HIGH POINT OR HOBGOBLIN?

CONSISTENCY AND PERFORMANCE IN ORGANIZATIONS

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"A *foolish consistency is the hobgoblin of little minds, adored by little statesmen and philosophers and divines*. With consistency a great soul has simply nothing to do. He may as well concern himself with his shadow on the wall. Speak what you think now in hard words and to-morrow *speak what to-morrow thinks in hard words again, though it contradict every thing you said to-day*." Ralph Waldo Emerson - Self-Reliance (1841), italics added.

ABSTRACT

Max Weber (1922/1946) championed bureaucratic practices as a rationalizing force that increases organizational success by improving accountability, reliability, speed, and efficiency. In direct response to Weber's "classical analysis of bureaucracy", Robert Merton (1940) called for a "transition to the study of the negative aspects of bureaucracy" prevalent in popular accounts and scholarly discussion. These authors noted that by emphasizing rules and rule following, bureaucracies stifle organizational adaptation across periods of fundamental environmental change. This concern about organizational inertia, which the last sentence of Emerson's quote above captures, has attracted empirical attention exploring whether organizations adapt when their environment changes and whether organizations benefit from or suffer as a result of discrete adaptation in their central features. Failure to change, however, was not these authors' only or even necessarily their primary concern about bureaucracies. Bureaucracies, they argued, do change but in ways that are not helpful. Bureaucracies drift toward excessive adherence to rules that are inadequate as responses to client needs (the "little minds" of the first sentence of Emerson's quote). Consistency, defined as close adherence over time to a set of simple rules for conducting business, rises over time but, as a direct result, responsiveness to cross-sectional variations and longitudinal fluctuations in client and organizational demands falls. While examples of unresponsive bureaucracies are widespread and the concern about a tradeoff between rising consistency and falling responsiveness has informed discussions about organizational design, the argument for organizational drift and tradeoffs has received little critical attention. This paper explores whether organizations become more consistent over time and, if so, when, for what rules, and whether it helps or harms them.

Organization theory offers two opposing views of consistency. Max Weber (1922/1946) championed consistency – defined as close adherence over time to a set of simple decision rules – as the high point of organizational rationality. For Weber, consistency arises when thoughtful managers enforce bureaucratic processes to rid decision making of personal influence. As Weber's organizations become more consistent, they become faster, more efficient, and more reliable. Weber's perspective, however, was challenged by Robert Merton (1940: 562), who invoked "…Veblen's concept of 'trained incapacity,' Dewey's notion of 'occupational psychosis' [and…] Warnotte's view of 'professional deformation' " to argue that consistency is a hobgoblin of petty bureaucrats. For Merton, consistency increases as managers lose sight of their goals and become enamored with decision rules that are oversimplified. As Merton's organizations become more consistent, their responses to variation in environmental demands become increasingly inadequate. In this paper, we test the Weberian argument that consistency reinforces rationality against the Mertonian account in which consistency displaces rationality.

The Weberian and Mertonian accounts have very different implications for research. If consistency leads to poor performance, we need to understand when and why organizations are unresponsive and which kinds of environmental variation are most often overlooked. If consistency leads to strong performance, we need to understand why organizations fail to fully exploit opportunities for consistency (Perrow 1967), why organizations allow unnecessary variation, and whether, where, and when adaptability must be lost to achieve consistency (Hannan and Freeman 1984; Tushman and Romanelli 1985; Sastry 1997). In addition, strong evidence for either account amplifies the importance of understanding how rules develop (Zhou 1993; Schulz 1998; Ocasio 1999) and expands the conceptual foundation for evolutionary explanations of organizational behavior based on rules and routines (Nelson and Winter 1982; Hall 1976; Morecroft 1985; Sterman, Repenning and Kofman 1997).

In this paper, we explore consistency's sources and consistency's effects. To do so, we define and measure consistency as close adherence over time to a set of simple decision rules. This definition

follows from Weber's notion of an organization that "precisely, unambiguously, [and] continuously" pursues the "discharge of business according to calculable rules" (1946: 215), as well as his view of these rules as conventions that are "more or less stable, more or less exhaustive, and which can be learned" (1946: 198). Using this definition, we first test the effects of greater consistency on firm performance to see if more consistent organizations are free of irrational sources of variation as Weber argued or are inadequately responsive to their environments as the Mertonian perspective holds. We then look for explanations for higher levels of consistency in some organizations, particularly focusing on whether consistency increases over time. In our empirical setting, U.S. women's general interest consumer magazines from 1991 to 2004, we find evidence supporting the Weberian view that consistency is beneficial, while also finding that organizations do not easily increase consistency.

THEORY

Rules and decision making

The Mertonian and Weberian perspectives on organizational decision making both emphasize rules. Weber (1946: 198) referred to rules as "more or less exhaustive." Merton (1940: 560) noted that action "ordinarily occurs within the framework of preexisting rules of the organization." Rules guide much of organizational behavior, in part, because making choices by evaluating specific consequences is time consuming, prone to error, and potentially less accurate and effective than the application of even relatively naive rules (Dawes 1979). Moreover, following rules bolsters individuals' professional identities, facilitates coordination, and helps organizations to retain and act on experience (March and Simon 1958).

Weber (1946: 215) and Merton (1940: 560) both referred to rules as calculable. Calculability implies that rules link decisions to some finite set of conditions in logical relationships. Examples include mark-up pricing rules where prices depend on direct costs, production rules that tie production start rates to sales rates and existing inventory levels, credit screening rules where approval amounts depend on

specific financial criteria, and stock trading rules where buy and sell decisions depend on price histories or discounted profit projections.

One can identify an organization's rules in documents (Zhou 1993) or infer them from past decisions (Ocasio 1999, Bowman 1963, Camerer 1981). Inferences about rules for any one organization are aided by commonalities in rules among organizations. Commonalities exist because rules are responsive to societal norms and the institutional affiliations of people within organizations (Parsons 1956). Rules differ among organizations, however, due to variations in founding conditions (Stinchombe 1965), as well as objectives, resources, and accumulated reactions to experience (Zhou 1993).

Rules range from being simple, responding only to a few contingencies, to quite complex. The ideal complexity of any given rule depends on the amount of variation in an organization's environment (Ashby 1956), the extent of the benefits that can be gained from standardization, and how thoroughly the process governed by the rule can be buffered from the environment (Thompson 1967).

Rules, just like sentences, can be too long or too short. In both cases, quality is properly measured not by length but by what is retained and what is left out. Weber argued that firms' primary struggle is against forces that introduce and retain unnecessary and harmful variation in decisions. In turn, Merton argued that a greater risk for firms comes from forces that cause appropriate variation to be left out. When decisions are compared against a simple rule, organizations may be more consistent either because as Merton worried they have left out helpful sources of variation or because as Weber hoped they have eliminated harmful sources of variation.

In the empirical section of this paper, we estimate consistency against simple rules. Simple rules include a few key contingencies but also omit many contingencies that potentially drive beneficial sources of variation. Greater consistency with simple rules, therefore, may reflect the absence of beneficial or deleterious sources of variation. It is only when we look at the effects of consistency on performance that we know which observer of organizational behavior identified the greater organizational challenge.

To evaluate consistency, we focus on a few managerial rules that clearly affect the value a firm provides to customers and the firm's cost structure. We focus on these particular rules in order to increase the likelihood of observing the benefit or harm of consistency for performance. We also choose these rules because they operate at a managerial level and involve interaction with the organization's environment where a non-trivial amount of variation is likely to be valuable (Lawrence and Lorsch 1977).

Consistency as an underexploited good

By Weber's logic, consistency in following decision rules is evidence that active managers dispassionately apply clear decision rules to enhance efficiency, speed, and reliability. Weber's consistent organizations are similar to the highly controlled and regimented workplaces of Adam Smith (1776), Henry Ford (1922), Frederick Taylor (1911), and W. Edwards Deming (1982) in which firms improve operational performance through the careful delineation, refinement, execution, and monitoring of work practices (Easton and Jarrell 1998; Hendricks and Singhal 1996). Weber's consistent organizations are also reliable suppliers that reduce exchange partners' costs for information gathering, evaluation, and adjustment (Hannan and Freeman 1977; Rotemberg 1982). Hannan and Freeman (1984: 153) emphasized these benefits for market exchange, arguing that "the distinctive competence of organizations is the capacity to generate collective actions with relatively small variance in quality."

While Weber stressed the benefits of consistency for internal efficiency and market exchange, consistency may also be important for institutional support. Strong institutions commonly value consistency (Hirsch 1975; Scott 1995; North 1990; Giddens 1984), and satisfying institutions can raise survival rates even for weak market competitors (Barnett 1997; Meyer and Rowan 1977). The appeal of consistency to institutions, and the potential for firms to trade competitiveness for institutional support, means that the effects of consistency may be most evident in firm survival (Thompson 1967).

Some consistency in applying simple market oriented decision rules appears common in practice. For instance, markup pricing rules are common in firms ranging from small bakeries to large industrial

enterprises (Mason 1939). Markup prices are only indirectly responsive to changes in factors such as demand conditions and competitive intensity, so that markup prices do not optimize profits on any given product except by chance. However, markup prices can be determined quickly, cheaply, and accurately over a wide range of products. In addition, markup pricing insures that revenues exceed variable costs and help provide consumers with prices that seem both logical and reasonably predictable. Efficiency and reliability, therefore, may help explain the widespread use of markup pricing rules.

Institutional demands for consistency are also evident in practice. For example, pharmaceutical manufacturers benefit by following procedures that satisfy legal demands, allow oversight by national regulatory bodies, and meet social expectations about ethical behavior in research and marketing. Pharmaceutical firms might be able to increase sales and reduce costs by deviating from these procedures. When pharmaceutical manufacturers no longer appear to be in compliance (Meyer and Rowan 1977), however, regulatory agencies can fine them or eliminate their ability to sell products, maintain a monopoly, or advertise other purposes for their products.

While consistency may be beneficial, organizations may find it difficult to be consistent. Managers must rely on experience to refine rules, create procedures to monitor adherence to rules, cope with the departure of employees who know the rules, and train new employees who are not adept with the rules. Biases and incentive problems also hamper consistency. As Perrow (1967: 208) notes, "most employees emphasize variability of their jobs and the discretion required." Discretion may make jobs more enjoyable, bolster the perceived skill and importance of an employee, and provide the individual with a source of power but in doing so it tends to reduce consistency.

Consistency is made even more difficult because rules often interact with one another. The outputs of one rule may become the inputs of other rules, leading to complex sets of interdependent decisions. Decisions within the interdependent set are often made in different parts of the organization by individuals with limited information and parochial objectives (Simon 1962; Hall 1976, 1984; Morecroft

1985). These relationships make consistency even harder to maintain in the face of changing conditions, limited levers for change (Ashby 1956; Steinbruner 1974), and the often unanticipated emergent properties of systems (Merton 1936). For example, Forrester (1961) shows that even in the absence of any underlying seasonality in demand, seemingly logical rules for sales forecasting based on historical data, rules for production leveling through building inventory in anticipation of periods of high sales, and pricing rules intended to manage inventory, can combine to generate harmful fluctuations in sales, inventory, and prices. Sterman, et al. (1997) explain how production-scheduling rules and rules for allocating improvement efforts can lead inventories to rise unexpectedly. Hall (1976) shows how rules for determining prices, product attributes, and promotional expenditures can create problems for otherwise viable businesses that managers struggle to solve. Conflicts such as these arise even in seemingly simple businesses such as retail bakeries, in which one of the authors worked for several years, where rules for markup pricing interact with rules for seasonal product promotions and rules for production volumes, leading to fluctuations in sales and profits and pressure to deviate from the rules.

