EFFECTS OF ENVIRONMENTAL CHANGE ON EXECUTIVE ATTENTION: ANALYSIS OF AUTO INDUSTRY LETTERS TO SHAREHOLDERS 1963-1987*

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Project Introduction and Motivation

Much debate in management theory concerns the degree to which organizations can adapt to environmental change and the role of leadership in facilitating such change. Many firms today face the situation American auto makers faced in the 1970s: an unexpectedly strong challenge from an unexpected corner of the globe – Japanese preeminence in design and manufacturing – and socio-political changes that threaten their viability – the Arab oil embargoes which quadrupled the price of gasoline. In the wake of globalization and unstable interdependencies, past competencies can quickly become obsolete and a firm’s position in market and society can abruptly deteriorate. In the aftermath of these events in the late 1970s and early 80s, the continued viability of American automaking was in doubt, and the industry came under a barrage of criticism from all corners – politicians left (Brown 1980, Commoner 1980) and right (Clark 1980, Stockman 1986), academics (Ackoff 1978), public interest groups (Nader 1965, 1970, 1973), financial analysts (Keller 1989), journalists (Halberstam 1985, Yates 1983) – and even from within (DeLorean 1988) for a failure to foresee and respond effectively to these events. But did they fail? And, if so, why?

A study of attention can illuminate the first step – or lack thereof – in organizational adaptation, but also complicates the notion of adaptation implicit in the debate. In this project, I develop a construct of executive attention which I use to analyze change in the auto industry over three decades, including periods of relative environmental calm and upheaval. The principal findings which obtain and which I discuss in this article are:

1. A long lag between the central event of the period – the emergence of Japanese preeminence in design and manufacturing – and executive attention (an extremely long lag in the case of GM).

2. A pattern of executive attention that is difficult to reconcile as part of a rigorous attempt to maximize profit. Rather, it can be readily understood as part of an attempt to address concerns from relevant publics.

3. Which publics are relevant is better understood in terms of organizational identity and executive appropriateness than economic rationality, managerial vision, or socioeconomic constraints.
1. Theory

Dominant Theoretical Perspectives – Intended rationality

Economic and Managerial Perspectives

Organizational scholars predict widely divergent responses to important environmental change. The principal debate pits neo-classical economic perspectives of efficient diffusion of adaptive practices versus sociological perspectives that view organizations as largely unchanging due to social constraints. Economic theories (e.g., Holmstrom & Tirole 1991, Milgrom & Roberts 1992) treat attention as relatively unproblematic. In assuming that behavior adapts to relevant incentives, economic theories assume that rational actors focus organizational energies as conditions warrant in accord with interests that are naturally perceived. Within economics, the principal problem is seen as disalignment of interests – that executive interest often differs from that of owners (Jensen & Meckling 1976) or of the organization as a whole (Edwards 1979, Goldberg 1980).

Writers which managers themselves tend to read (e.g., Ackoff 1981, Covey 1987, Senge 1991, Handy 1994) relax assumptions on self-interest and focus on particular difficulties in the perception and pursuit of the greater good, but are otherwise similar. In these works, the executive is at the cognitive and spiritual center of the organization. A reasonably competent manager knows his environment. The presumed challenge is of vision and implementation – how to prepare for the future and how to overcome organizational inertia.

Even critics of these perspectives tend to accept that resistance to economic adaptation lie in the body of the firm and its environment rather than at its head. Marxists such as Edwards, Goldberg, or Stone (1974) decry executives’ propensity to change (and lay off workers or expropriate their rents). Organizational ecologists (Hannan & Freeman 1977, 1984, 1989) argue that organizations are characterized by resistance to change, but they claim this is due to socioeconomic constraints: fixed investments in plant, equipment and specialized personnel; political constraints supportive of vested interests; legal and economic barriers to entry into new areas of activity; legitimacy considerations; and the problem of general equilibrium.

Bounded Rationality

These dominant theoretical frameworks all share the presumption that managers at least pursue their interests and/or that of their firms, albeit with differing degrees of control and skill. Simon’s
theory of bounded rationality (1945, 1957, 1967; elaborated recently in March, 1994: ch. 1) is generally understood as a modest, natural extension of these perspectives: Executives are “intendedly” rational in that they would like to maximize the attainment of valued goods, but optimization is impossible because of cognitive limits on attention, memory, comprehension, and communication. Constraints on attention are particularly severe, leading to a pattern of satisficing rather than optimization: we attend primarily to those situations where minimal satisfaction levels are unmet or threatened.

**Alternative Drivers of Attention – Identity and Appropriateness**

But while the satisficing thesis has been influential in the abstract, little concrete empirical research has been conducted on what specific aspirations and dissatisfactions actually drive attention. A variety of theories may inform a search. In this study of the American auto industry, I began by considering the ecological, economic, and managerial theories already introduced, but the data suggest another possibility – that the firms’ *identities* helped direct executive attention.

Critiques of the dominant perspectives question whether individuals or organizations are even “intendedly rational” in an economic sense. Sociological theories traditionally view people more as norm-based followers than rational optimizers (Parsons 1951) and humanistic perspectives generally view normative-affective factors as far more influential than logical-empirical factors (Etzioni 1988). In this paper, I elaborate a perspective developed by March & Olsen (1989) and March (1994: ch. 2), which argues that the reasoning which drives attention and choice is less characterizable as a logic of consequence than as a logic of *appropriateness*. In contrast to the familiar logic of consequence – reasoning based on preferences, alternatives, and expectations – logic of appropriateness requires reasoning based on identity, recognition, and rules. Decision makers implicitly or explicitly must answer three questions for themselves and their firm:

* Who am I? What kind of organization is this?

* What is my situation? What is the situation of this organization?

* What does a person such as myself / an organization such as ours do in a situation like this?

**Research Questions and Paper Organization**

I began this project by attempting to understand the American auto industry’s alleged lack of
response to emerging Japanese preeminence. Dominant theories implicitly assume that executives will at least attend to and pursue their interests; per economic theory what they pursue and attend to are by definition their interests. A theory of bounded rationality, however, suggests that decision-makers must use rough heuristics to determine which issues will most affect outcomes and where attention can provide the most leverage; this approximating model leaves open the possibility of an attention pattern that diverges somewhat from interest. A logic of appropriateness goes further in proposing that pursuit of interest per se is not even the driving factor in attention; rather, attention is a function of identity, socially validated rules of behavior, and circumstance. In this case, the dominant theories suggest that auto executives would have at least been paying attention to the Japanese (despite differing predictions on the efficacy of outcomes). The latter theories suggest that other issues less relevant to profit or interest per se may have taken precedence and that executives may have just ignored these developments.

In Section 2, I present the basic constructs and methods of environmental change and executive attention and proceed to analyze the adaptability of executive attention to such change in Section 3. In Section 4, I seek to develop more general understanding for what these firms paid attention to and why and conclude with a discussion of implications in Section 5.

2. BASIC CONSTRUCTS AND METHODS

Environmental Change

A Point of Change?

The auto industry is affected in important ways by many external events – recessions, inflation, an emerging consumer movement – and no day passes without some event that in some way affects the industry. However, three developments of the early 1970s – the formation of the OPEC oil cartel with the power to quadruple the price of gasoline, globalization of the industry, and Japanese advances in design and manufacturing – are as dramatically important as we are likely to find for the strategic interests of a major industry, and thus a good point of reference for study of the effects of environmental change.

Oil Embargo

The oil embargo shattered a taken-for-granted reliance on cheap, available oil. It had long been argued that American manufacturers should have anticipated such a development. Environmentalists
had predicted eventual shortages (i.e. Hardin, 1972; Meadows & Club of Rome, 1972) and the Middle East had always been politically unstable. In a series of Harvard Business Review articles, a planner (Wack 1985a, 1985b) tells how Shell accurately forecast and prepared for the coming embargo as a result of “strategic contingency planning” and simple deductive reasoning (although no other major oil company did). Halberstam (1985) begins his book, The Reckoning, with two chapters on the exploits of an oil consultant who spent three years unsuccessfully trying to warn Detroit to prepare for such an event.

These criticisms ring somewhat hollow after nearly two decades of stable and even declining oil prices, but whether Detroit executives might have been prescient or not, as of October 1973, two important threats appear (at least in retrospect) transparent:

- Oil supply instability was a reality; moreover, oil shortages and/or price increases would result in a devastating shift in auto consumer purchase preferences toward smaller, fuel-efficient cars;
- Fuel efficiency was not the only advantageous feature of Japanese cars: perhaps it was what sent buyers into a Toyota showroom, but once there they also found better reliability, suspension, and overall quality.

For the first time, imports could not be written off as inferior vehicles whose single advantage was price. Whereas in 1964 the average price of imports was barely half that of American-made cars, in 1974 the average price of imports was slightly more than that of American-made cars (US International Trade Commission 1982:2-3).

**Globalization**

In 1960, 51% of the world’s new automobiles were both made and purchased in the U.S. and Canada. Two decades later, less than a quarter of the world’s new automobiles were made or bought here. Every region in the world had faster growth in both production and sales than North America, and most had indigenous auto industries. Most of these companies were producing substandard copies of those made in Detroit in plants that were substandard copies of Ford’s mass production system. But there was also wide variety in production systems, several of which held important advantages over mass production. The most important of these proved to be those developed by Toyota.

**Lean Production**

Japanese advances in automotive production and design go back to post-war Japan and the development of a new production system which has come to be called “lean production” (Althuscher,
et. al. 1984; Krafcik 1988). In an authoritative book, Womack, Jones & Roos (1989) argue that this system—characterized by low inventories, production flexibility, minimal rework, statistical quality control, and a skilled, dedicated work force—is a revolutionary production logic—the third major paradigm of industrial organization, succeeding mass production, which itself replaced "craft production." This thesis has largely been accepted in auto manufacturing and American manufacturing in general, and the eventual adoption of these lean production practices by American automakers in the 1980s and early 1990s has created current competitive parity.

Had American manufacturers been prescient, they might have picked up on these developments well before 1973. Figure 1 illustrates long, sustained increase in world market share of the Japanese auto industry beginning in the late 1950s, climbing from 0% in 1950 to 5% in 1961 and 17% in 1970.

Figure 1: Auto production by US and Japanese firms 1960-1990. Source: Wards.

At least one important management scholar (Drucker 1968, 1971) was singing the praises of Japanese

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1 This production system also had been documented by Shimada (19xx), MacDuffie (19xx) and Cusumano (1984) using the terms "robust," "fragile," and "Toyota production system," but "lean production" is the term that has stuck.

2 A 1971 MIT thesis, however, provides a more common contemporary account of Japanese success: effective government actions ("Japan Inc."), low wages, and favorable exchange rates. He concludes, that: "The U.S. will continue to have the vigor to successfully compete against the Japanese," but adds that U.S. overall capability to
management well before then and American auto company divisions had been experimenting with component programs such as quality circles in the late 1960s. October 1973, however, is a key point in time because one of the advantageous features of Japanese products and process – far superior fuel efficiency – was made much more desirable as a result of the embargo.

**Annual Letter to Stockholders as a Record of Executive Attention**

Like so many terms in organization theory, ‘organizational attention’ is a questionable concept, drawn by analogy with the individual. Despite this, the concept is commonly used both theoretically and in everyday parlance. In addition to the work of Simon, March, and associates, attention is a central concept in important works such as Barnard (1938) and Weick (1979). Ocasio (1997:2) argues that “explaining how firms behave amounts to explaining the allocation and structuring of attention.” Informally, consumers and workers sometimes want to ‘send a message’ to an organization or ‘get their attention’; suppliers, investors, lenders, and social scientists, among others want to know what an organization ‘is thinking’ (i.e. attending to).

Despite the theoretical importance of attention in cognition and organization theory, there are few attempts to compile comprehensive records, and none of organization attention as I have defined it. Those works that have used the term, “managerial attention,” (Mintzberg 1973; Sproul 1977, 1984; Chilingerian 1987) have been more about “activity” than “attention” *per se*. The focus is on what individuals do, and there is no distinction made between what they *do* versus what they are thinking about. Of course, to compile a comprehensive record of attention – organizational or individual (even one’s own) is no simple task.

