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Using Rival Effects to Identify Synergies and Improve Merger Typologies

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Abstract

The strategy literature has found it difficult to differentiate between collusive and efficiency-based synergies in horizontal merger activity. We propose a theoretically-backed methodological approach to classify mergers that yields more information on merger types and merger effects, and that can, moreover, distinguish between mergers characterized largely by collusion-based synergies and mergers characterized largely by efficiency-based synergies. Crucial to the proposed measurement approach is that it encompasses the impact of merger events not only on merging firms (custom in the literature), but also on non-merging rival firms (novel in the literature). Employing the event-study procedure with stock-market data on samples of large horizontal mergers drawn from the US and UK (an Anglo-American sub-sample) and from the European continent, we demonstrate how the proposed schematic can better clarify the nature of merger activity.

Key words: acquisitions, event-study, mergers, research methods, rivals, synergy

Introduction

A vast amount of strategy literature has employed the event-study procedure (combined with either stock price or accounting data to capture profitability) to examine merger and acquisition (M&A) performance – see the extensive reviews by Datta et al. (1992), King et al. (2004), and Haleblian et al. (2009). This research has yielded a number of different insights concerning the merits of merger activity; e.g., M&As generally benefit target firms but represent break-even propositions for acquirer firms. Research has also yielded insights concerning the drivers of M&A performance; e.g., mergers that involve related firms (Rumelt, 1974; Palepu, 1985; Prahalad and Bettis, 1986; Singh and Montgomery, 1987; Flanagan, 1996), integration processes (Haspeslagh and Jemison, 1991; Pablo, 1994; Larsson and Finkelstein, 1999), and acquirer experience (Hitt et al., 2001; Vermeulen and Barkema, 2001; Barkema and Schijven, 2008) are potentially more likely to improve performance. A consistent assumption throughout the literature is that a successful – or synergistic – M&A is one that generates enhanced profitability for merging firms: i.e., the combined acquirer and target (Barney, 1988; Datta, 1991; Lubatkin, 1987). Accordingly, synergistic mergers are simply those mergers that lead to a net gain (e.g., in profitability) for merging firms (Michel and Shaked, 1985; Weidenbaum and Vogt, 1987).

Yet, a number of scholars (e.g., Chatterjee and Lubatkin, 1990; Lubatkin, 1983; McGahan and Porter, 1999; Seth, 1990) have noted that two broad synergy types exist: collusive synergies (based on the market-power implications of reduced competition where prices and profits go up for all firms in a market) and efficiency-based synergies (based on a broader set of micro-foundations including the operational, managerial, financial and resource-sharing opportunities involved with merging two firms). Efficiency-based synergies accordingly refer to more than just

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simple cost-reductions, but also to synergies resulting from combining the resources and capabilities of merging firms. While Walter and Barney (1990) point out that collusion and efficiency represent the principal rationales behind horizontal M&As, the researcher cannot distinguish between these different synergy types when strictly considering merging firm profitability. Namely, a positive profit effect for merging firms identifies the presence of synergies but cannot indicate whether these synergies are largely collusive or efficiency based.

The inability to separate synergy types led, for instance, to Chatterjee (1986) dropping all horizontal M&As from his study in order to eliminate the effect of collusive synergies and concentrate on efficiency-based synergies. While such a tactic makes sense when non-horizontal mergers involve minimal market power, there are instances when non-horizontal M&As actually involve collusive elements: e.g., foreclosure of downstream competitors or increasing upstream collusive conduct (Nocke and White, 2007; Normann, 2009; Ordover et al., 1990). Moreover, the tactic to drop horizontal activity is even more drastic in that many horizontal M&As clearly involve efficiency-based synergies. Even more troubling is the trend in organizational scholarship – noticed and empirically refuted by Oxley, Sampson and Silverman (2009) – to completely neglect collusive synergies as a relevant and vital outcome of merger activity—see also McGahan and Porter (1999) for evidence in support of collusive effects. The proclivity of scholarship to either omit horizontal merger activity from study or neglect the potential role of collusive synergies is partly due to the inability to differentiate between horizontal mergers that are largely efficiency or collusion based.

Our aim is to propose a theory-based means to classify M&A activity that yields more information on actual merger types; thus, our contribution involves the advancement of measurement procedures. In particular, we provide a methodological approach for future strategy research to more finely delineate between different merger types. Fundamental to our proposed methodological approach is the necessity to consider the impact of merger transactions on both merging firms (custom in the literature) and non-merging rival firms (not custom in the literature). Accordingly, we extend and improve upon the traditional measurement approach where researchers simply consider value changes in merging firms in order to determine the nature of merger activity (e.g., Lubatkin, 1987; Cannella and Hambrick, 1993; Lubatkin, Srinivasan and Merchant, 1997). We do this by taking into account structural insights from industrial organization (IO) theory regarding the impact of strategic actions on the profitability and value of competitor firms, and by enhancing the crude conceptualizations in IO concerning efficiency with richer theories from strategic management. In this vein, McWilliams, Soegel and Teoh (1999) observe (and are concerned in their empirical context) that merger events can affect competitor firms—see Oxley et al. (2009) for an assessment of how rare it is in the management literature for researchers to examine rival effects.[1] Moreover, by simultaneously considering the profit effects of M&A transactions on both merging and rival firms, we are able to show that collusion-based synergies (where rivals gain from the merger event) are fundamentally different from efficiency-based synergies (where rivals are harmed by the merger event). Thus by employing our proposed approach to consider both merging firms and non-merging rival firms, the researcher can distinguish between mergers that are largely collusive and mergers that are largely efficiency-based. In short, considering rival effects – in combination with the strategy

literature's traditional focus on acquirer and target profitability – yields critical information on the types of mergers being proposed.

Beyond the heuristic benefits of generating a means for future research to better distinguish between different merger types, our proposed schematic responds to additional calls in the organizational literature. First, Ketchen, Boyd and Bergh (2008: 646) note that "researchers … [have] … struggled with operationalizing the attributes of competitive advantage". In this vein, we follow up on Hitt et al.'s (2001: 58) pinpointing of what distinguishes efficiency-based synergy – "creation of synergy results in a competitive advantage for the firm" – by factoring into our schematic the only location where competitive advantage can be detected: rival effects. Second, we respond to Chatterjee's (1986) early call to build an analysis encompassing the impact of M&As on both merging and rival firms. Chatterjee (1992: 269) noted the potential for a schematic when he surmised that "if we simultaneously consider the stock price reactions of the rival and [merging firms] then we can uniquely determine the capital market's expectations about the … takeover". Thus the seeds – efficiency-based synergies generate a competitive advantage, and the relevance of considering rival effects – of such an identification scheme have been present in the literature for some time, but have yet to be developed into a full-fledged methodological framework to measure the nature of merger activity.

In order to support our main aim – provide a measurement procedure that factors the impact of horizontal mergers on both merging and rival firms in order to improve our understanding of M&A activity – we structure the remainder of the paper as follows. First, we discuss the methodological, conceptual and theoretical foundations behind our proposed measurement

approach. Second, we lay out the merger schematic by presenting a taxonomy of four merger types. Third, we demonstrate the relevance of the schematic by formulating a theoretical hypothesis, operationalizing the taxonomy, outlining the employed data and reviewing the event study procedure. Fourth, we present the empirical results. Fifth, we discuss the implications of the proposed schematic for the strategy literature.

Methodological and Theoretical Foundations

In proposing a methodological approach that yields more information on the nature of merger activity, we improve upon the empirically-driven approach that has often been employed in the strategy literature by proposing a theoretically-driven approach that more finely delineates merger type. The pre-existing literature would generally focus on how a merger impacts the value and profitability (whether that be measured by stock-price effects, accounting data, or other measures) of merging firms (e.g., Lubatkin, 1987; Cannella and Hambrick, 1993; Lubatkin et al., 1997). Accordingly, a value-enhancing (or synergistic) merger would be indicated by a positive profit effect on merging firms, while a value-decreasing merger would be indicated by a negative profit effect on merging firms (Michel and Shaked, 1985; Weidenbaum and Vogt, 1987). While many studies would treat the profit-effect on merging firms as a continuous variable, Table 1 illustrates the simple taxonomy that was generally employed to characterize the nature of merger activity.

