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Three Cases of Horizontal Merger

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Abstract

We examine the question of adaptive firm conduct using longitudinal product-level data from three large horizontal mergers in the food manufacturing industry. Our model is grounded in a "post-structural" view of competition that we deduce from recent writings from the fields of strategy, organizational ecology, and industrial organization. Consistent with this model, we find that the influence of horizontal merger on product performance (i.e., rent) varies with the product niche, time, the specific firms that merged, and dominance of the product, and its market scope.

1. Introduction

Debate in the strategy literature continues as to whether strategic conduct or the market environment are the primary determinants of firm performance (e.g., McGahan and Porter, 1997; Rumelt, 1991). To date, virtually all empirical investigations of this debate use static, cross-sectional models that treat strategy as a constant and assume that equilibrium in performance exists within the time frame of the data. These studies are therefore silent about an essential element of strategy; i.e., the ability of a firm in a dynamic environment to adapt in response to ever-changing environmental pressures. In this study, we account for this missing element by using longitudinal product-level data from three large horizontal mergers in the food manufacturing industry. We ground our examination on a *post-structural* view of competition that we deduce from recent writings in the fields of strategy, organizational ecology, and industrial organization. In brief, this view asserts that firms can attain *and* sustain positive performance outcomes through their own initiative. Our intent is to shed new light on the debate about strategic conduct and market environment by observing their dynamic interplay. In this process, we hope to identify the extent to which a firm can, over time, buffer itself from the binding constraints of environmental forces.

We focus on large horizontal food manufacturing mergers because they are a particularly relevant phenomenon for studying the outcomes of strategic conduct in a post-structural competitive world. First, mergers in general can be thought of as purposive acts, for they represent an indisputable and deliberate reorientation of the firm's product configuration with its environment. Second, each of the three horizontal mergers (Nestlé/ Carnation, RJR/ Nabisco, and General Foods/ Kraft) contained a mix of the two basic types of product-scope adaptations, thus allowing us to examine their relative effectiveness in dealing with dynamic structural pressures. Specifically, some of the "merged" product lines share similar resource spaces (e.g., cream and cottage cheeses), thus increasing the acquiring firm's commitment to that niche, or in organizational ecologist terms, a *specialist* scope adaptation. Other merged product lines occupy distinctly different resource spaces (e.g., canned baby foods and potato chips), thus spreading the firm's resources over a broader population of food manufacturing niches; i.e., a *generalist* scope adaptation.

Finally, each of the three mergers in our sample brought together, or "merged," about one hundred branded food product lines. This provides enough observations to apply standard statistical methods to each merger in what amounts to three individual empirical case studies. By investigating the dynamic interplay between strategy and environmental forces in one large horizontal merger at a time, we can be confident that the product-level data from each merger is homogeneous in ways that are not possible using standard cross-sectional designs. That is, we can expect that all of the products involved in a specific merger will be subject to similar influences having to do with strategy, structure, and other core features of the combined firms. Additionally, our merger-specific investigative lens allows us the unique opportunity to apply a positivist research design to one of the originating foci of the field of strategic management; i.e., "the study of the singular, unique competing firm in a changing environment" (Hatten, 1979:454).

2. Towards a Post-Structural View of Competition

2.1 Antecedents

Until recently, industrial organization (IO) economics, strategic management, and organizational ecology offered three contrasting perspectives of competition. Traditional IO is based on micro-economic models of imperfectly competitive markets. It presumes that "above-normal" profits, or rents, are possible only as long as imperfections in the market exist. According to this deterministic view of competition, firm conduct is viewed solely in terms of those rent-seeking behaviors that are allowed by market structure. This is not to say that IO "structuralists" don't recognize that some businesses might attain "superior enterprise differentiation," or powerful market positions without the aid of collusive or other structural influences (Anderson, 1990). However, these economists view the outcome from firm-conduct as a short-lived anomaly, one destined to be eroded by market equilibrium forces that return all industries to their competitive state.

Not surprisingly, strategists never embraced the structuralist's model. The field of strategy is grounded on the assumption that firm's have rent-seeking options beyond those determined by the structure of the market in which it competes. For example, Rumelt, Schendel, and Teece (1991) pointed out that the case studies of the 1960s and 1970s found numerous exceptions to the structural view; i.e., instances where intra-industry performance differences persisted independent of structural determinants. These observations were soon followed by some complimentary theories about firm- specific conduct such as Rumelt's

(1974) theory of corporate diversification, Porter's (1980) theory of competitive advantage, the resource-based view of the firm (Barney, 1991; Connor, 1991), and Ghoshal and Moran's (1996) notion of "purposive adaptation". According to this latter notion of strategic choice, a firm can consciously pursue efficiencies "which create new options and expand the scope of activities beyond those that markets alone can coordinate efficiently" (1996:42). Put another way, Ghoshal, Moran, and others argue that strategy allows a firm to partially separate, or buffer, itself from the binding constraints of market equilibrium forces.

Organizational ecologists (OE) provide a third perspective on competition. In contrast to the focus on market structure by IO economists and on firm conduct by strategists, ecologists focus on resource competition within *populations* of organizations; i.e., groups of firms that share common features. Ecologists define these firm features by the claims an organization stakes out for itself in terms of the clients it serves, the goods and services it produces, and the technology it employs (Haveman, 1992). Whereas IO economists and strategists are primarily interested in explaining market power and financial performance, ecologists are interested in explaining how differences among firms affect survival (Boone and van Witteloostujin, 1995; Hannan and Freeman, 1977), and hence, the dynamics of competition at the population level (Baum and Mezias, 1992).

Like strategists, ecologists reject the static equilibrium assumptions. Indeed, they view competition for resources as a dynamic process involving different groupings of firms. Unlike strategists, however, few ecologists before 1990 embraced the notion of purposive adaptation. Rather, they were more like IO economists with their "semi-strong" deterministic views that Hannan and Freeman (1989) refer to as *probabilistic,* though OE's deterministic views were grounded on a very different rationale than that of IO. Specifically, they contended that calculated strategic actions are often tried but rarely successful because environments are near-impossible to predict and organizations are relatively inert because they are complex, resistant to change, and rely on decision processes which are clouded by political agendas. As such, OE predicted that organizational outcomes are only loosely coupled to its adaptive efforts, for environments change at a faster pace than an organization can adapt. The long-term survival of a firm, therefore, is exogenously determined almost by default. Put differently, ecologists did not perceive successful adaptations as the inevitable product of a rationally planned and systematically administered strategy, but rather as the occasional product of happenstance.

2.2 Proposed Paradigm Shift

Writings in the fields of IO and OE are suggesting a possible paradigm shift in that both fields are now converging to a view of firm conduct that is less structurally dependent, less deterministic, and less inertial. First, some IO economists have expressed disenchantment with the static equilibrium assumption that Teece (1984:90) referred to as a "fictitious state." Like strategists, these economists are now accepting the possibility that firms can consciously pursue dynamic efficiencies; i.e., firm conduct may have an enduring impact on performance (e.g., Schmalensee, 1985; Kwoka and Ravenscraft, 1986; McGee, 1988:19; Jacquemin, 1990:6).

Second, some organizational ecologists are now also accepting the view that inertia has a manageable component; i.e., firms have some discretion to enact, adapt to, and manipulate their environment (see Barnett and Carroll, 1995, for a review). For example, Barnett and Amburgey's (1990) model of mass dependence posited that some large firms impose a disproportionate influence on resource competition. Of central importance to this model—and models by, among others, Carroll and Hannan (1989) and Baum and Mezias (1992)—to ecological theory is that instead of treating all firms as more or less homogeneous, these models opened the field to consider the effect of industry sub-structures on population dynamics. That is, these models shifted the level of analysis of the field closer to that of the firm. This trend was continued by others who proposed that inertial forces can be overcome through a multifaceted transformation to the firm; i.e., the kind of change that causes the firm to abruptly "jump" to a new organizational-environment alignment (Henderson and Clark, 1990; Milgrom and Roberts, 1990; 1995).

In a recent OE study, Barnett and Freeman (1997) investigated one kind of multifaceted transformation, brought about by the simultaneous introduction of multiple products. They argued that this kind of punctuated change gives an organization little recourse but to alter core features in order to accommodate the new business imperatives. For example, the organization may have to change strategies, reallocate resources, modify administrative routines, and redefine certain job responsibilities, all of which may alter the network of relationships within the organization and with stakeholders outside of the organization. Barnett and Freeman temper this prediction about manageable inertia with a caveat: the broad scope of the change and abrupt manner in which it is introduced will initially engender unanticipated coordination problems (Iansiti, 1997), organizational resistance, and therefore a rate of exit. These inertial problems, however, may dissipate with trial, error, and time, as the organization learns to adjust to its new form

and circumstances (Ambergey, Kelly, and Barnett, 1993). Consequently, Barnett and Freeman (1997:8) predicted that "the increase in failure rate falls away as time passes after the change."