I use the CEO’s Letter to Stockholders because here, in the space of a few pages, top management attempts to touch on those issues which they feel are most important to discuss with those who evaluate them. The message to stockholders also has a long, continuous tradition in business history, so that it can be used as a comparative source document for the more than 30 years of this study both within and between firms. Most important, this construct is free from the retrospective bias that would be inescapable in interviews or surveys conducted today.

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*compete has been “denigrated” by labor and consumer groups, and lack of ‘a forward looking trade policy.’* (Fites, 1971:2)

*Womack, et al. (1989) argue that Japanese methods succeeded despite government action – for example, fierce competition between Japanese firms undermined perpetual attempts by the government to consolidate the industry and force specialization.*
The construct admittedly raises important red flags: First, that the document may be little more than impression management of the chairman to convey a favorable picture of the enterprise and his administration. Second, even if he wanted to convey priorities honestly, he would be unable to do so because of strategic considerations. Third, even if we accept this as a representation of the attention of the chairman, we have little reason to believe it represents executive management generally, and less yet that it means anything for the organization as a whole. Finally, even if we brush aside all these concerns, there is the difficulty of interpreting the text and coding it as data.

I will discuss these concerns presently, but first I note that Letters to Shareholders have been widely used in organizational research, including studies of executive causal attributions (Bettman & Weitz 1983, Staw et al. 1983, Salancik & Meindal 1984); motives (Abrahamson 1994); tendencies to focus inwardly (D'Aveni & MacMillan 1990); and toward risky behavior (Bowman, 1982). I first thought to use these data based on personal experience: I have written letters to shareholders for two firms – in one case as a consultant, in another as the corporate office manager. In both cases my job, as I understood it, was to communicate important information relevant to company performance and to present management’s perspective on important events, issues, and priorities. In both cases, the chairman reviewed the text carefully, circulated it among other key officers, and asked for revisions. This experience is consistent with findings of usage: most corporate officers see annual reports as the primary communication channel to shareholders (Goodman 1980), the letter is the most widely read part of the document (Courtis 1982), and 77% of respondents report reading the president’s letter at least “somewhat thoroughly” (SEC survey cited in Abrahamson, 1994:1311).

Impression management

One reason scholars may be circumspect of Letters to Shareholders is that organizational researchers have found evidence of attributional bias in these letters (Bettman & Weitz 1983, Staw et al. 1983, Salancik & Meindal 1984, Abrahamson 1994). But, ironically, this circumspection arises precisely because they are a good data source that allowed these researchers to observe impression management phenomena clearly. Staw et al. (1983) note this explicitly and generalize these attribution and impression management findings to all organizational communication. Goffman (1959) and a wide variety of work since (summarized in Leary & Kowalski 1990) show impression management to be a pervasive phenomenon implicit in most if not all public interactions and private attributions as
The implication for research is that all communications, even questionnaire or interview data, are influenced by impression management – if only on the part of the respondent to him or herself.3

If there is greater motivation to manage impressions in the annual report than in some other communications, there are also greater checks. The Securities and Exchange Act of 1934 makes deceit illegal (even failure to disclose pertinent information is subject to severe penalty); compliance is ensured by highly skilled Security and Exchange Commission investigators and a large, knowledgeable, readership whose money is on the line. Dissimulation short of lawbreaking could have damaging effects on reputation; conversely, executives can earn respect with their publics by candor. To guard against faulty recollection, highly paid staff are responsible for checking and ensuring accuracy, and the documents are circulated widely to further assure accuracy as well as concurrence.

For purposes of demonstrating the lack-of-attention hypothesis, even if the document does not accurately reflect official policy, the chairman and president are likely to overstate their attention to problems and the vigor of their response. So long as they appear attentive to problems, they are less vulnerable to criticism than if they appear oblivious. This means that impression management is more likely to result in lack of findings than false findings.

Secrecy

Another potential critique is that much of what executives attend to and intend to do are corporate secrets that officers are not going to divulge in a public document. This is an important consideration, but it is subject to empirical test. Subsequent studies might compare the initiatives discussed in these letters with those reported in other company documents, investigative journals, and/or retrospective interviews. I expect, however that strategic considerations will not greatly skew the results. First, the document reports material without detail. Thus, only in cases where there is a major strategic secret – a Manhattan project – is there need for omission. Second, there are important reasons why openness might generally be favored over secrecy in discussing corporate attention and new initiatives. It’s usually important to accurately communicate intentions to suppliers, customers, and others with whom the firm interacts (including competitors). Most important, however, the timing is not precise. Each letter covers a whole year and most secrets can be reported after the fact. If the lack-of-attention

3 An interesting example of the limitations in overcoming such bias through interview and questionnaire is the two-women-for-every-man phenomenon in sexual partner history studies. This “robust” finding across a score of such studies, each trying some new tack to elicit true histories, is that males have had, on average, twice as many opposite-sex sexual partners in their lives as females have (Brown & Sinclair 1996).
findings were on the order of one year or less, strategic considerations could present a credible alternative hypothesis, but findings indicate lack-of-attention of a much longer order.

**Executive Management as a Single Entity**

Is it a reasonable simplification to speak of executive management as a single entity? Riesman (1950) and Whyte (1956) have conducted now classic analyses showing how executive management teams tend to adopt a party line which guides action: they dress similarly (Molloy 1976), share norms and experiences (Schein 1994), rarely speak out against one another, and generally try to present a unified face both to the rest of the company and the outside world. Jackall (1988:50-56) claims that an essential requirement of the corporate manager is to be a *team player*: Managers must be interchangeable, maintain a flexibility of perspective, ... and, in managers' own words, "*align oneself with the dominant ideology of the moment*" or "*bow to whatever god holds sway.*** The Letter to Stockholders is signed by only the Chairman and the President, but generally the views, attention, and priorities expressed will be collectively shared. A dominant leader is able to appoint subordinates who hold similar views or are willing to subordinate their own dissimilar views; a leader dependent on the support of others will, by necessity, incorporate these other views and concerns in an important, public document (March 1962).

**Executive Attention and Organizational Attention**

By virtue of the executive’s central position of authority and power, the objects of his attention receive substantial attention throughout the organization (Hambrick, 1994). These documents are a suitable organizational construct because they represent the organization as a whole and are produced as a large committee project (Staw et al 1983:585).

**Coding the data**

The final concern is one which any qualitative study must address – potential subjectivity and bias in interpreting the data. My approach was to *quantify* the data through structured methods in accord with Miles & Huberman (1994). I have attempted to create an organizational “attention database” which can be used to estimate answers to the relevant questions: How much attention was paid to the changing nature of (oil) supply and demand, to globalization, to components of the lean production

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4 I believe that this proves particularly useful in avoiding the “Availability” bias, Tversky & Kahneman’s (1972) finding that we erroneously tend to base probability on the ease with which instances can be brought to mind.
paradigm, and to other matters? Did shifts in attention occur? If so, when? Do attention patterns allow us to infer what events—external or internal—precipitate shifts? The answers are not precise, nor without ambiguity, but there are answers.

To aid in the systematic analysis and quantification of the data, I optically scanned the documents, standardized line length, and entered each document into Nud*ist 4.0⁵, a software program designed for the coding, retrieval, and analysis of qualitative data. With the exception of a designation differentiating international versus domestic topics, I coded each text line to one and only one category. This allowed for a quantitative assumption that all the text represents all the executive attention for the year and each line represents \( \frac{1}{\text{Total Lines}} \) of the annual attention.⁶ This is an admittedly rough approximation, and for this reason I use the numbers as broad guides rather than precise measures and discuss only broad findings.

Shortly after beginning, I decided to work with the paragraph as the basic unit of meaning. By attempting to understand why the authors had included the paragraph in the text, I was usually able to assign the text to a single category, but I retained the line as the basic unit of analysis so that long paragraphs would count for proportionally more than short ones.

The coding tree which evolved (Appendix A) has two or sometimes three levels of generality. The first level is a functional breakdown based on core subject areas at the Wharton and Sloan Schools of Management: Operations, Finance, Marketing, Strategy, etc.... the second and third level adds additional detail, associated with the environmental changes discussed or other topics I thought might prove interesting. Early on, it became apparent that a large percentage of paragraphs were outside this taxonomy and I included other primary categories such as SOCIAL AND POLITICAL ISSUES and CONDITIONS. A sample from the first round of coding is included in Appendix C.

I worked on the coding with an undergraduate who also coded the text—sometimes independently, sometimes with me. This provided tests for intercoder reliability, the beneficial requirement of having to explain my intentions and assumptions, and an independent set of thoughts on the codes and

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⁵ Acronym for "Non numerical Unstructured Data Indexing Searching and Theory-building." Produced by Qualitative Solutions & Research Pty. Ltd. ([Weitzman, 1995 #436] [Richards, 1994 #547]. This work was done using Nud*ist version 4.0 [see Richards citation note], which I found to be a critical quantum leap in usability over the previous version.

⁶ Coding each line to one and only one category also allowed a mathematical check to ensure that no lines were skipped and improved intercoder reliability dramatically (see Appendix C for detailed methodological information).
Executive Attention

The final resultant categories are illustrated with examples in Table 1. A full description of the categories and subcategories is in Appendix A. A general discussion of methods adopted and abandoned is included as Appendix C, and sample documents with coding stripes are included as Appendix D.

Table 1: Categories, Subcategories, and examples (all taken from General Motors 1975)

<table>
<thead>
<tr>
<th>Category</th>
<th>Typical Statement (all from General Motors 1975)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product development ... new</td>
<td>In October, Chevrolet successfully brought to market the Chevette, a car smaller</td>
</tr>
<tr>
<td>products, quality, value,</td>
<td>and with better gas mileage than any other built in the United States and directly</td>
</tr>
<tr>
<td>process</td>
<td>competitive with the best-selling imported cars. (86-88)</td>
</tr>
<tr>
<td>Operations ... manufacturing,</td>
<td>... material costs increased, however, as inflation, while moderating, continued at</td>
</tr>
<tr>
<td>facilities, capital</td>
<td>historically high levels. By the time of the 1976-model introduction, these</td>
</tr>
<tr>
<td>expenses, costs,</td>
<td>economic costs on a base car were about $375 above those of a year earlier. (72-</td>
</tr>
<tr>
<td>efficiency, productivity</td>
<td>75)</td>
</tr>
<tr>
<td>Sales/Marketing...data, market</td>
<td>...the percentage of foreign-car sales in the United States, which had averaged</td>
</tr>
<tr>
<td>position/share, competition,</td>
<td>more than 20% for the first nine months of the year, declined to 13% in the fourth</td>
</tr>
<tr>
<td>customer service, advertising</td>
<td>quarter -- the lowest level for any quarter since 1971. (93-96)</td>
</tr>
<tr>
<td>Financial ... information,</td>
<td>To maintain a strong financial position in the face of such low earnings and high</td>
</tr>
<tr>
<td>performance, activities</td>
<td>capital requirements, the Corporation reduced its first-quarter dividend to $0.60</td>
</tr>
<tr>
<td></td>
<td>per share (compared with $0.85 paid a year earlier) and by early April completed a</td>
</tr>
<tr>
<td></td>
<td>$600 million borrowing-the largest ever by a single industrial firm. (48-52)</td>
</tr>
<tr>
<td>Labor ... union, relations, costs,</td>
<td>...we must achieve greater understanding and cooperation with our labor</td>
</tr>
<tr>
<td>compensation, employment</td>
<td>representatives as we approach the negotiations of 1976. American auto workers</td>
</tr>
<tr>
<td></td>
<td>are among the best compensated of those in any large industry in any country</td>
</tr>
<tr>
<td></td>
<td>(209-12)</td>
</tr>
<tr>
<td>Strategy &amp; Structure ... goals,</td>
<td>...cooperation ... will be the key. A more cooperative relationship must be</td>
</tr>
<tr>
<td>identity, mgmt change,</td>
<td>achieved with the unions with which we will be negotiating in 1976. We also will</td>
</tr>
<tr>
<td>reorganization, M&amp;A, alliances</td>
<td>need a cooperative attitude with government whose laws and regulations will</td>
</tr>
<tr>
<td></td>
<td>materially alter the design, the performance, and the cost of our future products.</td>
</tr>
<tr>
<td></td>
<td>(150-154)</td>
</tr>
<tr>
<td>Macroeconomic ... conditions</td>
<td>Turbulent 1974, which had opened with a crippling worldwide oil embargo, had</td>
</tr>
<tr>
<td>and projections</td>
<td>ended on a dismal note of deepening recession. In the year's final two months,</td>
</tr>
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<td></td>
<td>the annual rate of car sales in the United States-the pulse of the industry--had</td>
</tr>
<tr>
<td></td>
<td>faltered to about 7.0 million (11-14)</td>
</tr>
<tr>
<td>Non Auto enterprises</td>
<td>U.S. dollar sales of GM's Power and Appliance Group also were at a record $2.4</td>
</tr>
<tr>
<td></td>
<td>billion, 8% over 1974, with three divisions, Detroit Diesel Allison, Electro-Motive,</td>
</tr>
<tr>
<td></td>
<td>and TEREX, establishing new highs.(114-16)</td>
</tr>
<tr>
<td>Social &amp; Political Issues ...</td>
<td>Federal law now establishes standards for gasoline mileage as well as exhaust</td>
</tr>
<tr>
<td>pollution, safety, energy,</td>
<td>emissions for future model years. To meet requirements, all but a small fraction of</td>
</tr>
<tr>
<td>consumer issues, government</td>
<td>our post-1984 cars could be no heavier than today's Chevrolet Vega. This</td>
</tr>
<tr>
<td>policies and regulation</td>
<td>massive disruption of free market choice would be caused by the Energy Policy and</td>
</tr>
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<td></td>
<td>Conservation Act of 1975, and we are seeking its amendment before its</td>
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<tr>
<td></td>
<td>impact begins to be felt, which would be as early as the 1978 model year. (168-</td>
</tr>
<tr>
<td></td>
<td>75)</td>
</tr>
<tr>
<td>Gratuities ... formal openings</td>
<td>Looking back, General Motors results in 1975 represent a triumph of confidence -</td>
</tr>
<tr>
<td>and closes, assurances,</td>
<td>a consistent confidence in the people and the products of General Motors and in</td>
</tr>
<tr>
<td>acknowledgments</td>
<td>the underlying strengths of the American economy and the automobile industry.</td>
</tr>
<tr>
<td></td>
<td>(137-40)</td>
</tr>
</tbody>
</table>