In summary, Weberian organizations struggle to eliminate harmful sources of variation in decision making and more consistent firms should benefit from what they have accomplished. The Weberian argument, therefore, offers a baseline prediction linking consistency to firm performance in terms of both market success and firm survival.

Hypothesis 1: The greater the consistency, the greater a firm's performance.

Consistency as an overdeveloped bad

Many scholars have shared Weber's interest in calculable rules, but taken a dimmer view of consistency. This competing view in the organization theory literature, aptly drawn together in the work of Merton (1936), argues that consistency arises from processes that are internally oriented and typically dysfunctional. In this view, consistency is a byproduct of organizational drift that elevates means to the status of ends (Merton 1940; Warner and Havens 1968), of managers who are unable to determine which

rules are helpful and which are not (Merton 1936; Leonard-Barton 1992), of firms that miss opportunities to explore valuable new possibilities because they fail to deviate from rules (March 1991), of sunk investments, and of petty bureaucrats and intra-organizational politics where broader needs give way to parochial interests (Selznick 1957; Gouldner 1954). Overall, the Mertonian premise is that consistency rises over time because managers increasingly adhere to rules that are oversimplified. Rather than increase organizational rationality, organizations become more consistent by stifling rationality.

Weber (1946: 215) recognized that following calculable rules might sub-optimize individual decisions and, indeed, could "produce definite obstacles to the discharge of business in a manner suitable for the single case", but argued that despite shortcomings, consistency represented a high point in rationalizing economic activity. In an analogy to Deming's (1982) work on consistency in production, 'quality' (i.e., consistency) in Weber's thinking should be 'free', because rational managers will push for increased consistency only so long as the gains in value and legitimacy combined with the savings in effort and resources exceed the direct costs and forgone opportunities required to act consistently.

The Mertonian perspective, though, emphasizes consistency's negative implications and we see ample evidence of these to cause concern. Critics of labor unions, for instance, note the negative implications of rule following by arguing that contract rules cause inefficiency. Manufacturing unions even exploit the potential for rule-following to create problems when they "work-to-rule", because doing exactly and only what the rules require disrupts production. In service settings, Brown and Eisenhardt (1998) have found evidence that extensive rules and rule following stifles innovation. Organizations with rules that leave a great deal of personal discretion (which they refer to as simple rules) are more successful than their more closely monitored rivals. In the public sector, Merton (1940) noted widespread popular acknowledgement that bureaucracies are often unresponsive to their client's needs and sometimes produce clearly outrageous results.

The problems created by excessive adherence to simple rules may appear through the

accumulation of many small losses or the result of an organization spiraling toward unanticipated consequences (Merton 1936). For example, in the popular press and in scholarly debate, oversimplified and automated rules for credit approval have been blamed for producing credit card offerings to both children and pets while automated stock trading rules have been blamed for contributing to the stock market crash in October of 1987. Considering the risks of unresponsiveness and the behavioral forces that may lead to excessive routinization, the Mertonian argument provides an alternative hypothesis.

Hypothesis 1alt: The greater the consistency, the poorer a firm's performance.

Prior empirical research: Are organizations primarily Mertonian or Weberian?

Insights about the benefits and costs of consistency can be found in studies of population ecology, of bootstrapping, and of formal rules. Population ecology studies provide indirect evidence that consistency is valuable. Population ecology's early developers argued that the same structures that give rise to consistency also limit firms' ability to effectively adapt core features in response to fundamental environmental change (Hannan and Freeman 1977). Since inability to adapt is not inherently valuable, Hannan and Freeman proposed that these structures are prevalent in organizational populations because consistency enhances survival. Evidence that firms are slow or fail to make fundamental changes, therefore, can be interpreted as evidence that consistency offers survival benefits. Furthermore, evidence that firms face risks when they do make fundamental changes, can be interpreted as evidence that inconsistency poses survival risks since changes in a firm's core features such as expanding the range of products, increasing the frequency of production, and changing the nature of contracts within the firm (Haveman 1992; Amburgey 1993; Barnett and Carroll 1995; Kraatz and Zajac 1996; Barnett and Freeman 2001; Nickerson and Silverman 2003) may serve as an extreme form of inconsistency, potentially lowering reliability and disrupting internal coordination.

Bootstrapping research provides mixed support for the Weberian view. Bootstrapping involves using actual managerial decisions and informational inputs to estimate a model of the decision rule. In

experimental and simulation studies, researchers have found that simple additive rules often predict human decision making quite accurately and that these simple rules are often superior to the actual decisions from which they were estimated, indicating that the shortcomings of a simplified decision rule are less problematic than the variation introduced in organizations by decision makers (Bowman 1963; Huber 1975). While these findings support the Weberian view of value from depersonalization of decisions, other research has found conflicting results. Higher performance has been found when bootstrapping models are combined with human judgment, suggesting that the bootstrapped models may be excessively unresponsive (Camerer 1981; Blattberg and Hoch 1990).

Work on formal rules also provides support for Weber's view of rationalization. Zhou (1993) finds that formal rules are instituted in response to challenges. These rule additions and modifications appear in a pattern that looks like the accumulation of experience over time in a reasonably logical learning process. Schulz (1998) further supports this rational learning perspective, finding that rules accumulate at a decreasing rate, consistent with adaptation toward a rational level of rules, rather than following an explosive process where rules spawn rules. Since it takes time and accumulated experience to develop and institute rules (March, Schulz, and Zhou 2000), these findings support the idea that even Weber's rational organizations will often under-exploit the potential for beneficial bureaucratization in their environments, so that organizations benefit when they become more consistent.

Ecological studies have provided key insights into organizational change, but have significant limitations as evidence of the value of consistency. Ecological studies examine the effects of discrete changes in strategy and structure, rather than the effects of ongoing consistency in decision making within a given strategy and structure. Some of these studies of change find evidence that change increases the risk of failure (Barnett and Freeman 2001; Makadok and Walker 1996) while others have found mixed effects or even benefits for survival (Singh et.al. 1986; Delacroix and Swaminathan 1991; Haveman 1992). The effects of discrete changes may go far beyond those of inconsistency and overstate or mask

the effects of inconsistency. Changing a firm's strategy and structure may lead to a loss of social legitimacy, a breakdown of internal coordination, loss of support from market exchange partners, and challenges to organizational and institutional power bases (Stinchcombe 1965) to a degree not experienced when organizations are inconsistent but outwardly maintain the same procedures (Meyer and Rowan 1977). Alternatively, observable dramatic changes may understate the effects of inconsistency because the change itself may be beneficial and because multiple organizations are likely to undergo change at similar times. Beneficial changes may offset the costs of inconsistency and synchronized actions by rivals may mute any competitive disadvantage of inconsistency. Furthermore, these occasional and dramatic discrete changes also may not share inconsistency's effects on legitimacy and predictability. Change can be legitimized by the actions of others and a firm's intentions can be announced and justified in advance. It is important, therefore, to test the premise that consistency is valuable in a more direct and targeted manner than by inference from instances of discrete changes in core organizational features and strategies.

Bootstrapping studies, meanwhile, have a different set of limitations when studying consistency. Bootstrapping studies evaluate the accuracy and efficacy of decisions by using simulation models or by using data on outcomes that are assumed to be exogenous to the decision process. Actual outcomes, however, may be influenced by the decision process and simulation models lack any context in which other organizational decisions are made or where exchange partners and institutions react to those decisions. In doing so, the studies overlook potential effects of consistency on internal coordination and support from exchange partners and institutions. Without this broader context, bootstrapping studies may understate the value of consistency and may be more inclined to find deviations from simple rules (e.g., human interventions that respond to unique events) as valuable or could overstate the value of consistency by using models that fail to capture variability in the firm's environment. As a result, it is important to test the premise that consistency is valuable in institutionally rich settings rather than only in the

experimental and simulated settings employed by bootstrapping studies.

More generally, it is likely that some degree of consistency on some organizational dimensions is good, some bad, and some unimportant. To understand where and why consistency is beneficial or detrimental and why some organizations are more consistent than others, we need studies capable of isolating the effects and causes of consistency in real organizational settings.

Dynamics of consistency

In addition to asking whether consistency is good or bad, it is important to begin to understand why consistency varies. Are organizations endowed with some level of consistency at founding (Stinchcombe 1965), thereby limiting changes in consistency to a population level phenomenon? Is consistency largely a function of tranquility in the external environment (Lawrence and Lorsch 1967)? Is consistency an outgrowth of success that allows for narrow-minded decisions or does success make it difficult to limit the personal influences that create inconsistency?

We use controls for several possible influences on consistency to focus on how consistency changes with organizational age. Consistency should rise with organizational age according to both the Mertonian and Weberian arguments. A Weberian organization learns over time to rationalize its procedures to the needs of the market, determines how to coordinate across rules, and codifies them into practice (Dierickx and Cool 1989; Ocasio 1999; March, Zhou, and Schulz 2000). A Mertonian organization becomes more consistent over time as political power bases become entrenched and rules become goals to be pursued and matters of faith rather than well understood and thus adaptable means to achieve goals (Merton 1936; Leonard-Barton 1992). Both the Weberian and Mertonian perspectives agree on this point, so we pose only one hypothesis.

Hypothesis 2: Firms become more consistent with age.

Joint implications: Value and dynamics of consistency

In combination, the hypotheses about performance and age assess whether consistency is

primarily Weberian or Mertonian. If consistency is primiarly Weberian, both H1 and H2 will hold. That is, consistency will increase over time as firms refine performance-enhancing rules and improve their procedures for implementing and monitoring the application of those rules. The Weberian view would be particularly strongly supported if greater consistency improves both financial performance and survival chances, which would suggest that managers enforce rules to meet or at least balance the demands of both exchange partners and powerful institutions.

In a world of Mertonian consistency, by contrast, we would expect H1alt and H2 to hold. That is, Mertonian organizations will coalesce over time on simple rules that become increasingly unresponsive to important drivers of variation. If H1alt holds for both financial performance and survival, then the results would suggest a strong form of Mertonian consistency. This pattern would suggest that organizational decision making becomes so narrow that it attracts neither market support nor offsetting support from institutions.

If consistency improves performance (H1), but firms do not become more consistent over time (rejecting H2), the result would suggest that organizations generally suffer from excessive sources of variation as Weber argued, but have little ability to improve consistency. This sort of inertia is implied by strong forms of ecological theory in which organizational characteristics are largely set at founding or quickly coalesce around dominant routines (Stinchcombe 1965; Hannan and Freeman 1977).

If consistency neither increases with age nor influences performance (rejecting H2 and both forms of H1) then firms may be highly adaptive to environmental changes and may benefit from such adaptability, as traditional Marshallian neoclassical economic theory would suggest (alternatively firms may be using a very different body of information to make decisions).

If consistency has opposing influences on financial performance and survival, more refined views of organizations are implied. Finding that consistency enhances survival chances, but lowers financial performance, would support an institutional variant on the Weberian argument where firms increase

consistency to garner institutional support to the detriment of market fitness (Barnett 1997). Finding that consistency enhances financial performance, but without improving survival chances, would be evidence that firms eliminate sources of variation desired by institutions in order to meet market demands.