We think that the recent recognition of *manageable inertia* by Barnett, Freeman, and other ecologists, coupled with the acceptance by IO economists of the possibility of dynamic market efficiencies, suggests that the two fields are moving closer to the strategic notion of purposive adaptation. With the possible removal of tenets that had separated the three fields, opportunities open for a less critical transfer of theory, concepts, and measures, and the prospect of building a more unified model of competition.

For example, the three fields hold similar views of firm performance, though they use different terminology. IO conceptualizes firm performance in terms of variance from some market expected level, referring to this variance as either "above-normal" profits, or rent. Strategists also view performance relative to some market-wide baseline, using such measures as industry-adjusted profitability and growth. Underlying the IO conceptualization is the concept of market power while underlying the strategy conceptualization are the concepts of competitive advantage and differentiation. While the determinants of these two sets of concepts may differ, they nevertheless represent the same outcome: the ability of a firm to increase its output price above the competitive level and/or decrease its input costs below the competitive level (Porter, 1980). In contrast, organizational ecologists generally do not define performance in terms of profitability, nor at the business or firm level of analysis. Rather, OE defines performance in terms of the growth and legitimacy of a population of firms: the market acceptance of a particular type of organizational form at any given point in time. Accordingly, the greater the acceptance, the better the organizations are able to compete for scarce resources, and therefore survive. Recently, however, some ecologists such as Havemen (1993; 1994) and Baum (1996) have argued for the use of business-level measures of performance in OE research.[1] At a broad level, therefore, the performance concepts of OE are compatible with those of IO and strategy: should a firm have a high level of market acceptance at any point in time (legitimacy), it will be more able to compete for

limited resources (power), and thus should earn higher levels of performance (growth and profitability) than its less legitimate counterparts. For ease of presentation, we will use the term *rent* to represent the post-structural concept of performance as we develop hypotheses about the performance implications of purposive adaptation.

2.3 Horizontal Mergers in a Post-Structural World

Barnett and Freeman's concept about manageable inertia applies well to horizontal mergers. Horizontal mergers are deliberate acts, even if they are not always successful in creating rent. Further, they are also undeniably punctuated and disruptive events, for they abruptly bring together two firms and their previously independent set of products and organizational features. From the merged organization's perspective, therefore, horizontal mergers involve a simultaneous introduction of multiple products, causing many of the merged products to abruptly "jump" to a new organizational -environment alignment. Horizontal mergers also give the merged organization little recourse but to change strategies, reallocate resources, modify administrative routines, and redefine certain job responsibilities in an effort to rationalize the two sets of features.

Before proceeding, however, it is important to point out how our study's research domain differs from that of Barnett and Freeman's (1997) study. They studied exit (failure) rates of newly introduced, technologically innovative products among semiconductor manufacturers, or "specialist" scope adaptations in a market niche with high excess-carrying capacity. Ecologists define excess-carrying capacity as the maximum amount of available resources in a niche. Our study focuses on the ability of a firm's conduct, including its specialist and generalist scope adaptations, to earn rents in mostly mature food-product niches. That is, niches that by inference have considerably less excess carrying capacities than the niches in Barnett and Freeman's study, because "maturity" is often synonymous with a few dominant firms, high entry barriers, and a low rate of entry (Swaminathan, 1998:389). Ecologists note that it is more difficult to exploit resource opportunities in niches with low excess carrying capacity because of their intensely competitive, and therefore highly deterministic, nature (Brittain and Freeman, 1980). Similarly, strategists note that mature, competitive structures tend to impose a strong deterministic influence on firm performance; i.e., firms generally have few adaptive options in this market structure to obtain a sustainable advantage (Porter, 1980: 237-253). As such, we think that the sample frame of our study represents a more conservative context for investigating how much strategic conduct matters. Further, where Barnett and Freeman focused on products of yet unproven commercial value, our sample contains products

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[1] Haveman (1993; 1994) argued that ecological models need to account for firm-specific performance in order to: (1) keep the causes of organizational change distinct from the effects of the change, for otherwise the cause/effect logic of an OE model may blur; e.g., some observed organizational changes may be symptoms of decline rather than the causes of failure; and (2) prevent the possibility that any observed link between change and failure is spurious, in that both might be caused by the same firm-specific performance effects.

with long records of consumer acceptance.

3. Hypotheses

We propose three sets of hypotheses; each calibrated at product-level unit of analysis. This allows us to focus on the product-niches contained within an industry and thereby adopt a conventional OE unit of analysis (e.g., Delacroix and Swaminathan, 1991; Carroll, 1985). The first set of hypotheses deals with the *ex ante* market influences on a product's rent that are deterministic, or exogenous to the merged firm's adaptive actions (i.e., strategic conduct). The second set deals with the dynamic (*ex post*) market influences that might themselves be partially influenced by the merged firm's adaptations. The final set of hypotheses, and the ones that represent the core point of interest to this study, deals entirely with the influences on the product's rent that emanate directly from the merged firm's strategic conduct.

3.1 Ex Ante Market Factors

One of the key research issues in IO economics is the impact that horizontal mergers have on competition. Horizontal mergers are those where the market shares of two very similar businesses (i.e., same basic products and same geographic markets) are combined. Fundamental to IO is the general prediction that a horizontal merger can change the "rules of the competitive game," depending upon the pre-existing (*ex ante*) structure of the effected market. Specifically, IO posits that the more imperfectly competitive the pre-existing structure, the more the horizontally merging firm will be able to improve the power of its products' positions, and thereby earn rents, without fearing an immediate and effective reprisal by competitors (Scherer and Russ, 1990) or dilution by a new entrant (Eckbo, 1985). When evaluating a proposed horizontal merger in an antitrust context, therefore, IO economists predict that:

H1: *There is an inverse association between the pre-merger competitiveness of a product's market niche and that product's post-merger rent.*

This general prediction, however, questions what exactly is meant by "imperfectly competitive market structure." The IO, strategy, and OE literatures suggest that market structure is at least a two-dimensional construct. First, there is a rich tradition of research in the IO literature that establishes a positive relationship between the level of a market's concentration and its rent (e.g., Weiss, 1989; Cotterill, 1993; 1994). Concentration is also central to the IO predictions about the monopoly effects of horizontal merger. Not surprisingly, therefore, concentration has for years figured

prominently in the <u>Federal Merger Guidelines</u>, a formal document that is revised periodically based on the latest developments of IO theory. Some strategists (e.g., Chatterjee, Lubatkin, and Schoenecker, 1992) and organizational ecologists (e.g., Carroll, 1985; Boeker, 1991) also subscribe to this view and identify market concentration as a key determinant of firm performance. Hence, our first corollary hypothesis about initial market structural conditions is:

H1a: *There is a positive association between the pre-merger level of concentration in a product's market niche and that product's post-merger rent.*

Ecologists, however, are more apt to define competitiveness in terms of density, or the number of businesses competing in a market niche, and use this measure to proxy for the degree to which the carrying capacity of the niche is filled (e.g., Delacroix, Swaminathan, and Solt, 1989; Hannan and Freeman, 1989). The competitive effects of density, as derived from the ecologist's "density-dependent" models, are straightforward: competition for available resources will be higher in niches with high density than in niches with low density, all else being the same (e.g., Boeker, 1991; Carroll and Hannan, 1989; Tucker, Singh, Meinhard, and House, 1988). Hence:

H1b: *There is an inverse association between the pre-merger level of density in a product's market niche and that product's post-merger rent.*

As an aside, it may appear that concentration and density have opposite effects on competition (high density increases competition, while high concentration decreases competition), although the correlation is not straightforward. For example, Boeker's (1991) study of organizational strategies in the brewing industry found the two constructs to be inversely correlated, but only moderately so ($r = -.25$). Various explanations have been proposed to explain why the correlations are only moderate, some explanations derived from theory (e.g., Carroll's 1985 "resource partitioning" model and Barnett and Amburgey's 1990 "mass-dependence" model) and others based on measurement precision (e.g., Boone and van Wittleoostujin, 1995; Hannon and Carroll, 1992).[2] We infer from these explanations that

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[2] For example, Boone and van Wittleoostujin (1995) posit that the moderate correlation may arise because measures of density neglect an important aspect of the size distribution of firms that is captured by concentration, while measures of concentration, by focusing on the share of the largest inhabitants, emphasize the properties of only one tail of the size distribution. For example, the competitive pressures of an industry dominated by a few large rivals (i.e., concentrated), but including also a large number of lessor rivals

the measures of concentration may be capturing different aspects of market structure than the OE measure of density. Consistent with a post-structural model of competition, both aspects of the initial market conditions should be specified, as we did with H1a and H1b.