Reliability

Intertemporal reliability was exceptionally good. In the three years elapsed between prototype coding and the full project, my coding choices were virtually the same, except for when the categories themselves had changed substantively. Intercoder reliability was also good: we had category consensus
Companies Studied: GM and Chrysler

I had originally intended to analyze the three surviving American auto companies and possibly American Motors, but it turned out that doing two was a monumental effort (although subsequent ones may be far easier). I studied GM and Chrysler primarily to obtain the greatest variance. GM was the industry leader and Chrysler was the smallest and most vulnerable of the three. Ford has traditionally had a far more international presence than the others, and I was studying the American phenomenon first and foremost.

Years Studied

I began by examining documents for evidence of executive attention to Japanese advances in the years prior to and following 1973, and continued backwards and forwards with General Motors and Chrysler Corporation documents until I felt I had found something resembling “normalcy,” or absence of an important external event that seemed to be driving behavior. In GM’s case, I had to go back quite far because in the aftermath of Nader’s *Unsafe at Any Speed* (1965), a sharp change in the attention structure was immediately apparent (I discuss this in the findings section). In both cases, I had to come forward from 1973 many years because these events seemed to affect the attention structure over the course of many years.

Other Data Sources

Annual reports present, at best, a partial view and a distinct perspective. To help put the reports in perspective, confirm or disconfirm interpretations of ambiguous data, and provide information about other events which may be causal, consequential or some combination of the two, I have complemented these data with a limited number of other accounts of the industry, interviews, and other data7; but I have purposefully limited additional data collection so as to limit any undue outside influence on my findings.

7 Other data sources are Ward’s annual report on the industry, annual financial data from *Compustat* and monthly stock prices from *CRSP*, production data collected but not used by the IMVP, *Predicast* news reports, *Wall Street Journal* and *New York Times* abstracts and articles, and books listed in reference section B. I conducted three informal interviews with people in the auto industry: a pair of European academics who have worked as consultants in the auto industry for a long time, and a former big-three director of R&D. I also presented preliminary findings at two auto industry researchers conferences, and engaged in discussions with the other researchers.
Basic Data

The average letter to shareholders for each of these companies over the years coded has 168 standardized 72-character lines of text. Altogether, the Chrysler letters from 1967-1986 and General Motors letters from 1962-1986 provide 7500 lines of data. Because, however, I used the paragraph as the basic coding unit, these 7500 lines represent approximately 1250 independent data points.

Average Functional Attention by Company

Table 2 presents the average percentage of lines devoted to the basic attention categories for the two companies over the same 20 year period.

<table>
<thead>
<tr>
<th>Basic Category</th>
<th>GM</th>
<th>Chrysler</th>
<th>Magnitude difference</th>
<th>Statistical Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product development</td>
<td>5.8%</td>
<td>8.2%</td>
<td>1:1.4</td>
<td>p&lt;.001</td>
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<tr>
<td>Operations</td>
<td>9.3%</td>
<td>6.6%</td>
<td>1.4:1</td>
<td>p&lt;.001</td>
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<td>1:2.6</td>
<td>p&lt;.001</td>
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<td>19.4%</td>
<td>1:2.0</td>
<td>p&lt;.001</td>
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<tr>
<td>Labor</td>
<td>8.4%</td>
<td>2.5%</td>
<td>3.3:1</td>
<td>p&lt;.001</td>
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<td>Strategy &amp; Structure</td>
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<td>10.0%</td>
<td>1:1.1</td>
<td></td>
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<td>Macroeconomic Conditions</td>
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<td>10.0%</td>
<td>1.3:1</td>
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<tr>
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<td>1.5%</td>
<td>7.9%</td>
<td>1:5.3</td>
<td>p&lt;.001</td>
</tr>
<tr>
<td>Social Issues</td>
<td>28.2%</td>
<td>7.8%</td>
<td>3.6:1</td>
<td>p&lt;.001</td>
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<td>Gratuities</td>
<td>7.7%</td>
<td>7.1%</td>
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</table>

The most surprising number in Table 2 is the amount of attention GM devoted to SOCIAL ISSUES—over the entire quarter century, nearly three lines out of every 10 are devoted to social and political issues. For example, from the 1965 letter:

An important challenge ... is the need for greater safety... As in the past, GM will continue, with all the energy and determination that it has, to design and build cars offering the greatest measure of safety possible ...

The reduction of automobile exhaust emissions is another problem on which GM has been hard at work for many years...

The second largest chunk of the GM letters is taken up by discussion of MACROECONOMIC CONDITIONS. Observations such as,

The business expansion in the United States, which started early in 1961, continued to advance during 1963, and shows continued strength as we enter 1964. (1963:21-24)

---

8 Although I coded GM for an additional five years prior, I compare the companies over the same time period to provide an equivalent comparison. Using GM 1967-1986 instead of GM 1962-1986 does not lower the statistical significance of any functional category.

9 See Appendix E for explanation of statistical calculations.
were a part of almost every GM letter. During times of change and problems, these observations took on greater number and import.

Neither category, especially SOCIAL ISSUES, is nearly so prominent for Chrysler, where the focus over the 20 years, especially earlier in the period, has been much greater on numerical detail in SALES/MARKETING and FINANCE. One feature that contrasts with GM is the large amount of concrete data about where they stand within the big three.

Retail sales of the company's passenger cars in the United States in 1972 were a record 1,565,555 units, 8.4% above the 1971 total of 1,444,133 units. This represented 16.7% of all retail sales of domestic car lines, compared with 16.5% in 1971. The company's share of the domestic small car market increased to 24.8% in 1972, compared with 24.4% last year. (1972)

The preponderance of financial reporting is mostly due to the tenuousness of the firm's existence throughout the central part of the study and financial restructuring in the aftermath of their comeback.

**Changing Attention Structure over Time**

Attention figures by category varied widely in different years and different periods. The annual percentages of lines devoted to each basic category are reported in Tables 3 and 4.

The numbers in table 3 are GM's history in capsulated form. Some of the higher-than-category-average numbers include: a three-year cycle of concern with union negotiations (1964, 67, 70, 73, 81, 84); and the long stretch of attention to social and political issues from 1965-78, complemented by a consummation with macroeconomic issues in the high-inflation years concluding the Carter administration. 1982 is the first of four years with a great deal of lineage devoted to financial matters, which appear to be an attempt to reassure stockholders after two years of poor performance (in 1980

**Table 3: Annual percentages of lines GM devoted to each basic category 1962-86**

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</table>

* Much of the material that might have gone here was put instead in a special six page section to "discuss the substantial progress [made] in meeting our responsibilities in a number of areas of public concern." This seems an (unsuccessful) attempt to remove these issue from direct executive attention.
the company sustained an annual net earnings loss for the first time since 1921. 1982 is also the first of two years filled with exceptionally bland gratuities seemingly designed to offend no one, and “usher in an era of harmony.” With Reagan in the White house and a pro-business swing in public attitudes, attention to social issues and conditions is replaced by attention to STRATEGY & STRUCTURE (especially acquisitions and alliances) in the mid-80s. The 1986 letter also devotes three times the average amount of text to operations as Roger Smith’s strategy of spending on robots, advanced technologies, and greenfields takes shape.

Table 4 captures Chrysler’s substitution of attention to sales-numbers with financial performance and machinations as its situation worsened in the mid-70s. The company’s divestment of non-auto attention in the 70s was soon followed by actual divestment. Under Iacocca’s leadership, the company becomes a political player in 1980 – campaigning for government loans and policy changes. In the aftermath of their resounding recovery, Iacocca uses the letter annually beginning in 1982 to vigorously argue for reduction of the national deficit, seemingly taking over the baton on discussion of national policy issues from GM as the firms’ relative influence changes. The letter also becomes more gracefully written. Rather than just stark numbers, Iacocca begins with a theme that he develops throughout the document,

1982 stands out as a pivotal year in Chrysler’s resurgence.

Chrysler won its long battle for independence in 1983.

We expected 1984 to be a good year for the American economy, and an especially good year for the automobile industry. It was—and we were ready for it with products customers wanted.

In 1985 we reaped the harvest of our past efforts and charted a new course for the years ahead.

and takes a few lines to offer thanks:

we took an unprecedented action with some of our profits. We said “thanks” to the people who did the most to ensure our survival: our employees, who sacrificed to keep us in business; and

Table 4: Annual percentages of lines Chrysler devoted to each basic category 1967-86

<table>
<thead>
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<th>Category</th>
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</table>
our customers, who expressed their confidence in us by buying our products. (1984:)

As with GM, discussions of strategy and structure become prominent in the mid 80s. Reasonably enough, new products are often offered as the solution to problems. For example, in response to declining profits and domestic market share in 1975, Chrysler announces it

is moving ahead with a major product program that will enable it to renew and resize its entire product line by the end of the 1970s, and increase its share of the markets out ahead.

General Motors also tends to offer new products as solutions to problems, but their problems throughout this period were less financial than public relations. In response to their public gaffes in 1965, they emphasize in 1966 both the safety and “increasing value built into our products.”

3. ATTENTION TO MAJOR ENVIRONMENTAL CHANGE?

In this section, I develop attention category constructs for each of three major environmental changes – oil supply instability, globalization, and Japanese advances in design and production – that had such profound impacts for the American auto industry and examine the data for evidence of executive attention throughout this period.

Coding Constructs: Lag Variables

Fuel Efficiency / Small Car Production

Most criticism of the big three in the late 70s and early 80s concerned lack of fuel efficiency and small car production. To evaluate this charge, I compare text within the NEW PRODUCTS category devoted to different types vehicles and track other mention of fuel efficiency and small car development over time.

Worldwide Orientation

Critics also contend that domestic auto-manufacturers didn’t understand the globalization of the industry – the increasing importance of emerging markets, producers, and suppliers. To evaluate this charge, I compare each of the basic constructs for attention to international considerations, and measure the quantity of text relative to domestic matters. In particular, I look at the SALES/MARKETING construct to determine the relative attention devoted to overseas sales.