EMPIRICAL CONTEXT

Women's general-interest consumer magazines

We explore the effects and antecedents of consistency in a highly competitive and dynamic industry. Women's general-interest consumer magazines (hereafter, women's magazines) provide an intriguing setting to study consistency. Unlike industries with limited ability to alter product attributes and strong technological reasons that create severe customer distaste for product variance – due to scale-intensive specialized production equipment, tight regulatory restrictions, and customers with heavy fixed investments in exacting and sensitive processes that have low tolerance for variation (e.g., commodity chemicals) – women's magazines generally outsource the asset intensive aspects of their business (production and distribution) and thrive by providing novelty. Women's magazines are in the business of entertainment and of communicating fashion in clothing, food, lifestyles, advice, parenting, health, and beauty. Though consistency has merits – readers might be unhappy if each issue challenged and rendered obsolete their cultural identities or expensive wardrobes – consistency lies far from the heart of entertainment and fashion. Hence, any forces favoring consistency in women's magazines must contend with a desire and potential for frequent change so consistency may be dysfunctional.

Women's magazines are dominated by a handful of large publishing groups that act as holding companies and incubators of new magazines including Conde Nast (Advance Publications), Hearst, Hachette, Time, and Gruner & Jahr. These large publishing groups provide resources to individual magazines and in some cases influence managerial decisions at the magazine level (Granatstein 2001). Despite the corporate role, the fates of individual magazines within a publishing group vary widely: groups frequently start and close as well as buy and sell magazines. Indeed, individual magazines in the

groups often have strong separate identities and distinct management groups, and must meet individual performance targets. While Conde Nast may prop up ongoing losses at the socially prestigious New Yorker, the fates of most of its women's magazine holdings such as Allure, Glamour, Self, and Vogue depend on their own performance, as is evident in Mademoiselle's demise in 2001 despite almost seven decades of publication.

The analysis uses a longitudinal panel of magazines sold in the U.S. from 1991 to 2004. With considerable variation in both independent variables and outcomes at the magazine level, the individual magazine rather than the publishing group provides the most useful unit of analysis (Freeman 1978: 351).

We focus on three key decisions that affect the value of a firm's products to its customers and substantially affect costs and revenues: advertising price, subscription price, and the volume of editorial content. These decisions are neither strictly technical nor broadly institutional but rather managerial in nature. They deal with the interface between the technical organization and its environment, so we expect these to be rules where managers could err in allowing either excessive or inadequate variation (Thompson 1967: 11-13). We draw on previous research and the industry press to specify these rules.

Rules for management of women's magazines

The best known rule in magazine management relies on the number of advertising pages sold to determine how many editorial pages to print. Compaine (1982: 19-20) notes that "some publishers work hard at maintaining a given ad-copy ratio even as advertising increases" and a recent survey found that about 65% of editors say they must abide by a specific ad-page-to-editorial page ratio (ASBPE 2003).

The editorial page rule serves several purposes. One reason for maintaining a stable relationship between the volume of editorial and advertising pages is to provide advertisers with a predictable amount of attention from readers. Indeed, the media kits that magazines distribute to potential advertisers frequently state an explicit target, guaranteed, or maximum ratio of advertising to editorial pages. Another reason for maintaining a predictable relationship between advertising and editorial pages is

earnings stability: the prices readers pay rarely cover the full costs of editorial pages. Editorial page costs need to be subsidized by an adequate number of advertising pages.

Strong evidence for this rule appears in Roger Hall's (1973: 38) case study of the Saturday Evening Post which finds that the volume of pages over time "is determined by standard company practice [based on]…the amount of advertising purchased". The data Hall collected on the three major general consumer magazines of the day (The Saturday Evening Post, Look, and Life) displayed firm-specific but uniformly tight linear relationships between total magazine volume and advertising pages.

We begin, therefore, by looking at consistency in following a rule for determining editorial page counts based on advertising page counts. The rule states that the number of editorial pages for a firm i over any given time period t (E_{it}) depends on the number of advertising pages the magazine prints during that time period (A_{it}). The parameters of the rule (α_i and β_i) are expected to vary across firms. Omitting subscripts for firm and time for simplicity, the rule can be written as:

$E = \alpha + \beta A$ [1. Editorial page rule]

The second most widely recognized rule in magazine management guides advertising pricing. Advertising provides more than half of the revenues for most consumer magazines. Advertisers generally are willing to pay more for magazines that reach a wealthier and "thirty-something" audience and for smaller circulation magazines which tend to have greater loyalty and more homogenous demographics (Compaine 1982: 57-58; Thompson 1989; Koschat and Putsis 2002). Magazines may be able to gain favor with advertisers and particularly with advertising agencies by adjusting prices only to reflect changes in their own unique demographics and changes in their expected readership. Changing prices in response to changes in the value and cost of the product provided may well be seen as rational, fair and, legitimate; other changes may be received as capricious or exploitive (Campbell 1999).

We assess consistency in setting advertising prices (P_{ait}) for upcoming issues using a rule that reflects a magazine's unique characteristics and demographics (α_i) and rises with guaranteed circulation

(C_{it}) for those upcoming issues at a magazine specific rate per reader (β_i). Once again omitting firm and time subscripts for clarity, the rule can be stated as:

$P_a = \alpha + \beta C$ [2. Advertising price rule]

There is less agreement about how magazines decide their prices to consumers. Consumer pricing is wrapped up in a much larger ongoing debate over how a magazine's costs (and profits) should be split among advertisers and consumers.

We take the position that most consumers would likely agree with the American Society of Magazine Editors that "The editorial content keeps readers interested, while the advertising revenue enables magazines to keep subscription and newsstand costs affordable for average consumers" (ASME 2004). Since consumers value editorial content, and editorial content fluctuates with demand for advertising, we expect that consumers will respond to consistency in the relationship between prices and editorial content. While consumers might respond positively to constant prices in the face of rising editorial content, they would likely view constant prices in the face of falling editorial content as unfair (Campbell 1999). We posit a rule of consistency in per-editorial-unit price so that price (P_{cit}) responds to the value that readers associate with the basic concept of the magazine (α_i), and rises or falls with increases or decreases in trailing (apparent) editorial page volume (E_{it}, from equation 1), thus after omitting firm and time subscripts:

$P_c = \alpha + \beta E$ [3. Subscription price rule]

These three rules for editorial page volume, advertising pricing, and subscription pricing create a deceptively simple set. Each rule may be easy to enact on its own, but applying each rule causes changes that affect the other two rules. Each decision directly or indirectly affects the inputs to other decision rules. The number of editorial pages, determined by rule 1, directly affects subscription pricing in rule 3. By affecting product content and pricing, the number of editorial pages also affects circulation which in turn influences advertising pricing in rule 2. Advertising prices then influence the number of advertising

pages sold which is the key input in determining the number of editorial pages in rule 1.

Coordinating these decisions is more difficult because each of these rules commonly falls under the direction of different units within a magazine's organizational structure. Advertising departments have input into advertising prices. Editorial departments make the case for changes in editorial content. Marketing departments analyze subscription prices. Thus, while the individual rules are simple, we expect that maintaining consistency across rules like these will be a common source of organizational tension.

Despite widespread awareness of these rules, it is not clear if a high level of consistency in following the rules is beneficial. Consistency may reflect an unwillingness or inability to respond to changing tastes of readers and advertisers that arises from internal political processes and established routines (Nelson and Winter 1982) and lead to poorer performance. Hence, assessing the relationship between performance and consistency in following these rules could potentially confirm either the Weberian or Mertonian arguments.

Measuring consistency

Consistency for any given firm i must be measured over a span of decisions. For any given set of consecutive decisions (D_{it}) made by firms denoted by i at times denoted by t and corresponding contingencies (X_{it}), we can estimate coefficients (α_i, B_i) to determine a firm's implicit decision rules, thus:

$$D_{it} = \alpha_i + B_i X_{it} + \varepsilon_{it} .$$

This approach to determining rules, using firm-specific rule coefficients for each magazine, allows us to focus on the issue of consistency in applying rules rather than compliance with some industry average rule. Estimating coefficients over a moving window allows us to differentiate between inconsistency and adaptation. Specifically, an organization can follow its rules precisely (i.e., be consistent) but make changes in the nature of its rules over time. Alternatively, an organization can be highly imprecise in applying its rules over time (be inconsistent) without making any fundamental

changes or experiencing any drift in rules. While an organization that changes its rules during the time period of a study will register as less consistent than one that makes no changes, the moving window allows us to distinguish firms that are consistent while occasionally changing rules from organizations that simply are inconsistent and knowledge of the coefficients allows us to control for changes.

We measure the consistency C_{it} of a firm i at a time t based on the fit between actual decisions and estimated rules over the preceding seven semi-annual spells. This approach follows from Weber's notion of precision, Hannan's and Freeman's (1984: 153) notion of "collective actions with relatively small variance", and Bowman's (1963) implicit notion of inconsistency as discrepancy between actual decisions and decisions generated by estimated (bootstrapped) decision rules. Mathematically, the root mean square percentage error (RMSPE) of these estimates captures inconsistency:

$$C_{it} = -RMSPE = -\sqrt{\sum_{n} \left(\varepsilon_{it} / D_{it}\right)^2 \Big/ n}$$, [4. RMSPE Calculation]

where D_{it} is the decision value at the midpoint of the estimation period. Thus, RMPSE is the root mean squared error (RMSE) of the regression divided by the dependent variable of the regression (D_i) at the midpoint of each regression.

RMSPE is a goodness of fit measure similar to the coefficient of determination (R^2). Both measures treat large deviations from the estimated rule as far more severe (more likely to be noticed or troublesome) than small deviations. RMSPE offers a desirable measure because it does not embed any judgment about the importance of the measured contingencies to the decision. R^2, by contrast, is higher (approaches one) for close adherence to highly sloped decision rules, but low for equally close adherence a decision rule with no slope (e.g., for a firm that maintains a nearly constant price over time). R^2 is a suitable measure for finding a model that explains variance, but makes little sense in this context.

RMSPE, in contrast with R^2, is affected only by the closeness to which actual decisions adhere to the estimated rule. RMSPE is low for any slope of the relationship among decisions and observable information as long as the decisions closely follow the slope. For example, RMSPE allows a firm that

holds a constant price to be measured as highly consistent while R^2 would treat the same firm as extremely inconsistent.

We measure consistency as the negative of the RMSPE for ease of interpreting the statistical results. That is, smaller values of RMSPE become higher values of consistency. Figure 1 provides examples of actual decisions and those that might be generated by a rule estimated over the entire data.

************ Figure 1 here ************

Methods

We use event history analysis to test the effects of consistency on survival, where the event of interest is the cessation of publication. We decomposed the data on each magazine into semiannual spells and updated the time-varying covariates for each magazine at the beginning of each spell. The analysis retained only spells during which full historical data was available for the consistency estimates. We use the founding dates for each magazine to correct for survivor bias in left-censored data (Tuma and Hannan 1984: 128-132). Conditioning on founding dates shifts the definition of time at risk from chronological time to organizational age (Cleves, et. al. 2004) and allows the models to account for changes in the baseline hazard associated with magazine age.