3.2 Ex Post Market Factors

The first set of hypotheses made predictions about post-merger rents based on any imperfections that may have been embedded in the initial structure of the effected markets. Implicit to these predictions is the assumption that *ex ante* market structural influences will remain more or less constant over time, which of course may not be the case. Structure may be altered by events exogenous to the merged firm, such as by post-merger actions taken by rivals and by trends in the general environment. Structure, however, may also be altered by actions taken by the merged firm during the post-merger period to leverage its newly gained position in order to extract a higher level of rent from the merger. Or, put in OE terms, just as environmental pressures may force an adaptive response, so too might the response engender changes to the extant structure. The *ex post* hypotheses thus attempts to account for the dynamic nature of market forces. Like the *ex ante* hypotheses, the *ex post* hypotheses are grounded on the same theories of imperfectly competitive markets, concentration, and density. However, the *ex post* hypotheses seek to *explain* post-merger rents based on actual changes, rather than use *ex ante* conditions to *predict* those rents. As we will discuss in the methods section, the dynamic elements in the *ex post* tests are examined over six annual contiguous post-merger time periods.

> **H2:** *There is an inverse association between the change in the post-merger competitiveness of a product's market niche from its ex ante level and that product's post-merger rent.*
> **H2a:** *There is a positive association between the change in the post-merger level of concentration in a product's market niche from its ex ante level and that product's post-merger rent.*
> **H2b:** *There is an inverse association between the change in post-merger level of density in a product's market niche from its ex ante level and that product's post-merger rent.*

In addition to concentration and density, a third *ex post* structural influence suggested by some ecologists and strategists has to do with the demand characteristics of a niche or market. Density dependence models, for example,

attribute population dynamics to temporal variations in the carrying capacity of a niche (Delacroix and Carroll, 1983; Delacroix, Swaminathan, and Solt, 1989). For example, Boeker (1991) and Swaminathan (1998) proxy for carrying capacity of the brewing industry by calculating the total consumption (demand) for beer in each state. As was the case with density, proponents of the population dynamics argument assert that the competition for available resources will be higher in niches where growth in total demand is slow, because slow growth induces a greater interdependence among participants in a niche. Further, they view growth and its impact on resource carrying capacity on a niche in a "s-shaped" manner (Eighmy and Jacobson, 1980). Strategists concur; they often use demand statistics to capture industry life cycle effects modeled in a similar "s-shaped" manner (Anderson and Zeithaml, 1984; Hambrick and Lei, 1985). In brief, the life cycle model posits that most industries pass through a series of stages, defined primarily by the level of growth (Hofer, 1975), and each state has different implications for the nature of competition. Like the ecologists, strategists predict that when growth is high, rivalry is generally low because each firm is able to operate at, or near, capacity. As such, rivals in high growth markets have little incentive to erode their own profits by competing on price. It follows, therefore, that a merging firm has more degrees of freedom to exploit any structural advantages during periods of high growth, without fearing retaliation.

Consistent with the post-structural view of competition, however, a merged firm's actions may be more than a response to some exogenous condition; its actions may engender changes to the extant demand characteristics (Carroll, 1985; Mitchell, 1998; Swaminathan, 1998). For example, a product involved in a horizontal merger may gain advantage in scale, scope, and differentiation. These advantages may, in turn, affords the product competitive options that can expand the resource carrying capacity of its niche by capturing market opportunity from a population of niches whose resource spaces partially overlap; i.e., niches with close product substitutes. Thus, we posit that the *ex post* demand characteristics of a niche, like *ex post* concentration and density, are at least partly endogenous to the merger, and therefore should be accounted for when modeling the influence of ex post structural factors on rent.

> **H2c.** *There is a positive association between the change in demand in a product's market niche and that product's post-merger rent.*

3.3 The Role of Strategic Conduct

The central thesis of this study is that a firm can *attain* and *sustain* rents through their own adaptive initiatives; i.e., purposively buffer itself from the dynamic constraints of

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(i.e., dense) may be quite different from the competitive pressures of a concentrated industry where all the lessor rivals have already exited due to "market shakeout."

market forces and its own inertial tendencies. Recall that this thesis is grounded in a post-structural view of competition that we deduced from recent writings from the fields of strategy, organizational ecology, and industrial organizations. Stated formally in the context of this study's research domain:

H3: *The products involved in a horizontal merger will generate post-merger rent.*

A more precise prediction comes from the literatures of strategy and OE, for these two fields developed somewhat similar classifications of domain extensions. For example, Rumelt's (1974) strategic classification of scope is largely based on scale and scope efficiencies made possible as a firm expands into domains that are relative similar in terms of products, markets, and technologies. From this conceptualization of strategy came Rumelt's well-known "relatedness hypothesis" about corporate diversification, that was later extended by Lubatkin (1983) to classify merger strategies. In brief, this hypothesis states that firms that put their "eggs" in similar baskets (so that their assets can be efficiently shared) and in "similar baskets of knowledge" (so that their knowledge can be effectively transferred), will outperform those firms that expand their scope into unrelated "baskets." Ecologists offer a somewhat analogous classification. Whereas strategists refer to domain extensions in term of "related" and "unrelated," ecologists refer them as "specialist" and "generalist" scope adaptations. A specialist scope adaptation represents a domain extension that increases a firm's commitment to a narrow range of resource spaces, or niches. In contrast, a generalist scope adaptation is one where a firm spreads its resources over a broader population of niches.

Of course, there are conceptual differences between the two classifications. The focus of the strategic conceptualization is primarily internal (assets, resources, and capabilities) and static, while the focus of the OE conceptualization is more externally focused and dynamic. Just as structural pressures may force an adaptive response, so too might the response engender changes to the extant structure (e.g., see Delacroix and Swaminathan's 1991 study of the wine industry, and Baum and Mezias' 1992 study of the Manhattan hotel industry). OE scholars thus view scope adaptations as a process by which firms attempt to adapt to their environment as a means to maintain legitimacy.

Since the post-structural view of competition suggests a less critical transfer of concepts across the fields of strategy and OE, we propose a view that synthesizes elements of both conceptualizations. Specifically, when two products are brought together that hold similar resource spaces, or niches, as is the case with a specialist scope adaptation, there should

be more opportunities for them to attain rents than would be available with a more "unrelated" generalist scope adaptation. First, relatedness among the products involved in a specialist scope adaptation should allow them to *attain* scale and scope economies and enhance differentiation (Porter, 1985: Chapters 3 and 4). Second, these related products should also be more able to *sustain* the rents that come with scale, scope, and differentiation because a specialist adaptation involves a "fight, rather than flight" response to competitive pressures (Lubatkin and Lane, 1996). Put differently, a specialist scope adaptation can use its advantages of low cost and high buyer loyalty to push some of the burden of dynamic market uncertainties onto its less specialized rivals, and thus be more able to defend (buffer) its rents against those uncertainties. This "strategic" argument is consistent with the ecologist's "resource partitioning" model (Carroll, 1985); i.e., in concentrated markets, specialists are more able to survive than generalists because "they have access to greater resources" (Swaminathan, 1998:393). The strategic argument is also consistent with the ecologist's "fitness-set theory" (Levins, 1968; Hannan and Freeman, 1977) which Baum (1996:84) noted challenges the conventional contingency theory belief that a generalist adaptation is preferred in more uncertain environments because it is more able to "ride out environmental fluctuations." Specifically, the fitness-set theory predicts that in environments such as the food manufacturing industry where there are many small fluctuations in supply and demand conditions (or what the ecologists refer to as a "fine-grained environment"), a specialist adaptation is always preferred regardless of the level of uncertainty.