Lean- and Mass-Production

Probably the most important long-term event of the period, however, for industry competitiveness and profitability, was Japanese advances in design and production. Today these advances are widely
accepted as the “lean production” revolution in manufacturing. Whether or not the American firms had been able to adopt these practices, one might expect the firms to be cognizant of them and trying to compete. To test whether this is the case, I code for attention to the key differences that distinguish the mass- and lean-production systems as detailed by Womack, Jones & Roos (1989: ch. 3). Table 5 summarizes these differences and the coding categories I use to capture them.

<table>
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<tr>
<th>Table 5: Key differences between lean and mass production.</th>
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<td># Supply chain</td>
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**Overview of Event-Attention Time Lag Findings**

Casual reading of the annual reports might lead one to abandon a hypothesis of attention- and even response-time lags. Criticism notwithstanding, these reports indicate early and sustained attention to the importance of small cars. There is also a great deal of apparent attention to globalization trends, although the implications of globalization are complex, and in retrospect it would appear that these firms did not understand them well. With respect to Japanese advances, however, indications are strong that the firms were inattentive to rival production developments until well after the fact. In GM's case, until well into the 1980s.

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* I did not use this distinction in the compilation and analysis because of the lack of direct statements about suppliers or supplier chain and the weakness of the Mergers & Acquisitions vs. Alliance construct, but nevertheless even this weak construct did show a similar pattern to the others. "Mass" talk about supply costs, Mergers & consolidations through 1978 for Chrysler and 1981 for GM; sort-of "lean" talk about alliances and "relationships" thereafter.
Attention to Small Cars and Fuel-Efficiency

Both companies discussed early and often the trend to small cars: In the first year I coded, 1962, GM devoted 22% of the text (29 out of 134 lines) to new model cars. Nearly all of lines concern smaller cars:

... capacity and efficiency are not all that are required to meet the challenge of today's competition. Equally important is the ability to anticipate and adapt to rapidly changing consumer demands. An example is provided by GM's smaller cars, whose sales last year were almost 63% above 1961. These smaller cars would not have been acceptable to the car-buying public ten years ago, but in 1961 accounted for 23% of GM's sales of domestic-produced passenger cars. In 1962, they represented over 28% of such sales.

They also mention a new lower-priced car, the Kadett, produced by Opel, their German subsidiary, and a "redesigned four-cylinder Victor series introduced by Vauxhall, their British subsidiary. The 1963 GM letter noted development of a new 1-liter cars. Subsequent letters indicated concern with "foreign" [small-car] competition:

To meet these competitive lines, we introduced the new Chevrolet Vega 2300 and expanded our Opel line. The new American-built Vega will be a formidable competitor. (1970)

Chrysler seemed on top of this trend as well. In the 1970 letter they write, "The trend to small cars continued strongly." In 1973's letter they report that they were not caught off guard:

The trend to small cars has been evident for some time. Accordingly, the company ... is now devoting more than 50% of total capacity to small car production. By May, more than 60% ....

Table 6 reveals that 26 of the 45 letters (58%) emphasize either new small-size or fuel efficient vehicles – 76% of the 34 that mention new models. Even among the letters from the 1960s, 71% of those that mention new models mention new small models. Rather than ignoring the trend toward small car purchases, both companies showed determination in their attention to small cars despite market failures and majority preferences for large cars. Likewise, both companies maintained attention to fuel-efficiency despite limited and fickle consumer interest.

Table 6: Attention to Small cars (no significant difference between the companies)

<table>
<thead>
<tr>
<th>Total # letters coded</th>
<th>Letters mentioning new models</th>
<th>Letters mentioning new small or fuel-efficient models</th>
<th>% of letters mentioning new models</th>
<th>% of total letters coded</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960s</td>
<td>11</td>
<td>7</td>
<td>5</td>
<td>71%</td>
</tr>
<tr>
<td>1970s</td>
<td>20</td>
<td>15</td>
<td>13</td>
<td>87%</td>
</tr>
<tr>
<td>Tot 60s-70s</td>
<td>31</td>
<td>22</td>
<td>18</td>
<td>82%</td>
</tr>
<tr>
<td>1980s</td>
<td>14</td>
<td>12</td>
<td>8</td>
<td>67%</td>
</tr>
<tr>
<td>Tot 60s-80s</td>
<td>45</td>
<td>34</td>
<td>26</td>
<td>76%</td>
</tr>
</tbody>
</table>
Attention to International Developments and Opportunities

The letters also indicate a great deal of attention to international developments and opportunities, but the issues here are more complex; there are important differences between the ways North American and overseas markets are discussed which forebode poorly for the firms.

Substantial Discussion

In general, the substantial discussion is somewhat surprising in light of criticism and our knowledge of outcomes. Every letter, especially those from the 1960s, indicated a great deal of attention to worldwide developments. For example, in 1968 GM writes:

... Worldwide, there is a growing need for transportation as the economic and social pass of people everywhere requires more flexible and more individual transportation such as only the motor vehicle can supply. The utility and convenience of the private motor car are unique in this respect. At the same time, the need for more trucks - in all size ranges - is also apparent.

GM is participating in this growth. We have well-established manufacturing operations in the US, Canada, United Kingdom, Germany, Australia, Brazil, Argentina, Mexico and South Africa. GM vehicle assembly facilities are in operation in nine other countries and our products are marketed in every other country throughout the Free World.

International considerations are omnipresent in discussions of strategy, conditions, and operations. There are, for example, 11 discussions of facilities prior to 1980 (Appendix F) and of these, nine involve non-North American expansions. (One more is about eliminating operations in Argentina and the 11th is an ambiguous statement of modernization).

Opportunities? A failure to learn and gain competencies

Likewise, discussions of opportunities always emphasize overseas markets. Both firms entered into joint ventures early and often. As soon as such relations were permitted by Japan in 1969, GM entered into the first of several reasonably successful agreements with Toyota. Chrysler signed an incredibly favorable agreement with Mitsubishi providing Chrysler with full long term US marketing rights for Mitsubishi products in the US under Chrysler marques, throughout a time when Mitsubishi was arguably the world's most efficient and best value producer (xxxx, 19xx).

The firms' preferred strategy, however, seems to have been the acquisition and control of national subsidiaries in each country, rather than export or become an international organization. Such a strategy may have seemed sensible, but it did not prove particularly successful. For Chrysler, it was a disaster. GM had the best available subsidiary in every market. Chrysler threw its limited supply of good money after bad in acquiring one marginal national entry after another. But neither firm learned
from local markets. They applied their own production systems, assumed that the challenge of entry into the country was political rather than economic or technological, and subsequently failed to gain dominant market shares in the emerging markets.

**Ignoring Market Share**

Strangely, this lack of success never seems to have created a sense of alarm. Ocasio (1995) offers the explanation that “adversity is not determined by ‘objective’ measures, but rather through application of schemas which determine what measures are important and which levels of performance or external events constitute a threat.” (Ocasio 1995: 8-9)

In this case, both firms reported every year, in the first few paragraphs, gross sales and earnings (or losses). Chrysler also regularly reported market share in the U.S. and Canada (GM, with U.S. market share at about 50%, spoke more generally about market acceptance – probably to avoid fanning the flames of anti-trust sentiment.) It was these three measures on which yearly performance in the introductory paragraph is evaluated, and, for the most part, performance measured as such was good for Chrysler until the mid 1970s and very good for GM until 1980.

Why ignore world market share? One reason is that the data were not readily available. In contrast to US markets where such data were quite good, most overseas markets had sketchy, unreliable data. Even today, we can only infer such figures from production, presuming that cars produced translate within a short time into cars sold.

The deeper reason is that, as Ocasio (1995) points out, performance is far less objective than we usually presume. Today, world market share seems an obviously important measure, but that’s true only since 1980, when total sales of Japanese automakers first superseded those of American firms (by a wide margin). Until then, it was perhaps no more obviously important than the local grocery’s county market share. Economic principles of fundamental value depend on profitability and growth. Market share is a constructed concept – which precise market is important is a matter of definition and construction.

Accounting and information systems are necessarily narrow slices of the broad construct of performance. Ocasio (1995) notes that managerial accounting systems often fail to provide relevant information and are rarely useful in anticipating environmental threats because they are designed to measure historically relevant indicators. For Chrysler in the 1970s, these had been – in addition to
profits and sales – various comparisons with GM and Ford, especially domestic market share, that indicates its viability as a player in the market. For GM in the 1970s, as we shall see, these had been – in addition to profits and sales – cost containment (especially important in an era when inflation was perpetually running high and automakers saw themselves as the vanguard in the fight against inflation), and government relations (important as regulators pressed vigorously on a variety of fronts such as safety, pollution, labor relations, and price controls).

These socially constructed measures, of course, produce concrete results. Kaplan & Johnson (1987), among others, have observed that “one gets what one measures.” In 1967, GM reported, “Market share of domestically produced cars is 51.8.” In 1968, “54.7 of North-American type passenger cars.” The implication is that imports are a different market, less important, perhaps negligible.

Attention to Lean Production

My consultant interviewees who worked with the auto industry for three decades told me that executives were experimenting in quality circles and other Japanese practices since the 1960s, but that mid-level managers had been only lukewarm, and workers completely uninterested. The rationale seems reasonable: executives are concerned with overall performance and the bottom line; managers only indirectly through their bosses, but their incentive structure is such that there is little reason to worry about the bottom line. Workers are completely insulated, and therefore uninterested unless their jobs are threatened.⑩ The consultants believe that executives tended to observe the problems and try to solve them, but that corporations are just too big and complex for even prescient executives to change.

The data from this study, however, tell a different story. Chrysler did not indicate corporate-level concern with the issues of lean-production (outlined in Table 3) until 1979; GM did not do so until 1982.

Chrysler Attention to Lean Production

As illustrated in figure 2, the Chrysler letters through 1978 were dominated by the concerns of mass-production. These include:

- Conflict in labor relations:

  The company's progress in improving its operating efficiencies and its competitive position was

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⑩ According to the consultants, European workers have never taken interest in these matters, in large part because these branches of Ford and GM never experienced the layoffs that U.S. divisions did.
affected by a work stoppage at the Linwood plant. . . . The dispute was settled ... with the company and unions agreeing to a plan for improved productivity. (1977:90-94)

- Assembly-plant preoccupation with costs and productivity:

Chrysler Corporation in 1967 increased its sales and intensified management programs to control and reduce costs. These achievements offset in part the rising prices of material and labor. Further gains in sales and in productivity, however, will be increasingly important in order to maintain product value, meet the requirements of an expanding automotive market, and improve our competitive position (1967: 132-137)

- A functional approach to engineering:

The 1968 models ... represent a considerable expenditure for styling, engineering and tooling new safety features, emission control equipment, and many new comfort, convenience and performance options. (1967: 101-4)

**Figure 2: Indicators of Mass- and Lean-Production in Chrysler Letters to Shareholders 1967-86. Bars represent the proportion of the letter indicating attention to mass- (black bars) and lean- (white bars) production concerns.**

- And a supply-driven marketing effort:

Last month, Chrysler initiated a Car Clearance Carnival to help stimulate new-car sales. We introduced for a limited period a comprehensive marketing program that includes cash rebates to customers who buy or lease selected models which are placed on special sale for a week's period, a semi-weekly trade-in bonus for specified used cars, and a special sweepstakes contest. (1974:126-31)

Explaining their difficulties in 1977, Chrysler restates the mass production paradigm,
Profit margins in the automobile industry have historically been related to company size. The larger company has a number of inherent advantages. It has greater integration and marketing power; it can spread fixed costs over a greater volume of units; it can maximize the efficiency of its manufacturing processes; and it has lower cost access to capital markets. Chrysler Corporation has traditionally had to compete with lesser resources and lower profit margins. (1977:270-277)

They ignore the fact that smaller Japanese rivals were, at the same time, immensely successful.

Beginning in 1979, their rhetoric and reported actions change dramatically. They emphasize, for example, "The New Chrysler Guarantees," the introduction of ...