We estimated the model with semi-parametric proportional hazards and several parametric functional forms that allow for monotonic or nonmonotonic duration dependence, finding similar results. The paper reports results based on the piecewise exponential model, which produced the largest log-likelihood of these models and the lowest (best) corresponding Akaike Information Criterion score (Cleves, et al. 2004: 249). Piecewise constant exponential models allow baseline hazard rates to vary nonmonotonically over pre-selected age ranges (Blossfeld and Rohwer, 1995). We divided the age ranges into five divisions of equal length followed by a final division that covers all greater ages. Our final model took the form:

$$r_i(t) = \exp(\alpha_j + \beta X),$$

where $r_i(t)$ is the instantaneous risk of ceasing publication for magazine i in time t, β represents the vector of coefficients, X the vector of covariates, and α_j a constant coefficient for the baseline hazard associated with the jth age period.

We estimated models for revenue and consistency using linear methods for cross-sectional time-series data. Based on serial correlation in the disturbances (indicated by a Durbin-Watson test) the Prais-Winsten models included corrections for panel-specific first-order serial correlation and disturbances that are heteroskedastic and contemporaneously correlated among panels. The models took the form:

$$Y_i(t) = \alpha + \beta X + e_i(t),$$

where $Y_i(t)$ is alternatively the revenue or consistency of the firm at time t, β represents the vector of coefficients, X the vector of covariates and:

$$e_i(t) = \rho_i e_i(t-1) + \gamma(t) + \mu_i(t),$$

where ρ_i is magazine-specific autocorrelation in the disturbances, $\gamma(t)$ is a period disturbance term, and $\mu_i(t)$ is a magazine-specific disturbance term, with mean-zero normal distribution of $\gamma(t)$ and $\mu_i(t)$.

Data

Longitudinal data are available for magazines if they have grown large enough to subscribe to auditing services and be tracked by the industry data services. We constructed the panel from the magazines listed in Standard Rate and Data Services' (SRDS) monthly publication Consumer Magazine Advertising Source which provides information on publication characteristics and advertising rates to the advertising community. To minimize alternative sources of variation in firm performance, we limited the study to magazines in two closely related SRDS content categories: "Women's" (category 49) and "Fashion, Beauty & Grooming" (category 50).

Seventy magazines appeared under these two headings in either the 1990 or 1991 September issues of SRDS. Of these, forty-nine were still operating in 1993, providing a long enough time series to measure consistency at least once. We eliminated seventeen of the 49 magazines from the sample: seven

primarily promoted affiliated commercial or religious groups (e.g., Weight-Watchers Magazine exists to support the large weight loss services and products chain); two Spanish language magazines fell outside the scope of the study; five never subscribed to the Audit Bureau of Circulations (ABC) service that served as an important source of data as we describe below; and three lacked sufficient advertising rate or advertising page data to include in the analyses. Hence, our sample included thirty-two general-interest consumer women's magazines that were operating in 1991 and continued to operate at least until 1993 [see Table 1]. We tracked the magazines through 2004, the latest date with available data.

********** Table 1 here **********

Decision rules

We needed information about editorial page volume, advertising page volume, advertising prices, circulation, and subscription prices to assess consistency for all decision rules. We obtained editorial page counts from ABI Inform and advertising page counts from the Publisher's Information Bureau (PIB). When ABI or PIB did not provide data, we obtained page counts from InfoTrac, by inspection of issues held at the Boston Public Library and Harvard's Schlessinger Library, by inspection of issues that we purchased, and from Hall's Data Services. We obtained advertising prices by dividing advertising revenue by advertising pages in PIB. We obtained subscription prices and circulation figures from ABC. We used this information to create measures for Editorial Consistency, Advertising Pricing (AdRate) Consistency, and Subscription Pricing (SubPrice) Consistency based on the RMSPE procedure we described above. Table 2 reports summary statistics and correlations for these and other variables.

********** Table 2 here **********

Performance variables: Exit and revenue

We examined the effects of consistency on two performance dimensions: survival and revenue. The two measures help us differentiate between consistency as a source of institutional support and as a source of market success or failure. It is common to focus on survival in studies of business change to

avoid the problems associated with other measures of firm performance (Barnett and Carroll 1995). Using only a discrete performance measure such as survival, however, would limit our ability to assess possible links between consistency and performance in terms of both causal direction and mechanisms. It is possible that the only mechanism linking consistency to survival is institutional support. With revenue as a measure of market performance we can test for direct evidence of consistency enhancing market competitiveness. In terms of causal direction, consistency may drive high performance and it may also result from high or low performance. Revenue provides a continuous measure of performance so that we can evaluate both causal directions.

Exit indicates when a magazine ceases publication during the period under study. We determined the final issue from Ulrich's Guide to Periodicals and coded exit as the first day of the month of the final issue. Exit serves as a primary dependent variable.

Revenue for each magazine is the sum of revenues from advertising and consumer sales. We calculated consumer sales revenue from subscription prices, cover prices, subscription sales, and single copy sales data obtained from the ABC. We obtained data on advertising pages and revenue from PIB directly through their website for data from 1999 to 2004, from back issues of Advertising Age magazine for data prior to 1999, and through arrangement with TNS Media for all data prior to 1999 not reported by Advertising Age. PIB supplies all data for Advertising Age and TNS Media data and we found reliable matches when we checked overlapping information from the three sources.

In addition to providing a performance variable, we use revenue as a potential explanatory variable for consistency. Increases in revenue may act to legitimize the rules in use and lead to more commitment and closer adherence to those rules. If consistency results from superior performance but does not cause performance, then Weber's argument about the benefits of consistency may be spurious. For instance, organizations may reduce experimentation when their performance improves, but the consistency that results from the reduced experimentation might not improve performance and might even

harm performance. Alternatively, performance improvements may lead to increased slack that relieves pressure to be consistent. Tensions around how to manage growth also could display differential effects on different parts of a firm, thereby leading to inconsistencies across rules. Thus, revenue is an important variable in assessing the dynamics of consistency.

Other variables

Age is the time in years since the magazine was first published. SRDS reports the year of initial publication. By specifying that risk of failure begins in the first year of publication rather than at the beginning of the observation period, the hazard rate analysis directly incorporates organizational age. The equations use the log of the age when evaluating consistency to reflect standard learning curve findings and the necessary upper limit on consistency of zero deviations from the estimated rules.

Several variables assess other organization-level influences on performance and consistency. *Magazine Size* is determined by the number of subscribers (based on ABC data); a magazine's subscriber base is the firm's most significant asset. We expect size to reduce the likelihood of failure. *Group Size* is the number of publications in all categories that a magazine's group publishes. SRDS provides data on the number of publications by publishing group. Larger publishing groups may reduce the likelihood of exit by providing resources and expertise or increase the prospect of exit as the result of portfolio approaches to management. Larger publishing groups may also require their magazines to act more consistently in order to increase accountability and control (Weber 1946; Baum and Ingram 1998). *Promotion Expense* measures promotional expenditures as reported in the annual publication *Ad $ Summary*, which is published by Leading National Advertisers, Inc. (LNA). LNA provides information on advertising expenditure in major media sources. Magazines that promote themselves will likely see a rise in revenues.

We determined *Breadth* of subject matter through a content analysis of all publisher statements (available in SRDS) that each magazine released during the study period (see Appendix A). A broader

range of content may help a magazine to be more consistent due to greater degrees of flexibility in making internal adjustments (Ashby 1956) or make it more difficult to be consistent with a more complicated business where changes in one area require changes in another. We expect magazines with greater subject matter breadth to appeal to a wider audience of consumers and advertisers and thus have higher revenues.

Several variables assess environmental influences. *Numcomp* is the number of women's magazines that ABC audited during the six month period. *Numcompsq* is the number of magazines squared. More intense competition may increase the risk of organizational failure, possibly with a non-monotonic effect. *Entry* is the net increase (decrease) in women's magazines that ABC audited from the previous six month period. Recent entrants may have different affects than other competitors on the survival prospects of firms. *Munificence* is the average revenue per women's magazine that ABC audits, which adresses changes in general economic conditions as they affect women's magazines. *Tranquility* is the log of the average consistency among the women's magazines in the sample, which addresses changes in conditions as they affect the ability of women's magazines to be consistent. Tranquility is measured rule-by-rule, so that tranquility in each analysis is the log average consistency among all women's magazines for the specific rule under study.

We defined four variables that reflect traditional ecological analyses of risks or benefits that arise from organizations' discrete changes in magazine format and rules. *Frequency Clock* denotes how much time has passed since the magazine has made a change in publication frequency (Amburgey 1993). *Breadth Change* denotes the size and recency of any change in subject matter breadth; the variable records the number of content categories added or removed divided by the time since the most recent change occurred. *Editorial Rule Change* and *AdRate Rule Change* assess how great a change the firm has made in the content of its rules by recording the absolute change in the coefficient value (the β coefficients in rules 1 and 2) for the consistency equations between the first and last observation in each

seven-period window (estimating rules and then rule changes consumes a great deal of data; subscription prices did not vary enough to provide adequate data for a discrete change variable on the third rule.) Firms that make greater changes may be more likely to fail. Alternatively, occasional discrete changes might help a firm respond to changes in the competitive environment and thereby contribute to greater performance, especially if coupled with consistency between changes.

RESULTS

Table 3 reports the survival analyses. Model 1 analyzes the control variables, including the piecewise baseline hazard rate estimates for different organization age ranges. Larger magazines (more subscribers) are less likely to cease publication, though the result is not statistically significant. As the number of competitors grows, the risk that a magazine ceases publication increases at a decreasing rate. Net entry in the current period lowers the risk of exit, perhaps reflecting entrants appearing during periods of strong overall industry performance.

********** Table 3 here **********

Model 2 of Table 3 tests the survival version of H1 and H1alt. Based on a likelihood ratio test for fully nested models, adding the three consistency variables to the analysis significantly improves the overall model quality ($p<0.05$). For each rule, higher consistency makes the likelihood that a magazine will cease production lower. The results for both the editorial page and subscription price rules are statistically significant. Thus, the findings support the idea that greater consistency leads to greater survival chances, supporting H1 and rejecting H1alt.

Models 3 and 4 of Table 3 add discrete change control variables. Model 3 focuses on two important aspects of magazine format: frequency and breadth. Format changes made by firms during the period of study did not significantly influence the risk of failure. Model 4 examines the effects of changes to Editorial Page and AdRate rules. Discrete change in the Editorial rule has no appreciable effect on survival, while failure rates decline when firms make changes in their AdRate rules. We return to discuss

these results later in the paper. Most notably, in models 3 and 4, the positive influence of consistency on survival continues to hold. In model 4 with all controls in place, the effects of all three consistency measures are both positive and statistically significant.

Table 4 reports the revenue analyses. Model 1 analyzes the control variables. Promotional expenditure (lagged six months) leads to higher revenues, although the result is not statistically significant in model 1. Munificence (increased average magazine revenues in the industry segment) is strongly associated with higher individual magazine revenues. Revenues also rise when magazines are part of larger publisher groups or have broader content.

********** Table 4 here **********

Model 2 of Table 4 assesses how greater consistency influences revenues, to test H1 and H1alt for financial performance. Greater consistency for each of the three rules leads to greater revenues with statistically significant effects. Thus, the results again support H1 and reject H1alt.

