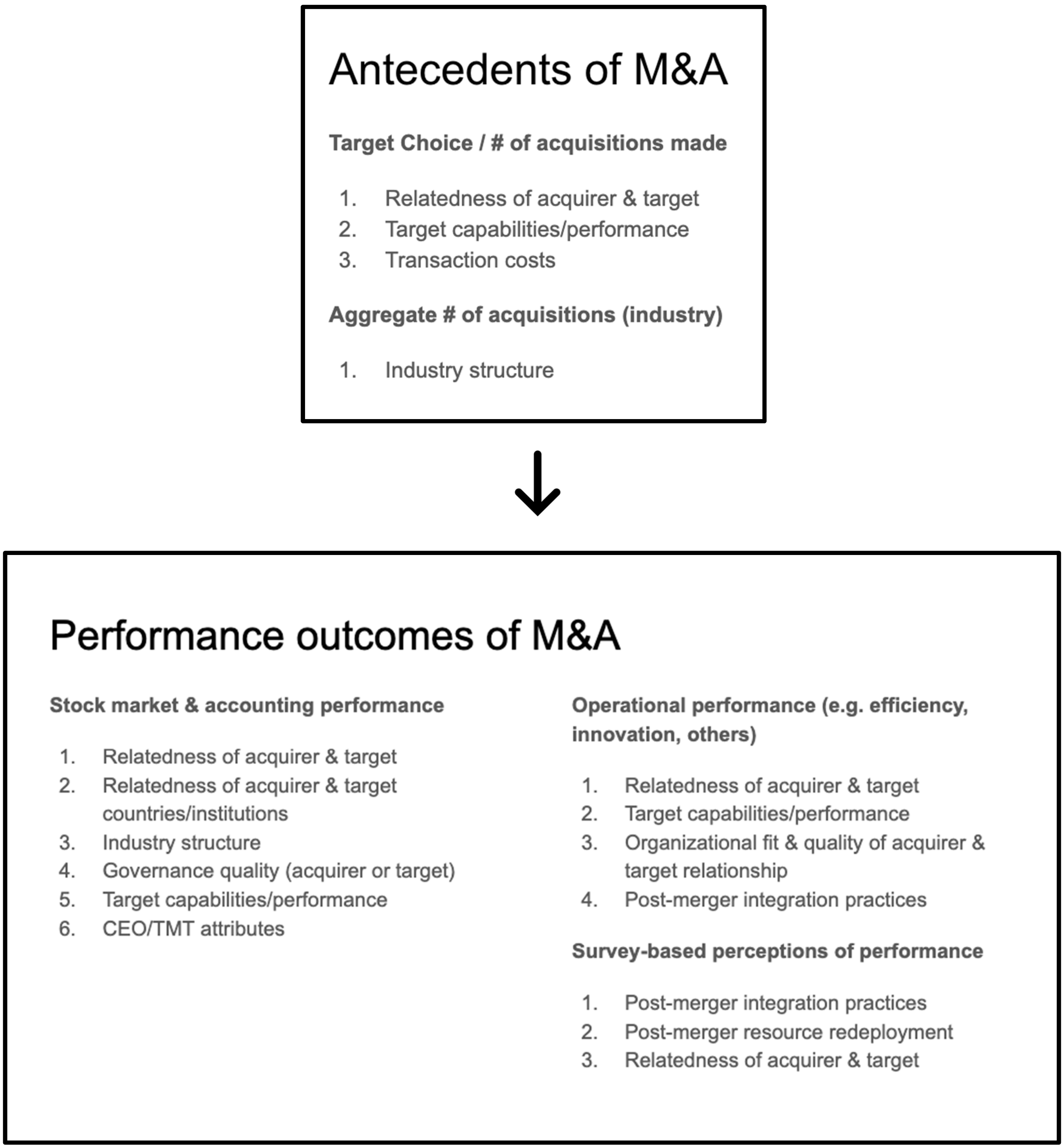
Dependent variable	Frequency	% of articles
Abnormal returns:	157	63.31%
Upon announcement (CAR)	126	50.81%
Long term (e.g. BHAR)	24	9.68%
Of rivals, upon announcement	7	2.82%
Accounting/financial statement:	43	17.34%
Accounting profit (e.g. ROA, EBIT)	22	8.87%
Revenue/Sales increase	8	3.23%
Cost Reduction	7	2.82%
Cash flow	6	2.42%
Market value	16	6.45%
Number/Probability of Acquisitions	16	6.45%
Survey-based performance assessment	15	6.05%
Premium/price paid	15	6.05%
Target choice	15	6.05%
Post-acquisition deployment of capabilities/resources	11	4.44%
Productivity/efficiency improvement	9	3.63%
Aggregate number of acquisitions (at industry/economy)	7	2.82%
Innovation/patents	7	2.82%
Product/brand improvement or quality	6	2.42%
Risk	6	2.42%
Price of products	4	1.61%
Indicators of governance quality	4	1.61%
Deal completion	3	1.21%
Accounting goodwill (changes or impairment)	3	1.21%
Market share	2	0.81%
Payment method	2	0.81%
Changes in external ties/relationships/networks	2	0.81%
*Based on 238 empirical papers		