H3a: *Products involved in specialist scope adaptations will attain and sustain higher post-merger rents than will generalist scope adaptations.*

A second corollary hypothesis about market share and rent follows a rich tradition in the literatures of strategy (Chandler, 1990; Porter, 1980), IO economics (e.g., Haller and Cotterill, 1996; Deneckere and Davidson, 1985**),** and organizational ecology (Hannan and Freeman, 1984; Carroll, 1985)**.** Strategists have long asserted that businesses that hold a high-share of the market relative to its competitors have more supply-side and demand-side advantages and are thus more able to exploit market opportunities while minimizing the threats of market-wide uncertainties (Porter, 1985). For example, a high-share business can better operate at close to minimal cost levels, even during cyclical downturns (Maloney and McCormick, 1983). A high-share business can also better enhance its products' differentiation by reducing the per-unit cost of differentiation and R&D

(Porter, 1985:120). Similar to our prediction about a specialist scope adaptation (H3a), a high-share business should be more able to defend and even expand its resource base in its market niche. IO economists concur; from their viewpoint, high-share businesses have more options to exploit market imperfections (Ravenscraft, 1983). Consequently, relative market share figures prominently in IO predictions about the monopoly effects of horizontal mergers (e.g., Baker and Bresnahan, 1985) and the 1992 Federal Merger Guidelines. Finally, the ecologists use of the term "size" as analogous to share suggests that large size may be interpreted by stakeholders as an outcome of prior success. Size thus serves to enhance the legitimacy and survival of the firm (Hannan and Freeman, 1984). Large size also serves to buffer a business from environmental uncertainties and competitive challenges, thereby increasing the probability that an organization will overcome obstacles that might threaten the survival of smaller organizations (Hannan and Freeman, 1984). Hence:

H3b: *Products associated with high pre-merger market share will attain and sustain higher post-merger rent than will lower-share products.*

Finally, a third corollary hypothesis comes from the obvious observation that no two mergers are alike. Mergers bring together two firms that are each somewhat unique in terms of their own organizational features. Mergers also involve buying firms that are each unique in terms of their ability to consolidate the acquired firm's features and manage cultural differences (Very, Lubatkin, Calori, and Veiga, 1997; Haspelaugh and Jemison, 1991). For example, ecologists have long noted that an organization gains skill with repetition, a learning process that ecologists refer to as "repetitive momentum" (e.g., Ambergey, Kelly and Barnett, 1993). It follows that the ability of a buying firm to manage the merger change process is influenced by its history of making mergers: each time a firm acquires another, it may gain competency at that activity, though that competency atrophies with time. These and many other factors suggest a latent merger-specific conduct effect that is hard to empirically specify, but also hard to deny.[3]

H3c*: Some merged firms will be more able to attain and sustain rents from their merged products than will other merged firms.*

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[3] Rumelt (1991) also measured firm-specific conduct as a latent construct in his investigation of structure and conduct effects.

4. Methodology

4.1 Sources of Data

The food manufacturing industry represents a conservative context for investigating purposive adaptation. Most food product niches in the U.S. tend to be slow growth, mature, highly competitive, and thus by inference have low excess carrying capacity. Truly innovative products are hard to come by and most are easy to imitate, and firms who are able to introduce new products tend to follow strategies of product proliferation which increases density. Moreover, the food retailing industry has become increasingly consolidated. The retailers who survived tried to use their increased size to extract more money from the food manufacturers for the privilege of "renting" their valuable shelf space (Mandel and Heinbockel, 1984). It may not be surprising, therefore, that food manufacturers were engaging in horizontal mergers during the decade of the 1980, including the three very large ones in our study, as a way to ensure and enhance their own destiny (Connor and Geithman, 1988). Put differently, some food manufacturers viewed horizontal mergers as a purposive means to adapt to the dynamic constraints of market forces.

Further, the food manufacturing industry contains a unique source of data, obtained by SAMI (Selling Area Markets, Inc., a private market research firm) that is well suited for studying the dynamic effects of adaptive firm conduct. SAMI data is specified at the *line-of-product* level*,* making it a much finer-grain unit of analysis than provided by conventional sources, such as the FTC's Line-of-Business data used by, among others, Rumelt (1991) and Schmalensee (1985), or the Compustat Business Segment data used by, among others, McGahan and Porter (1997). This finer-grained data affords a number of research design advantages. For example, it promotes a conservative test of the firm conduct (H3) hypotheses. McGahan and Porter (1997) speculated that the full deterministic force of industry is amplified when the data used to measure it are more precise; i.e., do not suffer from an aggregation bias associated with pooling data from non-competing products. This bias is well known to exist with 4-digit SIC definitions of industry (Scherer and Ross, 1990; Schmalensee, 1989). For example, non-competing products such as canned baby foods and canned soup are classified in the same 4-digit SIC industry (#2032) as pickled fruits and soy sauce (#2035). Line-of-product data provides a means to construct precise measures of structure and conduct for every non-competing product, and thus a metric to test important theoretical questions that to date remain untested.

SAMI provided annual data (1981-1990) on price and tonnage for every branded food product sold in the U.S.

whose annual sales exceeded $1 million (about 3,650 products), and for their generic counterparts. SAMI collected its data directly from grocery warehouses in 54 metropolitan areas across the United States. It then grouped the data into 495 product categories, using definitions that agricultural economists consider to be meaningful and precise indicators of economic markets (Connor, Rodgers, Marion, and Mueller, 1985). As such, the product categories are close representations of what organization ecologists call distinct resource spaces, or niches. Finally, SAMI grouped the 495 product categories into 75 product families, based on commonalties in distribution requirements and consumer perceptions of substitutability (Connor, *et al.*, 1985). For example, the product family "Cereal" contains three product categories: ready-to-eat, breakfast bars, and hot cereals. Similarly, the product family "Baby Foods" contains five product categories: formula, baby breakfast foods, baby juices, baby meals, and miscellaneous.

We tested our hypotheses one merger at a time by using SAMI data and two sampling criteria. First, each merger had to be large; i.e., involve a sufficient number of product-level observations to adequately run our statistical models. Second, each merger had to have taken place no later than the mid-1980s so that we had access to time series data over enough years to account for any market equilibrium forces. Three mergers met the first criterion about number of products, but only two, the 1984 acquisition of Nabisco brands by R.J. Reynolds (involving 93 branded food products) and the 1984 acquisition of Carnation Company by Nestlé (involving 73 branded food products), met the second criterion about years of available data. The fact that these two large mergers took place in the same year is fortuitous since it allowed us to test the dynamic interplay between structure and conduct for both mergers over the same six year time period (1984 through 1990, the last year that SAMI collected data[4]), thereby holding market influences constant. A pairwise listing of these 166 products that contained complete annual data over the period 1983 and 1990 reduced the sample size to 132 products. The 1988 acquisition of Kraft by the General Foods (GF) division of Philip Morris involving 155 branded products did not meet the second criterion. Because the Kraft/GF merger took place four years later, and thus contains only enough data to investigate the study's hypotheses over a two-year period, we ran our tests separately on this data, primarily for the purpose of sensitivity analysis.

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[4] SAMI's warehouse withdrawal data was the accepted metric during the 1980s. However, the metric changed with the advent of scanner based systems, and it was Nielsen and IRI that took the first mover advantage; SAMI failed to adjust its system of data collection and soon after (1991) went out of business.

As an important aside, testing our hypotheses one merger at a time in a single industry allowed us to control for four sources of variance common to cross-sectional studies: (1) non-comparable industries (our sample frame consists of firms from only one industry, food manufacturing); (2) non-comparable firms within an industry (our sample frame consists of only six large broad-based, multi-product food manufacturers who sell brand name products); (3) non-comparable within-firm data (our data comes only from branded food products from these large firms); and (4) non-comparable data due to firm-specific differences (even firms from the same general strategic group within the same industry are not fully comparable; i.e., each firm is unique in the way it is organized, governed, in the way decisions are made, in their distinctive competencies, and so on).

4.2 Dependent Variable: Rent

Rent can be thought of as the variance in performance above some market-expected level. As we mentioned earlier, the concept of rent is closely akin to market power in the IO economic literature, competitive advantage and differentiation in the strategic management literature, and at some broad level with growth and legitimacy in the organization ecology literature. Defining the concept is one thing; measuring it is quite another. Given that the focus of our study is to assess the dynamic impact that a merger has on the rent of the affected branded product, we measure the construct as *"the change in a merged product's price after controlling for two factors that are expected to covary with a change in price: the change in the product's market share and the change in the product's cost."* Further, SAMI data is unusually rich in that it allows us to compute this very specific measure of performance for all products in all pertinent niches over time. As such, SAMI data may meet the concerns of those ecologists who note the importance of including business-level performance measures in their models (e.g., Baum and Singh, 1996; Haveman, 1993).