Model 3 of Table 4 introduces the discrete change control variables. The variables for time since a change in magazine format (frequency or breadth) are not significant. Changes in the advertising rule have a marginally significant effect of lowering revenues, which may reflect a negative reaction from advertisers. In the presence of controls for adaptation in format and rules, and despite the loss of data needed to estimate these controls, the link between consistency for two of the rules and performance continues to be positive and statistically significantly.

Table 5 reports how age influences consistency on each of the three rules, to test H2. The results vary by rule. Editorial Page consistency increases with age (model 1). By contrast, AdRate and SubPrice consistency (models 2 and 3) decrease with age, with the AdRate influence reaching a significant level. Thus, magazines appear to learn over time how to maintain a balance between editorial pages and advertising pages, but struggle to hold to advertising and subscription pricing rules despite the benefits of consistency on those rules. It is possible that the AdRate and SubPrice rules are more difficult to keep

balanced because they depend on negotiations and marketing efforts with external stakeholders (advertisers and subscribers), whereas the editorial page rule arises from internal interactions between the advertising and editorial departments.

********** Table 5 here **********

Several control variables in Table 5 influence consistency. Being part of a large group leads to more consistency on the editorial rule, but has no effect on the advertising rule and reduces consistency on the subscription pricing rule. The effect of the group on subscription prices may reflect a publisher-level strategy for pricing so that prices are less responsive to individual publication conditions. Less surprisingly, firms are generally more consistent in following both the editorial rule and advertising rule at times when their rivals are also more consistent (i.e., tranquility has a significant positive effect on consistency with each rule).

Table 5 contains limited evidence that consistency is an effect of performance as well as a cause. While there is weak evidence that SubPrice Consistency increases with revenue, Editorial Page consistency strikingly falls with increased revenue. The positive SubPrice relationship, coupled with the earlier performance benefits of SubPrice consistency, suggests a degree of positive reinforcement in which higher performance firms become more consistent on at least one dimension. The strongly negative relationship between revenue growth and Editorial Page consistency indicates the potential for cyclical behavior in which firms gain revenue then lose consistency which causes revenue to decline. If firms overcome the failure hazards associated with the decline in revenue, lower revenue then provides incentive to increase Editorial Page consistency and so recover revenue performance. The result could be oscillation in revenue and consistency or rapid adjustment to an equilibrium level of both. This raises issues about the potential for organizational pitfalls and odd dynamics as managers look for new rules for success even as success requires carefully refining and enacting a clear set of rules (Sastry 1997).

DISCUSSION

We defined consistency as close adherence over time to a set of simple rules for conducting business and defined rules as logical relationships between decisions and a limited set of observable conditions. We found that close adherence to simple rules for three important decisions enhances financial performance and survival. We also found that organizations become more consistent on one rule but less consistent on another as they age. Moreover, the limited effect of financial performance on subsequent consistency suggests that consistency is not a byproduct of success and, in parallel, inconsistency does not simply reflect the death throes of a troubled organization. Overall, the results suggest that consistency reflects efforts in which firms attempt to address market and non-market needs, rather than a process in which organizations develop a hobgoblian inability to serve either end effectively.

The results have strong conceptual implications for the effects of bureaucracy on organizational performance and the nature of organizations. Taken together, the results provide at least limited support for the Weberian argument that consistency represents a high point in organizational development, where organizations learn to follow rules that enhance performance. If bureaucracy creates problems for handling particular cases, and there is extensive evidence that it does, those problems appear to be more than offset by the benefits that accrue from higher levels of consistency. While we have not attempted to study rules that might be of particular interest to institutional demands, such as the independence of editorial content from advertiser demands or the social desirability of content (e.g., language, nudity, sexual content), the evidence also supports an institutional argument that firms benefit by learning to follow rules that are tailored to gain support beyond exchange partners in addition to, but not at the expense of, market needs. By contrast, the evidence does not support a Mertonian explanation for organizational rules that stresses limits on managerial cognitive ability and political wrangling, with greater consistency leading to poorer performance.

At the same time, the fact that consistency increases with firm age only for the editorial page rule

– and indeed falls for the ad rate rule – despite the performance benefits of greater consistency, suggests the presence of inertial forces. Such inertial forces are consistent with ecological arguments (e.g., Hannan and Freeman 1977) and with evolutionary theories (e.g., Nelson and Winter 1982) that rest on the underlying premise that firms find it difficult to change core activities, even when changes would be beneficial.

The lack of a negative effect from discrete changes – and, indeed, the benefits that appear to accrue from adjusting the AdRate rule – is intriguing. Occasional discrete shifts in rule parameters in response to environmental demands may allow firms to be adaptive and show great consistency before and after the change. For example, a firm may want to make a clean shift from one mark-up pricing rule to a new mark-up pricing rule in response to changes in supply costs or consumer demand. As such, these result provide an additional explanation why firms tend to undertake punctuated rather than continuous change (Tushman and Romanelli 1985). Punctuated change appears threatening because it forces firms to address many uncertainties simultaneously. Concentrating rule changes in short periods, instead, may allow firms to communicate changes to key internal and external stakeholders and maintain the benefits of consistency along both old and new rules.

Of course, one study of three rules in one industry does not provide a broad confirmation of Weberian optimism or disconfirmation of Mertonian concerns about organizations or define a boundary between Weberian optimism about increasing consistency and ecological arguments about inertia. We have explored only a few rules and fully expect that examples of Mertonian consistency exist and may even be quite prevalent within organizations. Nonetheless, the rules we examined here have a large and direct effect on a firm's performance, thus supporting the importance of the Weberian premise on rules.

Future work may be able to separate Weberian and Mertonian consistency along theoretically informed lines. For example, Weberian and Mertonian consistency might align with the nature of the rule and how that rule is enacted within an organization. Perhaps rules that are used frequently, are directly

and powerfully connected to organizational goals, and generally allow for learning through rapid and unambiguous feedback are more likely to be Weberian (Levitt and March 1988). Rules that have a direct effect on organizational power distributions and have multiple contradictory affects on firm performance may be more likely to be Mertonian (Warner and Havens 1968; DiMaggio and Powell 1983; Hall 1984).

Other influences on consistency could also be explored. For example, it is possible that organizations feel the pull of broader societal averages for individual discretion. If so, industry sectors and organizational units where consistency is most valuable will tend to be less consistent than they should be while sectors and units where variation is most important may tend to be excessively consistent. Consistency may also lag changes in the industry and the broader environment. As an industry matures it may go through a period where firms fall behind the potential for routinization then later catch up. Similarly, if the value of consistency depends on cycles of innovation or overall business activity, organizations may alternate between periods where most are excessively consistent and periods where most would benefit from greater consistency.

While it is interesting to know which rules are likely to be Weberian and which Mertonian, it will also be useful to know what kinds of rules are most important to enact consistently and how firms make tradeoffs when maintaining consistency on some rules makes it difficult to be consistent on other rules. Thus, a fruitful area for additional research will be studying tensions between individual rule consistency on strongly connected rules and between individual rule consistency and system adaptiveness.

One aspect of rules that we have not explored in this research is the content of the rules. It is possible that some organizations have better rules or better sets of rules than others. Individual rule quality may be reflected in rule parameters or in more fundamental differences in the specifications of the rules. Are some organizations able to determine and follow more sophisticated rules? If so, how do these organizations avoid or overcome the costs of coordination and apparent inconsistency and loss of external support that may accompany using these rules?

Support for Weberian consistency coupled with limited increase in consistency over time bolsters the case for research to understand the origins of organizational routines and capabilities. It also supports evolutionary and ecological research methods where firms are modeled as rule followers in order to investigate firm performance and industry dynamics (Nelson and Winter 1982; Hannan and Freeman 1984). In conjunction with these research streams, further exploration of the antecedents and effects of rule following will generate insights into how organizational design, strategic choices, and other managerial practices reduce or enhance consistency and performance.

REFERENCES

Ad $ Summary. New York, Leading National Advertisers, Inc.

ASBPE editors cautiously optimistic for first quarter 2003, American Society of Business Publication Editors (2003). (http://www.asbpe.org/about/news_2003/2003-01biz_outlook.htm).

ASME (2004). Editorial Trends & Magazine Handbook, American Society of Magazine Editors. (http://www.magazine.org/editorial/editorial_trends_and_magazine_handbook/1106.cfm)

Amburgey, T. L., D. Kelly, and W.P. Barnett (1993). "Resetting the Clock: The Dynamics of Organizational Change and Failure." Administrative Science Quarterly(38): 51-73.

Arndt, M. and B. Bigelow (2000). "Presenting structural innovation in an institutional environment: Hospitals' use of impression management." Administrative Science Quarterly 45: 494-522.

Ashby, W. R. (1956). An Introduction to Cybernetics. New York, John Wiley & Sons.

Barnett, W. P. (1997). "The dynamics of competitive intensity." Administrative Science Quarterly 42: 128-160.

Barnett, W. P. and G. R. Carroll (1995). "Modeling internal organizational change." Annual Review of Sociology 21: 217-236.

Barnett, W. P. and J. Freeman (2001). "Too much of a good thing? Product proliferation and organizational failure." Organization Science 12(5): 539-558.

Baum, J. A. C. and P. Ingram (1998). "Survival-Enhancing Learning in the Manhattan Hotel Industry, 1898-1980." Management Science 44(7): 996-1016.

Blattberg, R. C. and S. J. Hoch (1990). "Database models and managerial intuition: 50% model + 50% manager." Management Science 36(8): 887-899.

Blossfeld, H.-P. and G. Rowher (1995). Techniques of Event History Modeling. Mahwah, NJ, Lawrence Erlbaum Associates.

Bowman, E. H. (1963). "Consistency and Optimality in Managerial Decision Making." Management Science 9(2): 310-321.

Brown, S. L. and K. M. Eisenhardt (1998). Competing on the Edge: Strategy as Structured Chaos. Boston, Harvard Business School Press.

Camerer, C. (1981). "General conditions for the success of bootstrapping models." Organizational Behavior and Human Decision Processes 27: 411-422.

Campbell, M. C. (1999). "Perceptions of price unfairness: Antecedents and Consequences." Journal of Marketing Research 36(2): 187-199.

Cleves, M. A., W. W. Gould and R. G. Gutierrez (2004). An introduction to survival analysis using Stata. College Station, Tex., Stata Press.

Compaine, B. M. (1982). The Business of Consumer Magazines. White Plains, NY, Knowledge Industry Publications.

Dawes, R. M. (1979). "The robust beauty of improper linear models in decision making." American Psychologist 34(7): 571-582.

Delacroix, J. and A. Swaminathan (1991). "Cosmetic, speculative, and adaptive organizational change in the Wine Industry: a longitudinal study." Administrative Science Quarterly **36**: 631-661.

Deming, W. E. (1982). Quality, Productivity, and Competitive Position. Cambridge, MIT Center for Advanced Engineering Study.

Dierickx, I. and K. Cool (1989). "Asset Stock Accumulation and Sustainability of Competitive Advantage." Management Science 35(22): 1504-1514.

DiMaggio, P. and W. Powell (1983). "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality on Organizational Fields." American Sociological Review 48: 147-160.

Easton, G. and S. Jarrell (1998). "The effects of total quality management on corporate performance: An empirical investigation." Journal of Business 71: 253-307.

Emerson, R. W. (1841). Self-Reliance. The Complete Essays and Other Writings of Ralph Waldo Emerson. B. Atkinson. New York: 145-69.