Table A1-4
Categories of Independent Variables Used in Studies of Synergy/Value in M&A

Independent variable category	Frequency	% of studies w/clear IV
Relatedness vs. unrelatedness of A & T	56	30.11%
Relatedness vs. unrelatedness of A &T countries/institutions	32	17.20%
Governance quality	23	12.37%
Target capabilities/performance	21	11.29%
Industry structure	16	8.60%
Post-merger integration practices	14	7.53%
Post-merger resource redeployment	13	6.99%
Financial structure	12	6.45%
Organizational fit/pre-deal relationship b/w A & T	12	6.45%
CEO/TMT attributes	10	5.38%
Acquirer capabilities/performance	9	4.84%
Quality of stakeholder/CSR relations	5	2.69%
External (third party) relationships of A or T	5	2.69%
Other	27	14.52%

* Out of 186 studies that had a clearly identifiable independent variable. Some articles did not have an independent variable (e.g. pure event studies) or did not report a clear theoretical interest in a specific IV.

Figure A1-3
Relationships and Main Explanatory Variables in Studies of Synergy/Value in M&A



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APPENDIX B: POST-MERGER INTEGRATION

Systematic Review of Literature on Post-Merger Integration

We also conducted a systematic literature review of research on post-merger integration following the same methodology as the review presented in Appendix A. We initially searched the *Web of Science* database for papers written about mergers and acquisition (M&A), and then refined that search to only include papers that had something to do with post-merger integration. As such, our search focused on identifying papers that (a) included the derivatives "merg*", "acqui*", or "M&A" in their titles, (b) were written in the English language, (c) were articles and reviews (but not book reviews), and (d) were in the *Web of Science* categories of Business, Economics, Business Finance, and Management. The second step was to refine this search to only include papers about post-merger integration, which we did by specifying that the topic had to be "integration NOT vertical." This allowed us to include papers about post-merger integration while excluding papers about vertical integration.

Although these parameters might leave out papers that discuss post-merger integration in terms other than the ones we used in our search, we believe that these parameters allowed us to capture papers that are relevant to this topic in the broadest possible sense (using other terms would have led to an unnecessarily broad or idiosyncratic set of results). As mentioned in the previous literature review, the cost of missing out on a handful of relevant articles is outweighed by the advantage of (a) obtaining a representative view of the distribution of ideas/concepts throughout the literature due to the systematic nature of the search and (b) using a methodology that can be replicated.

Our search resulted in an initial set of 525 papers. Following Crossan and Apaydin (2010), we identified three groups of papers within this set of 525: Group 1 consisted of reviews and meta-analyses; Group 2 consisted of highly-cited papers; and Group 3 consisted of recent papers (2016-2018). To identify the reviews and meta-analyses in Group 1, we restricted the above-described search in Web of Science to include only those with the words "review" or "meta" in the topic (title, keywords, and abstract) of the paper. This yielded a subset of 29 papers. Of these, only 10 of them were actually reviews or meta-analyses, which we determined by reading the abstracts (the remaining 19 had conducted original research about post-merger integration). To construct the subsample of highly-cited papers in Group 2, we identified 304 papers out of the initial 525 that had at least five citations (the Web of Science criteria for "highly cited" articles). We carefully read the abstracts of these 304 papers and determined that 183 of them contributed in some way to theory development or theory testing. Five papers were excluded from this subset because they were already included in Group 1, leaving a final set of 178 papers in Group 2.

To construct the subsample of recent papers in Group 3 (which may not have had time to accumulate as many citations as those published earlier), we identified 157 papers published between 2016 and 2018, inclusive. Since we could not use citation count as a metric of quality recent papers, we selected those that were published in either (a) the top ten most cited journals publishing research on post-merger integration (listed in Table A2-1), or (b) the *Financial Times* top 50 journals. This resulted in a subsample of 25 papers. Reassuringly, nine of the ten most cited journals that had published research on post-merger integration appeared in the list of the top 50 *Financial Times* journals, and 8 of the 25 papers in this subset were already included in Group 2, reinforcing that our selection criteria for Group 3 captured high-quality papers. We read the abstracts of the 17 papers left after eliminating the duplicates from Group 2 (25-8), and determined that 13 of them contributed to theory development or testing in some way.

We combined the 10 reviews and meta-analyses from Group 1, the 178 highly-cited papers from Group 2, and the 13 recent papers from Group 3 into a final sample of 201 papers. Table A2-2 presents a summary of how we reached the final sample.

We read and analyzed the final sample of 201 papers (see references for the full list). Figure A2-1 graphs the number of papers published on post-merger integration over time. Figure A2-2 presents a breakdown of the research methodology employed in the 201 papers. Close to three-quarters used theory development, case studies, or large-scale empirical analyses, with a roughly even split across those three categories. The remaining quarter of the papers was comprised of surveys, field work, and reviews or meta-analyses.