First, we constructed a 2-year **Price Change** measure for each branded product involved in a merger. We did this by subtracting the price of each branded product in 1983, or one year before the merger, from its price in 1985, or one year after the merger (see Kristoff, 1996; Bedeian and Day, 1994; and Tisak and Smith, 1994, who recommend the continued use of change measures, even in light of the cautionary remarks made by Edwards, 1993; and Edwards and Parry, 1993). Of course, this 2-year measure represents too short of a time horizon to capture rent in a post-structural view of competition. For example, we infer from ecologists such as Barnett and Freeman (1997) that the anticipated benefits from a simultaneous, multifaceted adaptation might not show up in this 2-year timeframe because of inertial problems of

coordination and resistance. We infer from other ecologists that any benefits might be short-lived, given the slow growth, mature, low resource carrying capacity nature that likely characterizes most of the affected product niches in our study. Recognizing these two temporal considerations, we lengthened the time horizon of our measure by calculating five other annual Price Change measures: a 3-year Price Change measure (i.e., price data from 1986 versus 1983) through a 7-year Price Change measure (1990 versus 1983).

Second, similar to the price change measures, we computed six annual **Market Share Change** measures using the branded product's 1983 pre-merger market share as the baseline to compare its market shares 3 years through 7 years after the year of the merger. All things being the same, we expect that as a product's price increases, its share will decrease due to expected demand elasticities. Third, we computed six annual **Cost Index Change Measures,** using the 1983 price data for the branded product's private label counterparts as the baseline. As an important aside, because the efficient scale in food manufacturing is generally low (Scherer and Ross, 1990: 581-582), the price of private labels in the food manufacturing industry is accepted by agricultural economists to be a good approximation of the cost of producing and distributing products of similar quality to the branded products (Connor and Peterson, 1992; Rogers, 1987).[5] As such, the change in the price of a branded

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[5] Perhaps this point is best illustrated by recognizing that it is the small private label manufacturers, and not the large branded product manufacturers, who base their survival entirely on a low price, and therefore low cost. These firms "sell to retailers in large quantities under conditions of continuous price negotiations with professional retail buyers who are well informed about product quality and availability" (Connor and Peterson, 1992: 158). Also, these firms produce products that are approximately the same in terms of quality as the products produced by the branded manufacturers (Scherer and Ross, 1990: 581-582). Private labelers can afford to do this because the technologies are generally stable and common knowledge. In short, if the minimum efficient scale of manufacturing in this industry was high, the small private label producers would be unable to defend their cost minimization positions; the large, branded products manufacturers could sell their products at a price below the cost curves of their smaller, private label counter parts, while still maintaining persistent profits. Also, the branded manufacturers could leverage their volume advantages obtained from their branded product business to enter the private label business and overwhelm the private labelers. However, there is a little evidence that either conduct happened; indeed, private-label food manufacturing by branded manufacturers is rare (Connor, *et al.*, 1985: 220-223). Distribution economies are also doubtful in food manufacturing because the production plants of the merged firms are unlikely to be in close proximity to coordinate shipping from a single location. Furthermore, few shipments are made directly to the retailer because retailers generally perform their own wholesaling activities or use their own wholesale firms. Therefore, the retailers, and wholesalers, not the producers, are more likely to be concerned with the efficiency of the distribution system, while being indifferent about the origin of the producer's shipments.

product, net of the change in the price of its private label counterparts, can be thought of as the branded product's profit margin. Each annual **Cost Index Change** can also be thought of as representing a much more precise measure of the inflationary pressures on a product category than some general index of all consumer prices such as the CPI.

Finally, we partialled out the variance in the 2-year Price Change measures associated with the 2- year Share and Cost measures by entering the 2-year Price Change measure as the dependent variable, and the 2-year Share and Cost measures as covariates in a hierarchically constructed regression model that we will soon more fully specify. We did the same for the 3- through 7-year measures; i.e., we ran our regression model six times, once for each set of Price, Share, and Cost measures. In sum, we measured *Rent* as the temporal change in a product's price net its covariance with its corresponding temporal changes in share and cost.

4.3 Ex Ante Market Variables

We defined the level of market concentration before the merger, or **Initial Market Concentration** (H1a), as the sales in tonnage of the top two selling products in each line-of-product market niche during 1983 (the year before the merger year) divided by the total tonnage sales for that niche in 1983, including the sales of private labels. As an aside, concentration in the IO and strategy literatures is generally measured as the share of the market held by the four largest selling brands, or by the sum of the squared market share of all firms in the market (the Hirshman-Herfindahl Index). Consistent with prior research in the food industry, however, we based our concentration ratio on the share of the two largest selling brands because most food product markets are highly concentrated, particularly at the niche level (Kwoka and Ravenscraft, 1986). We measured **Initial Market Density** (H1b) by counting the number of different brands listed by SAMI in each market (line-of-product) niche during 1983.

4.4 Ex Post Market Variables

As we did with Initial Market Concentration, we computed a concentration measure for the market niche during 1985, or the first year after the year of the merger, subtracted from it the **Initial (or 1983) Market Concentration**. We used this **Concentration (2 year) Change** (H2a) measure in the regression model to explain **Price (2 year) Change**. We then computed Concentration (3 year) Change by substituting the 1986 concentration measure into the change metric for the 1985 concentration measure. Concentration (3 year) Change is used in the regression model to explain Price (3 year) Change. We follow the same method to construct Concentration (4 year) Change (1987) through Concentration

(7 year) Change (1990). As we did with the six Concentration Change measures, we compute six **Density Change** (H2b) measures. Finally, we computed six **Market Growth** (H2c) measures by subtracting the sales (in tonnage) observed for each market niche for each of the six post-merger years (1985 to 1990) from the sales of that niche in 1983.

4.5 Strategic Conduct Variables

The study's third set of hypotheses predicted that the rent generation potential of horizontal merger products is determined by at least three features about the merger. We measured **Scope Adaptation** (H3a) as a categorical variable (0=Generalist; 1=Specialist). Consistent with the organizational ecology's use of the term, we designated a *Specialist Scope Adaptation* as one where a branded product of one firm (be it the buying or acquired firm) is in the same product "family," and therefore overlaps with branded products in the other firm. (Recall that the 495 product categories, or niches, in the SAMI data are grouped into 75 product families.) As such, a specialist adaptation involves products that are close substitutes, both in terms of market perceptions and distribution requirements; e.g., a potato chip brand and a corn chip brand, both classified under the product family "snack foods." Of the products involved in the Nestlé and RJR mergers, 24 (18%) involved specialist adaptations. With the Kraft/General Foods merger, 30 (18%) were specialist. Also consistent with the OE use of the term, we designated a *Generalist Scope Adaptation* as one involving branded food products that come from different product families. We measure **Market Dominance** (H3b) as a categorical variable: if the product of interest is one of the two top market share leaders (in terms of tonnage sold) in its niche in 1983 (the year before the year of the merger), then we assign it a value of 1; otherwise it receives a value of 0. Finally, we also defined **Merger-Specific Effects** (H3c) as a categorical variable (0=Nestlé/Carnation merger; 1=RJR/Nabisco merger) intended to capture the variance of a latent conduct effect.

5. Results

Part I of Table 1 contains the means, standard deviations, and intercorrelations of the variables on the 1985 data, pooled across the Nestlé/Carnation and RJR/Nabisco mergers; i.e., during the first full year after the year of the merger. (The descriptive statistics on the data for the other five years following the year of the merger are available from the authors, but are withheld here because they bear strong similarity to the first year data.) The statistics reveal a large negative correlation (-.60) between Initial Concentration and

Initial Density, and large positive correlation (.89) between Initial Density (an *ex ante* measure) and its *ex post* counterpart, Density Change. However, diagnostic procedures suggest that the estimated parameters were not degraded by these correlations.[6] Part II of Table 1 shows the six year trend in Price Change for the branded products involved in each of the two mergers and their corresponding price changes in their respective private label counterparts, or the Cost Index Change measures. These statistics reveal a similar price trend for both during the first four post-merger years such that branded products maintained about an eight cent differential over their private label counterparts. Interestingly, the price differential increased during the final two post-merger years.

We tested the study's hypotheses on the 1984 RJR/Nabisco and Nestlé/Carnation mergers with six regression models, one for each of the six annual timeframes, beginning in 1985. Each model is specified with ten independent variables in the form:

Price Change$_i$ = Control Variables (Market Share Change$_i$ + Cost Index Change$_i$)+ Ex Ante Variables (Initial Market Concentration + Initial Market Density)+ Ex Post Variables (Concentration Change$_i$ + Density Change$_i$ + Market growth$_i$)+ Firm Conduct Var's (Scope Adaptation + Market Dominance + Merger-Specific)
where i = the 2-year change in 1985 (1985 vs 1983) through the 7-year change in 1990.