Insert Table 1 about here

We attempt to improve upon this simple empirically-based methodological framework for detecting merger type by adopting basic insights from the *theory* of industrial organization (IO) and enhancing these spartan IO theoretical models with richer insights from strategic management *theory*. The IO field's primary focus is the nature of competition (prices and quantities) in imperfectly competitive markets—markets that exhibit a finite number of competitors, rivalry, and, most importantly, strategic interaction between firms (Tirole, 1992). Moreover, strategic interaction between firms in imperfectly competitive markets suggests direct links between the actions of one firm and the ultimate profitability of competitor firms (Porter, 1985). Interdependence forces firms to adapt their market strategies when competitor firms take strategic actions (Chen, 1996), and has direct implications with regard to identifying the two main merger types we focus on here: collusion-based and efficiency-based synergistic mergers.

While relatively rich modeling tools have been employed to factor the nature of competition and strategic interaction, efficiency effects in IO models have still largely been represented by simplistic marginal cost reductions. Furthermore, the IO literature essentially 'black boxes' efficiency effects by not analyzing in depth the source of these efficiency gains. It is in this realm where integrating the IO framework with the strategic management literature is particularly useful in improving the theoretical underpinnings of our proposed merger schematic. In particular, the simplistic IO idea that efficiency-based gains derive strictly from cost reductions can be understood as a reduced form specification that actually results from more complex processes: e.g., via the combination and integration of firm specific resources and capabilities (Barney, 1986; Dierickx and Cool, 1989; Peteraf, 1993)—see Boone, 2006 for a rare example of IO theoretical work influenced by strategy insights regarding resource accessing. While

motivating the existence of efficiency-based synergies with more complex managerial theories, we can still use the straightforward logic of IO models to elicit the nature of horizontal mergers: i.e., efficiency-based synergies, being merger specific, increase the profitability of merging firms but decrease the profitability of rival firms (Farrell and Shapiro, 1990). Put differently, efficiency-based synergistic mergers exert a negative externality on rival firm profitability.

The IO framework also incorporates the presence of collusion-based synergistic mergers. The change in market structure brought about by a merger forces all firms in a market to re-optimize market strategies. Given the reduced rivalry due to the presence of fewer competitors, higher prices and profits result due to a contraction in aggregate output (Salant et al., 1983; Denekere and Davidson, 1985; Perry and Porter, 1985; and Farrell and Shapiro, 1990). Following in this tradition, Gimeno and Woo (1999) empirically support fewer competitors generally leading to higher prices and profits for all firms in a market. One can even further specify the dynamics involved with collusive mergers under the two stock models in IO of imperfect competition: strategic competition over quantities (Cournot), and strategic competition over prices (Bertrand). In particular, merging firms reduce production and rivals increase production – though to a lesser degree than the merging firms' reduction – when quantity is the strategic variable—see Zhang and Gimeno (2010) for a representation of this dynamic. Further when price is the strategic variable, merging firms raise prices (or equivalently contract production) and rivals – to a lesser degree – raise prices (or equivalently contract production). In short, collusion-based mergers enhance the profits of both merging firms and rival firms by altering the market structure and eliciting accommodating responses by all firms in the market. Put differently, collusion-based synergistic mergers exert a positive externality on rival firm profitability.

While the opening passages and above discussion indicate that rival effects can help differentiate between the two M&A types which are profitable for merging firms (collusion-based and efficiency-based synergistic mergers), un-profitable mergers can also be explained in such a theoretical framework. As is abundantly clear from the prescriptive literature advising firms not to engage in acquisition activity (e.g., Lubatkin et al., 1997; Lubatkin and Lane, 1996; Sirower, 1997), many M&As result in merging firms experiencing losses: i.e., negative profit effects for merging firms, as represented by 'value-decreasing' mergers in Table 1. As Bergh (1997) notes, many value-decreasing mergers ultimately lead to divestitures and a damaged reputation for the acquiring firm and its managers. A number of explanations for the existence of such mergers have been posited: e.g., empire-building – managerial incentives to grow the company at shareholder expense (Mueller, 1969; Walsh, 1988; Weidenbaum and Vogt, 1987); managerial-hubris – managerial expectations are systematically upward biased (Jemison and Sitkin, 1986; Roll, 1986); as well as information processing constraints in the Simon (1957) tradition, and internal political games in the Pettigrew (1977) tradition. While it is well understood that targets reap the majority of M&A gains while acquirers usually break-even but often experience value losses (Andrade et al., 2001; King et al., 2004), the existence of value-decreasing mergers highlights the fact that acquirer value losses are sometimes so substantial that the net effect on the merging firms represents a loss (i.e., acquirer losses outweigh any potential target gains).

We can also break down these value-decreasing mergers into two types: non-synergistic (where merging firms lose but rivals gain) and value-destroying (where both merging firms and rivals lose). Moreover, both of these merger types can be nested within an enhanced IO-based

theoretical framework. With regard to non-synergistic mergers, Amir et al. (2009) present a formal theoretical treatment for these merger types by introducing uncertainty into a standard merger model. Thus, if the expected merger-based synergies do not manifest; then a merger which ex-ante seems to be profitable might in the end be unprofitable. Moreover, the value-decreasing nature of such mergers creates competitive opportunities for enhancing rival firm profitability and performance (Amir et al., 2009; Ghemawat and Ghadar, 2000). Recent scholarship has begun to shed more light on value-destroying mergers, as these merger types have been traditionally difficult to explain. Fridolfsson and Stennek (2005) consider cases where a merger involves substantial efficiencies (thus rival firm profitability suffers due to the negative externality); yet, the merger also involves substantial integration costs due to the challenges involved with integrating fundamentally different corporate cultures (Buono and Bowditch, 1989; Cartwright and Cooper, 1993; Haspeslagh and Jemison, 1991). Thus, value-destroying mergers (where mergers are unprofitable for both merging and rival firms) can manifest in an enhanced version of the basic IO model that encompass endogenous merger decisions (Fridolfsson and Stennek, 2005).

In sum, basic insights from the theory of industrial organization rest behind our proffered methodological schematic for delineating the nature of merger activity. Further, we can improve upon the crude conceptualization of efficiencies in IO theory by embracing richer theories from strategic management on leveraging the resources and capabilities of two merged firms in order to create competitive advantage. Drawing from these different disciplinary traditions forms a robust theoretical framework with stronger conceptual foundations that allows more confidence in generating a merger schematic that advances measurement procedures regarding merger

activity. Accordingly, our theoretically-backed methodological approach to simultaneously factor the impact of a merger on the profits of merging and rival firms provides better insight on the true nature of merger activity.

Taxonomy of Merger Activity

In order to fully factor how mergers impact the profitability of merging firms and non-merging rivals, it helps to now build our taxonomy. While the preceding discussion outlining the methodological foundations (the pre-existing empirical approach in strategy research to measuring merger performance and categorizing merger activity) and theoretical foundations (IO theory enriched with strategic management theory) sets the basis for our proposed methodological approach, the presentation of the four merger types is essential in order to illuminate our schematic of merger outcomes. Table 2 illustrates the proposed taxonomy of four merger types with respect to their varied effects on merging and rival firms.

Insert Table 2 about here

First, a long-standing rationale behind horizontal mergers is the elimination of competitors and facilitation of collusion amongst remaining firms (e.g., Porter, 1985; Stigler, 1964). The core dynamic behind these mergers is that the actions by merger insiders to increase prices and/or reduce output push the overall prices in the market up to the benefit of rivals. Hence, collusive transactions are beneficial to merger insiders (acquirers and targets) and outsiders (rivals), but come at the expense of suppliers and customers. Here, merging firms and rivals are competitive complements: the competition reduction leads to increased market power which enhances

merging and rival firms' profits. As an aside, the collusive elements of horizontal mergers were considered by many scholars (e.g., Chatterjee and Lubatkin, 1990; Lubatkin, 1983; Seth, 1990) to be a unique synergy source (along with operational) for related mergers and, thus, one of the reasons why related mergers may outperform unrelated mergers. Accordingly, mergers falling in the northwest quadrant of Table 2 (where both merging and rival firms gain) can be considered collusion-based synergistic mergers.