Figure A2-3 synthesizes the topics addressed by the 201 papers into an overarching view of the state of research on post-merger integration. There are three broad subject areas: the antecedents of post-merger integration, the outcomes of post-merger integration, and the process of post-merger integration. Each of these subjects was subdivided into the specific topics analyzed in the papers. Within the subject of post-merger integration antecedents, the topic of cultural fit or distance (national, organizational, or both) was by far the most represented, with 35 papers written on this topic. Within the subject of the post-merger integration process, the topics of cultural integration (18 papers) and human and task integration (13 papers) were by far the most represented. Within the subject of the post-merger integration outcomes, the topic of firm performance was most represented (10 papers).

We also categorized the papers into five specific relationships they addressed: (1) the link between the antecedents and the outcomes of post-merger integration (37 papers); (2) the link between the antecedents of post-merger integration and the process of post-merger integration (15 papers); (3) the link between the process of post-merger integration and the outcomes of post-merger integration (92 papers); (4) the moderating role of the antecedents of post-merger integration on the relationship between the post-merger integration process and the outcomes of post-merger integration (8 papers); and (5) the moderating role of the post-merger integration process on the relationship between the antecedents and the outcomes of post-merger integration (19 papers).

Touchpoints Between Prior Integration Literature and the Five Synergy Typology and Lifecycles

The systematic literature review on post-merger integration highlights a rich tradition of scholarship seeking to understand the factors influencing the realization of value/synergy. We see our efforts in the main body of the paper as consistent with what prior literature has done.

For example, we expect that the variables identified by prior work as facilitating a smooth integration process in Figure A2-3 (e.g. cultural and organizational fit, human vs. task integration) should continue to be relevant factors for M&A success. Rather than modify the conclusions of prior work, the introduction of three novel synergy types in our framework suggests the need for additional research in two areas mentioned in the paper.

Broadening the scope of integration research to include external cooperative relationships. First, the integration literature strongly emphasizes processes involving the acquirer and target and generally does not consider integration involving external parties that cooperate with the combined firm. Five studies we reviewed, mainly from the marketing field, consider how suppliers or customers may factor into post-merger integration (Anderson et al., 2001; Briscoe & Tsai, 2011; Kato & Schoenberg, 2014; Öberg, 2014; Palmatier et al., 2007). But those stand out as exceptional. The emphasis on integrating assets, people, and activities involving the acquirer and target is consistent with the dominance of internal and market power synergies in the M&A literature more generally (see Appendix A). If those are the main sources of value considered in prior literature, and if those sources are based on ownership and control of assets, then the dominant paradigm of integration will focus on assets owned and controlled by the acquirer and target.

The introduction of three new synergy types based on cooperative external relationships provides an opportunity to more carefully explore how the firm's external partners, at different levels of analysis, factor into the integration process. In addition to the usual internal integration issues, what additional factors affect the antecedents, processes, and outcomes of integration when the firm is trying to extract value from specific partners (relational synergy), from its web of external partners (network synergy), and from its stakeholder relationships (non-market synergy)? We explore some relevant considerations in the section on synergy lifecycles, but we recognize that the topic is too broad to be fully covered in a single paper. Indeed, the integration process involving each synergy type likely merits its own set of empirical studies.

Considering heterogeneity in synergy timing across synergy types. Second, the integration literature provides many insights about the extent to which merger objectives were accomplished, but it tends to overlook issues of timing: how quickly do acquirers realize value from M&A and how long do synergy gains persist? Three of the papers that made it into our systematic literature review considered the issue of timing, but their focus was on the speed of the integration process itself rather than on the timing and persistence of the gains (Maire & Collerette, 2011; Schweizer & Patzelt, 2012; Uzelac et al., 2016). While there could be a handful of other papers that consider integration speed, which our review missed, it seems reasonable to conclude that synergy timing and dynamics are not an important focus on extant work. Such issues become especially important to understand in a world of multiple synergy types (internal, market power, relational, network, and non-market) because each kind is likely to exhibit distinct lifecycles, as we articulate in the main body of our paper.

Resource Reconfiguration. The literature on resource reconfiguration following M&A has some relevant touchpoints with our ideas. Karim and Capron (2016) provide a framework that categorizes the papers in that literature into four main groups: the antecedents of resource reconfiguration, such as scope expansion, scope reduction, and innovation (e.g. Helfat & Eisenhardt, 2004); reconfiguration processes, especially for growth and retrenchment strategies (e.g. Capron, Dussauge, & Mitchell, 1998; Karim & Mitchell, 2000); the outcomes of reconfiguration, such as efficiency, scope economies, and capability renewal (e.g. Helfat & Eisenhardt, 2004); and the enablers of reconfiguration, such as scale-free resources, resource redeployability, and governance (e.g. Levinthal & Wu, 2010; Sakhartov & Folta, 2014; Wang, He, & Mahoney, 2009).