- an unprecedented marketing program. Chrysler is the first automobile company to offer:
  - $50 for test driving a Chrysler product
  - A 30 day, 1000 mile money-back guarantee
  - No-cost scheduled maintenance for 2 years or 24,000 miles (12 months, 12,000 miles on Mitsubishi products)
  - 2-year membership in the Amoco Motor Club at no charge, with free emergency road service and towing

The new program is a dramatic expression of Chrysler Corporation's commitment to the highest standards of quality and service by every area of the organization-engineering, product planning, purchasing, manufacturing, sales, and our dealer body. (1979:120-37)

These indicators of lean-production attention are reflected in all areas. Regarding assembly plant process, they speak of cutting inventories and reducing break-even figures, and discuss for the first time new product process. Discussions of labor relations bear little resemblance to anything prior to 1979, for example:

- All of Chrysler's constituents made sacrifices to help Chrysler survive and prosper. One such sacrifice came from the United Automobile Workers, which agreed to pay cuts in the darker days. In August, we signed a new 25-month union agreement which restored $2.42 an hour and enables us to plan on two years of labor stability. (1983:96-99)

**General Motors Attention to Lean Production**

The story for General Motors is similar except that the change is about four years delayed. There is no depiction of the concerns of lean production until 1982, and not very much until 1983. In 1981, they are still locked in conflict with the union:

- Without question, noncompetitive labor costs represent the single biggest disadvantage we must overcome. The current labor cost differential in excess of $8 per hour, comparing GM wages and benefits with those of Japanese auto workers and with the average for all U.S. manufacturing workers, represents a disadvantage to General Motors of approximately $8 billion in a typical year. No company can compete for long, and no jobs are safe for long, with that kind of disadvantage.

- We were encouraged when the United Auto Workers, recognizing the seriousness of the situation, agreed to negotiations six months earlier than normally would have been the case. But the talks ended in disappointment when the Union's leaders conceded that the Union Bargaining Committee could not reach an agreement in the absence of some critical deadline. (1981:101-13)
In 1982, they are still trying to push the product through on the basis of rebates (which Chrysler developed out of desperation in 1974), rather than competing on quality, reliability, or other product attributes.

... General Motors and participating dealers have teamed together in an unprecedented program to pass along to car and truck buyers in the United States cost savings ranging from $500 to $2,000 over more than half of GMs North American car and truck volume. This "Let's Get Moving" program began February 1 and will run for two months. We look to this program to stimulate sales until the upward thrust of the spring season can continue the momentum. (1981: 117-123)

Yet by 1984, even GM got religion:

Saturn, a new approach to building a line of subcompact cars competitive with small cars made anywhere in the world, became an operating unit (32) ...

The year was also a milestone in labor relations as General Motors and the United Auto Workers reached accord on a historic new national agreement. The three-year contract ratified in October provides unprecedented job security as well as solid economic gains for our U.S. employes and
also affords GM the opportunity to achieve increased competitiveness. …These pacts enabled us to resume building upon the spirit of cooperation already taking hold between management and labor. (45-55) …

U.S. operations were strong enough to provide profit sharing funds totaling nearly $282 million (146)

Impression Management?

One might be inclined to dismiss these letters as impression management – that corporate officers may have been quite aware of production and design deficiencies, but were not about to portray themselves or their company unfavorably to shareholders. The problem with this theory is that, throughout this period, the companies were forever portraying their situation as difficult, consistently putting a negative spin on even strong performance. For example, in the 1972 letter, GM reported,

Earnings per share edged to a new high, but the margin of profit to sales, while slightly higher than in 1971, was well below that of other years. The lag of profit increases behind rising production costs and added investment was a significant consequence of inflationary costs and governmental price controls.

This was a year in which they earned $2.2 billion, more than any company had ever earned in history! The new high it “edged to” was a 12% increase over the previous year, 120% over 2 years, and 50% over 3 years. GM and the others to a lesser degree, were looking for problems to portray in order to ward off union demands, threat of anti-trust action, further price controls and regulations on safety, emissions, etc…. Even looking for problems, they apparently miss the Japanese.

Summary of Attention to Major Environmental Change

Beetles and Termites

The evidence indicates that both Chrysler and GM were attentive to some environmental changes – the trend toward small cars, the importance of fuel efficiency, the importance of global markets, and global production – but were conspicuously inattentive to others – notably declining world market share and the emergence of a superior system of automobile design and production.

Human structures are typically in far less danger from beetles and other visible bugs than termites which, unseen and undetected, can quickly and efficiently unearth the foundations any wooden edifice, however grand, towering, and apparently protected the structure.

I make this observation because the difference between the environmental changes which were and were not attended to seems transparent: the firms attended to threats which were publicly announced and omnipresent on the media (e.g., the VW Beetle); they ignored those which were quietly
transforming their industry (the organic work processes of the Japanese).

Practical Implications

This is not to say anything normative at all (i.e., that they shouldn’t pay so much attention to media issues). At the time GM was ignoring emerging Japanese production systems, they were responding to a myriad of public criticisms – hence the focus for so long on social and political issues. GM would have been hard pressed not to respond to the myriad of criticisms it faced. Had they insufficiently addressed these concerns, they might have been brought down by public opinion or the cold war might have gone the other way, and today we would shake our heads asking how could they have ignored these social and political developments. Rather, what I do now is simply an attempt to begin to understand theoretically the attention structure we observe in the data.

4. WHAT DID THE FIRMS ATTEND TO AND WHY?

The Dominant View of Attention: What a Profit-Maximizing Entity Might Do

While the dominant views of attention discussed in Section 1 are primarily implicit, we might summarize a few propositions that emanate from these perspectives:

1. Exactly what constitutes a threat would be defined by its effect on profitability. We would expect that attention is focused on those areas which have the greatest potential effect on costs and revenues.

2. Firms should focus attention roughly equally on threats – developments with the potential to reduce profits – and opportunities – developments with the potential to augment profits. We would also expect that these vary randomly because both opportunities and threats are, by definition, unpredictable. Those that had been predictable would have been predicted and acted upon. Both opportunities and threats related to the profitability of the firm, would, by definition, arise in unforeseen areas and changes in attention would be unrelated to past firm performance (Malkiel, 1995; Jensen 1972).

3. Independent of an assumption of profit-maximizing behavior, we would expect that managers attend to matters related to the central elements in the business curriculum. These are the subject areas that generations of management educators have determined are important for managers to know.

Were the firm a purely profit maximizing entity, executive management would focus on those central elements of the business curriculum that scholars have demonstrated as relevant to corporate profitability.

4. Finally we would expect that firms in the same industry would have roughly similar attention patterns because the primary issues affecting both costs and revenues are roughly the same.

The attention data from this study, however, cast doubt on every one of these propositions. Rather
the data indicate that actual attention diverges sharply from a profit-maximizing model, and that it is more readily understood as a function of identity, socially validated rules of behavior, and particular circumstance.

4.1. Palpable threats only

The When and Why of Lean-Production Attention

We would expect that the seriousness of a threat to a profit-maximizing entity would be a function of its potential effect on profitability and that attention would focus on those areas which have the greatest potential effect on costs and revenues. The primary finding of Section 3, however, is that despite the enormous implications of lean production on costs and revenues, neither Chrysler nor GM attended to issues of lean-production until well after these techniques were developed and effectively used by Japanese firms and well after external events – the oil embargo of 1973 – made the attributes of this system all the more valuable. The inference is that, rather than try to maximize profits, the firms were satisfied with acceptable profit levels. Only once the situation became desperate for Chrysler in 1979 did they attend to fundamental changes in their production systems (figure 2). GM, never facing a financial crisis, did not attend to these changes until public embarrassment motivated them to do so. Fine (1997) recalls 1981 as a critical year in the field of operations partly because of the publication of a respected academic book on the Toyota production system (Hayes & Wheelwright 1981), but primarily because of an influential PBS Special: “If Japan Can, Why Can’t We?” that “really shook people up.” Once this was aired, American automakers and other older industrial firms had to understand and try to implement these processes.

4.2. Changes in response to threats rather than opportunities.

A profit maximizing entity would attend equally to opportunities and threats, but consistent with Jackson & Dutton’s (1988) finding based on questionnaire data that managers are more sensitive to threats, archival data used here indicate that changes in executive attention are also primarily in response to threats.

Routinization in consecutive good years

In consecutive good years, reports bear strong similarity to that of the previous year. This is perhaps most apparent in the one early four-year stretch of good Chrysler earnings, 1966-69. For example, they report year after year, in almost the same place in the letter, their annual overseas
acquisition:

* In January 1967, the company entered into an agreement under which it will acquire a majority voting interest in Rootes Motors Limited of Great Britain by exercising its rights to a new issue of Rootes voting stock and underwriting the balance of the issue. (1966:53-55)

* Barreiros Diesel S.A. of Spain operations were consolidated in December following an increase in Chrysler International's share of from 45% to 77%. (1967:46-48)

* In Chile, agreement was reached to acquire a one-third interest in Nun y German, a company which assembles Simca and Dart passenger cars. (1968:52-53)

* In May, the company and Mitsubishi Heavy Industries, Ltd. announced the possible formation of a joint venture company in Japan, in which Chrysler will have a 35% interest. (1969:56-57)

Performance and Change of Attention

To quantitatively test this observation, I examined the correlation between corporate performance measured as Return on Assets (ROA) – with the year-to-year change in primary attention categories. To obtain the latter measure I summed the absolute differences between each category between years. For example the sum of the category differences between Chrysler 76 and Chrysler 77 (Table 4) equals (15+5+7+16+3+10+5+2+16+3) or 82. Despite all the noise in this data, there is a remarkably strong negative correlation, r= - .48. Figure 4 illustrates this correlation graphically. The left hand scale and dashed line graphs ROA. The right hand scale and the bars graph the year-to-year composite category change as compared with the average Chrysler composite category change. In almost every case, good years have less-than-average category change and poor years have greater-than-average category change. Six year-to-year pairs (two consecutively from 73-75 and four consecutively from 77-81) have at least 4% greater-than-average category change. These correspond with all the years of annual loss except that 1977 preceded the 5 year death walk and 1982, the final year of losses, had exactly average category change.

11 I chose ROA rather than stock price or income so that the later year results in inflated dollars would not be overly represented in the results.

12 Average Chrysler composite category change = 63. Thus the 1976-77 composite category change sum of 82 is 30% above the year-to-year Chrysler average.

The bars are graphed in the year the letter was written rather than the report year. The correlation is slightly less with the report year (r=-.43).
Financial performance and category change do not correlate significantly for GM, but that is consistent with the argument made throughout this article – that financial performance is not the relevant driver of attention or behavior for GM; indeed; it only relevant for Chrysler in proportion to the direness of its situation. The most extreme year-to-year category change in the study was GM 1964-65 (110% more than average). 1965 was the year in which GM was sanctioned and internationally embarrassed in their appearance before Congress for producing unsafe vehicles and violating the constitutional rights of Ralph Nader, the author who tried to expose this.

4.3. The General Importance of Social Issues

Dominant views of attention implicitly suggest that executives attend foremost to developments related to their specific product and secondarily to the central elements in the business curriculum, especially those demonstrated as relevant to corporate profitably.
Within business education, subjects such as organizational behavior, organizational environment, and especially business ethics have traditionally been marginalized and are considered by many as irrelevant, primarily because there is no clear connection with profit outcomes. But the data indicate that executives find them supremely important and necessary nonetheless.

To illustrate the surprising relative importance of these social issues, I recombine the codes as shown in table 7, to examine the “attention aperture.” At the sharpest focus are issues of PRODUCT & PRODUCTION. This includes the entire PRODUCT DEVELOPMENT category (regardless of any judgment on “lean” or “mass”) and all of OPERATIONS (costs, process) – except for generic comments on capital expenditures and facilities. Opening up the lens a bit are the GENERAL MANAGEMENT issues. At the next f-stop are the issues of CORPORATE MANAGEMENT. Finally, the wide angle lens no longer focuses on making cars or even money – but rather takes in the view beyond, of THE LARGER WORLD.

As illustrated in table 8 and figure 5, only 11% of the lines in GM letters to shareholders over the quarter century are about PRODUCT & PRODUCTION, whereas 46% of the lines are about THE LARGER WORLD. Over the sixteen years from 1965 through 1980, 56% of the lines are about THE LARGER WORLD. The other three categories of standard business concerns represent even 50% of the letter barely three times. From 1971 through 1980, only 7% of the lines are about PRODUCT & PRODUCTION.