The $50 billion combination of Total-Fina and Elf-Aquitaine in 1999 is a good example of a collusion-based synergistic merger, as the transaction eliminated direct competition between two large French petroleum companies. The merger yielded profit gains for both the merging firms and their rivals, as competition was significantly reduced in a number of markets. In fact, the European Commission (EC) opposed the merger due to anti-competitive concerns, yet French authorities supported the merger on national-champion grounds (Dinc and Erel, 2010). While the EC was able to force TotalFina to undertake adjustments by divesting seventy retail outlets where competition would be substantially hindered due to significant overlap, TotalFina attempted to skirt such minimal remedies by selling these retail assets to a non-petroleum company that would not pose significant competition (Monti, 2003). Please see the Appendix for this and additional examples of collusion-based synergistic mergers.

Second, the most widely cited rationale behind horizontal mergers is the search for efficiency-based synergies that can be pursued via scale and scope economies, as well as via skill and resource sharing between merging firms (Walter and Barney, 1990). Accordingly, M&As that reduce costs for merging firms by any metric – scope, scale, or buyer-power – are synergistic

mergers. Based on the work conceptualizing industries as being characterized by a degree of resource heterogeneity and immobility (Barney, 1991), management research has moved beyond a focus on cost-based synergies to embrace a richer consideration of synergies with M&As representing a means to purchase resources that could not otherwise be accessed (Barney, 1986; Dierickx and Cool, 1989; Peteraf, 1993). More specifically, acquisitions provide bidders with new products, assets and skills which may be used to serve both new and pre-existing customers. For instance, Capron (1999) considers how resource redeployment post-acquisition can enhance M&A performance. In this vein, Hitt et al. (2001: 82) argue that the joining of "complementary resources between an acquiring and acquired firm can create synergies that, in turn, generate a competitive advantage for the firm over its competitors". As they infer, efficiency-based synergistic mergers are fundamentally different to collusion-based synergistic mergers in that rivals indicate negative – not positive – profit-effects for such mergers. With efficiency-based synergistic mergers, rival firms and merging firms represent competitive substitutes: the M&A involves the joining of resources and capabilities that gives merging firms an advantage vis-à-vis rivals, thus the M&A represents a competitive threat to rivals. Accordingly, mergers falling in the southwest quadrant of Table 2 (where merging firms gain, but rivals lose) can be considered efficiency-based synergistic mergers.

Boeing's 1997 acquisition of McDonnell Douglas (MD) represents a good example of an efficiency-based synergistic merger, as this combination of resources and complementary product lines yielded a competitive advantage for Boeing vis-à-vis rival firms. In particular, the joining of Boeing's extensive fleet of commercial aircraft with MD's commercial and defense industry assets reportedly led to a marked strengthening in Boeing's competitiveness (Haid and

Hornschild, 1997). The threat this merger posed to Airbus – Boeing's chief rival – eventually led to a substantial amount of opposition to the merger from European officials (Hill, 2011: 302-307); though, European objections were eventually moderated. Please see the Appendix for this and additional examples of efficiency-based synergistic mergers.

Third, some value-decreasing mergers which harm the profitability of merging firms can actually enhance the profitability of rival firms. In particular, when firms compete as competitive substitutes, value-decreasing mergers represent an opportunity for non-merging rivals. The M&A does not involve sufficient joining of resources and capabilities, thus the merged firm has no advantage vis-à-vis rival firms. In fact, the internal integration challenges of such a merger (Birkinshaw et al., 2000; Larsson and Finkelstein, 1999; Larsson and Lubatkin, 2001) could encumber the firm in strategic competition – recall that managerial time and cognition come in limited quantities – to the advantage of rivals. In this vein, Ghemawat and Ghadar (2000) point out that many astute rival firms take advantage of competitors hindered with substantial merger integration processes by seizing the opportunity to launch aggressive marketing campaigns or other bold strategic moves. These types of mergers are the reciprocal of efficiency-based synergistic mergers: just as a merger which enhances efficiency will threaten rivals, a merger which decreases the efficiency (or competitiveness) of merging firms represents a competitive boon to rivals. Accordingly, mergers falling in the northeast quadrant of Table 2 (where merging firms lose, but rivals gain) can be considered non-synergistic mergers.

The joining of AOL and Time-Warner in 1999 represents the epitome of a non-synergistic merger, as this $360 billion transaction has been widely viewed as one of the most significant

M&A failures of modern times (Quinn, 2009). The merger involved substantial challenges that led to – even controlling for the burst in the dot-com bubble – substantial decreases in profitability for the merging parties, as the integration of media content and delivery never yielded actual efficiencies and synergies (Quittner, 2009). Furthermore, the substantial integration challenges – and lack of synergies – provided a competitive advantage in strategic competition to more traditional media companies (e.g., Vivendi, CBS and Viacom) that did not attempt to create some type of 'new media' vertical conglomerate. Please see the Appendix for this and additional examples of non-synergistic mergers.

Fourth, some value-decreasing mergers actually generate competitive losses for both merging and rival firms. In this class of M&As, the merging and rival firms can be considered competitive complements; i.e., the merger is value-decreasing for both merger insiders (acquirer and target) and outsiders (rivals). As already noted, these types of mergers are characterized by high integration costs (Buono and Bowditch, 1989; Cartwright and Cooper, 1993; Haspeslagh and Jemison, 1991) that actually exceed the synergistic benefits for merging firms, and by rival firms that suffer due to the presence of efficiencies and synergies. Furthermore, recent literature on the nature of defensive merger activity (e.g., Akdogu, 2003; Brito, 2003; Fridolfsson and Stennek, 2005; Molnar, 2007) helps shed light on the dynamics behind a subset of these value-destroying mergers: pre-emptive mergers. In particular, if losing a target to a competitor means you would experience a substantial profit loss, then it may make sense to engage in a merger that decreases the future profit stream for merging firms when this decreased profit stream is less than the decreased profit stream of being an outsider to the merger. Hence, some value-destroying mergers might mitigate the profit losses of merging firms; thus, merging firms pre-

empt an even worse situation.[2] Thus, we categorize M&As that generate net-negative profitability changes for merging and rival firms as value-destroying mergers, and we further note that a sub-set of these mergers can be categorized as pre-emptive mergers. Accordingly, mergers falling in the southeast quadrant of Table 2 (where merging and rival firms lose) can be considered value-destroying mergers.

American Telephone & Telegraph's (ATT) expansion and vertical integration into the computer industry via the acquisition of NCR Corporation in 1990 represents a good example of a value-destroying merger. While the complementary financial and technical resources that ATT could leverage onto NCR certainly made the competitive life of NCR's rivals more difficult (Network World, 1990), ATT was unable to fully take advantage of the acquisition and enhance profitability due to unfamiliarity with this non-core industry and the reluctance of ATT communication service competitors to make purchases from an ATT subsidiary. As ATT stated to its shareholders, the "advantages of vertical integration [which had motivated ATT's earlier acquisition of NCR] are outweighed by its costs and disadvantages".[3] With regard to the pre-emptive mergers' sub-category (where rival firm losses outweigh merging firm losses) within value-destroying mergers, Kimberly-Clark's acquisition of Scott Paper in 1995 represents a good example. This merger resulted in a loss for the shareholders of the two merging firms, but yielded even greater losses to rival firms not participating in this consolidation within the declining paper goods industry (Davies and Lyons, 2007). Please see the Appendix for these and additional examples of value-destroying mergers.

The above discussion shows how variations in the impact of transactions on merging and rival firms' profitability can provide an indication of a merger's true nature. However, it bears pointing out that specific mergers will potentially involve elements of different merger types: e.g., many M&As involve both efficiency-based and collusion-based elements (Kim and Singal, 1993). Yet, the profit effect indicates which element dominates: the net effect. For example, an M&A where merging firms elicit positive profitability effects may involve both collusive and efficiency-based synergies, yet if rivals elicit a negative profit effect then the efficiency-based elements of the transaction dominate the collusive elements. For instance, the efficiency-based Boeing/McDonnell-Douglas pairing noted above also surely involved some collusive effects due to the reduction in competition; however, the efficiency-effects involved with the merger evidently swamped the collusive-effects. Likewise, if rivals elicit a positive profit effect then the collusive elements of the transaction dominate the efficiency-based elements. Accordingly, our schematic provides a direct means – factoring rival and merging firm effects – to disentangle mergers that are 'dominantly' collusion-based from mergers that are 'dominantly' efficiency-based mergers, and to disentangle value-destroying mergers from non-synergistic mergers. It should be pointed out that our 'net effect' is also appropriate in a temporal sense. For instance, a merger between two competitors may be efficiency-based (e.g., rivals suffer) in the short-run, but collusive (e.g., rivals gain) in the long-run; thus, the overall profit effect on rival firms will indicate which temporal effect dominates—a 'net present value' so to speak.