The part of this framework most closely connected to our paper is the work on reconfiguration processes for growth, which analyzes how firms reconfigure their resources *internally* after undertaking various growth strategies, especially M&A. To briefly describe a few exemplary studies in this domain, Capron et al. (1998) analyze the redeployment of resources between target and acquiring firms following acquisitions; Karim and Mitchell (2000) show that acquisitions allow firms both to deepen and to expand their existing base of resources; Anand and Singh (1997) analyze differences between diversification-oriented and consolidation-oriented acquisitions in reconfiguring firm resources; and Capron et al. 2001) focus on how the process of resource redeployment after acquisitions can often culminate in divestiture.

Another important connection is that the reconfiguration literature has provided some insights pertaining to how firms reorganize internal assets over time. For example, Karim (2006) studies changes in organizational structure across internally developed vs. acquired units, exploring how each play different roles in the process of resource reconfiguration. Further, she explores how the reconfiguration process occurred over a very long period of time (17 years), consistent with our notion of the duration of internal synergies (in the main body of the paper).

We do not engage directly with the reconfiguration literature in the main body of the paper for two reasons. First, because it is strongly rooted in RBV/capabilities theories, that work has understandably focused on internal reconfiguration. Inasmuch as it relates to M&A, it focuses exclusively on what we call internal synergy. Our goal is to broaden the notion of post-acquisition processes to also encompass other synergy types, though we believe an "external resource reconfiguration" literature could be promising. Second, and more practically, we decided to leave this discussion in the appendix to keep the main paper as concise as possible.

Table A2-1
Top ten journals publishing research on post-merger integration

Source Title	Number of papers	% of most cited
Strategic Management Journal	18	15.5%
Journal of International Business Studies	10	8.0%
Journal of Management Studies	11	5.4%
Journal of Marketing	2	4.4%
Academy of Management Journal	3	4.1%
Organization Studies	9	3.9%
Organization Science	4	3.4%
Journal of Management	10	3.3%
Human Relations	5	3.0%
International Journal of Human Resource Management	19	2.8%

These journals had the most articles covering integration as a topic.
Titles in italics are part of the Top 50 *Financial Times* journals

Table A2-2
Number of papers in each group

Group	Initial Pool	Filtered	Abstract Analyzed	Less Duplicates
Group 1: Reviews and meta-analyses	29	29	10	10
Group 2: Highly cited papers	525	304	183	178
Group 3: Recent papers	157	25	17	13
Total				201