**Table 7: Four degrees of attention aperture**

<table>
<thead>
<tr>
<th>Attention aperture</th>
<th>Coding categories included (from Appendix A and Table 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product &amp; Production</td>
<td>Product Development (0), Operations/ Process (1.1), Costs (1.4), Facilities/Fixed costs (1.3.7)</td>
</tr>
<tr>
<td>General Mgmt</td>
<td>Sales/Marketing (2), Financial (3), Labor (4), Ops/Facilities/Sites (1.3.1), Production mix (1.3.2) &amp; Capital Expenditures (1.3.3)</td>
</tr>
<tr>
<td>Corporate Mgmt</td>
<td>Strategy &amp; Structure (5), Non Auto (7)</td>
</tr>
<tr>
<td>The Larger World</td>
<td>Economic conditions &amp; projections (6), Social &amp; Political issues (8), Gratuities (9)</td>
</tr>
</tbody>
</table>

**Table 8: General Motors Corp. attention aperture 1962-1986**

<table>
<thead>
<tr>
<th>Attention aperture</th>
<th>62-64</th>
<th>65-70</th>
<th>71-80</th>
<th>81-83</th>
<th>84-86</th>
<th>GM total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product &amp; Production</td>
<td>17%</td>
<td>14%</td>
<td>8%</td>
<td>5%</td>
<td>14%</td>
<td>11%</td>
</tr>
<tr>
<td>General Mgmt</td>
<td>43%</td>
<td>29%</td>
<td>26%</td>
<td>42%</td>
<td>41%</td>
<td>32%</td>
</tr>
<tr>
<td>Corporate Mgmt</td>
<td>15%</td>
<td>6%</td>
<td>7%</td>
<td>7%</td>
<td>29%</td>
<td>12%</td>
</tr>
<tr>
<td>The Larger World</td>
<td>26%</td>
<td>51%</td>
<td>59%</td>
<td>46%</td>
<td>16%</td>
<td>46%</td>
</tr>
</tbody>
</table>

**Status vis-a-vis important publics.**

<table>
<thead>
<tr>
<th></th>
<th>Respected, preeminent, industrial institution</th>
<th>Under attack for safety, antitrust and pollution</th>
<th>Under attack as polluter, energy waster, killer, racist, oppressor, etc...</th>
<th>Subsiding anti-business sentiment, but firm is now a business laggard</th>
<th>Pro-business sentiment, Financial recovery. Attempts to regain former industrial status.</th>
</tr>
</thead>
</table>
One might presume that GM, and even Chrysler, throughout this time represent an aberration, and that part of the reason they performed so poorly was because of the lack of focus in their attention. This is, in fact, part of the story I have told, but one must be careful not to draw the wrong conclusions. In fact, Chrysler’s renaissance corresponds with an increase in attention to THE LARGER WORLD. From 1967-79, they devote an average of 21% of the letter to CONDITIONS, SOCIAL ISSUES and GRATUITIES, compared with 31% from 1980-86. In particular, an average of only 2.5% of the letter is SOCIAL ISSUES from 1967-76 compared with 13.4% from 1980-86. Under Iacocca’s leadership (he became Chairman in late 1979), the letter becomes a much more forceful, readable document:

The government has refused to act against the General Motors-Toyota joint venture and we’ve challenged the combination in federal court. We believe this illegal collaboration harms competition and could harm Chrysler by giving the two firms the market power to set prices in all segments of the American automobile market. ...

While Chrysler will continue to speak out on these and other important national issues, we
realize that we cannot control them. But we can control the quality of our products, our productivity and our service – and if our products, productivity and service are the best in our business, then we know we can make it in any economic climate....

When you get right down to it, "to be the best" is ... a commitment shared by every man and woman at Chrysler - a commitment to keep Chrysler prosperous by designing, engineering, manufacturing, selling and servicing the best cars and trucks in America.

Not Hemingway perhaps, but it is the Hemingway of auto industry communications. When I developed the category GRATUITIES while coding GM, it was with some minor derision for what seemed unnecessary, uncommunicative fluff. But some gratuities – or grace – in these letters appears invaluable. The Iacocca letters inspired in me a surprising sensation of confidence – that this is someone in whom I would be willing to trust my money, even perhaps my career. I also changed my mind on the "bailout," which I had always considered unjust and unwise policy and precedent. Reading these letters, I felt that the government helped cause the problem with their regulations, and that they really were partners. It made sense to help.

4.4. What Constitutes a Threat Depends on the Firm's Identity.

Finally, in contrast to the expectation that firms in the same industry would have roughly similar attention patterns, the data are strikingly different for the industry leader and the also-ran even though there appears to be no important difference in how the primary external issues of the period affect the firms costs and revenues.

An Identity Interpretation: GM

Concern for Social Issues by A Tarnished American Institution

As noted previously, GM throughout this period devotes a striking percentage of the letter to issues that have little directly to do with running an automobile company. Of course, macroeconomic conditions do affect car sales and there were social and political concerns to address, but this is a letter to stockholders, not a party platform. Yet for the sixteen years from 1965-1980 an average of only 44% of the text lines are about standard business concerns within their domain of control.

Executive management of General Motors seemed to view their corporation not merely or even primarily as an auto manufacturer, but as an American institution, perhaps THE American institution with responsibilities far beyond the shareholder. These proclaimed responsibilities include:

- providing economic benefits. Periodically from 1963-72, especially during recessions, they note overall payroll and payroll growth. Even exports are framed as a public service:
GM is cooperating with the President's program aimed at improving the balance of payments position of the U.S. GM was responsible for a favorable effect of $776 million... (1965)

- being a good world citizen (when America was being criticized as imperialistic):

  The conduct of a worldwide business enterprise carries responsibilities as well as opportunities ... We are doing the sort of job that makes us a welcome and desired member of the business communities of the countries in which our cars are sold. (1964)

- promoting safety, clean air, etc...; but also to protect capitalism, opportunity, and freedom in the face of anti-business zealotry.

  A ... serious waste of manpower and capital resources is occurring daily... governmental standards for emission control and passenger protection ... are excessively stringent. ... there is reason to question whether the standards provide benefits to the consumer that are commensurate with their costs... (1972)

Data from Table 2 suggests, however, that this extreme concern with social issues – an average of 38% of the lines over the 14 years from 1965-1978 – was a time limited phenomenon. Prior to 1965 and after 1983, averages of only 7% and 6%, respectively, of the lines concern SOCIAL ISSUES. During the period of extreme concern with social issues, from 1965-1978, the company was criticized harshly and unceasingly by the chorus of public interest groups, journalists, politicians, and academics (see citations in the first paragraph of this article).

Prior to this period, GM had been lionized as the model for how a modern business should be run, the premier industrial institution of the world, and more to the heart, the leading industrial institution in America, the country dedicated to industry. Presumably, this image of the firm was widely held among employees [Dutton, 1993 #84], who identify with the firm. But as a result of the barrage of criticism, GM’s identity as an American institution became threatened and especially salient as a motivator for action. Dutton & Dukerich (1991) show how the NY-NJ Port Authority acted on the issue of homelessness only once an internal identity of preeminent engineering institution came into conflict with public image increasingly associated with shabbiness, danger, and homelessness. Similarly, it appears that discrepancy between an internal identity of “Hot dogs, baseball, Apple Pie, and Chevrolet” (Chevy commercial) and public image as “Baby Killer” (Kurylko 1996) and Public Polluter #1 (Guilford 1996) focused executive attention and instilled a strong motivation for action – not to make better cars or more money, but to redeem its reputation.
Rational Actor or Corporate Citizen?

Executives, and perhaps workers as well (based on 1980 election results), were clearly unsettled by the Carter administration which they associated with runaway inflation, dishonor abroad, and vigorous environmentalism. In a sense the Letter to Shareholders is a party platform – GM’s opportunity to influence national events. GM is not simply an economic entity adapting to changing conditions, but rather a corporate citizen actively trying to shape those conditions. In 1979, for example, they make their case for an American “energy policy”:

The only wise course of action for the United States has become increasingly clear: we must end our growing and costly dependence on imported oil. … Conservation by itself will not solve the problem of U.S. dependency on oil imports. The real and lasting answer is to increase production from our own domestic resources, and to develop alternative sources of fuel.

In 1981, with friends in Washington, GM (disingenuously) takes on environmentalism:

… we applaud President Reagan’s call … for prompt enactment of a responsible Clean Air Act. It is what the country needs. [Italics mine – they really want repeal of the Clean Air Act.]

Post-recovery Chrysler under Iacocca shows even stronger citizenship. At about the same time that GM becomes an auto manufacturer again (1982), Iacocca begins to express concern, regret, and harsh criticism about the increasing budget deficits. He continues each year to expand that concern. In 1985 he writes:

… bright as tomorrow looks for Chrysler, we’re concerned about our nation’s future. Our national debt has rocketed past $2 trillion, $32,000 for every American family. We have an uncompetitive tax policy and no energy policy at all. American businesses must compete on an unfair and unequal basis … We are losing our basic industries, and our industrial jobs are going overseas.

We intend to keep speaking out on these national issues, and we hope you’ll join us in demanding workable solutions.

This is surprising, not only in expressing national concerns far beyond immediate company interest, but it is also quite America-centric, for a company trying very hard to be international.

An Identity Interpretation: Chrysler

In contrast to GM’s identity as ‘the American institution,’ Chrysler’s identity – at least before Iacocca and recovery from near demise – was ‘(weak) third member of the big three.’ The letters present a nuts-and-bolts company with lots of numbers (no rounding) of unit sales and dollar revenues. There are usually several sales comparisons with GM and Ford – with at least one comparison (e.g. truck sales in Canada) that shows a favorable result. Much as maintaining its reputation appears to have driven GM attention, Chrysler attention seems to be driven by a need to prove they belong in the automaking big leagues.
The issues to which Chrysler attends in the letters bear little resemblance to those of GM. The contrast of table 2 vs. 3 and figure 6 vs. 5 illustrate this numerically and graphically.

To the degree that there is a resemblance, it is Chrysler's attempts to keep up with or emulate GM, presumably to do what good automakers do. There is the strong effort to internationalize and diversify after GM carries out these programs, much as cost reduction/ productivity improvement programs follow on the heels of similar GM initiatives. Prior to the period of study, Chrysler had organized the corporation in the image of GM's multi-division life-cycle structure, and had long been accustomed to marketing and new products approaches that followed from GM success.

When looking up to GM proved a failing strategy in the late 70s, Chrysler had a much easier time emulating Toyota than did GM, hence the more rapid and more complete shift in attention to lean production than GM (Figures 2 and 3). It's much easier for a follower to shift leaders than for a leader to become a follower.

5. CONCLUSION

The attention database developed for this article provides a unique data source which can help address fundamental questions in the managerial behavioral and policy sciences. In this article, I have used this database to make two contributions to our literatures:

First, I show prompt attention to some important environmental change (especially the trend toward smaller and more fuel-efficient cars), but serious lags with respect to others (especially Japanese advances in design and production).

Second, I present data that shows a surprising amount of attention to social issues and other aspects of their environment either outside their control or unrelated to the pursuit of profit.
Together, these findings suggest a general “social” model of executive attention that diverges sharply from implicit dominant economic perspectives, specifically that:

1. the firms attend primarily to issues reported in the business press and especially the general media, rather than those that quietly effect the fortunes of the enterprise;

2. attention is far more sensitive to threats than opportunities;

3. there is a remarkable amount of attention to social and political issues (especially at GM); and

4. attention is more readily understood in terms of the firms identity or reputation-maintenance than profit seeking.

Two important limitations of the data sources limit the conclusions one can draw from this study. The first, discussed at length, concerns the interpretability of the data source, the Letters to Shareholders. At a minimum, however, the approach can complement the vast collection of verbal reports and straight quantitative studies of the industry. Moreover, the data and approach have corresponding advantages that have allowed the development of important findings that can now be tested with more common research methods.

Second, the study lacks independent variables. My explanation for differential attention to environmental change – that executive attention is a function of the general level of public attention – is really a hypothesis, the confirmation of which awaits further research. Such research, however, is readily conductible through systematic analysis of the general media and business press over the period in question.

The general model of attention suggested by these findings is yet more speculative. While it is broadly consistent with the data, it now awaits refinement, operationalization, and rigorous examination. This findings of this article suggests that such research will provide further surprises for those who implicitly accept dominant economic perspectives on executive and organizational attention.