Empirical Demonstration

Theoretical Question

Our express purpose is to propose a theory-based methodological approach to classifying M&A activity that yields more information on actual merger type; thus, formal testing of hypotheses related to what determines merger outcomes does not represent our main aim. Nevertheless, we can build a simple hypothesis concerning cross-national heterogeneity in institutional and corporate governance practices and how that heterogeneity might impact the nature of merger activity in different geographical contexts. It should be underscored, however, that the ambition is not to contribute to the literature on the relevance of macro-level factors – e.g., national culture, legalistic and institutional traditions – in understanding organizational outcomes, but instead to set the proper theoretical motivation for empirical tests that might demonstrate the relevance of our proposed methodological approach. Thus, we now turn to engaging in a theoretical hypothesis derivation in order to help properly motivate the empirical demonstration of our proposed methodological approach

A great deal of scholarship recognizes that macro-level institutional features vary across nations and that this variation in the institutional context will result in variation in both business strategies and organizational outcomes (Aguilera and Jackson, 2003; Hall and Soskice, 2001; Hillman and Keim, 1995; North, 1990). For instance, Hillman and Keim (1995) focus on how the interface between government and business will be fundamentally affected by national institutional setting. A common generalization made by those doing research on the relevance of cross-national institutional variation is that the Anglo-American institutional structures share a number of commonalities that are in stark contrast to the structures shared by Continental European nations. For instance in their study of corporate governance variation in the advanced capitalist countries, Aguilera and Jackson (2003: 447) state that "in most comparisons

researchers contrast two dichotomous models of Anglo-American and Continental European corporate governance". Aguilera and Jackson go on – akin to Hall and Soskice (2001) – to highlight the relevance of the fact that shareholders face more powerful competing stakeholders in Continental Europe as compared to the Anglo-American world. Furthermore, Gugler et al. (2004) show that variation in legal structures that correspond to the above geographic distinctions appear to matter when considering business investment returns. Taking the next step, Haleblian et al.'s (2009) review of the organizational literature on M&As observes that macro-level institutional factors might also influence the nature of merger activity, yet they lament that little research has addressed this particular topic. It follows then that merger activity in the Anglo-American and Continental-European environments will exhibit differences due to the heterogeneity in macro-level institutional factors. Accordingly, a simple hypothesis follows:

> HYPOTHESIS The nature of merger activity in the Anglo-American environment will differ when compared with the nature of merger activity in the Continental-European environment.

Taxonomy Operationalization

Our proposed schematic of merger activity is general in that it is conceptually based on transaction-induced profitability effects (i.e., the impact of a merger on value and profits) for merging and rival firms. Empirical operationalizations could accordingly use stock price data (both short-run and long-run event-windows) as well as accounting and survey-based data to capture the profitability and performance of the merger. Our own empirical demonstration will employ stock price data based on relatively long short-term windows. As McWilliams and Siegel (1997), McWilliams et al. (1999), and Haleblian et al. (2009) attest, the principal advantage of a

short-term window is that stock price changes are better attributed to the event and less subject to confounding effects. For instance, keeping the window narrow insures against the presence of other major shocks and events being the true source of any abnormal return. Nevertheless, the advantage with longer event windows is that more information concerning the event can be impounded by the financial market: e.g., whether the executives of target firms will be retained post-acquisition (Bergh, 2001).

In our methodological context, it is important to follow the prescriptions of Oler et al. (2008) and expand the event-window beyond a very narrow 3-days (from 1 day before until 1 day after the event), as we consider both the reaction of merging firms and rival firms to an event. It stands to reason that it will take more time to impound the effects of a merger on the stock prices of rival firms, as financial markets must first ascertain the nature of the merger, then calculate the nature of competition and rivalry in the market, and finally factor the impact of the merger on rival firms. While the above suggests extending the event-window beyond one day after the event, the potential for information leakages also suggests extending the event-window prior to the event. Information leakages are particularly pertinent given the nature of our merger sample (very large horizontal combinations); thus, the likelihood that information leaks to the market prior to the merger announcement is quite high (e.g., Ellert, 1976). With the above considerations in mind, we employ a 56-day event window (from 50 days before until 5 days after the event) in order to more fully capture the impact of the merger on both merging and rival firms.[4]

Beyond the above intuitive rationales behind expanding the event-window, auxiliary empirical evidence suggests that the 56-day window yields the tightest correlation with the actual changes

in accounting-based profits earned by merging and rival firms in the three to five years subsequent to the merger.[5] Thus, our 56-day event-window results appear to follow through on the intended aim of the event-study procedure: i.e., any event-induced changes to the future profit stream of firms affected by an event are captured in changes to these firms' stock prices (see McWilliams and Siegel, 1997 for more details). And by completing this robustness check, we follow through on Oler et al.'s (2008) prescription to search for additional measures – such as accounting-based data – which might contribute to better understanding a merger event's true impact. We should also note that auxiliary tests employing a narrow 3-day window (-1,+1) yield virtually identical results to the 56-day window results; though, the 3-day results do not correlate well with post-merger profit data.

Using the cumulative abnormal return (CAR) for merging firms and rival firms over a 56-day window, we then classify particular M&As into the four merger types illustrated in Table 2. Notice that we consider the abnormal returns of merging firms (acquirer plus target) in order to sidestep the whole issue as to which of these two firms captures the majority of the transaction value (Singh and Montgomery, 1987; Barney, 1988; Sirower, 1997; Andrade, et al., 2001). While it is generally an important question as to whether the acquirer or target earns the majority of the value created by a merger (see Datta et al., 1992, King et al., 2004, and Haleblian et al., 2009 for reviews) the focus here is simply on whether the merger actually created value and not on who gets that value. Accordingly, each empirical observation represents a pairing between the two merging firms and the relevant set of rivals for the merger transaction. We also enlarge the proposed taxonomy to include an extra empirical category labeled 'no effect': cases where the CARs are not statistically different from zero (within one standard error around zero).

In order to be concrete, we can clarify here how the proposed schematic can be grafted on to a sample of horizontal merger activity while employing the event-study procedure in order to delineate between different M&A types. Therefore, when employing an event-study procedure with stock price data, we can classify mergers as follows:

- mergers that generate net-positive abnormal returns to merging firms (acquirer and target) and a net-positive abnormal return to rival firms can be considered collusion-based synergistic mergers,

- mergers that generate net-positive abnormal returns to merging firms (acquirer and target) and a net-negative abnormal return to rival firms can be considered efficiency-based synergistic mergers,

- mergers that generate net-negative abnormal returns to merging firms (acquirer and target) and a net-positive abnormal return to rival firms can be considered non-synergistic mergers,

- mergers that generate net-negative abnormal returns to merging firms (acquirer and target) and a net-negative abnormal return to rival firms can be considered value-destroying mergers.

Data

Our sample captures large horizontal M&As that occurred within the 1990-2002 period and affected European product markets. The sample was drawn from those merger transactions automatically analyzed by the European Commission (EC) for antitrust implications.[6] The chief advantage to drawing our sample from the mergers analyzed by EC officials is that Commission

experts have identified the relevant competitors (rivals) for every M&A, thus yielding an accurate assessment of rival identity. The expert assessment of rival identity represents a particular strength of this sample, as much of the finance-based literature that analyzes the impact of mergers on rivals simply defines rivals as those firms sharing the same industry classification (e.g., Eckbo, 1983; Song and Walkling, 2000; Fee and Thomas, 2004). Yet sharing the same industry does not equate to actually competing against merging firms in a particular market; hence, the expert assessment of rival-identity allows assessing the effect of mergers on rivals much more precisely than most previous work. While Shahrur (2005) takes a novel approach by employing input-output account data in order to identify buyer and seller firms, this identification of customers, suppliers, and rivals is still based on industry classifications. Thus, rival-firm identification represents a substantial strength to our particular data sample.[7]

For the purpose of illustrating the heuristic benefits of our merger schematic and testing our hypothesized prior, we will focus on two different sub-samples: one based on US and UK merger activity (Anglo-American), and one based on intra-European merger activity that excludes merger participants from the UK (Continental European). To be specific, the Anglo-American M&As consist of transactions where either a US or UK firm was involved in the merger as either an acquirer or target, while Continental-European M&As consist of transactions where both the acquirer and target hail from the European continent. We were able to identify and obtain usable data (stock price information on the relevant acquiring, target and rival firms) for 104 merger transactions: 104 acquirers, 104 targets, and 380 rivals for a total of 588 firm-level observations. These observations were then aggregated at the merger level by using the firms' market value as a weight – leaving us with 58 Anglo-American and 46 Continental-European transactions. Thus

we were conscious to balance McWilliams and Siegel's (1997) recommendations – elimination of observations with confounding events, and ensuring as large a sample as possible – concerning the use of the event-studies in organizational research.