Figure A2-1
Growth in articles on post-merger integration

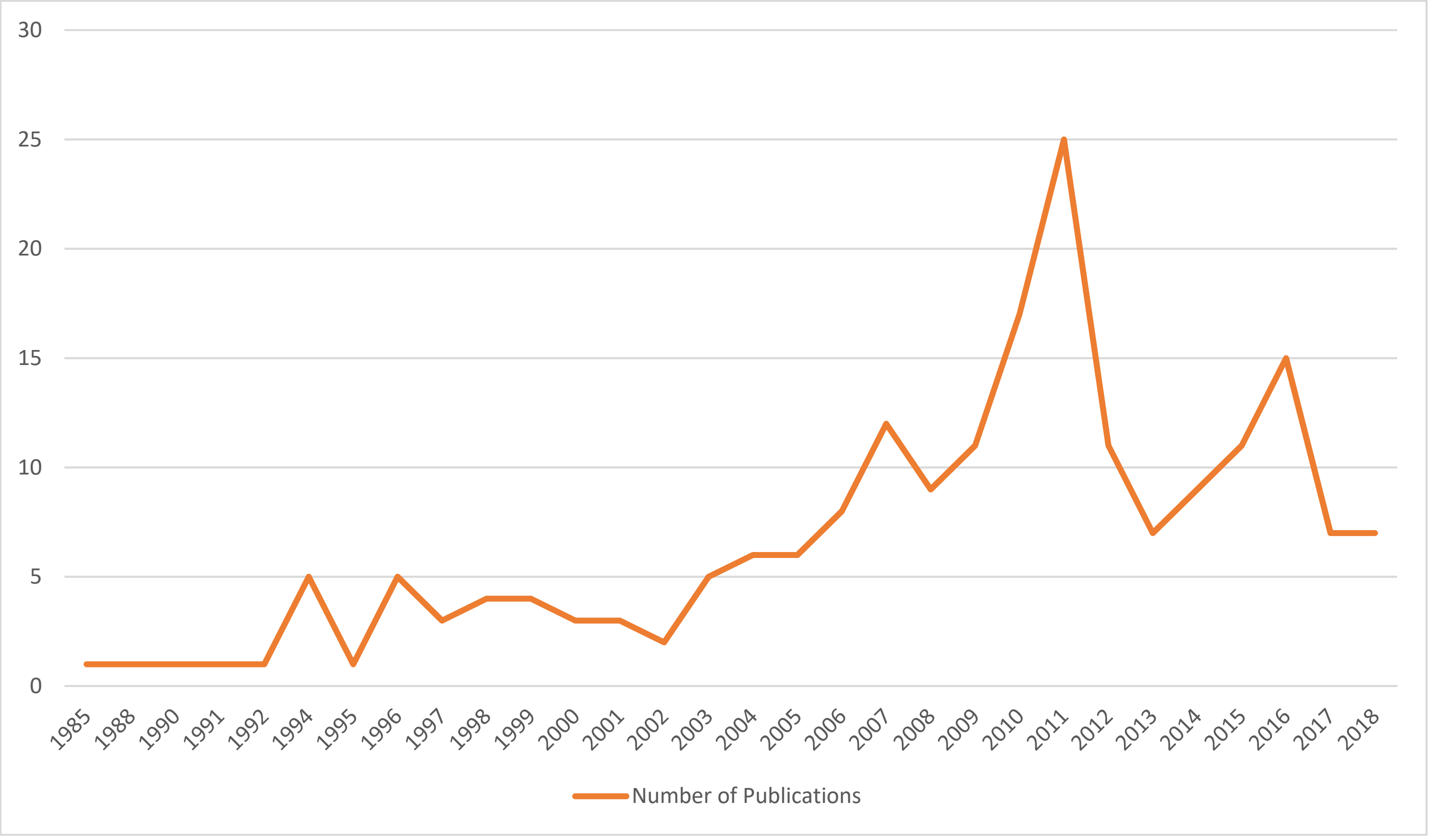


Figure A2-2
Methodologies used in articles on post-merger integration

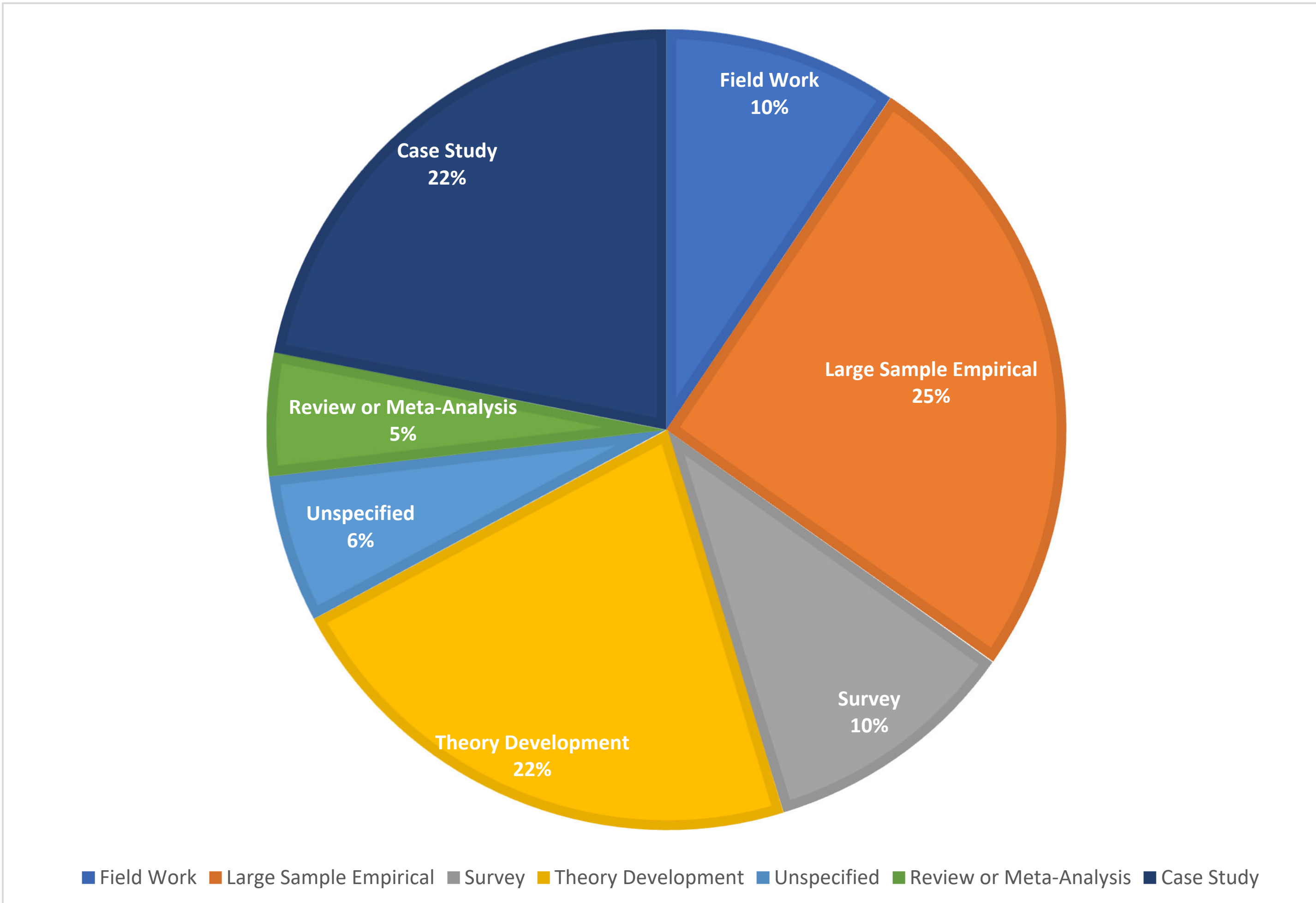
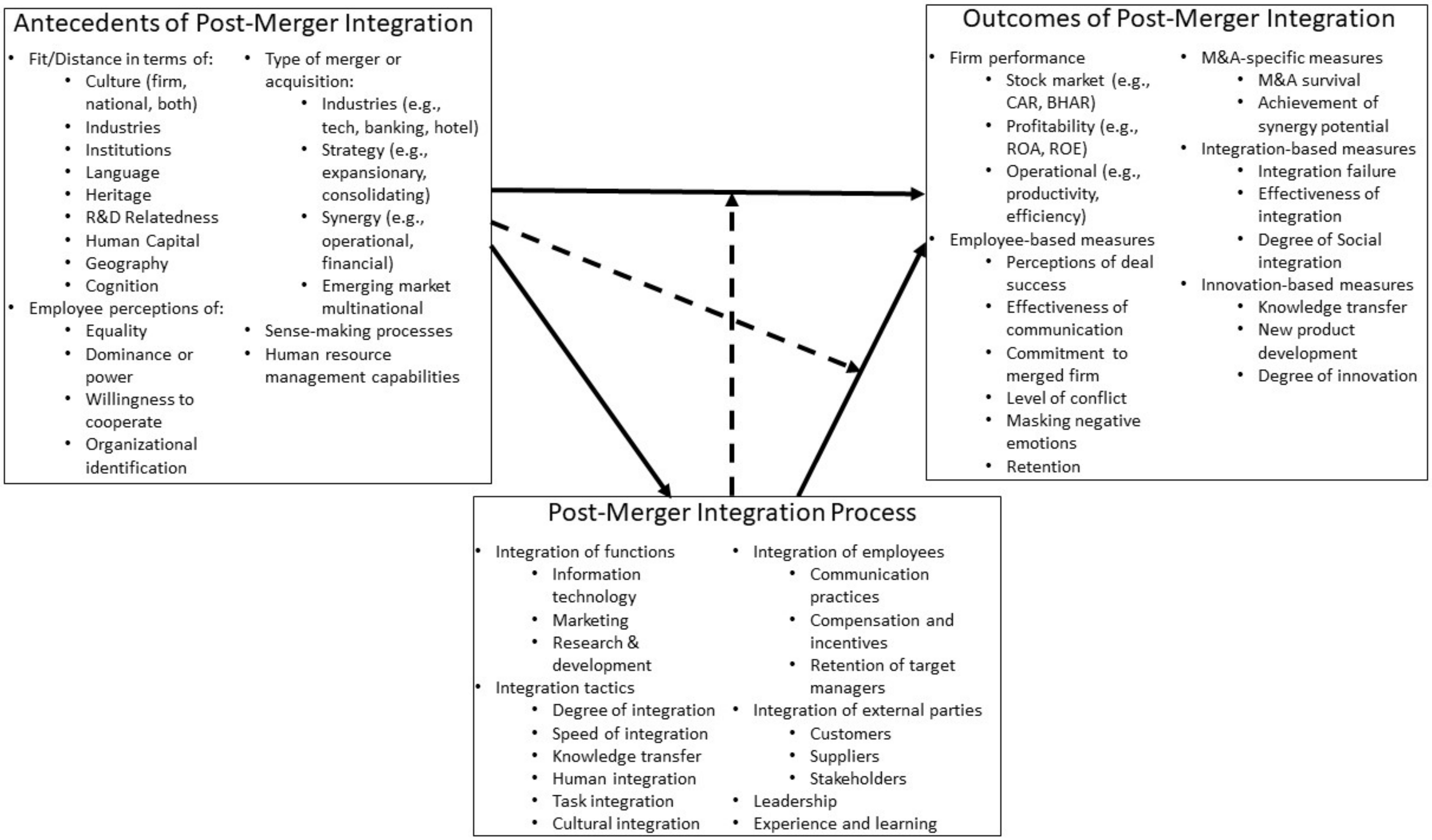


Figure A2-3
Synthesis of the state of research on post-merger integration in papers



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APPENDIX C:
APPLYING THE FRAMEWORK TO THE CASE OF AIRLINE MERGERS

A comprehensive case study can help bring the full value of our ideas to life, and make the theoretical concepts more digestible. A seasoned M&A executive (Oliver Engert, Senior Partner and head of the Merger Management practice at McKinsey & Company) suggested that the U.S. airline mergers since 2008 between United Airlines and Continental Airlines, Delta Air Lines and Northwest Airlines, and American Airlines and US Airways illustrate our ideas well. We will describe the five synergy types, their lifecycles, and some of the co- and dis-synergies that arose in those mergers.