We tested our regression model using a Zellner's Seemingly Unrelated Regression technique, or SUR, from the statistical package, SHAZAM**.** SUR is a form of generalized least square regression that takes advantage of correlated cross-equation errors to provide more precise within-equation parameter estimates than OLS (Greene, 1990: 510).[7] SUR does this by using a multi-stage estimation technique in which the six regression equations are run simultaneously as a system. Put differently, when the disturbance terms of different regression equations are mutually correlated, SUR incorporates relevant information from the other estimation stages into final estimates of each regression model (Griffeths, Hill, and Judge, 1993: 551).[8]

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[6] Collinearity is indicated by a variance inflation factor (VIF) in excess of 10 and a Condition Index in excess of 30 (Norusis, 1993: 355-7). The VIFs for Initial Density (8.5) and Density Change (8.2) are not suggestive of collinearity, nor is the Condition Index ,which did not exceed 10 in any of the six annual regression runs**.**
[7] We ran our equations using OLS and found that SUR produced parameter estimates with more than 28% less variance (i.e., more precise estimates) than OLS.
[8] Cross-equation error correlation (i.e., heteroskedasticity) is indicated by the Breusch-Pagan test (χ^2=908; *p<.05*).

Table 1 Descriptive Statistics for all Variables on 1985 Data.

Part 1: Correlations[1]

Variable	mean	S.D	1	2	3	4	5	6	7	8	9	10
1. Price Change	.13	.26	—									
2. Market Share Change	.00	.03	.08									
3. Cost Index Change	.05	.17	.62	-.07								
4. Initial Market Conc.	.43	.18	.06	-.17	.17							
5. Initial Market Density	21.08	23.45	.05	.00	-.14	-.60						
6. Concentration Change	.00	.04	.13	.47	.06	-.09	-.05					
7. Density Change	3.83	5.57	.12	-.06	-.15	-.51	.89	-.06				
8. Market Growth	-3.36	67.03	.03	-.17	.21	.00	.16	-.20	-.04			
9. Scope Adaptation	.18	.39	.12	.04	-.11	-.03	.03	-.05	-.02	.05		
10. Market Dominance	.21	.41	.05	-.25	.18	.37	-.25	-.19	-.24	.05	-.10	
11. Merger Specific	.56	.50	-.08	.11	-.05	-.20	.04	.01	-.03	.03	.02	-.32

Part 2: Tends in Pricing Change From 1983 Base Year.

	Price Change		Cost Index Change		Difference
Year	Mean	S.D.	Mean	S.D.	Brand-Index
1985	.13	(.26)	.05	(.17)	.08
1986	.23	(.55)	.15	(.41)	.08
1987	.21	(.37)	.14	(.29)	.07
1988	.24	(.39)	.16	(.27)	.08
1989	.31	(.47)	.21	(.31)	.10
1990	.36	(.51)	.24	(.31)	.12

[1] n=132; All correlations larger than .17 are significant at *p≤.05*.

Part I of Table 2 presents the results from the six individual regression models that were pooled using SUR. All models are highly significant ($p<.001$) and all explain a large percentage (from a low of .39 in 1990 to .high of .67 in 1987) of the variance in the Price Change measures. Part II of Table 2 presents the results from a SUR analysis run in a hierarchical manner on the overall system of the six equations, or 792 observations ($R^2 = .73$). With this analysis, we entered four blocks of variables into the model, beginning with a block consisting of the two control variables, followed by blocks consisting of the two *ex ante* structural variables, the three *ex post* structural variables, and concluding with the three *conduct* variables. Whereas the intent of the regressions in Part I is to present six individual sets of tests of the sub-hypotheses, the intent of the hierarchical regression in Part II is to test the independent contribution that each set of variables makes to explaining the dependent variable.[9] Most importantly, the hierarchical regressions provide a conservative test of our post-structural model. It assesses the unique non-temporal rent contribution of strategy by first partialling out all of the variances associated with extraneous, initial, and dynamic market determinants.

From Part II of Table 2, we note that the block consisting of the two control variables, taken as a system, explains a large percentage ($R^2 = .51$) of the variance in Price Change, although it appears from Part I that Cost Index Change is consistently driving this result. That is, Cost Index Change is highly significant ($p<.001$) in each of the six independent annualized regression runs. This is a perfectly reasonable finding: the ability of each branded product to raise its price is largely explained by the cost (and thus price) pressures that characterize its specific niche. Of course, had this control variable been the only variable to explain the variance in the dependent variable, our results would have suggested that the post-merger price changes associated with the merged branded products were driven primarily by niche-wide changes in cost, and not by other structural and strategic effects.

This is clearly not the case. First, the increases in prices during the first two post-merger years (1985 and 1986) occurs concurrently with an increase in market share ($p< .05$ and $.001$, respectively)—a real display of market power, for product prices were being raised even as market share increased. All subsequent price increases appear insensitive to any Market Share Change. Finally, the *ex ante* block of market structural variables, when taken as a system, explains an additional 4 percent of the variance in Price Change over that of the two variable control block ($p<.01$). This finding

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[9] We varied order of entry and thereby confirmed that the structural and firm effects are indeed independent of one another.

is consistent with **H1.** The ability of a merging firm to earn post-merger rents from its products (i.e., increase the output price of its products net of the dynamic influences of changes in cost and changes in market share, or demand elasticities) is contingent upon the structure of each product's market at the time immediately proceeding the merger. Interestingly, the pre-merger Market Density **(H1b)** of the product niche in 1983 (the year immediately preceding the merger) seems to be driving this result. That is, Initial Market Density explains a significant portion of the residual variance in three of the six annual Price Changes associated with a merged branded product; i.e., in the third ($p<.001$), fourth ($p<.05$), and fifth ($p<.05$) years following the merger, while Initial Market Concentration **(H1a)** does not. However, the relationship between Initial Market Density and the dependent variable is in the opposite direction to what H1b predicted. That is, the more dense the pre-merger niche (and therefore, by inference, the lower the excess resource carrying capacity of that niche) the more a branded product involved in a merger is able to earn post-merger rents.

H2 predicted that the ability of a merging firm to earn post-merger rents from its products is contingent upon the changes that occurred in the structure of each product's niche due in part to the merger. Consistent with **H2**, we find that the block of merger-induced *ex post* or dynamic structural changes, when taken as a system, make a significant contribution towards explaining the residual variance in the dependent variable. The hierarchical analysis shows that this block of variables explains an additional 9 percent of the variance in Price Change ($p<.001$) over what was explained by the Control and *ex ante* block. Consistent with **H2a**, Concentration Change shows itself to be significantly and positively related to the dependent variable, although this result is found only in the second ($p<.01$), third ($p<.10$) and fourth ($p<.10$) years following the merger. Opposite to **H2b**, the Density Change variable also shows itself to be significantly and positively related to post-merger product rents in first ($p<.001$) and second ($p<.01$) post-merger years, such that Market Density increased, so did the rent from the merged products. Curiously, though consistent with **H2b**, the relationship becomes negative in the third post-merger year ($p<.01$) and insignificant in the final three years. Finally, we fail to find support for **H2c** and its prediction about market growth in any of the six regression models. Given the modest overall support for each of the corollary hypotheses of **H2**, taken one at a time (Part I of Table 2), but the large contribution made by the block of the three variables when taken as a system in the hierarchical runs, may suggest that the true contribution of the *ex post* structural variables comes from how they act in consort with each other.