Endres, K. and T. Lueck, Eds. (1995). Women's Periodicals in the United States: Consumer Magazines. Westport, CT, Glenwood Press.

Ford, H. (1922). My Life and Work. London, William Heinemann Ltd.

Forrester, J. W. (1961). Industrial Dynamics. Cambridge MA, Productivity Press.

Freeman, J. H. (1978). The Unit of Analysis in Organizational Research. Environments and Organizations. M. e. a. Meyer. San Francisco, Jossey-Bass: 335-351.

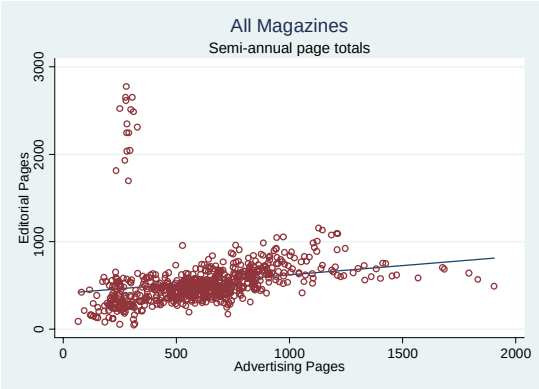
Giddens, A. (1984). The Constitution of Society : Outline of the Theory of Structuration, University of California

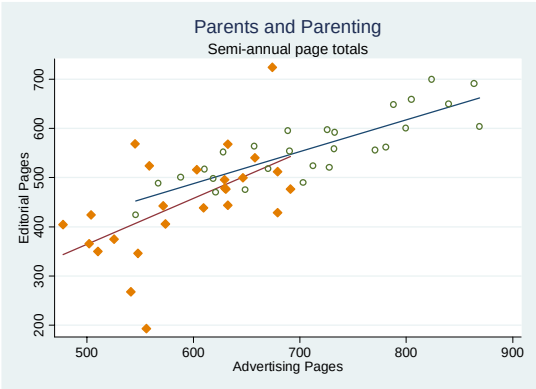
Press.
Gouldner, A. W. (1954). Patterns of industrial bureaucracy. Glencoe, Ill., Free Press.
Granatstein, L. (2001). Breaking Par. Mediaweek. 11: 37,38.
Hall, R. I. (1973). A systems model of a magazine publishing firm. Seattle, University of Washington.
Hall, R. I. (1976). "A system pathology of an organization: The rise and fall of the old Saturday Evening Post." Administrative Science Quarterly 21(2): 185-211.
Hall, R. I. (1984). "The Natural Logic of Management Policy Making: its implications for the survival of an organization." Management Science 30(8): 905-927.
Hannan, M. and J. Freeman (1977). "The population ecology of organizations." American Journal of Sociology 82(5): 929-964.
Hannan, M. and J. Freeman (1984). "Structural Inertia and Organizational Change." American Sociological Review 49: 149-164.
Haveman, H. (1992). "Between a Rock and a Hard Place: Organizational Change and Performance Under Conditions of Fundamental Environmental Transformation." Administrative Science Quarterly 37(1): 48-69.
Hendricks, K. B. and V. R. Singhal (1996). "Quality awards and the market value of the firm: An empirical investigation." Management Science 42(3): 415-436.
Hirsch, P. M. (1975). "Organizational effectiveness and the institutional environment." Administrative Science Quarterly 20(3): 327-344.
Huber, J. (1975). "Bootstrapping of data and decisions." The Journal of Consumer Research 2(3): 229-234.
Koschat, M. A. and W. P. Putsis (2002). "Audience characteristics and bundling: A hedonic analysis of magazine advertising rates." Journal of Marketing Research XXXIX(May): 262-273.
Kraatz, M. S. and E. J. Zajac (1996). "Exploring the Limits of New Institutionalism: The Causes and Consequences of Illegitimate Organizational Change." American Sociological Review(61): 812-836.
Lawrence, P. and J. Lorsch (1967). "Differentiation and Integration in Complex Organizations." Administrative Sciences Quarterly **12**: 1-47.
Leonard-Barton, D. (1992). "Core Capabilities and Core Rigidities: A Paradox in Managing New Product Development." Strategic Management Journal 13: 111-125.
Levitt, B. and J. March (1988). "Organizational Learning." Annual Review of Sociology 14: 319-340.
Makadok, R. and G. Walker (1996). "Search and selection in the money market fund industry." Strategic Management Journal **17**: 39-54.
March, J. (1991). "Exploration and Exploitation in Organizational Learning." Organization Science 2(1): 71-87.
March, J. G., M. Schulz, and X. Zhou. (2000). The Dynamics of Rules. Stanford, Stanford University Press.
March, J. and H. Simon (1958). Organizations. New York, John Wiley and Sons.
Mason, E. S. (1939). "Price and Production Policies of Large-Scale Enterprises." AER 29(1): 61-74.
Merton, R. K. (1936). "The Unanticipated Consequences of Purposive Social Action." American Sociological Review 1: 894-904.
Merton, R. K. (1940). "Bureaucratic structure and personality." Social Forces 18(4): 560-568.
Meyer, J. W. and B. Rowan (1977). "Institutionalized organizations: Formal structure as myth and ceremony." The American Journal of Sociology 83(2): 340-363.
Morecroft, J. D. W. (1985). "Rationality in the analysis of behavioral simulation models." Management Science **31**(7): 900-916.
Nelson, P. (1974). "Advertising as information." The Journal of Political Economy 82(4): 729-754.
Nelson, R. R. and S. G. Winter (1982). An Evolutionary Theory of Economic Change. Cambridge, MA, Harvard University Press.
Nickerson, J. A. and B. S. Silverman (2003). "Why Firms Want to Organize Efficiently and What Keeps Them from Doing So: Inappropriate Governance, Performance, and Adaptation in a Deregulated Industry." Administrative Science Quarterly 48: 31-52.
North, D. C. (1990). Institutions, Institutional Change and Economic Performance. Cambridge, Cambridge University Press.
Ocasio, W. A. (1999). "Institionalized action and corporate governance: The reliance on rules of CEO succession." Administrative Science Quarterly 44(2): 384-416.
Parsons, T. (1956). "Suggestions for a Sociological Approach to the Theory of Organizations.I." Administrative Science Quarterly 1(1): 63-85.
Perrow, C. (1967). "A Framework for the Comparative Analysis of Organizations." American Sociological Review **32**: 194-208.

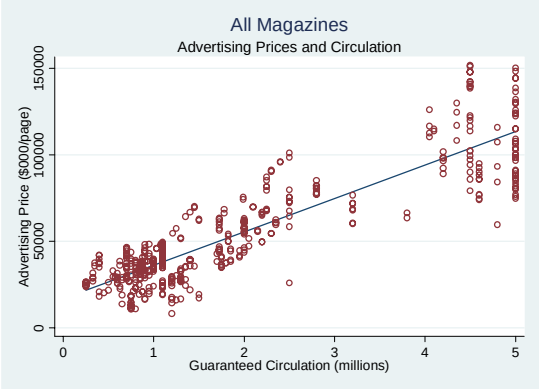
Rotemberg, J. (1982). "Sticky Prices in the United States." The Journal of Political Economy 90(6): 1187-1211.
Sastry, A. M. (1997). "Problems and paradoxes in a theoretical model of punctuated organizational change." Administrative Science Quarterly 42: 237-275.
Schulz, M. (1998). "Limits to bureaucratic growth: The density dependence of organizational rule birth." Administrative Science Quarterly **43**(4): 845-876.
Scott, R. (1995). Institutions and Organizations. Thousand Oaks, SAGE Publications.
Selznick, P. (1957). Leadership in Administration: A Sociological Interpretation. Berkeley, University of California Press.
Simon, H. (1962). "The Architecture of Complexity." Proceedings of the American Philosophical Society 106(6): 63-76.
Singh, J. V., R. J. House and D. J. Tucker (1986). "Organizational change and organizational mortality." Administrative Science Quarterly **31**(2): 587-611.
Smith, A. (1776). An Inquiry into the Nature and Causes of the Wealth of Nations.
Steinbruner, J. D. (1974). The cybernetic theory of decision. Princeton, Princeton University Press.
Stemler, S. (2001). "An overview of content analysis." Practical Assessment, Research & Evaluation 7(17).
Sterman, J. D., N. P. Repenning, and F. Kofman (1997). "Unanticipated Side Effects of Successful Quality Programs: Exploring a Paradox of Organizational Improvement." Management Science 43(4): 503-521.
Stinchcombe, A. L. (1965). Social structure and organizations. Handbook of Organizations. J. G. March. Chicago, Rand McNally & Company: 142-193.
Taylor, F. W. (1911) The principles of scientific management. N. Y., Norton (reprinted 1967).
Thompson, J. D. (1967). Organizations in Action. New York, McGraw-Hill.
Thompson, R. S. (1989). "Circulation versus advertiser appeal in the newspaper industry: An empirical investigation." Journal of Industrial Economics 37(3): 259-271.
Tuma, N. B. and M. T. Hannan (1984). Social Dynamics: Models and Methods. Orlando, Harcourt Brace Jovanovich.
Tushman, M. and E. Romanelli (1985). "Organizational Evolution: A Metamorphosis Model of Convergence and Reorientation." Research in Organizational Behavior 7: 171-222.
Warner, K. W. and E. A. Havens (1968). "Goal displacement and the intangibility of organizational goals." Administrative Science Quarterly 12(4): 539-555.
Weber, M. (1946). From Max Weber: Essays in Sociology. New York, Oxford University Press (this book includes translations from “Wirtschaft und Gesellschaft”, 1922).
Zhou (1993). "The dynamics of organizational rules." American Journal of Sociology 98(5): 1134-66.

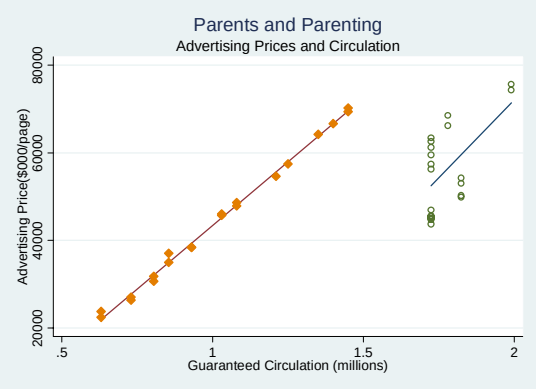
Figure 1. Rules at the population and firm level