Airline mergers generated gains from each of the five synergy types. In terms of *internal synergies*, a major part of the logic of these transactions was to increase the utilization of airplanes. By consolidating passengers on overlapping routes, merging airlines optimized the utilization of airplanes by filling more seats per flight, and enhanced the overall efficiency of the route network by redeploying airplanes freed up by the consolidations to fly on other routes. Additional internal synergies resulted from combinations of IT systems, marketing budgets, and personnel (e.g. pilots and flight attendants). For example, “Delta’s chief information officer, Theresa Wise, said the airline had to merge 1,199 computer systems down to about 600, including one—a component within the airline’s reservation system—dating from 1966. The challenge, she said, was to switch the systems progressively so that passengers would not notice. Ms. Wise, who has a doctorate in applied mathematics, devised a low-tech solution: she set up a timeline of the steps that had to be performed by pinning colored Post-it notes on the wall of a conference room” (Mouawad, 2011).

One of the clearest consequences of these airline mergers was an enhancement in *market power synergies*. Airlines reduced competition by merging with their rivals, yielding greater exclusivity and thus pricing power on certain routes. As an example, Delta-Northwest came under fire a year after their merger for exerting pricing power: critics cited a 5% increase in revenues (and a 31% increase in profits) accompanied by only a 2% increase in load factor as evidence that the airline boosted its revenues by raising prices rather than by flying more airplanes (Sanati, 2013). This also reflects co-synergies between internal and market power considerations, in that the same factor (optimization of the route network) promoted greater internal efficiency and external pricing power. Other market power synergies resulted from the combined airlines gaining greater bargaining power vis-à-vis their suppliers of key inputs like fuel, physical plant, and catering, among others.

Airlines have numerous cooperative ties with complementors such as credit card companies, hotel chains, car rental agencies, and travel services providers. Airline mergers generated *relational synergies* by improving the profitability of at least some of these dyadic relationships. For example, when American Airlines (AA) and US Airways merged, they considered whether to offer credit cards through Citi (which previously offered the AA card) or Barclays (which previously offered the US Airways card). The stakes were high: American alone had roughly 69 million members in its frequent-flier program, so whichever credit card company was chosen would gain the ability to market to a massive pool of customers. "'It is a delicious tidbit for a bank to grab,' said Jay Sorensen, president of IdeaWorks Co., a Wisconsin-based airline consulting firm. 'The ability to have a relationship with the world's largest airline is a once-in-a-lifetime opportunity'" (Mecia, 2013). Ties with credit card companies are also for the airlines as a means of locking in clients, a non-zero-sum benefit typical of relational synergies. In the end, American Airlines maintained partnerships with both Citi and Barclays, underscoring the desire to preserve trust and relational routines that the airlines had developed over time with their separate credit card partners.

Airlines belong to networks due to the constellation alliances that have become standard in the industry (Star Alliance, OneWorld Alliance, and SkyTeam). Constellation alliances allow members to link to the routes of other airlines that fly to destinations to which a focal airline doesn't, and by providing amenities to frequent travelers such as transfers within airports, airport lounges, improved customer analytics and service, and greater opportunities to earn and use airline miles. Becoming more central in these alliances through a merger can generate *network* *synergies*. For example, United Airlines and Lufthansa were both members of Star Alliance, meaning that United passengers could fly to major hubs in Germany and then connect to and enjoy amenities within Lufthansa's route network. By merging with United, Continental's destinations and amenities became part of United. This improved United's structural position within the Star Alliance network, in that United was a larger, more central, more connected, and more prominent partner to which the other airlines could connect.[14]

Another source of network synergy came from the combination of the two-firms' pre-existing networks of third-party service providers (credit cards, hotels, car rentals, and other services). For example, by enlarging the network of partners with which the airline's customers could make hotel and car rental bookings and earn miles, American was placed in a more central position in this network than either of the pre-merger airlines had been, allowing American to gain greater status in the eyes of third-party providers. In other cases, value arose from consolidating the network to reduce redundant ties and make the firm a more exclusive broker between different kinds of providers. For example, both American Airlines and US Airways had separate partnerships with Marriott before the merger, which were consolidated into a single partnership after the completion of the deal and allowed the new American to be a more exclusive broker between Marriott and other service providers (e.g. car rental agencies, vacation booking sites). This kind of structural value arising from improvements in the network comes in addition to any gains from making individual partnership more jointly beneficial (which would fall under relational synergies).

Airline mergers also influenced *non-market synergies*. Airlines interact with many non-market groups: the media, environmental groups, communities, governments, labor unions, and travelers' coalitions, to name a few. The approval or censure of one of these stakeholders in a merger could have a significant impact on the standing of an airline in the eyes of that particular

[14] Note that we are not talking here about the improved network of routes (which can potentially enhance both internal and market power synergies). Rather, we are speaking of the improved structural position of an airline in the network defines by its cooperative contractual ties with other airlines and service providers.