One of the crucial issues in event studies is the determination of the moment when the information about the merger hits the market (McWilliams et al., 1999). For instance, proper identification of pre-emptive mergers requires that financial markets not be aware that a merger will be taking place. If financial markets had prior information on the likelihood of a merger but did not know the roles – acquirer, target and rival – that different firms would take; then, the merger would be identified as efficiency-based since the announcement would clarify roles and indicate a relative increase in the future profit stream for merging firms (Fridolfsson and Stennek, 2010). Furthermore, external shocks that affect merging and rival firms differently might also be threats to identification with event-studies. Yet, the previously mentioned conformity of our results with post-merger accounting-based profitability measures and with a narrow 3-day window (where external shocks are less likely) provides some confidence that external shocks do not substantially bias our results. Yet we can do even more to ensure against similar identification problems by following standard practice (e.g., Banerjee and Eckard, 1998) and defining the merger announcement date to be the first day in which rumors about a particular merger appeared in the international press. Taking the first rumor as the announcement date reduces the likelihood that a merger is already anticipated by the financial market.[8]

With the above concerns in mind, we used 'Dow Jones Interactive' – a customizable business news and research product that integrates content from newspapers, newswires, journals,

research reports and web sites – to identify the event date (i.e., the first rumor in the international press) for each merger in our sample. Furthermore, the necessary stock market data for the relevant firms were downloaded from 'Datastream'. In particular, we collected daily stock returns ($R_{i,t}$) and market values (MV_{it}) for all merging and rival firms, as well as information on a market return ($R_{m,t}$) for each firms' country-industry sector (where i refers to the firm, m to the specific sector, and t to time).

Event-Study Procedure

With the above data at hand, we follow the standard stock market event-study procedure by calculating the abnormal returns corresponding to a merger announcement. The abnormal return for firm i around the mergers' announcement day t ($AR_{i,t}$) is defined as $AR_{i,t} = R_{it} - \hat{R}_{it}$, where ($\hat{R}_{it}$) is the return for the scenario in which the merger would not have been announced. This counterfactual variable is not observable and must therefore be estimated. Hence, by using the market model, we first define the 'normal return' for each firm as $R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t}$, where firm i's stock return at time t ($R_{i,t}$) is assumed to be proportional to a market return ($R_{m,t}$) and $\varepsilon_{i,t}$ is an i.i.d. normally distributed error term. Accordingly, exogenous shocks to a market that homogenously affect all firms in a market will be subsumed by this market index. We then estimate this equation over a 240-day trading period – ending 60 days prior to the announcement date – while using the Scholes and Williams (1977) method. After obtaining estimates for the model's parameters α and β, we can build the counterfactual estimate of the stock price in the event where the merger would not have been announced: $\hat{R}_{it} = \hat{\alpha}_i + \hat{\beta}_i R_{m,t}$.

Following the literature, and to account for possible information leakages – which influence firm i's return before (or after) the merger announcement – we define the CAR to be the sum of the daily abnormal returns within an event-window spanning from τ_1 (50) days before the event to τ_2 (5) days after the event: $CAR_{i,\tau_1,\tau_2} = \sum_{t=\tau_1}^{\tau_2} AR_{i,t}$. Since our unit of observation is the merger, we generate an aggregated abnormal return for the combined merged entity (acquirer and target) as well as for the combined rivals for a given transaction by respectively taking the weighted average of the merging firms' and rival firms' CARs using their market value as a weight. Thus, we calculate the average CARs (ACAR) for the merging firms (M) and rival firms (R) involved in merger j as follows:

$$ACAR_{j,\tau_1,\tau_2}^{f} = \frac{\sum_{i=1}^{I_j^f} CAR_{i,\tau_1,\tau_2} * MV_{it}}{\sum_{i=1}^{I} MV_{it}} \qquad f = M,R$$

where I_j^f is the number of merging – or rival – firms involved in merger j. Thus, the CARs for merging firms and rival firms represent weighted averages of the composite firms (see McWilliams et al., 1999 for more description).

Table 3 reports mean CARs for all relevant firm types using our 56-day event-windwo over the different merger samples (Continental-European, Anglo-American and All Mergers). The sample means broadly conform to the well-established stylized facts (e.g., Andrade et al., 2001; King et al., 2004) concerning merger activity: targets reap substantial gains with positive and significant CARs, acquirers tend to break even by indicating CARs insignificantly different from zero, and merging firms as a whole generate slightly positive CARs.

Insert Table 3 about here

Empirical Results

Using our proposed schematic in conjunction with the stock-price measures obtained via the event-study procedure allows building tables that illustrate the merits of our methodological approach to classifying mergers. Table 4 presents the merger taxonomy based on the Anglo-American mergers. Reflecting the importance of the proposed conceptual framework, Table 4 illustrates the non-negligible presence of all kinds of mergers in the sample: i.e., collusion-based synergistic (22.41% of the sample), efficiency-based synergistic (25.86% of the sample), non-synergistic (18.97%) and value-destroying (25.86%) all exist. Furthermore, 48.28% of the merging firm observations experience a significant positive CAR, whereas 48.28% experience a significant negative CAR.

Insert Table 4 about here

Moreover, we would like to compare this sample of Anglo-American merger activity with a sample of Continental-European merger activity in order to test whether the hypothesized differences manifest and to illustrate the relevance of our merger schematic. Thus, table 5 presents the merger taxonomy based on the sub-sample of Continental-European merger activity. Notice that the Anglo-American and Continental-European sub-samples yield very similar results with regard to how often merging firms' experience a significant positive CAR: 48.28% for the Anglo-American sample, and 50% for the Continental-European sample. If we were to

have no information on rival effects – akin to the traditional approach in the strategic management literature – then the evidence would suggest that the M&As in these two samples are generally identical in terms of synergistic tendencies; i.e., Anglo-American and Continental-European M&As appear to be equally synergistic. Yet factoring the impact of these mergers on rival firms (i.e., employing our proposed schematic) tells us quite a bit more. Collusion-based synergistic mergers represent 30.43% of the Continental-European sample, but only 22.41% of the Anglo-American sample; further, efficiency-based synergistic mergers represent 17.39% of the Continental-European sample, and 25.86% of the Anglo-American sample. In short, efficiency-based synergistic mergers are relatively more prevalent in Anglo-American merger activity; and, collusion-based synergistic mergers are relatively more prevalent in Continental-European merger activity; though, it should be noted that these differences are only statistically significant at a tolerant 20% and 15% level respectively.[9] Accordingly, the synergistic Anglo-American mergers tend to be characterized less by collusive synergies and more by the attainment of efficiency-based synergies. Hence, Anglo-American mergers appear to involve the optimal redeployment of resources between merging firms that actually leads to the creation of a competitive advantage vis-à-vis rivals, whereas the Continental-European mergers appear to simply require the reaping of benefits from the reduction of competition in a market.

Insert Table 5 about here

Comparing the Anglo-American and Continental-European samples for the non-synergistic/value-destroying distinction proves to be less illustrative, as the differences are neither economically nor statistically significant. We see that non-synergistic mergers – where

the M&A decreases the performance of merging firms and actually enhances rival firm performance – represent 19.57% of Continental-European merger activity and 18.97% of Anglo-American merger activity. Furthermore, value-destroying mergers represent 28.26% of Continental-European and 25.86% of Anglo-American merger activity. Taking a closer look at the data to consider which M&A events actually indicate smaller losses for merging firms as compared to rival firms (i.e., truly pre-emptive mergers where the managers of merging firms value shareholders and mitigate profit losses), we see that five of the Anglo-American mergers and five of the Continental-European mergers were pre-emptive. In sum, no substantial difference in the tendency to undertake value-destroying and non-synergistic mergers is indicated.