APPENDICES

Appendix A: Complete listing of categories and subcategories
Appendix B: Automobile Industry Timeline
Appendix C: Methods adopted and abandoned. choice of companies, and a sample from the first round of coding
Appendix D: Sample documents with coding stripes
Appendix E: Statistical calculations
Appendix F: Discussions of facilities in letters to shareholders.
## Appendix A: Attention Categories

### (0) Product Development
- (0.1) New Products
  - (0.1.1) Small Car
  - (0.1.3) Features/Options
  - (0.1.4) Standardization
- (0.2) Product Value
- (0.3) Product Quality
- (0.4) Product Development Process
- (0.5) Warranties
- (0.6) Car Awards

### (1) Operations
- (1.1) Process
  - (1.1.1) Lean Production
  - (1.1.2) Manufacturing Process
  - (1.1.3) Manufacturing Quality
- (1.3) Facilities
  - (1.3.1) Sites
  - (1.3.2) Production Mix
  - (1.3.3) Capital Expenditures
  - (1.3.7) Fixed Costs And Production Flexibility
- (1.4) Costs
  - (1.4.1) Cost Issues
  - (1.4.5) Efficiency
  - (1.4.6) Productivity

### (2) Sales / Marketing
- (2.1) Sales Data
  - (2.1.2) North American Sales Data
  - (2.1.3) International Sales
- (2.4) Market Data
  - (2.4.1) Competition
  - (2.4.2) Consumer Preferences
  - (2.4.3) Consumer Acceptance
  - (2.4.4) Market Position
  - (2.4.5) Market Share
- (2.6) Marketing
  - (2.6.1) Advertisements, Rebates
  - (2.6.7) Guarantees, Service

### (3) Financial
- (3.1) Financial Performance
- (3.2) Dividend Information
- (3.3) Financial Activities

### (4) Labor
- (4.1) Union Conflict
- (4.2) Union Cooperation
- (4.6) Labor Costs
- (4.7) Quality Of Work Life
- (4.8) Employment-Pay

### (5) Strategy & Structure
- (5.1) General Strategy
- (5.2) Goals
- (5.3) Identity
- (5.5) Reorganization
- (5.6) Mergers/ Acquisitions
- (5.7) Alliances
- (5.8) Management Compensation
- (5.9) Management Changes

### (6) Conditions
- (6.1) Auto Industry Conditions
- (6.2) Auto Industry Projections
- (6.3) General Macroeconomic Conditions
- (6.4) Macroeconomic Projections

### (7) Non Auto Divisions/Initiatives
- (7.1) Real Estate
- (7.2) Financial Services
- (7.3) Parts
- (7.4) Defense-Aerospace
- (7.5) Diversified

### (8) Social And Political Issues
- (8.1) Affirmative Action
- (8.2) Consumer Issues
- (8.3) Economic Benefits
- (8.4) Energy
- (8.5) Industrial Policy
- (8.6) Pollution Control
- (8.7) Government Regulations (General)
- (8.8) Safety
- (8.9) Social Responsibilities
- (8.10) Workplace Safety
- (8.11) Pricing Fairness

### (9) Other Text
- (9.1) Introduction
- (9.2) Close
- (9.3) Confidence
- (9.4) Gratitude
- (9.5) General Company Performance
- (9.6) Motivation
- (9.9) Deaths

**Key:**
- Underlined items are analyzed as Mass Production indicators
- Italicized items are analyzed as Lean Production indicators
## APPENDIX B: AUTO INDUSTRY STUDY TIMELINE

(Source: *Automotive News* • *American Automobile Centennial commemorative* (June 26, 1996) The issue format was of the hundred most important stories in automotive history – number in parenthesis refers to story number)

<table>
<thead>
<tr>
<th>External events</th>
<th>Internal events</th>
</tr>
</thead>
<tbody>
<tr>
<td>65 Nader, <em>Unsafe at any speed; the designed-in dangers of the American automobile</em> (AN77)</td>
<td></td>
</tr>
<tr>
<td>66 Congressional Hearings into automotive safety; passes National Traffic and MV Safety Act (AN77)</td>
<td></td>
</tr>
<tr>
<td>67</td>
<td>Jan. First use of rebates (Chrysler) (AN80)</td>
</tr>
<tr>
<td>68</td>
<td>Toyota US sales surpass VW (AN81)</td>
</tr>
<tr>
<td>69</td>
<td>VW Builds plant in US (AN84)</td>
</tr>
<tr>
<td>70 Apr. 1st Earth day (AN78) Chevy convicted of “poisoning the air” Clean Air Act (AN78) Dec. signed by Nixon</td>
<td></td>
</tr>
<tr>
<td>71</td>
<td>Jan. Chrysler introduces fwd subcompacts (AN83)</td>
</tr>
<tr>
<td>72</td>
<td>VW Opens plant in US (AN84)</td>
</tr>
<tr>
<td>73 Muskie Senate Report v. critical on safety, pollution (AN78) Oct. 1st oil embargo (AN79)</td>
<td></td>
</tr>
<tr>
<td>74</td>
<td>Jan. Chrysler introduces fwd subcompacts (AN83)</td>
</tr>
<tr>
<td>75 Energy Policy &amp; Conservation Act - CAFE (AN82)</td>
<td>VW Opens plant in US (AN84)</td>
</tr>
<tr>
<td>76</td>
<td>July. Iacocca fired as Pres at Ford (AN85,87)</td>
</tr>
<tr>
<td>77</td>
<td>Dec? Iacocca hired as CEO at Chrysler (AN85)</td>
</tr>
<tr>
<td>78</td>
<td>Chrysler loses $205m (AN85)</td>
</tr>
<tr>
<td>79 Jan. 2nd oil embargo (AN86)</td>
<td>Spring. GM fwd X-cars (AN83)</td>
</tr>
<tr>
<td>80 Dec. US backs $1.5 bil in loans to Chrysler (AN85)</td>
<td>Caldwell promoted to CEO at Ford (AN87)</td>
</tr>
<tr>
<td>81 PBS Special: If Japan Can, Why Can't We? Hayes &amp; Wheelwright</td>
<td>Caldwell promoted to Chairman at Ford (AN87)</td>
</tr>
<tr>
<td>82 HP publishes systematci study on defect rates high in US, low in Japan (Fine says “really shook people up.”) Schonberger</td>
<td>Chrysler loses $1.7 bil. (AN85)</td>
</tr>
<tr>
<td>83 Chrysler repays fed loan guarantees 7 years early. (AN85) Sept. Saturn idea. (AN91) Nov. Chrysler Minivan (AN92) immediate hit.</td>
<td>Workers smash Mazda (picutre AN90)</td>
</tr>
<tr>
<td>84 IMVP Book</td>
<td>GM launches joint venture with Toyota (AN93)</td>
</tr>
<tr>
<td>85 GM reorganizes NA ops (AN93)</td>
<td>GM buys EDS (AN93)</td>
</tr>
<tr>
<td>86 Plaza accord (US, German, Japan) to bring down $$value (AN95) Off-the-boat imports crest. Transplants fill the gap (AN95)</td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>GM buys Hughes (AN93)</td>
</tr>
</tbody>
</table>
APPENDIX C. METHODOLOGICAL APPENDIX

First round of coding: grounded theory

This project began as true grounded theory (Glaser & Strauss 1967). I did the original coding in my first year as a Ph.D. student, knowing little about Organization theory, the auto industry, or research methods. I coded a few letters from the big three American auto companies from widely different years to establish preliminary coding categories and then went through first GM and then Chrysler chronologically so that I also got a sense of the history of the companies coding. Shortly after beginning, I decided to work with the paragraph as the basic unit of meaning. By attempting to understand why the authors had included the paragraph in the text, I was usually able to assign the text to a single category, but I retained the line as the basic unit of analysis so that long paragraphs would count for proportionally more than short ones in the quantification.

As I worked through the documents, I would first identify the key theme of the paragraph. Next I would categorize the theme on two or sometimes three levels of generality. The first level is a functional breakdown based on core subject areas at the two Management schools with which I am familiar (Sloan and Wharton): Operations, Finance, Marketing, Strategy, etc. The second and third level adds additional detail, associated with lean production (below) or other topics I found interesting. Early on, it became apparent that a large percentage of paragraphs were outside this taxonomy and I included other primary categories such as SOCIAL AND POLITICAL ISSUES and CONDITIONS. A sample from the first round of coding is included in Table C1 below. These data formed the basis for the Nud.ist categories.

Dealing with coder subjectivity (Methods I tried but Abandoned)

I was acutely concerned with potential subjectivity and bias problem. I variously considered developing explicit rules, using computers, “living with it”, and abandoning the project; but in the end, a human solution seems to have emerged.

Computer content analysis/ Explicit coding rules

Early in the project, I harbored hope of computer coding. I explained what I was trying to do to people at the Artificial Intelligence lab and they were encouraging, saying that there were systems that could do so much more, but that I’d have to invest some effort in applying some of these systems.
I considered two strategies – (1) counts of words and phrases or (2) actual computer thematic understand based on explicit rules.

Regarding Strategy (1): I had the thought that perhaps I could use my own subjective coding to develop hypotheses about specific words, phrases or word categories¹ that would not be subject to bias, i.e. word and phrase counts, word counts by type of word, etc. ... I subjected the documents to “analysis” by programs such as the Harvard III inquirer (Stone et. al. 1966)², which counts and categorizes words, but a brief empirical examination revealed no pattern in the results, nor could I theoretically come up with plausible hypotheses. I suspect that words have too many meanings, and are too dependent upon context to be very useful in this way.³

Regarding Strategy (2): despite grand ambitions and claims, these systems are nowhere close to even being able to understand words let alone paragraphs. As for developing my own explicit rules, this, too, seems an impossible task. The surprising adequacy of the vague human instructions (“Think about why the authors are including this.”), fortunately, led me to abandon this thought.

Ambiguity, Intelligence, Research and Understanding

In doing the coding, there are always ambiguities. These were frequently paralyzing for me, as I wanted to make sure everything was “right,” but confidence from both the intra- and inter-coder reliability results helped me to go on: the choice made may not be the only choice, but it is a reasonable choice.⁴ To the best of my abilities I have tried to code them as honestly as I could, trying to understand the point behind each entry. To the best of my knowledge, there is no reason to suspect systematic bias.

Table C1 is a portion of the spreadsheet I used in the first round of coding. Each datum in the database represents the central idea of a paragraph although occasionally two or more themes are extracted from a paragraph. The number that follows is the number of lines in the paragraph, my quantitative measure of attention. My assumption is that the percentage of lines in each category

¹ These were made explicit in my paper, A Proposed Empirical Study of Organizational Response to Loss in the Auto Industry." Draft Date: March 15, 1995
² The software has been updated twice since, hence Harvard III.
³ For example, I was looking for emotional content, but the Harvard III system of ascribing words such as pleased or gratitude as “emotional words” did not permit me to infer anger or any emotional content. I think that the pattern of word content revealed no patterns.
⁴ Surprisingly perhaps, Simon’s description of “rational” decision making as procedurally rational rather than outcome rational, comforted me in this regard.
represent a rough expression of how important management feels a particular topic is, and how much of their attention should be focused on it. Following that is a category and subcategory. Below are broad category compilations, followed by broad category breakdowns.