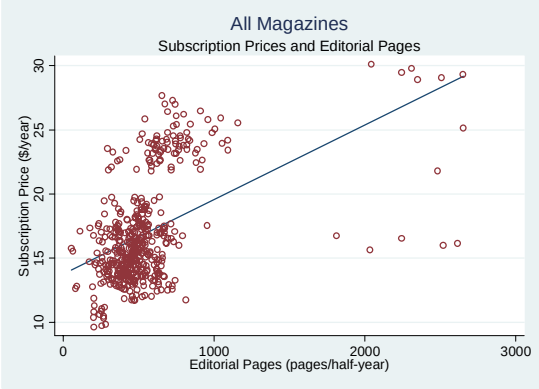
Population Level	Firm Level*

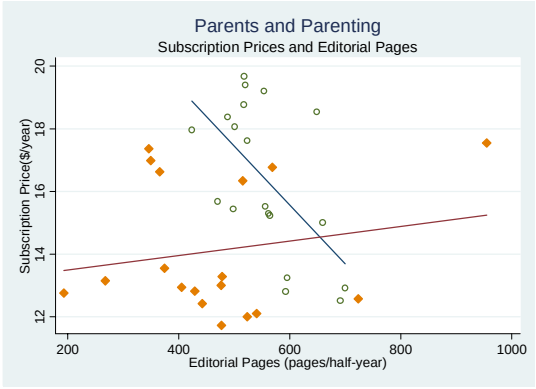












* Circles represent Parent's magazine and diamonds represent Parenting magazine

Table 1. Magazines included in the study: 1991-2004

	Magazine Name	Founded	Ceased	Publisher Statement 1991
1	Allure	1991	Active	A covers beauty including information on fitness, health, nutrition, travel, design, fragrance, food, fashion, literature, film, art, theatre, and music.
2	Cooking Light	1987	Active	CL focuses on nutritious food and healthy living in America. Emphasizing moderation, variety and balance, the editorial presents a mainstream approach for combining the ideas of in home preparation of nutritious, appetizing food with regular, sensible exercise as the basis for a healthier lifestyle.
3	Cosmopolitan	1886	Active	C is edited for young women for whom beauty, fashion, fitness, career, relationships, and personal growth are top priorities. Nutrition and food, travel, personal finance, home/lifestyle and celebrities are other interests reflected in the editorial lineup.
4	Elle	1945	Active	E is a fashion magazine edited for the woman who seeks a daring, innovative approach to style. Each issue covers the latest international trends in fashion, beauty, health, the arts, cuisine and more.
5	Essence	1970	Active	E is the magazine for today's Black woman. Edited for career minded, sophisticated and independent achievers. Essence's editorial is dedicated to helping its readers attain their maximum potential in various lifestyles and roles. The editorial content includes career and educational opportunities: fashion and beauty; investing and money management; health and fitness; parenting; information on home decoration and food; travel; cultural information and profiles of achievers and celebrities.
6	Family Circle	1932	Active	FC is written for contemporary women. Editorial provides information on a variety of today's issues ranging from financial planning to food, from health to beauty and fashion to planning the perfect family outing.
7	First For Women	1989	Active	FFW is edited for today's contemporary woman. Editorial features fashion, food (including recipe cards to collect and a cookbook), decorating and beauty.
8	Glamour	1939	Active	G is edited for the contemporary American woman. It informs her of the trends, recommends how she can adapt them to her needs, and motivates her to take action. Over half of the editorial focuses on beauty, fashion, and health along with coverage on personal relationships, career, travel, food, entertainment, and the home
9	Good Housekeeping	1885	Active	GH is edited for the new traditionalist - the modern woman with traditional values. Articles focus on food, fitness, beauty and child care, and draw upon the resources of the good housekeeping institute. Editorial mix includes human interest stories, articles that focus on social issues, money management, health news, travel, and 'the better way' an 8-page hard-fact guide to better living.
10	Harpers Bazaar	1981	Active	HB provides fashion and beauty guidance and inspiration of today's American woman.
11	Ladies Home Journal	1883	Active	LHJ is edited for today's American woman with features and articles that address a variety of her special interests. Editorial includes coverage of beauty and fashion, food and nutrition, health and medicine, home decorating and design, parenting and self help, personalities and current events.
12	Lear's	1987	Apr-94	L is edited for the sophisticated, educated and affluent woman. L blends entertainment and information to present that which is good in this rewarding stage of life. In depth articles emphasize the essentials in a woman's life; the health of her mind and body; her work ; her interests; her relationships; her money. The magazine includes comments on the American scene, reportage, culture, fashion, food and wine, etc.
13	Mademoiselle	1935	Nov-01	M is edited for young, single, affluent career women, and covers fashion and beauty, as well as health and fitness, career, food, entertainment and other elements of their on the go lifestyles
14	McCall's (later Rosie)	1876	Dec-02	M is edited for the sophisticated contemporary woman helping her with the information she needs for her busy daily life everything from personal inspiration to factual how to service. Each issue features food, home, design, fitness, childcare, health, home management, beauty, money management, fashion, book excerpts, personal relations, fiction personality and celebrity profiles
15	Mirabella	1989	Jun-00	M is as much about fashion as it is about politics, travel, the arts. Each month, the magazine presents current issues, conversations, contemporary fiction, fashion and beauty features emphasizing ease and substance
16	New Woman	1970	Jan-00	NW presents new ideas, choices, and alternatives for women wishing to explore their possibilities while meeting the growing demands of work, family, and personal achievement. Editorial includes articles on fashion, beauty, health, diet, fitness, food, and career development. Special edition emphasis is given to self improvement, self esteem, self discovery, and personal relationships
17	Parenting	1987	Active	P is edited from the viewpoint of the educated, contemporary woman who must deal simultaneously with the demands of child rearing, personal growth and family life through regular features on psychology, education, health, food, toys and fashion. Parenting focuses specifically on a parent's needs as they are related to living with children through their first ten years

	Magazine Name	Founded	Ceased	Publisher Statement 1991
18	Parents	1926	Active	P is edited for young women 18 to 34 with growing children. Editorial coverage emphasizes family formation and growth, focusing on the day to day needs and concerns of today's woman as a mother and as a woman. Regular departments include Beauty, Food, About the House, Family Finance, As they Grow, Love and Marriage, Almanac, The Healthy Parent, Education, About Fathers, How to Pet Set
19	Redbook	1903	Active	R is edited for young women today, who are juggling the demands and rewards of husband, child and jobs. Articles are geared towards helping her make first time decisions in her complicated life ranging from personal relationships, home, money management, children and childcare to beauty, fashion, fiction, food and nutrition
20	Sassy	1988	Dec-96	S is a lifestyle magazine edited for today's young women 14-19. Sassy takes a supportive, non-judgmental approach to the issues that confront young women as they begin the process of learning to manage change in their lives. Contains articles on fashion, beauty, contemporary social issues, human relationships, pop culture and current trends. S regularly includes special features such as pullout records and oversized posters, the Sassiest Girl In America Contest and regular columns written by readers.
21	Self	1978	Active	S magazine is edited for the personal needs of today's smart, confident working women. It covers the current issues that affect their lives from health and personal relationships to beauty and fashion, from nutrition and fitness to careers and money management
22	Seventeen	1944	Active	S is a young woman's general service magazine with a special emphasis on fashion and beauty. Its monthly contents also includes information on food, and lifestyle. Coverage includes general articles, arts coverage--movies, music, television celebrity profiles, fiction and monthly columns devoted to health, sex, advice, pets, travel, automobiles, sports. Contemporary issues address such topics as alcohol, drugs, sex, family relationship, friendship, education, and careers
23	Shape	1981	Active	S is a lifestyle magazine for the '80s woman, devoted to delivering information on the various aspects of fitness - physical, nutritional and psychological
24	Teen	1957	May-02	T is edited for 12 to 19 year old girls. Editorial is directed toward making a wholesome contribution to young America and its future. Teen provides a spectrum of contemporary information to help young girls on self improvement in areas of grooming and physical and intellectual development. Coverage includes letters to editors, columns such as We Get, Dear Jack, and Dear Jill plus regular contests and pen pal offers
25	True Story	1919	Active	TS magazine is edited for young women. In addition to story editorial, regular articles include recipes and food features, beauty and health, home management, parenting and personal advice
26	Victoria	1978	Jun-03	V is a magazine for contemporary women who choose to incorporate the richness and grace of the past into a personal lifestyle. Victoria's editorial features on fashion, beauty, entertainment and the home emphasize the details of traditions and elegance
27	Vogue	1892	Active	V is edited for the women who has more choices than ever before- for herself and her family, at home and at work. She considers style a way of life. Vogue is a source of new ideas and information and a guide to living well. The magazine's editorial pages cover fashion, beauty, health, fitness, travel, the arts, money, food, entertaining and home furnishings. V also features interviews and articles by contributing writers.
28	W	1972	Active	W is edited for the affluent, educated woman. Articles include a blend of the best in fashion, lifestyle, beauty, travel and social commentary
29	Woman's Day	1937	Active	WD is written and edited for the contemporary woman. WD's editorial package covers the various issues that are important to women today. Editorial features are devoted to information on Food & Nutrition, Health & Fitness, Beauty & Fashion, as well as the traditional values of Home, Family and Children. The changing needs of women are also addressed with articles that focus on Careers, Money Management, Law, Computer Technology and Relationships.
30	Workbasket	1935	Mar-96	W editorial stresses needlework, crafts, cooking and other home activities. Regular features include patterns and information on knitting, crochet, tatting, and other various stitch projects; crafts projects; readers recipes; puzzles; cat column; health & beauty tips; gardening tips and a product profile.
31	Working Woman	1976	Sep-01	WW is edited for women who are in management careers, in business. Contents include a special section devoted to entrepreneurs as well as articles on business news, business and economic trends, technology, law, politics, current issues, finance, investment options, career fields, management, the social and behavioral sciences, travel and other lifestyle editorial as well as fashion, health, beauty and entertaining.
32	YM	1955	Active	YM covers fashion, beauty, entertainment and personal issues and is edited for the 14-20 market--the younger affluent woman in college or prepping to go. Features and columns cover fashion fads, fashion classics, cosmetics from subtle to brash, health and nutrition, skin regimens, fitness regimens, hair regimens, guys, parents, music starts, movie starts, part time jobs of today, full time careers of tomorrow, and college in between