In sum, the results from the empirical demonstration of our proposed schematic tentatively suggest that Anglo-American mergers are more efficiency-based than those in Continental Europe. While Anglo-American and Continental-European merger activity are equally synergistic in terms of merging firms' profitability (i.e., around 48-50% of the mergers in both samples indicate significantly positive abnormal returns), the synergistic Anglo-American mergers are largely characterized by the attainment of efficiency-based synergies as compared to the Continental-European mergers which are characterized more by the attainment of collusive synergies. Accordingly, the empirical results yield some support for the hypothesis that the nature of merger activity is different when comparing the merger transactions taking place in the Anglo-American world with those in Continental-Europe. It is imperative to underscore that such distinctions in the two sub-samples of merger activity would be impossible to detect when employing the traditional approach of strictly focusing on the profitability of merging firms (e.g.,

acquirer and target). Only by employing our proposed schematic (where the researcher simultaneously considers merging firm and rival firm effects) can such distinctions be made.

Implications

We have begun here to address Chatterjee's (1986) call for a more rigorous conceptual framework on merger activity that embraces the full effects of merger events: i.e., the impact on both merging and non-merging rival firms. Moreover, the different competitive effects of M&As on merging and rival firms drives the identification of the different merger types in our proposed schematic. If one were to assume that merger motives align with merger outcomes, then rival effects also help us differentiate between mergers where the motive is generally softer rivalry in a market (i.e., collusion-based synergistic mergers) and mergers where the motive is generally competitive in nature (i.e., efficiency-based synergistic mergers). In addition, rival effects help us differentiate between mergers where the motive is often hubris or empire-building in nature (i.e., non-synergistic and value-destroying mergers) and mergers where the motive tends to be rational and shareholder-valuing (i.e., pre-emptive mergers). Without considering rival effects, we simply could not make these distinctions. The efficacy of these distinctions underscores Oxley et al.'s (2009: 1322) point that "examining the effect of one firm's action on the abnormal returns earned by its rivals … is quite novel in strategy research and … can be usefully applied".

The point regarding the importance of rival effects in helping better illuminate the nature of merger activity can be borne out further. As already noted, focusing strictly on merging firm performance does not allow teasing apart collusion-based from efficiency-based synergistic mergers: both types positively impact merging firms, but only efficiency-based mergers

negatively impact rival firms. Consider, for instance, how the managerial challenges involved with these two types of mergers are quite different: collusive mergers simply require the killing off of a competitor and the subsequent reaping of gains from reduced rivalry, while efficiency-based mergers require sophisticated integration of resource bundles a la Barney (1986) and Capron (1999)—integration so successful that rival firms find themselves at a disadvantage with regard to the merged entity. For example, our empirical demonstration tentatively indicates that Anglo-American M&As are more likely to establish a competitive advantage than are Continental-European M&As. Accordingly, by defining merger types in this fashion we gain more insight into the potential managerial challenges involved with specific transactions.

Furthermore, value-decreasing transactions that reduce merging firms' profitability and performance are often considered failures on the part of management due to empire-building, managerial-hubris or information-processing problems (Lubatkin, 1983). Hence, mergers that negatively affect merging firms have traditionally been lumped into the value-decreasing category and considered the result of managerial failure. Yet pre-emptive mergers (a sub-category within value-destroying mergers) are fundamentally different mergers. Pre-emptive mergers actually involve shareholder valuing management, but in this case management must engage in strategic actions (i.e., a merger) that decrease performance and profitability to protect shareholders from what would be a greater loss if the firm were left outside of merger activity. Thus, considering rival effects allows identification of pre-emptive mergers and differentiation from other value-decreasing merger types with seemingly different managerial challenges.

Beyond the implications outlined above (indications regarding managerial motives; insight into managerial challenges involved with mergers; identification of value-decreasing mergers that do not represent managerial failure), the ultimate test of our methodological approach is whether it becomes broadly-useful to future researchers. While we anticipate a number of potential avenues where our merger taxonomy may be usefully applied, the ability to more finely delineate the nature of merger activity would seemingly be of particular interest to scholarly work in three general areas: 1) an improved measurement construct to capture M&A outcomes as compared to the previous focus on merging firms' profitability; 2) a useful moderator construct for sub-sampling that might lead to more consistent results concerning the drivers of M&A performance; 3) further comparisons of M&A activity across different merger samples.

First, we think of our methodological approach as a means to derive a finer and more nuanced "dependent variable" as compared to what has traditionally been employed in the strategy literature. While the strategy literature has customarily employed the abnormal returns of merging firms as the dependent construct and then considered the various drivers of merger value, the implicit argument here is that such efforts will involve spurious causal inferences in light of the measurement error involved with strictly considering the performance of merging firms. Hence, we expect that our merger schematic can replace the propensity in the strategy literature to simply consider the factors that drive merger profitability. Thus instead of focusing simply on the drivers of merging firms' value and profits, future empirical scholarship with theoretically generated hypotheses could consider the factors determining the different merger types. Such research would necessarily involve the coupling of our proposed approach to classifying merger activity along with multinomial logit analysis (e.g., Long, 1987) in order to

properly deal with the categorical nature of the dependent variable. In sum, only by better measuring the nature of merger activity (i.e., considering the impact of the merger on rival firms as well as merging firms) can researchers truly converge on the actual drivers of M&A performance and outcomes.

Second, the different merger types embedded in our merger taxonomy may be useful as moderator constructs that allow enhanced sub-sampling and interaction analysis. Consider, for instance, the King et al. (2004) study which highlights the empirical literature's inability to consistently and repeatedly converge upon the drivers of M&A performance. The authors accordingly conclude that a missing moderator of merger performance exists, as "researchers simply may not be looking at the 'right' set of variables as predictors" (King et al., 2004: 197). Our proposed schematic might proffer a solution to this puzzle, as it could explain the inconsistency in the empirical literature: i.e., identify one of those missing moderators. In particular, the predictors of M&A success (relatedness, experience, integration, etc.) may fundamentally differ for different merger types, thus explaining the prevailing inconsistency in empirical results concerning M&A performance drivers. For instance, acquisition experience could be fundamental for efficiency-based mergers that seek to re-deploy resources in an optimal manner, but acquisition experience may be ineffectual for collusive mergers that simply seek the reduction of competition in a market. Accordingly, using our merger taxonomy to sub-sample – and then testing which factors drive performance for a particular merger type – may lead to more consistent findings than has been yielded by the pre-existing literature. Thus, our delineation of merger type via a transaction's impact on both merging and rival firms may help explain mixed findings in the empirical literature concerning merger activity.

Third, the empirical demonstration of our methodological approach gave a simple example of how researchers could start to use our taxonomy in a deeper analysis of M&A activity. While our approach should certainly be built upon and integrated with theoretical work to derive testable hypotheses concerning the nature of merger activity, one can nevertheless imagine additional comparisons – implemented in a similar manner – to be of interest to M&A activity scholarship; e.g., differences between domestic and cross-border mergers (Gugler et al., 2003), manufacturing and service industry mergers (Clougherty and Duso, 2010), and all-cash and tender-offer differences (Sirower, 1997). Furthermore, similar comparisons of M&A activity across other geographic regions might be of interest to corporate governance (e.g., Aguilera and Jackson, 2003; Gugler et al., 2004) and institutionalist scholars (e.g., Hall and Soskice, 2001), as the existence of substantially different merger types in different regions would support the merits of focusing on the relevance of cross-national heterogeneity in institutional frameworks. For instance, the evident differences in our two sub-samples of merger activity potentially bear out Haleblian et al.'s (2009) observation that macro-level factors – like national culture and legalistic traditions – may influence the nature of merger activity.

Conclusion

Motivated by the inability in the strategy literature to differentiate between collusive and efficiency-based synergies, we build a theoretically-based methodological approach that yields more information on merger type. The proposed schematic departs from the customary approach in the empirical literature to simply focus on how M&As impact merging firms (i.e., the acquirer and target) by also considering how mergers impact rival firms. In particular, by analyzing rival

firm effects – in combination with the traditional focus on merging firm effects – we can differentiate between collusion-based and efficiency-based synergistic mergers (the two value-increasing M&A types for merging firms) and between non-synergistic and value-destroying mergers (the two main value-decreasing M&A types for merging firms). Simply put, the reaction of rival firms to merger events yields critical information on the nature of the proposed transaction. We empirically demonstrate the relevance of the proposed schematic on merger samples drawn from the US and UK (Anglo-American) and the European continent, and show that differences in Continental-European and Anglo-American merger activity only become manifest once rival effects are considered. Thus, we urge strategic management scholarship to begin to heed Chatterjee's (1986, 1992) early call to consider rival effects, as the impact of a merger on rival firms – in combination with the impact on merging firms – provides salient information regarding the true nature of the transaction.