group but also in the eyes of other groups. For example, a major reason that the merger between AA and US Airways ultimately happened was that the management of US Airways worked very hard to attain the buy-in of key American constituents: “US Airways lobbied the creditors [of American Airlines, which was in bankruptcy at the time], and began a media outreach, including meeting with newspaper editorial boards. In July, [US Airways CEO Doug] Parker spoke at the National Press Club, joined by American’s unions. The airline met with elected officials, civic and business leaders in Washington, Philadelphia, and Charlotte, where US Airways has hubs, and Miami and Dallas, which are American hubs” (Loyd, 2013). As a result, these constituents advocated in favor of the merger, allowing it to proceed more seamlessly than typical airline mergers (Fubini, Garvin, & Knoop, 2017). The crucial point is that the combination of the two firms’ key constituents had to be aligned for the deal to go forward and create value. As an example of an unfavorable stakeholder reaction, the earlier quote about Delta increasing prices without attendant operational improvements illustrates how non-market stakeholders, like the media and consumer advocates, might react negatively to airline mergers. That example also illustrates a dis-synergy between the market power benefits of raising prices versus the non-market costs of losing legitimacy in the eyes of key stakeholders.

These airline mergers can also usefully illustrate the lifecycles of the five synergies. We emphasize the timing of initial realization and the duration of synergy benefits.

Consistent with the earlier discussion, it took some time for the airlines to initially realize internal synergies. For example, United Airlines worked for over five years to fully integrate its reservations system, infamously grounding its entire global fleet in 2015 when the whole system went down. However, once the integration needed to achieve internal synergies was complete, airlines continued to enjoy these benefits while making the appropriate investments in the technology, people, and other resources needed to maintain these gains. Indeed, airlines in the U.S. have been able to achieve historically high profits since the three major mergers, in part due to the cost savings from internal synergies.

In terms of market power synergies, the airlines were clearly able to raise prices quite easily and quickly—with little integration required following the legal approval of their combinations. This led to a rapid increase in profitability (as bemoaned by the media and consumer advocates, which we mentioned earlier). Absent other structural changes among the remaining players in the industry, it is quite likely that Delta and Northwest, for example, would have been able to sustain their increased level of revenues and profitability for a long time. The fact that United-Continental and American-USAirways mergers happened in quick succession also illustrates that market power synergies can be altered when industry forces change. But in the U.S., however, after those three deals the structure of the industry changed permanently in favor of the three major airlines and does not appear to be threatened for the time being.

The negotiations and decision-making that American went through in choosing Citi as its credit card partner were lengthy (Mecia, 2013), evidencing that initial realization timing for relational synergies may be elongated as companies integrate external relationships while reconfiguring internal personnel and processes to run those partnerships. However, the contracts that airlines sign with their credit card partners are long-lasting, and in steady state, the airlines rarely change credit card partners (Mecia, 2013), illustrating how trust and relational assets may be built over time and support contractual relationships. For example, the five-year $1 billion contract that American signed with Citi in 2013 was recently renewed, suggesting that both sides felt they could continue to build on the partner-specific routines that had been developed during the first five-year synergy realization phase.

In terms of network synergies, the gains from an improved structural position within a constellation alliance occur quickly. For example, when Continental merged with United, United's centrality and status within the Star Alliance network improved immediately. To illustrate how network synergies can erode, however, it is instructive to look at what happens when mergers cause airlines to switch constellation alliances. For example, Continental left SkyTeam to join Star Alliance when it merged with United, and US Airways left Star Alliance to join OneWorld when it merged with American. The centrality and status gained by those airlines through previous mergers was immediately lost, showing how quickly structural positions within networks can change because companies have little control over the actions of network partners.

Finally, attaining the support of non-market stakeholders is a very long process, and in some cases, may never occur. One need only observe that the media and consumer advocates rarely write favorable articles about airline mergers. However, airlines have continued investing in relationships with non-market actors, and the benefits of some non-market synergies have persisted. For example, on the tenth anniversary of its merger with Northwest, Delta touted the ongoing benefits of its continuing investments in its Salt Lake City hub: “While Salt Lake City is Delta’s fourth largest hub (behind Atlanta, Detroit and Minneapolis), it is the airline’s fastest-growing, adding 25 percent more seats since 2014. Salt Lake is part of a Western tri-hub structure for Delta with Los Angeles and Seattle. Salt Lake ‘is more important and more valuable than it was as a stand-alone hub with a smaller West Coast presence prior to the merger,’ [Delta chief financial officer Paul] Jacobson said. Fees paid by Delta will fund much of the ongoing $3.6 billion project to rebuild Salt Lake City International Airport. ‘It is a really big investment for us. I think it signals our value that we have for the airport and for the community… We are grateful to the Salt Lake community, and hope that as we cross this 10-year milestone that everyone can see the benefits we’ve been able to generate,’ Jacobson said” (Davidson, 2018).

The case of these airline mergers nicely brings the key features of our synergy typology to life, and it illustrates that a more expansive conceptualization of synergies may be needed to get at the total value created by a deal. In particular, the case illustrates how value can arise from external cooperative relationships with individual partners, from the networks in which they are embedded, and from relationships with non-market stakeholders—in addition to the operational and competitive improvements typically associated with airline mergers. The case also shows that some synergy types may reinforce each other and others may offset each other. And it demonstrates that each synergy type may create and sustain value over different time horizons.

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