Table 2. Descriptive Statistics

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Exit	1.00													
2	Revenue ($ mln semi-ann)	-0.07	1.00												
3	Editorial Consistency	-0.08	0.13	1.00											
4	AdRate Consistency	0.00	0.08	0.19	1.00										
5	SubPrice Consistency	-0.13	0.27	0.24	0.16	1.00									
6	Log Age (age in days)	-0.04	0.69	0.18	0.08	0.22	1.00								
7	Magazine Size (mln subs)	-0.04	0.77	-0.04	0.02	0.07	0.58	1.00							
8	Breadth (categories)	-0.07	0.17	0.15	0.14	0.17	0.24	0.22	1.00						
9	Group Size (No. of pubs)	0.01	0.33	0.03	0.11	-0.05	0.29	0.38	-0.03	1.00					
10	Numcomp (No. of firms)	0.01	-0.12	-0.15	-0.13	-0.04	0.04	-0.03	0.00	0.17	1.00				
11	Promotion Expense ($000)	0.04	0.47	0.00	0.14	0.01	0.20	0.32	-0.07	0.15	-0.15	1.00			
12	Entry (Net change # firms)	-0.07	-0.28	-0.06	-0.10	-0.02	-0.13	-0.08	0.03	-0.12	0.12	-0.27	1.00		
13	Editorial Pages (semi-ann)	-0.07	-0.05	0.29	0.12	-0.20	-0.14	-0.25	0.01	-0.13	0.05	-0.05	-0.06	1.00	
14	AdRate ($ 000 per page)	-0.03	0.94	0.07	0.05	0.17	0.60	0.75	0.15	0.32	-0.10	0.52	-0.36	-0.09	1.00
15	SubPrice ($ per year)	-0.06	0.12	0.20	0.10	0.22	0.05	-0.25	-0.15	-0.07	0.00	0.04	-0.10	0.54	-0.01
16	Ad Pages (semi-annual)	-0.14	0.54	0.30	0.14	0.40	0.50	0.12	0.10	0.19	0.00	0.13	-0.14	0.19	0.35
17	Circulation (thousands)	-0.06	0.82	0.01	0.01	0.09	0.61	0.91	0.29	0.38	-0.02	0.27	-0.04	-0.11	0.79
18	Frequency Clock	0.05	0.44	0.17	0.17	0.20	0.37	0.17	0.12	0.26	0.07	0.35	-0.55	0.00	0.52
19	Breadth Change	0.00	-0.07	0.08	-0.12	-0.07	-0.05	-0.11	-0.07	0.02	0.09	0.03	-0.07	0.02	-0.03
20	Editorial Rule Change	-0.03	0.13	-0.26	-0.26	0.02	-0.05	0.16	0.08	-0.07	0.08	0.00	0.06	-0.10	0.19
21	AdRate Rule Change	-0.07	0.08	0.15	0.00	-0.01	0.10	-0.09	-0.06	-0.11	-0.36	0.28	-0.09	0.21	0.09
22	Munificence	0.04	0.43	0.13	0.11	0.04	0.19	0.12	-0.03	0.10	-0.25	0.47	-0.64	0.11	0.55
23	Tranquility (Editorial)	0.02	0.26	0.21	0.08	0.02	0.08	0.07	0.04	-0.03	-0.63	0.32	-0.29	0.03	0.30
24	Tranquility (AdRate)	0.08	0.14	0.05	0.22	-0.06	0.02	0.03	-0.01	-0.03	-0.50	0.13	-0.26	0.01	0.08
25	Tranquility (SubPrice)	0.01	-0.11	-0.02	-0.01	0.11	-0.12	-0.05	0.02	-0.14	-0.36	-0.11	0.25	-0.09	-0.22
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**13**
	Cases	754	674	492	472	370	754	748	754	754	754	733	722	709	713
	Mean	0.013	75.6	-.113	-.057	-.049	9.48	1.33	7.26	21.33	44.45	381.4	0.107	539.5	70.35
	Standard deviation	0.114	55.7	0.099	0.046	0.050	0.926	1.088	2.516	15.44	4.37	844.4	1.491	322.5	45.29
	Minimum	0	8.071	-.689	-.476	-.391	6.78	0.009	1	1	37	0	-2	48.20	8.411
	Maximum	1	303	-.011	-.006	-.001	10.74	4.512	14	87	50	7,653	4	2,776	257

Table 2. Descriptive Statistics (continued)

	Variable	15	16	17	18	19	20	21	22	23	24	25
15	SubPrice ($ per year)	1.00										
16	Ad Pages (semi-annual)	0.45	1.00									
17	Circulation (thousands)	-0.15	0.24	1.00								
18	Frequency Clock	0.08	0.30	0.12	1.00							
19	Breadth Change	-0.03	0.05	-0.12	0.11	1.00						
20	Editorial Rule Change	-0.08	-0.08	0.22	-0.16	-0.07	1.00					
21	AdRate Rule Change	0.22	0.04	-0.08	0.21	-0.03	-0.14	1.00				
22	Munificence	0.15	0.25	0.07	0.76	0.11	-0.06	0.34	1.00			
23	Tranquility (Editorial)	0.08	0.10	0.05	0.35	0.05	-0.10	0.34	0.65	1.00		
24	Tranquility (AdRate)	0.01	-0.02	0.01	0.11	-0.15	-0.05	0.03	0.34	0.32	1.00	
25	Tranquility (SubPrice)	-0.06	-0.13	-0.03	-.041	-0.09	-0.02	0.14	-.27	0.01	0.44	1.00

	15	16	17	18	19	20	21	22	23	24	25
Cases	716	730	748	754	665	291	273	722	629	629	598
Mean	19.27	608	1,917	10.2	0.429	0.452	0.041	75.6	2.43	3.06	3.47
Standard deviation	4.81	282.4	1,414	7.6	0.917	0.558	0.055	24.1	0.13	0.17	0.29
Minimum	9.97	65.80	1,708	0	0	0.001	0	47.1	2.22	2.87	3.15
Maximum	34	1,906	5,373	26	7	3.54	0.334	133	3.51	3.51	4.49

Table 3. Determinants of Survival: ML Estimates of Piecewise Exponential Models of the Rate of Magazine Closure, 1991 to 2004
(Positive coefficient = more likely to fail)

Variable	Model 1	Model 2	Model 3	Model 4
Magazine Size (millions of subscribers)	-0.506	-0.911	-0.885	-1.782**
	(0.398)	(0.803)	(0.869)	(0.535)
Numcomp (No. of competitors)	4.384*	11.206+	10.961	30.820+
	(1.815)	(6.252)	(8.031)	(16.811)
Numcompsq	-0.049*	-0.121+	-0.118	-0.335+
	(0.020)	(0.070)	(0.089)	(0.186)
Entry (Net change in # magazines)	-0.722*	-4.774**	-4.869*	-9.886**
	(0.368)	(1.661)	(2.096)	(3.610)
Editorial Consistency		-3.138*	-3.298*	-1.398+
		(1.413)	(1.692)	(0.997)
AdRate Consistency		-3.022	-3.873	-57.382*
		(11.040)	(12.437)	(29.456)
SubPrice Consistency		-10.387**	-10.441**	-7.699**
		(3.483)	(3.353)	(3.267)
Frequency Clock			0.415	0.044
			(1.292)	(0.624)
Breadth Change			0.220	0.231
			(0.265)	(0.333)
Editorial Rule Change				-0.253
				(0.676)
AdRate Rule Change				-19.124*
				(9.576)
Age since founding (coefficient on days)				
0-5 years	-122.557**			
	(40.134)			
5-10 years	-105.246**	-290.091*	-286.948	-744.815+
	(40.315)	(139.760)	(180.560)	(381.081)
10-15 years	-106.591**	-272.825+	-268.789	-725.643+
	(39.893)	(139.935)	(178.929)	(382.414)
15-20 years	-123.834**	-289.739*	-286.658	-750.111+
	(39.994)	(140.099)	(178.484)	(387.092)
20-25 years	-124.171**	-290.714*	-287.652	-751.508+
	(40.024)	(140.302)	(179.255)	(386.323)
>25 years	-106.238**	-272.451+	-268.587	-726.003+
	(40.011)	(140.600)	(179.496)	(383.225)
No. of spells (exits)	744 (10)	357 (7)	323 (7)	230 (7)
Wald ChiSq (df)	11,686 (10)	24,464 (12)	64,738 (14)	25,349 (15)

** p<.01, *p<.05, +p<.10 (two-tailed tests for controls; one-tailed tests for hypotheses; robust standard errors in parentheses)

Note: The complete data set has 32 subjects and 10 failures. Data requirements for estimation of consistency and rule-change, frequency change, and breadth change controls eliminate 4 subjects in model 2, 5 subjects in model 3, and 6 subjects model 4 (along with 3 failures in models 2-4).

Table 4. Determinants of Revenue: Prais-Winsten Panel Corrected Standard Error Estimates ($Millions; positive coefficient = greater revenue)

Variable	Model 1	Model 2	Model 3
Promotion	1.080	6.660*	11.806**
	(1.238)	(2.672)	(3.112)
Munificence	0.827**	0.898**	0.812**
	(0.050)	(0.085)	(0.079)
Group Size	9.739**	13.741**	20.512**
	(1.859)	(2.012)	(2.780)
Breadth	1.533**	1.821**	3.853**
	(0.403)	(0.590)	(1.231)
Editorial Consistency		14.758*	18.280*
		(7.582)	(11.117)
AdRate Consistency		34.300*	-48.975
		(18.441)	(46.472)
SubPrice Consistency		155.717**	255.072**
		(37.762)	(58.709)
Frequency Clock			-3.086
			(5.464)
Breadth Change			-1.800
			(1.699)
Editorial Rule Change			2.577
			(3.237)
AdRate Rule Change			-40.490+
			(24.297)
Constant	-35.523**	-39.831**	-48.607*
	(6.534)	(10.257)	(20.392)
Observations	651	345	224
Number of Magazines	32	27	26
R-Square	0.589	0.665	0.7484

The panel is treated as having panel-specific first-order autocorrelation

**p<.01, *p<.05, +p<.10 (two-tailed tests for controls; one-tailed tests for hypotheses)

Table 5. Determinants of Consistency: Prais-Winsten Panel Corrected Standard Error Estimates ($ Thousands; positive coefficient = greater consistency**)**

Variable	**Model 1: Editorial Page Consistency**	**Model 2: AdRate Consistency**	**Model 3: SubPrice Consistency**
Log Current Age (H2 +)	0.377**	-0.176*	-0.052
	(0.104)	(0.080)	(0.120)
Tranquility	1.027**	1.115**	0.240
	(0.206)	(0.159)	(0.185)
Group Size	0.152**	0.038	-0.222**
	(0.053)	(0.050)	(0.066)
Breadth	0.008	0.053**	0.024
	(0.016)	(0.019)	(0.019)
Revenue ($m)	-0.006**	-0.000	0.003+
	(0.001)	(0.001)	(0.002)
Frequency Clock	0.025	0.078	0.083
	(0.081)	(0.106)	(0.106)
Breadth Change	0.055	0.009	-0.086*
	(0.037)	(0.033)	(0.035)
Editorial Rule Change	-0.006	-0.008	-0.000
	(0.054)	(0.053)	(0.038)
AdRate Rule Change	1.201*	-0.538	-0.385
	(0.582)	(0.541)	(0.525)
Constant	-3.945**	0.731	3.167*
	(1.068)	(0.903)	(1.393)
Observations	222	222	222
No. of Magazines	26	26	26
R-Square	0.831	0.931	0.914

The panel is treated as having panel-specific first-order autocorrelation. Variables with asterisks are lagged eight periods to correspond with the beginning of the period over which consistency was estimated.
**p<.01, *p<.05, +p<.10 (two-tailed tests for controls; one-tailed tests for hypotheses)

Appendix A: Content Analysis Description

We determined breadth of subject area for each magazine through a content analysis of the publisher statements appearing in SRDS. We assembled all unique words from the publisher statements into a system of 24 codes that one of the authors judged to capture the meaning of the words and the kinds of topics that the category and intended audience demographics addressed. Two undergraduate research assistants applied this system of codes to the publisher statements. Afterward, the research assistants and the author who had coded the words discussed the meaning of each code, relationships among the codes, and topics from the publisher statements that the original coding scheme did not cover. This led to the addition of one code to capture a missing topic area (celebrities), the elimination of two codes that functioned as catchalls (lifestyle and achievement), the combination of two codes that were difficult to distinguish (entertaining and entertainment), and a clearer definition and delineation of the remaining codes. We compared the resulting codes against the description of women's magazines in the introduction to Endres and Lueck's (1995) *Women's Periodicals in the United States: Consumer Magazines* and added two additional codes (sex and cooking). The final codes were: African American; art & culture; beauty; career; celebrities; cooking; crafts; entertaining & entertainment; family relationships; fashion; fitness; home; literature; mature; money; news; nutrition; psychology; relationships; sex & sexuality; singles; teenage; travel; and youth.

The two research assistants and one of the authors then coded all of the 107 unique publisher statements. The procedure included double-coding half of the statements in order to assess reliability of the coding scheme. Cohen's Kappa value of 0.70 indicated substantial inter-coder agreement (Stemler 2001; Arndt and Bigelow 2000).