Notes

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[1] McGahan and Silverman's (2006) study on how granted-patents impact rivals, and Clougherty and Duso's (2009) contention that rival firms generally gain from mergers represent two exceptions to this point. Further, Fosfuri and Giarratana (2009) observe that the same neglect for rival-effects is present in the marketing literature.

[2] When it comes to operationalizing pre-emptive mergers with event-studies (as we will do), financial markets should have no *a priori* knowledge that a merger is imminent if the cumulative abnormal return (CAR) is to accurately identify pre-emptive mergers. If the market knew that a merger was imminent but did not know the various roles (acquirer, target, and rival) that firms would take, then merging firms' CAR would be positive, and measurement error would result with pre-emptive mergers manifesting as efficiency-based mergers (Fridolfsson and Stennek, 2010). In order to mitigate this risk, we use the first rumor of a potential merger as the announcement date instead of the official announcement date. Please see the last two paragraphs in the 'Data' sub-section – and the attendant endnote 8 – for more details on this point.

[3] See http://en.wikipedia.org/wiki/NCR_Corporation for this quote – accessed on May 25, 2011.

[4] Note that, while it is absolutely true that broader windows might enhance the risk that other events are driving the results, we are very careful in excluding those firms which have been involved in simultaneous events. In other words, we cleaned the data of any firms experiencing multiple merger events (as acquirer, target or rival) around the same period—i.e., those observations were dropped. Moreover, our "long event window" is actually what Oler et al. (2008) term as a "medium event window". Indeed, we do not look at several years after the event, which would excessively enhance the risk noted above. Accordingly, our long window is a bit different than Oler et al. in that it is particularly long with regards to the days preceding the event rather than the days and weeks following the merger event. Finally, the mergers in our sample were very large mergers and, hence, major events. Therefore, the likelihood that other – more minor – events might have more significantly affected firms' stock prices seems to be low.

[5] We were able to collect balance sheet data from Standard & Poor's 'Global Vantage' database for a sub-sample of our data. This allowed creating a post-merger profitability measure for both merging and rival firms. In particular, the measure takes the reported profit levels over total asset

levels for merging and rival firms, and then compares that measure with a counterfactual measure of this variable (i.e., what that measure should be in the absence of the merger event). We define the counterfactual in a manner akin to Duso, Gugler and Yurtoglu (2010) where they use the development of profits over total assets for the median firm (in terms of profitability) in the same 3-digit SIC industry that merging and rival firms operate. We then calculate the development of profits from three to five years after the merger in order to control for transitory post-acquisition integration challenges (Jennings et al., 2005; Clougherty & Moliterno, 2010). When estimating a table of correlation coefficients, we find that the abnormal returns calculated using a longer (-50,+5) window indicate a much tighter – and statistically significant – relationship with post-merger profitability than does a shorter 3-day window. Thus, the longer short-term window appears to indicate greater construct validity, as it converges on another operationalization (accounting-based profit effects) that theory suggests it should be similar with.

[6] EU merger regulations mandate notification when the combined aggregate worldwide turnover of merging firms exceeds €5 billion or when the combined aggregate EU-wide turnover of merging firms exceeds €250 million. Therefore, these M&As have undergone a mandatory investigation by the EC—an investigation automatically triggered because the merger size exceeded notification thresholds. Thus by not picking up the small mergers that do not require notification, the sample is characterized by relatively large horizontal mergers. However, the robustness of the results to various sub-samples based on different antitrust-scrutiny levels suggests that the sample is not defined by anti-competitive mergers where collusion-based motivations would consistently prevail. Furthermore, EC antitrust authorities do not appear to be using stock-price reactions as a benchmark to detect anti-competitive mergers, as collusion-based synergistic mergers (where antitrust should be most concerned) do not elicit significantly more scrutiny than other types of mergers. Lubatkin et al. (1997) also find that changes in antitrust scrutiny levels do not change the nature of US merger activity as measured by CARs. Thus, it is unlikely that merging firms manipulate stock prices in order to ensure antitrust clearance.

[7] The first step in building the sample involved selecting all mergers which went through an in-depth (phase II) antitrust investigation from the beginning of 1990 until December 2001—leaving us with a total of 90 phase II cases. In order to obtain a representative sample and avoid problems of endogenous sample selection, a sub-sample of 110 merger cases was randomly

selected—cases which were resolved in the preliminary (phase I) investigation phase. For all of the above mergers (200 in total), we collected information on the merging firms (such as name, location, world-wide and EU-wide turnover), the name of all reported competitors, the policy decision (article, commitments/obligations/undertakings, notification and decision date), the geographic market of reference, and the product market of reference according to the NACE codes. Some cases had to be dismissed because we were not able to obtain stock market information for the merging firms and/or competitors. From these transactions, we were able to identify and obtain the relevant usable data for 104 acquirers, 104 targets, and 380 rivals for a total of 588 firm-level observations around merger events. See Duso, Neven and Röller (2007), Clougherty and Duso (2009), and Duso et al. (2010) for examples of empirical studies that draw a merger sample from the EC for similar benefits.

[8] To ensure the accuracy of these dates, we obtained the 'official' announcement dates from Thomson Reuters SDC database for a large sub-sample of our mergers: with the first-rumors occurring 35-days prior to the 'official' announcement dates on average. Furthermore, if one was concerned that rumor-dates overlapped with shock-dates (shocks which induced the mergers), then the 'official' dates will be further removed from the shock and thus be less subject to shock-induced bias. The downside of these official dates is that little additional information may be yielded to financial markets, thus the abnormal returns might be minimal. We re-estimated our CARs using these 'official' announcement dates and found significant correspondence with the CARs we employ with our reported results (a correlation of 0.63 for merging firms, and 0.54 for rival firms). In addition, McGahan and Porter's (1999) finding that external shocks tend to distribute evenly across an industry also suggests that such shocks do not represent a major threat to our event-study analysis. With the above points in mind, we do have some confidence that external shocks are not driving the CARs we elicit with our favored 56-day event-window.

[9] The lack of statistical significance is in part due to the limited sample size on which we run our tests for differences in means, and is also due in part to the nature of the merger taxonomy as differences between samples will not necessarily be huge. When we artificially expand the sample size by making each rival firm reaction to a merger a unit of observation (instead of averaging the weighted CARs for all rival firms), we elicit some statistically-different means when comparing the Anglo-American and Continental-European samples.

Appendix

Sample of Merger Activity sorted by Classification of Merger Type

Acquirer	Target	Sample	Year
Collusion-Based Synergistic Mergers			
Cyanamid	Shell	Anglo	1993
Crown Cork & Seal	Carnaudmetalbox Sa	Anglo	1995
Coca-Cola Enterprises	Cadbury Schweppes	Anglo	1996
Guinness	Grand Metropolitan	Anglo	1997
Worldcom	MCI	Anglo	1997
Dow Jones	General Electric	Anglo	1997
Commercial Union Plc	General Accident Plc	Anglo	1997
Ingram	Tech Data	Anglo	1998
Bp Amoco Plc.	Atlantic Richfield	Anglo	1999
Dow Chemical	Union Carbide	Anglo	1999
Unilever PLC	Bestfood	Anglo	2000
United Airlines	US Airways Group Inc.	Anglo	2000
H.J. Heinz Company	CSM NV	Anglo	2001
Fiat	Alcatel	Cont.	1990
Viag	Continental Can	Cont.	1991
Nestle'	Eaux Vittel	Cont.	1992
Mannesmann	Hoesch	Cont.	1992
Schneider Electric S.A.	AEG A.G.	Cont.	1994
Tractebel	Synatom	Cont.	1994
Man	Ingersoll Rand	Cont.	1994
Thyssen Stahl	Acciai Speciali Asti	Cont.	1994
Saint Gobain	Hoechst Wacker	Cont.	1996
Total Fina	Elf Aquitaine	Cont.	1999
Framatome	Siemens	Cont.	2000
Metsä-Serla Corporation	Modo	Cont.	2000
Stinnes AG (E.ON AG)	Holland Chemical	Cont.	2000
Fabricom	GTI	Cont.	2001
Efficiency-Based Synergistic Mergers			
Digital Equipment Int.	Mannesmann	Anglo	1991
Du Pont	Imperial Chemical Ind.	Anglo	1992
Asea Brown Boveri	Trafalgar Hse	Anglo	1992
Fletcher Challenge	Methanex	Anglo	1993
British Telecom	MCI (Ii)	Anglo	1997
Boeing	McDonnell Douglas	Anglo	1997
Exxon Corporation	Mobil Corporation	Anglo	1999
Astra	Zeneca	Anglo	1999
ACCOR S.A.	The BLACKSTONE	Anglo	1999
Alcan Aluminium Lcd.	Alusuisse Lonza	Anglo	1999
Emc	Data General	Anglo	1999
Boeing	Hughes Electronics	Anglo	1999
Ashland	Superfos	Anglo	1999