**Table C1: Sample from the original Attention Database**

<table>
<thead>
<tr>
<th>Theme</th>
<th>1963</th>
<th>Lines</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>New High Ground</td>
<td>4 FP/Sales/PR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worldwide sales</td>
<td>3 Sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earnings</td>
<td>5 Fin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Expansion</td>
<td>8 MEC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long Term Growth</td>
<td>5 MEC-Auto</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales Growth</td>
<td>5 Sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market trends</td>
<td>7 Mkt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non Auto</td>
<td>3 NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant Modernization</td>
<td>6 Mfr CE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexibility in mfr</td>
<td>8 Mfr Lean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>World Auto Markets</td>
<td>5 Mkt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New 1-liter cars</td>
<td>6 PD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overseas Expansion</td>
<td>2 Strgy World</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Car sales</td>
<td>4 Sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value of Long term agreements</td>
<td>6 Union</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Praise(plea) for labor</td>
<td>4 Emp Praise</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>81</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

**Category Summaries**

<table>
<thead>
<tr>
<th>Category</th>
<th>Lines</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mfr/Ops</td>
<td>14</td>
<td>17%</td>
</tr>
<tr>
<td>Sales/Marketing/Prod Dv/pmt</td>
<td>32</td>
<td>39%</td>
</tr>
<tr>
<td>Financial Performance</td>
<td>7</td>
<td>8%</td>
</tr>
<tr>
<td>Human Resources</td>
<td>11</td>
<td>14%</td>
</tr>
<tr>
<td>Strategy &amp; Structure</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Macroeconomic Conditions</td>
<td>13</td>
<td>16%</td>
</tr>
<tr>
<td>Non Auto</td>
<td>3</td>
<td>4%</td>
</tr>
<tr>
<td>Social Issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>81</td>
<td>100%</td>
</tr>
</tbody>
</table>

I've heard people criticize coding as grudge work, but this kind of coding most certainly is NOT. If anything, it's the opposite. Taxonomizing taxed all of my abilities and then some. It was simply too hard at times to try to make it work. Typically, one out of five paragraphs or so would not fit into the schema presently in use, and I repeatedly had to ask 'What am I trying to get at?', 'What is the author trying to get at?', 'What is the central essential theme?', and 'How does this compare with others in this category?'. It is hard work, for which my abilities were too limited. On the other hand, this seemed to be exactly the kind of work social scientists should be doing. A less interpretive process insufficiently utilizes our intelligence; a less rigorous process does not test impressions and does not allow us to relay with confidence that our interpretations are better than alternatives which can also be found in the data.
Intercoder Reliability

A first test of intercoder reliability produced disappointing results. The category choices of two undergraduates were more often different than the same as mine or each other. Poor reliability was perhaps to be expected; evidence summarized in Weber (1990:Ch. 2) shows that "it is more difficult to achieve intercoder reliability on large units, such as paragraphs than smaller units such as words" (p. 23), and that even for words it's not always that high. In this case, there were several obstacles to high intercoder reliability:

1. some paragraphs were badly written; they were not organized as coherent sets of thoughts.

2. the students did not read carefully enough. They frequently picked up on a single point rather than the paragraph context. It became clear that abstracting a central theme from a paragraph is no trivial task even when the authors seemed to me to have one.

3. They needed to understand better my taxonomy.

To overcome these obstacles, I:

1. dropped Ford, which seemed the worst written and for whom we had the lowest intercoder reliability.

2. worked only with the student with whom I had higher correlation, Don Lacey, and asked him to think about why the authors are including the paragraph, and practiced this exercise with him for ten paragraphs or so.

3. Spent some time with this student explaining my categories, providing examples of paragraphs and why I coded them as I did.

Surprisingly (to me at least), these fairly simple instructions worked, especially thinking about why the paragraph has been included. It seems at though even when we can't quite put into words why this was done (or even begin to write an algorithm), we can share an understanding with both the author and other careful readers.

We subsequently achieved broad category consensus in 81% of cases (39 out of 48 paragraphs), which was quite good because we restricted ourselves to one idea per paragraph. I was still in the process of defining the finer categories at the time (I still am). In the nine paragraphs of disagreement, we subsequently agreed in three cases to break up the paragraphs into two themes; he agreed with my point once we discussed it in three others; I agreed with him on one (and went back
to recode a few other similar paragraphs coded earlier). The other two were sort of toss-ups that could have gone either way.

Much of the difference came from a greater inclination on Don’s part to break up paragraphs.

Protocols

I did, however, add an extra line to each paragraph in the quantification for the blank line that usually precedes each paragraph. I did this for originally for two reasons: first, it more accurately reflects the total amount of space devoted to a topic in the letter; second, it gives some extra weight to the paragraph, recognizing that I found this the only reasonable way to assign text and that the authors felt it worthwhile to include a distinct paragraph. I kept this protocol when I scanned and recoded the data more systematically, because it made for easier legibility to keep the extra line between paragraphs and summing the total lines of text to 100% allowed me a simple check that each line was coded once and only once.

Companies Studied: GM and Chrysler

I had originally intended to analyze the three surviving American auto companies and possibly American Motors, but it turned out that two companies was a monumental effort (although subsequent ones may be far easier). There were two additional reasons to those mentioned in the text (variance and American focus) why I studied GM and Chrysler rather than Ford. These are that I found the Ford letters particularly poorly written. It was difficult to determine a central theme of each paragraph or even two themes and Ford reports fared worst on initial intercoder reliability tests. Additionally, I had to analyze General Motors’ letters because that case was central to the “loss” analogy that emerged from a preliminary review of the materials (Freeman, 1996). GM had been clearly the leader in the industry since the late ’50’s; part of that thesis is that, whereas Ford and Chrysler had long been accustomed to emulating GM practices, it was easier for them to then emulate practices from Japan.

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5 The best written letters are laccoca’s: Active voice, nouns and verbs, no obfuscation. It might be interesting to subject them to a grammar test. As an aside, Subramanian, et. al (1993) found that better performing companies wrote clearer letters (as measured by reading grade level). Both Swales (1986) and Euske and Matthews (1994) found explicitness predicts firm performance.
A strong product line, coupled with an aggressive program of sales and promotional activities throughout the year, enabled us to improve our share of the U.S. passenger car market. General Motors dealers delivered 54.7% of the North American-type passenger cars sold in the United States during 1967 compared with 51.8% in 1966. However, total industry sales in the fourth quarter of 1967 were affected by a major strike at another automobile manufacturer and by minor work stoppages.

While the year 1967 presented many problems, on balance it was one of progress for General Motors. Following the sharp decline in car sales in the first quarter, demand for cars and trucks increased as the year advanced. As a result of this trend and with the excellent public acceptance of our 1968 models, worldwide unit sales of 6,271,000 units in 1967 were the third highest in our history and 7% below the previous year. Dollar sales of $20.0 billion were also the third highest and only 15% below the 1965 level. This reflects the sale of more top-of-the-line cars and larger vehicles to a greater number of options and accessories. Sales of General Motors nonautomotive and defense products also continued at a high level during 1967.

The reduction in unit volume, together with increased labor and material costs affected profits. As a result net income of $1.66 billion or 9% below the previous year. Earnings per share of common stock for the year 1967 amounted to $5.86 compared with $6.24 in 1966. Dividends per share of common stock totaled $3.16 in 1967, or 67% of earnings per share. In 1966 dividends totaled $4.55 per share, or 73% of earnings per share of common stock.

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The market for cars and trucks in Canada has been marked by intense competition. To achieve the objectives of the U.S.-Canadian Automotive Trade Agreement, car lines with a low volume potential in Canada are being imported from the U.S., and Canadian production is being concentrated on products with a high volume potential for sale in Canada and export to the U.S. This has required a realignment of production facilities between the U.S. and Canada, which has been accomplished with relatively little dislocation but has necessitated substantial expenditures for expanded capacity.

Competition was keen in the overseas car and truck markets in 1967. This condition was intensified by the general slowing of the economic growth in most major overseas automotive markets. Industry production capacity exceeded the current demand for vehicles in most important overseas areas. Factory sales in 1967 of 1,087,000 units produced in General Motors plants overseas were 7% lower than in 1965.

Improvement in motor vehicle and traffic safety continues to be a major concern of General Motors. To this end we are cooperating fully with the Department of Transportation and other agencies of government in efforts to further improve vehicle safety, in addition to continuing our own independent research into this subject.

Our motor vehicles comply with all of the Federal Motor Vehicle Safety Standards which became effective January 1, 1968. Additional standards applicable to vehicles to be built beginning January 1, 1969 are now being developed by the National Highway Safety Bureau.

General Motors shares the growing national concern for cleaner air. We have been the leaders in research into these complex problems for many years and, efforts are continuing. As previously reported to the stockholders, General Motors’ 1968 passenger cars and light trucks have been certified as meeting Federal air pollution control standards. New, more stringent standards have been proposed for 1970 model automobiles, gasoline-powered heavy trucks and buses and diesel-powered vehicles.

On December 15, General Motors and the United Automobile Workers union reached an agreement on a new three-year national contract which was later ratified by the union. Similar agreements have since been reached with other unions representing General Motors hourly employees. These agreements were reached without a national strike and with a minimum of local labor disturbances.

The agreement with the UAW followed the general economic pattern of progress for General Motors. Following the sharp decline in car sales in the first quarter, demand for cars and trucks increased as the year advanced. As a result of this trend and with the excellent public acceptance of our 1968 models, worldwide unit sales of 6,271,000 units in 1967 were the third highest in our history and 7% below the previous year. Dollar sales of $20.0 billion were also the third highest and only 15% below the 1965 level. This reflects the sale of more top-of-the-line cars and larger vehicles to a greater number of options and accessories. Sales of General Motors nonautomotive and defense products also continued at a high level during 1967.

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set by agreements negotiated earlier at two major competitors and provides additional wage, pension and insurance benefits.

Following ratification of the national agreement, every effort was made to settle unresolved local issues. Toward the middle of January, 1968, it became apparent that differences existed at a number of locations. Some production time has been lost due to work stoppages over these local issues and at this writing many of these continue unresolved.

One significant change in the new national contract is the provision for a floor ceiling on the cost-of-living allowance. Further, the adjustment of the allowance will be made annually rather than quarterly as in the past. The contract also provides for a change in the representation system which will provide more committeeman time to handle local labor grievances and the grievance procedure was changed to enable grievances to be processed more expeditiously.

At the beginning of 1967, because of a possibility of strikes, General Motors initiated an inventory accumulation program for copper. As a result, together with recent purchases of copper which have been at premium prices, GM's U.S. and Canadian manufacturing operations have not been affected thus far even though most of the copper industry has been on strike since mid-July. A similar inventory accumulation program was initiated at the beginning of 1968, faith respect to steel.

Higher labor and material costs are exerting severe pressure on the general price level. At the same time the government has urged price restraint by all businessmen. In this connection, the record of stability of new car prices over the past nine years, as measured by the U.S. Bureau of Labor Statistics Auto mobile Wholesale Price Index, is noteworthy. For example, in December, 1967, this Index for new 1968 model cars was 99.9% of the 1957-99 base. This compares with an index of 102.4% in November, 1958 and represents a reduction of 2.5 points. The prices of General Motors 1968 model passenger cars were increased by an average of 4% effective January 1, 1968, after adjustment for product improvements, continued to be below the November, 1956 prices as reflected by the BLS Index.

GM's 1968 model passenger car prices were increased by an average of $104 over the 1967 model prices when introduced in late September. At that time it was stated that this increase reflected then current material prices and payroll costs based on the Corporation's August 29 wage offer to the unions. It also included two items-exhaust emission control devices and center seat belts-sold as optional equipment for $58 in 1967 but incorporated as standard equipment on all 1968 GM cars. Both items were added to meet government requirements. The increase also included a number of other new features incorporated in 1968 models as standard equipment, principally safety-related product improvements not available on 1957 models and several new anti-theft features.

Subsequently, agreement was reached with the unions resulting in substantially higher payroll costs. The prices of steel tires and some other materials used in our cars also were increased. In addition, effective January 1, 1968, all passenger cars except convertibles have been equipped with two front seat harnesses in order to meet one of the new safety standards. Despite the substantial increases in costs, list prices were increased on January 1, 1968, only by an average of $22, the list price of the shoulder harnesses on most models when optional equipment.

A review of the record shows that General Motors price increases have been minimal when considered in the light of higher costs, incorporation of new safety and exhaust emission equipment and other important product improvements which have further enhanced the market value of our cars and trucks.

Friederich G. Donner retired as Chairman and Chief Executive Officer effective November 2. We wish to recognize his able and vigorous leadership of General Motors over the past nine years and his many significant contributions to the Corporation's progress over nearly 42 years of devoted service. We are pleased that his valuable counsel and the benefit of his long experience will continue to be available to General Motors through his service as a member of the Board of Directors and the Finance Committee.

The results achieved in 1967 would not have been possible without the loyalty of our customers and the dedication of our employees, dealers and suppliers. To them we extend our sincere thanks for their contribution to the progress we have made during the past year.

We are optimistic about the future for our company and the industry. There is a basic and growing need for our products. We shall make the most of our opportunities.