Finally, **H3** predicts a merging firm can earn rents through

Table 2 Seemingly Unrelated Regression Using Data from Two 1984 Mergers: Nestlé/Carnation (=0) and RJR/Nabisco (=1)[1]

Part 1: Individual Regressions

Variable	Price Change One Year (1985)		Price Change Two Years (1986)		Price Change Three Years(1987)		Price Change Four Years (1988)		Price Change Five Years (1989)		Price Change Six Years (1990)	
	Beta	Std err	Beta	Std err	Beta	Std err	Beta	Std err	Beta	Std err	Beta	Std err
Intercept	0.00	0.07	0.00	0.12	0.00	0.08	0.00	0.11	0.00	0.13	0.00	0.15
Controls												
Market Share Change	0.11*	0.48	0.12***	0.44	-0.04	0.27	0.06	0.24	-0.01	0.27	0.02	0.30
Cost Index Change	0.57***	0.06	0.64***	0.04	0.75***	0.05	0.49***	0.06	0.51***	0.06	0.45***	0.07
Ex Ante Structure												
Initial Market Structure	0.08	0.11	0.03	0.19	0.09	0.13	0.09	0.18	0.07	0.22	0.08	0.24
Initial Market Density	-0.07	0.00	-0.06	0.00	0.38***	0.00	0.24*	0.00	0.23*	0.00	0.13	0.00
Dynamic *Ex Post* Structure												
Concentration Change	0.01	0.31	0.10**	0.35	-0.06†	0.21	0.06†	0.18	0.00	0.16	-0.01	0.10
Density Change	0.28***	0.00	0.17**	0.01	-0.28**	0.00	-0.09	0.00	-0.07	0.00	0.01	0.00
Market Growth	-0.03	0.00	-0.02	0.00	-0.02	0.00	0.01	0.00	0.00	0.00	0.02	0.00
Strategy												
Scope Adaptation	0.19***	0.04	0.08	0.07	0.11*	0.05	0.14*	0.07	0.14*	0.08	0.14*	0.09
Market Dominance	0.00	0.05	-0.01	0.08	0.00	0.05	-0.02	0.07	-0.04	0.09	0.00	0.10
Merger Specific	-0.04	0.03	-0.05	0.06	-0.09†	0.04	-0.11	0.06	-0.17*	0.07	-0.14†	0.08
Model												
F	12.02***		23.89***		24.99***		8.37***		8.15***		7.65***	
R[2]	0.50		0.66		0.67		0.41		0.40		0.39	

Part 2: Hierarchical Regressions on Overall System of Six Seemingly Unrelated Regression Equations.

Variable Set	R-Square	Change R-Sq.	F-Stat Change
Control	0.51		
Ex Ante	0.55	0.04	5.61**
Ex Post	0.64	0.09	9.89***
Strategy	0.73	0.09	14.19***

[1] n=132; † *p≤.10*; **p≤.05*; ***p≤.01*; ****p≤.001*.

its own conduct over and above that provided by exogenous, structural advantages. Clearly, **H3** represents this study's primary "reason for being", for it is based on a post-structural theoretical lens. Therefore, we are obviously encouraged by the fact that we find strong support for **H3**. First, the hierarchical regression runs show that the three conduct variables, when taken as a system, explain an additional 9% of the variance in the dependent variable ($p<.001$); i.e., above the 63% that had already been explained by the first three blocks of variables. Further, we find consistent and enduring support for **H3a**: Specialist Scope Adaptation is associated with significantly higher post-merger rents than are Generalist Scope Adaptations in five of the six regression runs, and approached significance in the sixth (1986) run. Simply put, a merged firm appears more able to increase the output price of its branded products net of the dynamic influences of changes in cost and changes in market share when it brings together two products that hold similar resource spaces (e.g., such as potato and corn chips) than two products that come from the same 4-digit SIC code but hold unrelated resource spaces (e.g., canned baby food and canned soup). Further, and just as theoretically interesting, the advantage of this purposive adaptation does not appear to be a short-lived anomaly; i.e., one destined to be eroded away by structural forces that return all markets to their natural states of equilibrium. To the contrary, while the relationship of all the hypothesized structural variables with post-merger rents vanished by the sixth year after the merger, the relationship between Specialist Scope Adaptation and post-merger rents endured.

We also find support for **H3c** in three of the six regression runs; i.e., 1987 ($p<.10$), 1989 ($p<.05$), and 1990 ($p<.10$). The Nestlé/Carnation merger appears to have resulted in higher post-merger rents for its involved branded products than were the products involved with the RJR/Nabisco merger. Of course, we had no priors to have predicted that the Nestlé/Carnation merger would result in a post-merger rent outcome. And, we noted that this merger-specific conduct effect is hard to empirically specify with anything other than a binary variable. However, we also noted the intuitive difficulty in denying the influence of this "unobservable" construct. Finally, we find no support for **H3b** which predicts the advantages of Market Dominance.

5.1 Test of Sensitivity

We now turn our attention to 155 branded food products involved in the 1988 Kraft/General Foods (K/GF) merger and the two years of post-merger data available for those products. As we observed for the two 1984 mergers in Table 1, the statistics in Part I of Table 3 also reveal a similarly large negative correlation (-.55) between Initial

Concentration and Initial Density, and a similarly large positive correlation (.95) between Initial Density and its *ex post* counterpart, Density Change. Part I of Table 3, however, reveals as interesting contrast with that reported in Table 1. Many of the branded products involved in the K/GF merger were among the top two selling brands in their respective niche at the time of the merger, as revealed by the mean value associated with the binary variable, Market Dominance. Moreover, Market Growth, which was on average negative (-3.36) in the product niches associated with the two 1984 mergers, is positive overall (2.28) in the 155 product niches involved in the K/GF merger.

Part II of Table 3 also reveals an interesting contrast with that reported in Table 1. K/GF increased its branded product prices about 18 cents in 1989 and 13 cents in 1990, while the Cost Index Change for each of those products increased on average only 6 cents and 4 cents over the same two years. As such, K/GF achieved a larger post-merger price differential (on average 21 cents) between its merged products and the private label products that sell in the same product niche, than did the two 1984 mergers (8 cents after two years and 12 cents after 6 years). As we noted before, agricultural economists interpret the differential between the price of a branded product and that of its private label counterparts to be a reasonable approximation of the branded product's profit margin.

Part I of Table 4 presents the two individual regression results using SUR, and Part II presents the hierarchical runs on the same four blocks of independent variables. Differing from the regression model presented in Table 2, the Table 4 model omits the Merger-Specific categorical variable from the block of Strategic Conduct variables, for the simple reason that only one merger in this sample of merged products is being examined. Nevertheless, the one year and two year models are both highly significant (p<.001), though they each explain only about half of the variance in the dependent variable we observed for the models run on the two 1984 mergers. As Part II of the Table suggests, much of the decline in explanatory power appears attributed to the block of the two control variables, which only explains 8% of the variance in Price Change, in contrast to the 51% that was observed with the two 1984 mergers. Further, the lower correlation for the block seems largely attributed to the reduced influence of Cost Index Change, which plays a much smaller, though still statistically significant role in explaining post-merger product rents.

Consistent with what we found with the two 1984 mergers, each block of variables makes a significant contribution to explaining the variance in the dependent variable, post-merger rent. Also consistent with what we found, Initial Market Density (**H1b**) is once again driving the results of the

Table 3 Descriptive Statistics for all Variables on the Kraft/General Foods Data.

Part 1: Correlations[1]

Variable	mean	S.D	1	2	3	4	5	6	7	8	9
1. Price Change	.18	.25	—								
2. Market Share Change	-.01	.03	-.02								
3. Cost Index Change	.06	.18	.21	.03							
4. Initial Market Conc.	.43	.21	-.17	-.18	-.15						
5. Initial Market Density	36.97	43.34	.38	.12	.12	-.55					
6. Concentration Change	.00	.13	-.16	.14	-.05	-.11	-.04				
7. Density Change	6.14	10.15	.41	.05	.16	-.49	.95	-.06			
8. Market Growth	2.28	86.64	.27	-.09	.21	-.43	.39	-.07	.44		
9. Scope Adaptation	.17	.37	-.06	-.19	.02	.29	-.23	-.04	-.19	-.13	
10. Market Dominance	.73	.45	-.08	-.09	-.26	.25	-.40	-.09	-.42	-.33	-.08

Part 2: Trends in Pricing Change from 1987 Base Year

Year	Price Change		Cost Index Change		Difference
	Mean	S.D.	Mean	S.D.	Brand-Index
1989	.18	(.25)	.06	(.18)	.12
1990	.31	(.42)	.10	(.32)	.21

[1] n=132; All correlations larger than .15 are significant at *p≤.05*

Table 4 Seemingly Unrelated Regression of 1988 Kraft/General Foods[1]

Part 1: Individual Regressions

Years after the Merger	Price Change One Year (1989)		Price Change Two Years (1990)	
Variable	Beta	Std err	Beta	Std err.
Intercept	0.00	0.07	0.00	0.11
Controls				
Market Share Change	0.04	0.55	0.04	0.61
Cost Index Change	0.13*	0.09	0.18**	0.08
Ex Ante Structure				
Initial Market Concentration	0.08	0.11	0.09	0.18
Initial Market Density	0.45**	0.00	0.63**	0.00
Dynamic *Ex Post* Structure				
Concentration Change	-0.06	0.08	-0.01	0.24
Density Change	-0.03	0.00	-0.26*	0.01
Market Growth	0.13*	0.00	0.17**	0.00
Strategy				
Market Dominance	0.15†	0.05	0.23**	0.07
Scope Adaptation	0.05	0.05	-0.03	0.08
Model				
F		4.49**		6.47**
R^2		0.22		0.29

Part 2: Hierarchical Regressions on Overall System of Six Seemingly Unrelated Regression Equations.