Acquirer	Target	Sample	Year
Efficiency-Based Synergistic Mergers			
Cendant Corporation	Galileo International	Anglo	2001
Flextronics International	Xerox Corporation	Anglo	2001
Alcatel Cable S.A.	Aeg Kabel	Cont.	1991
Orkla As	Volvo	Cont.	1995
Fortis	Abn-Amro Bank	Cont.	1997
Roche	Boehringer Mannheim	Cont.	1997
Linde AG	AGA AB	Cont.	1999
Ab Volvo	Scania Ab	Cont.	1999
Vivendi S.A.	Canal+ S.A.	Cont.	2000
UPM-Kymmene	Haindl	Cont.	2001
Non-Synergistic Mergers			
Ingersoll Rand Co.	Dresser Inc.	Anglo	1991
Uap	Transatlantic HDG.	Anglo	1991
Coca Cola	Carslberg A/S	Anglo	1996
ATT	TCI	Anglo	1998
Getronics N.V.	Wang Laboratories	Anglo	1999
Du Pont	Hoechst	Anglo	1999
AOL	Time Warner	Anglo	1999
Ford Motor Company	Autonova AB	Anglo	2000
General Electric Corp.	Honeywell	Anglo	2000
Sara Lee	Courtaulds Textiles	Anglo	2000
Cadbury Schweppes	Pernod	Anglo	2001
Ericsson	Ascom	Cont.	1992
CCF	BHF	Cont.	1994
Siemens	Italtel	Cont.	1994
Ciba-Geigy	Sandoz	Cont.	1996
ALSTOM	ABB	Cont.	1999
SCA Mölnlycke Holding	Metsä Tissue Corp.	Cont.	2000
Matra Marconi Space	Astrium	Cont.	1999
Svedala Industri AB	Metso Corporation	Cont.	2000
Deutsche Shell GmbH	RWE AG	Cont.	2001
Value-Destroying Mergers			
ATT	Ncr Corporation	Anglo	1990
Digital Equipment Corp.	Philips Electronics	Anglo	1991
Anglo American Corp.	Lonmin	Anglo	1996
General Electric	Finmeccanica	Anglo	1998
ATT	MediaOne Group	Anglo	1999
ACCOR S.A.	The BLACKSTONE	Anglo	1999
Alcoa Inc.	Reynolds Metals	Anglo	1999
MCI WorldCom	Sprint	Anglo	1999
GE Capital Corporation	Heller Financial, Inc	Anglo	2001
General Electric Company	Unison Industries Inc.	Anglo	2002
Accor	Wagons-Lits	Cont.	1991
Shell	Montedison	Cont.	1993

Acquirer	Target	Sample	Year
Value-Destroying Mergers			
Knp	Buehrmann Tetterode	Cont.	1993
Union Carbide	Enichem S.P.A.	Cont.	1995
Siemens	Lagardere	Cont.	1996
Siemens	Elektrowatt	Cont.	1997
De Beers	LVMH	Cont.	2001
UPM-Kymmene	Haindl	Cont.	2001
Value-Destroying (Pre-Emptive sub-category) Mergers			
Commercial Union	Suez	Anglo	1994
Gencor	Lonmin	Anglo	1995
Kimberly-Clark	Scott Paper	Anglo	1995
Thyssen Krupp Stahl	Itw Signode	Anglo	1997
AstraZeneca Plc.	Novartis AG	Anglo	1999
Mannesmann	Vlourec Dalmine	Cont.	1993
Cardo	Thyssen	Cont.	1996
Schneider	Legrand	Cont.	2000
Koninklijke KPN N.V.	E-Plus	Cont.	2002
Vendex KBB Nederland	Brico Belgium S.A.	Cont.	2002
No-Effect Mergers			
Ingersoll Rand Co.	Dresser Inc.	Anglo	1991
Chs Electronics Inc.	Metro	Anglo	1998
General Electric Company	Unison Industries Inc.	Anglo	2002
EnerSys	Energy Storage	Anglo	2002
Bertelsmann	Taurus Entertainment	Cont.	1997
Deutsche Telekom	Bertelsmann	Cont.	1997

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Table 1
Simple Merger Taxonomy

Merging Firms Gain	Merging Firms Lose
Value-enhancing Mergers	Value-decreasing Mergers

Table 2
Proposed Merger Taxonomy

	Merging Firms Gain	Merging Firms Lose
Rivals Gain	Collusion-based Synergistic Mergers *(Competitive-Complements)*	Non-synergistic Mergers *(Competitive-Substitutes)*
Rivals Lose	Efficiency-based Synergistic Mergers *(Competitive-Substitutes)*	Value-destroying Mergers *(Competitive-Complements)*

Table 3
The Means for the Estimated CARs

Sample	Continental-European Mergers (Obs. 46)	Anglo-American Mergers (Obs. 58)	All Mergers (Obs. 104)
Event Window	*56-day* *(-50,+5)*	*56-day* *(-50,+5)*	*56-day* *(-50,+5)*
Acquirer	-0.0008 (0.0202)	0.0009 (0.0172)	0.0002 (0.0131)
Target	0.0596 (0.0275)	0.0983 (0.0245)	0.0814 (0.0182)
Merging Firms (weighted)	0.0045 (0.0181)	0.0227 (0.0184)	0.0108 (0.0130)
Rival Firms (weighted)	0.0013 (0.0125)	0.0039 (0.0116)	0.0016 (0.0084)

Notes: The mean value of the average estimated CAR employing the 56-day window (50,5) is reported in the first line, and standard errors are reported on the second line in parentheses. For merging firms and rival firms, the individual CARs are weighted with the respective market value.

Table 4
Merger Taxonomy for Anglo-American Mergers

	Merging Firms Gain	Merging Firms No-Effect	Merging Firms Lose	Total
Rivals Gain	13 (22.41%) Collusion-based Synergistic Mergers	1 (1.72%)	11 (18.97%) Non-synergistic Mergers	25 (43.10%)
Rivals No-Effect	0 (0.00%)	0 (0.00%)	2 (3.45%)	2 (3.45%)
Rivals Lose	15 (25.86%) Efficiency-based Synergistic Mergers	1 (1.72%)	15 (25.86%) Value-destroying Mergers	31 (53.45%)
Total	28 (48.28%)	2 (3.45%)	28 (48.28%)	58 (100%)

Notes: We measure profitability by means of the 56-day CAR window. The first number in each cell reflects how many such merger-type observations are in the sample, while the second number – in parentheses – refers to the percentage of all observations the cell represents.

Table 5
Merger Taxonomy for Continental-European Mergers

	Merging Firms Gain	Merging Firms No-Effect	Merging Firms Lose	Total
Rivals Gain	14 (30.43%) Collusion-based Synergistic Mergers	0 (0.00%)	9 (19.57%) Non-synergistic Mergers	23 (50.00%)
Rivals No-Effect	1 (2.17%)	0 (0.00%)	1 (2.17%)	2 (4.35%)
Rivals Lose	8 (17.39%) Efficiency-based Synergistic Mergers	0 (0.00%)	13 (28.26%) Value-destroying Mergers	21 (45.65%)
Total	23 (50.00%)	0 (0.00%)	23 (50.00%)	46 (100%)

Notes: We measure profitability by means of the 56-day CAR window. The first number in each cell reflects how many such merger-type observations are in the sample, while the second number – in parentheses – refers to the percentage of all observations the cell represents.

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