Variable Set	R-Square	Change R-Sq.	F-Stat Change
Control	0.08		
Ex Ante	0.21	0.13	12.54***
Ex Post	0.31	0.09	6.54***
Strategy	0.38	0.07	8.44***

[1] n=155; † *p≤.10; *p≤.05; **p≤ .01; ***p≤.001*

ex ante block of market factors, while Initial Market Concentration (**H1a**) is not. Moreover, the relationship between Initial Market Density and the dependent variable is again positive, and thus opposite to what we had predicted. In contrast to the 1984 finding, but consistent with **H2c**, Market Growth shows a significant and positive relationship with the dependent variable in both post-merger years, whereas it had no bearing on the results in any of the six annual post-merger regression runs. Finally, we again find Strategic Conduct to matter, but unlike what we found with the two 1984 mergers, the results for this block of variables in being driven by Market Dominance and not Scope Adaptation (**H3a**); i.e., consistent with **H3c**, K/GF attained higher post-merger prices for their dominant brands than for their low-share brands involved. Put differently, it appears that Kraft and General Foods, by virtue of merging, were able to leverage their dominant branded products so as to reduce those products' cross-price elasticities with their direct rivals, including the private labels.

6. Discussion

The separate theories of strategy, organizational ecology, and industrial organization economics seem to be converging to a "post-structural" view of competition, where markets are dynamic and the inertial tendencies of organizations are partly manageable. In this post-structural world, a firm has some discretion to enact, adapt to, and manipulate its environment. That is, a firm can, through its strategic conduct, partially buffer itself from the full binding constraints of its environmental forces, and in the process earn rent. In testing this view of competition, we focused on one very specific type of strategic adaptation: the multifaceted product reorientation's occurring among horizontally merging branded food products in mostly low excess resource capacity selection niches. Recall that horizontal mergers represent a deliberate and indisputable change that can cause a firm and most of the involved products to abruptly jump to new alignments with the environment. Consistent with a post-structural view of competition, we found strong evidence across the three merger samples that firms can earn rents independent of dynamic exogenous forces, and that these strategic conduct related rents can persist for at least six years after the merger. While others have debated whether the primary determinants of performance are exogenous or endogenous, our results thus suggest a more complex view which recognizes that not all firms are equally capable of this kind of purposive adaptation, nor are all environments equal in terms of their binding constraints. We found that whether strategy matters depends upon where (structure of niche), when (its timing, or

year that the strategy was implemented), by whom (the firm and by inference its capabilities), and what (the dominance and scope of the brand).

Our results contribute to the ecological literature, which since the 1990s has become more intent on identifying which environments favor successful adaptation (Haveman, 1992). We found evidence that successful adaptation is possible, even in relatively mature environments that are presumed to possess low excess carrying capacity niches. We also found mixed, albeit indirect support for the OE expectation that multifaceted changes in scope initially engender coordination problems (Iansiti, 1997), but those inertial problems ultimately dissipate with trial, error, and time as the organization learns to adjust (Ambergey, Kelly, and Barnett, 1993). For example, we found that it took at least three years for performance differences to show up between the portfolio of products involved in the Nestlé/Carnation merger and that of the RJR/Nabisco merger. However, once the differences appeared, they seemed to persist, always favoring the Nestlé/Carnation products. Of course, the marginal level of significance ($p<.10$) associated with this difference in two of the three post-merger years that it was observed suggests this pattern of differences might be due to chance. Alternatively, the results might suggest temporal differences in abilities of the two merged firms to successfully manage their inertial tendencies.

In a similar vein, we found that the rent generating potential of specialist scope adaptations that were strongly apparent with the two 1984 mergers were not observed in the Kraft/General Foods merger. Instead, K/GF quickly achieved a larger post-merger price differential for its merged products, essentially reducing those products' cross-price elasticities with their direct rivals, including the private labels. The K/GF merger took place at a different time (1988), contained more than three times the percentage of products that were dominant in their respective niches (.73 vs. .21), and involved niches with growth rates that were, on average, marginally positive (2.3%) growth as opposed to being negative (-3.4%). These and other differences may have acted independently and in concert to produce a market environment less favorable to successful specialist scope adaptation, but more favorable for leveraging the value of brands. Regarding the latter, recall that the late 1980s was a time when food manufacturers were testing the limits of their brands. For example, Kraft let the price of its cheese rise to the point that it was 45% above that of its rivals in 1992 (*The Economist*, 12/4/93). Food Manufactures were also showing a willingness to pay very high premiums to acquire top selling brands. Witness not only the $12.9 billion acquisition of Kraft in 1988, but also the $25 billion leveraged buy-out of RJR/Nabisco.

Of course, raising the price of dominant brands is relatively easy and quick to administer, while leveraging the advantages of specialist scope adaptation may require more time and coordination efforts. As such, the sheer size of the Kraft/General Foods merger in terms of the number of different products and price may have overwhelmed the merged firm's adaptive ability, at least within the limited two-year time in which we could examine this merger. As anecdotal evidence, in the HBS Case, "Kraft-General Foods" (Ruback, 1992:16) mentions that even by the end of 1990 the two companies had yet to be substantially merged because of the daunting challenge of integrating Kraft with the equally large General Foods, given their distinct cultures, histories, and such politically charged questions as "What management team would operate the new company?" (Ruback, 1992:1).

It remains an open question whether we would have found a product scope effect had SAMI continued to collect line-of-product data into the 1990s, although we infer that we would not. We base our speculation on: (1) the market value of Philip Morris stock declined 5.5 percent in excess of market movements on the day of the first announcement (October 18, 1988) of their intent to acquire Kraft, for a one-day loss of $1.3 billion in shareholder value; (2) a recent study found that the returns of merging to shareholders of acquiring firms are sensitive to issues of cultural and administrative compatibility (Chatterjee, Lubatkin, Schweiger, and Weber, 1992); and (3) Ruback's (1992:3) comment that "judging by the market response, shareholders would have preferred that Philip Morris not acquire Kraft."

It also remains an open question as to why Initial Market Density was found to be positively related to the dependent variable (as it was in the 1987, 1988, and 1989 models with the two 1984 mergers, and in 1989 and 1990 with the K/GF merger), when the theory for **H1b** predicted a negative relationship. Contrasting the OE theory about Density with the IO theory about spatial niches (Schmalensee, 1989; Levy and Reitzes, 1992) might shed some light on the matter. OE claims that the higher the density of the market, the less excess resource carrying capacity of the market, and therefore the less a single brand will be able to gain extra-market advantages. Implicit to this claim is the assumption of symmetric product differentiation; i.e., all brands equally competed with all other brands in the same product niche. IO theory about spatial niches questions the ability of this assumption to explain competitive dynamics. For example, in breakfast cereals, Shredded Wheat clearly competes much more intensely with brands located near its product-market space, such as Post Grape Nuts and Kelloggs' Special K, than it does with General Foods' Trix (Cotterill and Haller, 1997). As such, the density of the

product niche may not precisely represent the level of excess resource carrying capacity in each of the spacial, micro-niches nested within the product niche. Put differently, even data at the line of product unit of analysis may suffer from a type of aggregation bias.

Finally, whereas structural analysis assumes market position to be paramount, and thereby trivializes the role of strategy, our *ex post* results suggest what the field of strategy has intuitively known from its inception; i.e., "conduct" is at least as deserving of theoretical and empirical attention as "structure." Our results also serve to remind the field of strategic management of one of its founding assumptions; i.e., strategy "can be viewed as the study of the singular, uniquely competing firm in a changing environment" (Hatten, 1979:454). This quote appeared in the book of readings, edited by Schendel and Hofer, that had a profound impact on the early thinking of the field. The simple meaning of this quote is still very much at the forefront of the pedagogy of strategy for those who teach by the case method. However, the meaning tends to get overlooked by empiricists who, for pragmatic reasons, favor cross-sectional research designs which pool data at one point in time from dissimilar firms and dissimilar industries, and/or use levels of analysis that are subject to an aggregation bias. In summary, our proposed post-structural model informs the field of strategy by suggesting a clearer link between it and IO and OE, while also paying homage to its founding heritage.

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